FINAL
BASELINE REPORT 304J

BASELINE VEGETATION INVENTORY

OTTER CREEK COAL PROJECT

POWDER RIVER COUNTY, MONTANA

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1.0 INTRODUCTION

Otter Creek Coal, LLC intends to develop the Otter Creek Coal Project, a coal mine project in the Otter Creek watershed approximately six miles southeast of Ashland, Montana in Powder River County. In support of this project, WESTECH Environmental Services, Inc. (WESTECH) conducted a Baseline Vegetation Inventory within the area of the proposed development. The study area is shown on Figure 1 (section 6.0), including all or portions of Sections 3-4, 9-16, 22-26, 35 and 36 in T4S R45E. This inventory will be used to assist surface mine permitting and reclamation planning in accordance with laws and regulations administered by the Montana Department of Environmental Quality (MDEQ).

The study area climate is continental, having cold winters and warm summers with a growing season extending from April to September in most years (USDA Forest Service 1971). Weather data collected at the Sonnette 2WNW station (15 miles due east of the Tract 2 study area) was examined for the 30-year period 1971-2000 (NRCS 2012). The average annual temperature is 43.4 degrees Fahrenheit (F), ranging from a low of 19.6 degrees F in January to a high of 67.8 degrees F in July. During the growing season average temperatures range from 47 to 76 degrees F. Precipitation averages 14.9 inches annually, ranging from 0.4 inches in February to 2.6 inches in June, with the majority of annual precipitation occurring in May and June.

Geology of the area consists of dissected soft sandstones, siltstones and claystones in the Tongue River Member of the Fort Union Formation (Veseth and Montagne 1980). These landscapes contain a variety of features ranging from sandstone or scoria buttes and benches in the uplands to very deep, finely textured alluvial soils on lower slopes and floodplains. The dissected uplands contain a mixture of sedimentary materials, including claystone, siltstone and mudstone layers along with scattered shale and sandstone features.

The Plan of Study (POS) for this inventory was based on MDEQ's rules, regulations and guidelines, and WESTECH's experience in completing comprehensive baseline vegetation inventories for active and prospective coal projects of similar scope since the mid-1970s. The POS was designed to provide data suitable to describe existing vegetation/land use resources and ultimately form the basis for development of reasonable revegetation success criteria.

The baseline vegetation inventory addresses a thorough level of study in the Otter Creek Project area (Figure 1). In 2011, quantitative sampling was conducted in Tract 2, in or near all areas potentially affected by proposed initial operations; Tract 2 comprises approximately 12.2 square miles. Quantitative sampling of the 2.3 square-mile Facilities Area was conducted in 2012, in or near all areas proposed to be affected by ancillary mine facilities, including a railroad loop/loadout. Qualitative sampling, focused on vegetation and land use mapping, was conducted in Tracts 1 and 3, each comprising approximately nine square miles. Pending future project planning, Tracts 1 and 3 will be quantitatively sampled, and mapping will be refined accordingly.

The field inventory (quantitative sampling) of Tract 2 was conducted June 22-30, July 7-16 and August 20, 2011 by Ken Scow, Drake Barton, Steve Cooper, Joe Elliott, Peter Lesica, Ed Darfler and Kathy Lloyd. Data analysis and report preparation were conducted by Ken Scow and Nancy Horn, with computer graphics by Dan Culwell. Field work for the 2011 Baseline Wetlands/Waters of the U.S. Inventory was led by Dean Culwell, with the assistance of Dan Culwell, Ken Scow, Ed Darfler and Jessica Allewalt.

The field inventory of the Facilities Area was conducted July 2-7, 2012 by Ken Scow, Drake Barton, Steve Cooper, Ed Darfler and Kathy Lloyd. Data analysis and report preparation were conducted by Ken Scow and Nancy Horn, with computer graphics by Dan Culwell. Field work for the Facilities Baseline Wetlands/Waters of the U.S. Inventory was led by Dean Culwell, with the assistance of Lisa Larsen, John Beaver, Ken Scow, Ed Darfler, Jessica Allewalt and Peter Bugoni.

2.0 METHODOLOGY

2.1 MAPPING/COMMUNITY TYPE DELINEATION

Vegetation resources of the quantitative study area (Tract 2 and the Facilities Area) were preliminarily office-mapped in 2011 and 2012 by interpretation of color ortho-photos (1 inch = 500 feet scale), based on plant physiognomy and community types. Community type designations for final mapping are based on a combination of dominant plant species, topoedaphic features and disturbance/management history. The preliminary mapping of vegetation and land use (grazing land, pastureland, agricultural facilities, etc.) was checked in the field by pedestrian and vehicular surveys, later verified by analysis of quantitative data and digital photos obtained at each sample site, and modified as necessary. Derivation of the vegetation classification for the study area is explained in section 3.1 of this report.

2.2 SAMPLE LOCATION AND SAMPLE SIZE

The preliminary vegetation map indicated the general delineation and distribution of physiognomic types and subtypes in the study area. A 100-foot grid was overlaid on the preliminary study area map to select sample sites using a stratified random procedure based on projected sample size for each physiognomic type and subtype. To ensure an even (yet stratified random) distribution of sample plots throughout narrow portions of Drainage Bottom mapping units, plot sites were sometimes selected where grid lines intersect drainage bottoms because grid points often do not fall within these narrow units. Sample sites were located in the field using the aerial photo-map and hand-held GPS units. Sample sites are shown on Plate 1.

Sample size varied by physiognomic type according to the variability and relative areal extent of each type, with more extensive types receiving proportionately more plots. Sample size was based on professional judgment, with the intent of the baseline study to quantitatively characterize vegetation ecology within the study area and show variability within the availability of sample sites. Many plant communities, particularly certain drainage bottom types, are not only relatively limited in areal extent, but exhibit quite a range in weedy composition owing to disturbance history (concentrated cattle use or proximity to Tame Pasture) and annually/seasonally fluctuating hydrologic conditions.

Sampling intensity among vegetation types was adjusted following pedestrian surveys and mapping refinements to allow a more confident prediction of satisfactory sample sizes and plot distribution.

2.3 QUANTITATIVE INVENTORY

Sampling of vegetation physiognomic types was conducted as described below for each component. Quantitative data were collected during the 2011 growing season June 22-30, July 7-16 and August 20. During 2012, data were collected July 2-7.

Plot dimensions at each sample site are listed below for each principal sample parameter:

- estimation of canopy cover was made on a 0.01-acre circular plot centered on each randomly selected point;

- shrub density was estimated by recording all live individuals by species and age class in a 2 x 20-meter belt transect centered on each sample point;

- tree density was estimated by recording all live individuals by species and diameter at breast height (dbh) class in a 0.1-acre circular plot centered on each point.

A digital color photograph (oblique) was taken at each sample site.

2.3.1 Canopy Cover

On each sample field form, location was recorded along with date, personnel, percent slope, aspect, topography and slope configuration. Each non-forested plot was also identified as to its occurrence in either a grassland (less than approximately 10 to 15 percent shrub cover) or shrub/grassland stand. The 10 to 15 percent shrub cover threshold was determined for the overall mapping unit in which the cover plot was located, and did not necessarily reflect the shrub cover value estimated for the plot itself. The reason for this distinction in the field is that, for example, a grassland site may contain widely scattered shrubs or small clumps of shrubs, and a randomly located sample plot may happen to fall in such a site; although substantial shrub cover may be recorded for the plot, it should be shown to occur in a grassland mapping unit, and the data should be tabulated accordingly. Conversely, a random plot may fall in a relatively small opening with sparse shrub density in a stand otherwise clearly dominated by shrubs; although the plot may show scant shrub cover, it should be mapped in a shrub/grassland mapping unit and the data treated accordingly. With sufficient sample size, the natural range in variation of sample parameters (cover and shrub density) can be properly recorded and compared between the two physiognomic types. Similarly, each drainage bottom plot was identified as to its occurrence in a specific physiognomic type/subtype (*e.g.* Tall Shrub or Low Shrub, *etc.)* determined by the overall map unit setting in which it was located.

In each 0.01-acre cover plot (11.8-foot radius), an ocular estimate was made of percent cover for ground cover classes, including bare ground, rock, litter, lichens, moss and basal vegetation to total 100 percent. Nonstratified canopy cover was estimated to the nearest percent in each plot for total live vascular plant cover, for each morphological (i.e., functional) class category (tree, shrub, perennial graminoid, annual graminoid, perennial forb and annual/biennial forb), and for each vascular plant species. Ocular estimates of tree cover were made by walking around the plot and estimating the extent of tree canopy extending within a vertical projection of the plot perimeter.

Cover data are tabulated in the report by plot, and summarized by both community type and physiognomic type. Using these data, stratified cover values and relative cover values were generated to evaluate composition and diversity.

2.3.2 Productivity

Predicted average yield data for grazing lands, pastureland and hay cropland in the study area were obtained from the *Powder River County Soil Survey,* the USDA Natural Resources Conservation Service (NRCS) website, and applicable NRCS publications. Yield data were directly correlated with ecological site and soils information derived from these sources and the Otter Creek baseline soils and vegetation inventories.

2.3.3 Shrub Density

Densities were determined for each shrub species by counting the number of live individuals rooted within a 2 x 20-meter belt transect centered on each sample point. Individuals were recorded as healthy (immature to mature) or decadent. Belt transects were aligned along the contour on slopes; on drainage bottoms, belt transects were aligned with the general direction of the drainage.

2.3.4 Tree Density

Tree density was recorded in a 0.1-acre circular plot (37.2-foot radius) centered on each sample point; in narrow drainage bottoms, tree density was recorded in a 4 x 25-meter belt transect centered on each sample point and aligned with the direction of drainage. Live trees greater than 6 inches tall were counted in each plot by species for the following diameter-at-breast-height (dbh) classes: less than 1-inch dbh, 1- to 4-inch dbh, 4- to 8-inch dbh, 8- to 12-inch dbh, 12- to 16-inch dbh, *etc*. For trees forking less than 4.5 feet above the base (ground level), the dbh of each stem was measured at 3.5 feet above the first indication of the fork (Avery 1967). The 0.1-acre plot and belt transect perimeters were measured with a fiberglass tape and marked with pin-flags prior to inventory.

2.3.5 Species Composition and Diversity

Species composition, origin, utility, seasonality and diversity parameters are inherently determined for each vegetation type using cover data. Species diversity was evaluated by determining the average number of vascular plant species per 0.01-acre plot in each community and physiognomic type. Species nomenclature and functional groups follow USDA Forest Service (1987) and, as volumes are published, Flora of North America Editorial Committee (1993+).

2.3.6 Species List/Sensitive Plants/Noxious Weeds

All vascular plant species encountered in the quantitative study area were recorded and a comprehensive list was compiled. This involved thorough searches and seasonal investigations during spring and summer months (May to September), including quantitative sampling, and qualitative and mapping surveys. Particular attention was given to the search for sensitive plant species, including taxa currently listed as rare, threatened or endangered by the Montana Natural Heritage Program (MTNHP), new Montana records, and taxa which may represent significant extensions of distribution records.

Federally-listed Threatened and Endangered (T&E) plant species were not encountered. Any state-listed (MTNHP) sensitive plant species encountered were recorded by location, population size and ecology using standard MTNHP procedures.

Taxa not readily identified in the field were collected and identified in the laboratory using a stereozoom binocular scope and taxonomic references including (but not limited to) Hitchcock *et al.* (1955-1969), Hitchcock and Cronquist (1973), Dorn (1984 and 2001), Great Plains Flora Association (1977 and 1986), Cronquist *et al.* (1972-2008), Flora of North America Editorial Committee (1993+), Gleason and Cronquist (1991), Holmgren (1998), Kartesz (1994) and Bailey (1949). Nomenclature of vascular plant species primarily follows USDA Forest Service (1987).

Noxious weeds listed by the Montana County Weed Control Act or Powder River County were qualitatively assessed for distribution and abundance, as well as quantitatively sampled on cover estimation plots.

2.3.7 Ecological Condition and Utility Evaluation

Ecological sites were identified and mapped using the baseline soils inventory of the study area, as well as existing NRCS county soil survey information. Ecological condition was then assessed from baseline plant species composition data in conjunction with ecological site identification, using NRCS (2003 and 2006) guidelines. Response to grazing (decreaser, increaser or invader) and recommended stocking rates (AUM/acre) were determined using NRCS technical guides. Carrying capacity of grazing land in current condition can then be calculated based on computer-generated study area acreages.

2.3.8 Delineation of Hydrophytic Vegetation

Areas within the study area supporting hydrophytic vegetation were sampled concurrently with the baseline inventory, and were generally delineated on the vegetation map. These data were used to assist in completing (in conjunction with assessments of hydric soils and wetland hydrology) the baseline wetlands inventory and delineation for the study area, a more detailed examination and sub-meter (GPS) delineation of wetland vegetation community types. Wetlands mapping was incorporated into the vegetation community type map (Plate 1).

Wetlands in the study area are often associated with relatively small hillside seeps and aprons, or narrow streamside fringes. Such sites are generally missed by the stratified random procedure used to select vegetation sample sites, whereas these sites are specifically targeted for identification and delineation during the baseline wetland inventory. Accordingly, selected wetland cover/composition data were drawn from the wetland inventory to supplement the vegetation baseline database.

3.0 RESULTS

3.1 VEGETATION CLASSIFICATION

The Otter Creek vegetation classification was based generally on Culwell *et al.* (1987), a classification of Montana vegetation types developed statewide for the Montana Natural Heritage Program (MTNHP). The Otter Creek classification was more specifically based on comparisons with the results of various eastern Montana and regional baseline inventories conducted during the past 35 years in the region, cited and summarized in Appendix J. This includes an earlier baseline inventory conducted in the Montco study area eight miles west of the Otter Creek study area, flanking the east side of the Tongue River (Olson-Elliott and Associates 1980).

A community type classification was used to delineate vegetation mapping units in the study area. Vegetation community types were defined by, and named for, dominant and codominant plant species. These species, and their most common associates in the Otter Creek study area, are discussed in the following narrative by scientific name and listed below by common name. A complete list of all vascular plant species recorded in the study area is given in Appendix A. The species selected for listing below include 109 of the most conspicuous taxa (41 grasses and sedges, 49 forbs and subshrubs, and 19 shrubs and trees) out of a total of 380 vascular plant species identified within the Otter Creek baseline study area.

Dominant Plant Species in the Otter Creek Baseline Study Area, 2011-2012.

BINOMIAL	COMMON NAME
GRASSES and SEDGES	
Agropyron cristatum	Crested wheatgrass
Agropyron dasystachyum	Thickspike wheatgrass
Agropyron elongatum	Tall wheatgrass
Agropyron repens	Quackgrass
Agropyron smithii	Western wheatgrass
Agropyron spicatum	Bluebunch wheatgrass
Andropogon gerardii	Big bluestem
Andropogon scoparius	Little bluestem
Aristida longiseta	Red threeawn
Bouteloua curtipendula	Sideoat grama
Bouteloua gracilis	Blue grama
Bromus inermis	Smooth brome
Bromus japonicus	Japanese brome
Bromus tectorum	Cheatgrass brome
Calamovilfa longifolia	Prairie sandreed
Carex filifolia	Threadleaf sedge
Carex heliophila	Sun sedge
Distichlis stricta	Alkali saltgrass
Eleocharis palustris	Common spikesedge
Festuca arundinacea	Reed fescue
Festuca idahoensis	Idaho fescue
Hordeum jubatum	Foxtail barley
Juncus torreyi	Torrey's rush
Koeleria cristata	Prairie junegrass

BINOMIAL	COMMON NAME
Muhlenbergia cuspidata	Plains muhly
Oryzopsis hymenoides	Indian ricegrass
Oryzopsis micrantha	Littleseed ricegrass
Panicum virgatum	Switchgrass
Poa glaucifolia	Pale-leaf bluegrass
Poa pratensis	Kentucky bluegrass
Poa sandbergii	Sandberg's bluegrass
Puccinellia nuttalliana	Nuttall's alkaligrass
Scirpus acutus	Hardstem bulrush
Scirpus americanus	American bulrush
Scirpus maritimus	Alkali bulrush
Scirpus validus	Softstem bulrush
Spartina gracilis	Alkali cordgrass
Spartina pectinata	Prairie cordgrass
Sporobolus airoides	Alkali sacaton
Stipa comata	Needle-and-thread
Stipa viridula	Green needlegrass
FORBS AND SUBSHRUBS	
Achillea millefolium	Common yarrow
Ambrosia psilostachya	Western ragweed
Antennaria parvifolia	Littleleaf pussytoes
Apocynum cannabinum	Hemp dogbane
Artemisia dracunculus	False-tarragon sagewort
Artemisia frigida	Fringed sagewort
Artemisia ludoviciana	Cudweed sagewort

BINOMIAL	COMMON NAME
FORBS AND SUBSHRUBS (continued)	
Aster falcatus	Creeping white prairie aster
Aster hesperius	Siskiyou aster
Aster oblongifolius	Aromatic aster
Aster pansus	Heath-leaved aster
Astragalus adsurgens	Prairie milkvetch
Astragalus agrestis	Field milkvetch
Astragalus spatulatus	Tufted milkvetch
Atriplex heterosperma	Two-seed orache
Cerastium arvense	Field chickweed
Chenopodium rubrum	Red goosefoot
Cirsium arvense	Canada thistle
Cirsium undulatum	Wavyleaf thistle
Dalea candida	White prairie-clover
Echinacea angustifolia	Purple coneflower
Eriogonum pauciflorum	Few-flowered buckwheat
Filago arvensis	Field filago
Gaura coccinea	Scarlet gaura
Grindelia squarrosa	Curlycup gumweed
Gutierrezia sarothrae	Broom snakeweed
Helianthus maximilianii	Maximilian's sunflower
Lactuca oblongifolia	Chicory lettuce
Medicago lupulina	Black medic
Medicago sativa	Alfalfa
Melilotus officinalis	Yellow sweetclover
Oxytropis lambertii	Purple locoweed
Phlox hoodii	Hood's phlox
Plantago patagonica	Woolly plantain
Polygala alba	White milkwort
Potamogeton pectinatus	Fennel-leaf pondweed
Psoralea argophylla	Silverleaf scurfpea
Ratibida columnifera	Prairie coneflower

BINOMIAL	COMMON NAME
Rumex crispus	Curl dock
Sisymbrium loeselii	Loesel tumblemustard
Solidago rigida	Stiff goldenrod
Sphaeralcea coccinea	Scarlet globemallow
Taraxacum laevigatum	Smooth dandelion
Thermopsis rhombifolia	Round-leaved thermopsis
Thlaspi arvense	Fanweed
Toxicodendron rydbergii	Poison ivy
Tragopogon dubius	Common salsify
Typha latifolia	Common cattail
Yucca glauca	Soapwell yucca
SHRUBS and TREES	
Acer negundo	Boxelder
Artemisia cana	Silver sagebrush
Artemisia tridentata	Big sagebrush
Atriplex confertifolia	Shadscale saltbush
Chrysothamnus nauseosus	Rubber rabbitbrush
Fraxinus pennsylvanica	Green ash
Juniperus horizontalis	Creeping juniper
Juniperus scopulorum	Rocky Mountain juniper
Pinus ponderosa	Ponderosa pine
Populus deltoides	Plains cottonwood
Prunus virginiana	Common chokecherry
Rhus aromatica	Skunkbush sumac
Ribes aureum	Golden currant
Ribes setosum	Bristly gooseberry
Rosa woodsii	Wood's rose
Salix amygdaloides	Peachleaf willow
Salix exigua	Sandbar willow
Sarcobatus vermiculatus	Black greasewood
Symphoricarpos occidentalis	Western snowberry

Nomenclature follows USDA Forest Service (1987). Some common names were taken from Beetle (1970).

Table 1 (section 5.0) lists community types for each physiognomic type sampled in the Otter Creek baseline study area during the 2011/2012 inventories. Vegetation types were mapped (Plate 1) by community type where practicable, however were occasionally mapped according to series rather than community type where dominant species varied so greatly at small-scale that a community-level mapping delineation would be impractical.

Vegetation community types were grouped into six primary physiognomic types based on plant structure in relation to topography and land use practices, including Grassland, Tame Pasture, Shrub/Grassland, Breaks (Grass-Dominated, Shrub-Dominated and Conifer-Dominated Breaks), Pine-Juniper Forest and Savannah, and Drainage Bottom (Herbaceous, Low Shrub, Tall Shrub and Deciduous Tree Bottoms).

There were twelve Grassland community types identified in five series including the *Agropyron smithii* (western wheatgrass), *Stipa comata* (needle-and-thread), *Agropyron spicatum* (bluebunch wheatgrass), *Andropogon scoparius* (little bluestem) and *Calamovilfa longifolia* (prairie sandreed) series. A Tame Pasture type was also identified, divided between developed Hay Cropland and grazed (often go-back) tame Pastureland.

Four upland Shrub/Grassland community types were sampled in two series, dominated by *Artemisia cana* (silver sagebrush) or *Artemisia tridentata* (big sagebrush). Understories were dominated variously by *Agropyron smithii, Agropyron spicatum* and *Andropogon scoparius.*

Breaks communities are those associated with broken, dissected "badlands" topography that is commonly moderately steep to very steep, and often sparsely to very sparsely vegetated. In the study area, it is convenient to group Breaks community types into three physiognomic subtypes defined by the dominant grass, shrub or conifer tree species. Four Grass-Dominated Breaks communities are defined by *Agropyron smithii, Agropyron spicatum, Sporobolus airoides* (alkali sacaton), or *Calamovilfa longifolia.* Seven Shrub-Dominated Breaks types are indicated by various associations of *Artemisia tridentata, Sarcobatus vermiculatus* (black greasewood), *Chrysothamnus nauseosus* (rubber rabbitbrush), *Rhus aromatica* (skunkbush sumac) and *Atriplex confertifolia* (shadscale saltbush), with *Agropyron spicatum* (occasionally *Agropyron smithii)* dominating the understory. Five Conifer-Dominated Breaks types are defined by scattered *Pinus ponderosa (*ponderosa pine*)* and *Juniperus scopulorum* (Rocky Mountain juniper) over an understory of *Agropyron spicatum, Andropogon scoparius, Artemisia tridentata* and/or *Atriplex confertifolia.* These sites are compositionally intermediate between sparsely vegetated stands representing big sagebrush/grassland types and pine-juniper savannah types.

There were six *Pinus ponderosa-Juniperus scopulorum* Forest and Savannah community types identified, including four *Pinus ponderosa-Juniperus scopulorum/*Grass communities, with *Agropyron spicatum, Oryzopsis micrantha* (littleseed ricegrass), *Festuca idahoensis* (Idaho fescue) or *Andropogon scoparius* dominant in the understory, and two *Pinus ponderosa-Juniperus scopulorum/*Shrub communities with *Symphoricarpos occidentalis* (western snowberry) or *Prunus virginiana* (common chokecherry) dominant in the understory.

Four primary Drainage Bottom types were classified according to physiognomic type, including Herbaceous, Low Shrub, Tall Shrub and Deciduous Tree. The Herbaceous Bottom type is comprised of eighteen mesophytic/hydrophytic community types representing eight series dominated by various associations of *Distichlis stricta* (alkali saltgrass), *Sporobolus airoides* (alkali sacaton), *Spartina gracilis* (alkali cordgrass), *Spartina pectinata (*prairie cordgrass*), Scirpus maritimus* (alkali bulrush), *Eleocharis palustris* (common spikesedge), *Typha latifolia* (common cattail), and *Scirpus acutus-Scirpus validus* (hardstem and softstem bulrushes). The Low Shrub Bottom type includes four mesophytic shrub community types in one series with *Symphoricarpos occidentalis, Artemisia cana* and *Rosa woodsii* (Wood's rose) generally the dominant shrubs, and *Agropyron smithii* and *Poa pratensis* (Kentucky bluegrass) dominant in the understory. The Tall Shrub Bottom type (very minor in the study area) was represented by two mesophytic community types in two series, *Prunus virginiana* and *Salix exigua* (sandbar willow). Deciduous Tree Bottom was comprised of three mesophytic series, including nine

Populus deltoides (plains cottonwood) community types, three *Acer negundo* (boxelder) community types and one *Fraxinus pennsylvanica* (green ash) community.

The diversity of community types in the inventory area is largely representative of other study areas in eastern Montana, as shown in the literature review tables in Appendix J. All community types identified in this study have been documented in previous studies in the region under the same or similar type names, as reviewed and summarized from published literature and unpublished technical reports by Culwell *et al.* (1987) and this updated review.

In the present classification, community types are named according to the following convention:

- a slash (/) indicates a separation of species dominating one or more strata, namely the herbaceous, shrub and/or tree layers.
- a hyphen (-) indicates species dominating the same stratum (understory, middle story or overstory) either or both of which may be dominant or codominant at a given sample site.

Although vegetation resources in the Otter Creek study area are classified for this report into community types, some sample plots do not directly reflect species dominance of the type name. These stands are usually intermediate between two types, and are grouped with the type most similar in species composition and/or site parameters. Generally, increaser species, even though they are often dominant in many areas, are not given priority for the perceived climax type names. Most increaser grass species, with the notable exceptions of *Stipa comata, Agropyron smithii* and *Poa sandbergii* (Sandberg's bluegrass), are disregarded in climax (habitat) type nomenclature due to perception of historic grazing influence in conjunction with soil parameters (following the philosophy presented in pertinent USDA publications, *e.g*. Mueggler and Stewart (1980), Pfister *et al*. (1977), and Cooper and Pfister (1984)).

3.2 COMMUNITY TYPE DESCRIPTIONS

Following is a narrative description of community types identified for the Otter Creek Tract 2 and Facilities Area baseline vegetation inventory. All summary tables are presented in Section 5.0. Table 1 identifies plot numbers and sample size by community type (see Plate 1 for plot locations). Summary data are presented for cover/constancy in Tables 2 through 12, shrub density (Tables 13 through 22), tree density (Tables 23 through 31), ecological site/soils correlations (Table 32), vegetation/soils correlations (Table 33), and vegetation/ecological site correlations (Table 34). Summaries of ecological site condition calculations are given in Table 35, rangeland productivity and forage (Table 36), rangeland stocking rates (Table 37), pastureland productivity and yield (Table 38), plant species of concern (Table 39), species diversity (Table 40) and acreage of vegetation types (Table 41). A study area location Figure is presented in section 6.0.

The summary tables listed above are derived from the 2011/2012 quantitative data presented **by sample site** in the appendices in section 7.0, including cover and constancy (Appendices B and G for the respective years), shrub density (Appendices C and H), tree density (Appendices D and J), and ecological

site/soils correlations (Appendices E and K). Calculations of ecological site condition (similarity index) are presented by community type in Appendices F and L for the 2011 and 2012 data sets, respectively. Appendix M presents a summary of site parameters by community type, and Appendix N summarizes a review of current literature concerning regional plant communities, providing context for the Otter Creek community type classification.

For data parameters such as cover/constancy and woody plant density, a weighted mean is given for all communities composited within each physiognomic type. The physiognomic type means are not meant to be viewed as an ecological presentation, but can be used to facilitate practical comparisons with any future revegetation efforts on-site (*i.e.*, reclamation planning and development of bond release success standards).

The following community type descriptions are arranged for each physiognomic type to generally follow a gradient of site parameters, particularly soil texture (apparent water-holding capacity), topographic position and aspect (slope exposure). Departures from this arrangement are intended to account for variations in species dominance arising from a site's susceptibility to various disturbances, particularly grazing history, logging history and agriculture.

3.2.1 Grassland

Upland herbaceous communities or "grasslands" were identified according to two principal categories:

- Native Grassland (2745 acres, or 30 percent of the study area) that is completely dominated by native grass (and forb) species with minor, adventitious occurrences of introduced (exotic) species.

- Tame Pasture (1585 acres, or 17 percent of the study area) is land that has been seeded or interseeded with introduced (exotic) species (Hay Cropland and Pastureland), primarily *Agropyron cristatum* (crested wheatgrass), *Bromus inermis* (smooth brome), *Medicago sativa* (alfalfa) and *Agropyron repens* (quackgrass) in the study area. Tame Pasture definitions are explained in section 3.2.2.

There were twelve Native Grassland communities identified in five series during the 2011-2012 inventory, comprising 2745 acres or 30 percent of total study area acreage. The five Grassland series were dominated by *Agropyron smithii* (two community types totaling 53 percent of Grassland acreage), *Stipa comata* (two communities, 21 percent), *Agropyron spicatum* (two communities, 9 percent), *Andropogon scoparius* (five communities, 15 percent) or *Calamovilfa longifolia* (one community, 2 percent).

The relative abundance of Grassland community types in the Otter Creek baseline study area is listed below:

GRASSLAND COMMUNITY TYPE	PERCENTAGE OF GRASSLAND ACREAGE	PERCENTAGE OF STUDY AREA ACREAGE
Agropyron smithii / Bouteloua gracilis	9	3
Agropyron smithii / Stipa viridula	44	13
Stipa comata / Agropyron smithii	16	5
Stipa comata / Carex filifolia	5	2
Agropyron spicatum / Stipa comata	3	1
Agropyron spicatum / Bouteloua curtipendula	5	2
Andropogon scoparius / Carex filifolia	<1	<1
Andropogon scoparius / Agropyron spicatum	6	2
Andropogon scoparius / Bouteloua curtipendula	6	2
Andropogon scoparius / Andropogon gerardii	<1	<1
Andropogon scoparius / Calamovilfa longifolia	3	<1
Calamovilfa longifolia / Stipa comata	2	<1

Grassland cover and constancy data are presented by sample site (plot) in Appendix Tables B1 through B8 (2011 data) and Appendix Tables G1 through G4 (2012 data), and summarized by community type in Table 2. Shrub density data are given by plot in Appendix Tables C1 through C8 (2011 data) and Appendix Tables H1 through H4 (2012 data), and summarized for Grassland community types in

Table 13. Tree density data are presented by plot in Appendix Tables D1 and J1, and summarized by Grassland community type in Table 23.

A correlation of soils mapping units, ecological sites and community types is listed by plot in Appendix E (2011 data) and Appendix K (2012 data), and summarized by parameter in Tables 32 through 34. Calculations of ecological site condition (similarity index determinations) are presented by Grassland community type in Appendix Tables F1 and L1 (2011 and 2012), and summarized for all community types in Table 35; condition data were used to determine rangeland productivity values for each community type (using NRCS stocking rate guides) as shown in Table 36 and rangeland stocking rates in Table 37.

Plant species of concern listed by MTNHP (2012) for Powder River and Rosebud Counties are summarized in Table 39. Grassland species diversity is given by functional class in Table 40. Appendix M provides a synopsis of important site parameters (topographical position, slope gradient and slope aspect) recorded for Grassland communities. A literature review of eastern Montana Grassland communities is synthesized in Appendix Table N1. Acreage of vegetation types is given in Table 41. All vegetation sample site locations are shown on the community type map (Plate 1).

A number of Grassland sites are associated with current and recent prairie dog colonies (plot numbers marked with an asterisk in Table 1). Prairie dogs conspicuously impact vegetation ecology in substantial portions of the study area, primarily in Grassland (and occasionally in Tame Pasture), significantly affecting plant composition and diversity in the vicinity of their colonies.

Grassland community types were sampled on a wide variety of soils (fine to coarse soil texture), low to high topographical positions, and aspects (warm southerly to cool northerly). The *Agropyron smithii* series was most commonly found on silty clay loam and silt loam soils associated with the clayey, silty and shallow clay ecological sites. The *Stipa comata* series was primarily associated with slaty loam and silt loam soils in the very shallow and silty ecological sites. The *Agropyron spicatum* series was found on a complex of soil textures, including shallow loams, silt loams and very shallow slaty loams representing the corresponding ecological sites. The *Andropogon scoparius* series was primarily associated with slaty loam, shallow loam and silty clay loam soils in the very shallow, shallow and shallow clay ecological sites. The *Calamovilfa longifolia* series occurred on slaty loams and, occasionally, silt loam soils in the very shallow and silty ecological sites.

Using NRCS guidelines, Grassland in the Otter Creek study area is in low good condition (about 55 percent), ranging among predominant ecological sites from high fair in the very shallow site to low good in the silty site and mid-good in the shallow, clayey and shallow clay sites. This translates, again using NRCS guidelines, to an expected total annual production of approximately 1180 pounds per acre for Grassland in current condition in the study area overall.

In the following text, Grassland community types are arranged approximately in order of finer to coarser soil texture, and lower to higher topographical position.

Agropyron smithii/Bouteloua gracilis

The *Agropyron smithii/Bouteloua gracilis* community type is relatively abundant, occupying 260 acres (3 percent) of the Otter Creek study area. A total of 15 plots were sampled, primarily on midslopes, also lower benches and lower slopes of gentle (2-8 percent) slope gradient. Aspect was variable. The predominant ecological sites were silty, saline lowland and shallow, associated with the Fort Collins-Delpoint silt loams, McRae silt loam-Saline and Blacksheep-Cabba-Cabbart Complex soils. More than half (60 percent) of the randomly located sample sites were associated with prairie dog colonies, by far the most commonly associated community in the study area. The *Agropyron smithii/Bouteloua gracilis* type is frequently reported in eastern Montana vegetation studies, normally as a topo-edaphic community in association with sustained, long-term grazing pressure. In the Otter Creek study area, this community is primarily biotically induced by sustained prairie dog activity, apparently a disclimax stage of the *Agropyron smithii/Stipa viridula* community type.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

Agropyron smithii/Bouteloua gracilis
n=15

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	67	Perennial	9	Shrub	<1
Annual	9	Annual/Biennial	8	Tree	-
Agropyron smithii	46	*Taraxacum laevigatum*	4		
Bouteloua gracilis	12	*Filago arvensis*	3		
Bromus tectorum	5	*Sphaeralcea coccinea*	1		
Bromus japonicus	4	*Picradeniopsis oppositifolia*	1		
Poa sandbergii	2	*Melilotus officinalis*	1		
Agropyron cristatum	2	*Conyza canadensis*	<1		
Koeleria cristata	1				
Poa bulbosa	1				

Shrub density averaged 162 live stems per acre, of which 54 percent was *Artemisia cana*, 33 percent was *Ceratoides lanata* and 8 percent was *Artemisia tridentata.* No trees occurred in the fifteen 0.1-acre density plots.

Similarity index (range condition) of this mapping unit was 35 percent (fair) within the baseline study area, using 2011-2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined representative values for total production in the silty, shallow and saline lowland ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Agropyron smithii/ Bouteloua gracilis* community type can be expected to produce 874 pounds per acre (61 percent cattle forage) overall.

Agropyron smithii/Stipa viridula

The *Agropyron smithii/Stipa viridula* community type is by far the most abundant grassland community, occupying 1194 acres (13 percent) of the Otter Creek study area. A total of 77 plots were sampled, occurring on most topographical positions from drainage bottoms, toeslopes and swales to middle and upper slopes. Slope gradients were almost exclusively gentle (2 - 10 percent), seldom moderate (11 - 25 percent). Aspect was variable, with 86 percent of sample sites exposed westerly and northerly, and only 14 percent on east to south aspects. The predominant ecological sites were silty, clayey and shallow clay, associated with the Fort Collins-Delpoint silt loams, Haverson silty clay, McRae silt loam, Hydro-Hesper silty clay loams and Midway-Delpoint silty clay loams soils.

Two phases of the *Agropyron smithii/Stipa viridula* community were evident in the study area, reflecting past livestock grazing intensity in conjunction with site parameters, particularly those determining available moisture. The more mesic sites, including swales, toeslopes and lower slopes, normally represented a *Poa pratensis* phase of *Agropyron smithii/Stipa viridula* (approximately 42 percent of sample sites), while less mesic sites on midslopes and upper slopes commonly represented a *Bouteloua gracilis* phase (approximately 39 percent of samples). Most of the remaining *Agropyron smithii/Stipa viridula* samples were in either a *Stipa comata* phase (6 percent of the 77 sites), or a degraded sere where invader or persistent increaser species were conspicuous, including *Agropyron cristatum, Aristida longiseta, Schedonnardus paniculatus, Koeleria cristata* and/or *Poa sandbergii.* Of the 77 sample sites, seven sites (9 percent) were associated with prairie dog colonies.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

Agropyron smithii/Stipa viridula
n=77

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	76	Perennial	16	Shrub	3
Annual	7	Annual/Biennial	12	Tree	-
Agropyron smithii	36	*Melilotus officinalis*	7	*Artemisia tridentata*	1
Stipa viridula	15	*Taraxacum laevigatum*	4	*Artemisia cana*	<1
Poa pratensis	10	*Medicago lupulina*	2		
Bromus japonicus	6	*Psoralea argophylla*	2		
Bouteloua gracilis	6	*Aster falcatus*	1		
Stipa comata	3	*Gutierrezia sarothrae*	1		
Koeleria cristata	1	*Achillea millefolium*	<1		
Aristida longiseta	1	*Artemisia ludoviciana*	<1		
Agropyron cristatum	1	*Sphaeralcea coccinea*	<1		

Shrub density averaged 1414 live stems per acre, of which 54 percent was *Rosa arkansana,* 12 percent *Rosa woodsii,* 11 percent *Artemisia tridentata,* 9 percent *Symphoricarpos occidentalis* and 9 percent was *Artemisia cana.* Tree density was negligible in the *Agropyron smithii/ Stipa viridula* community.

Similarity index (range condition) of this mapping unit was 62 percent (good) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the silty, clayey and shallow clay ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Agropyron smithii/Stipa viridula* community type can be expected to produce 1465 pounds per acre (78 percent cattle forage) overall.

Stipa comata/Agropyron smithii

The *Stipa comata/Agropyron smithii* community type is very common, occupying 430 acres (5 percent) of the Otter Creek study area. A total of 20 plots were sampled, primarily on benches, midslopes, upper slopes and ridges of gentle (1-10 percent), occasionally moderate (11-25 percent) slope gradient. Aspect was almost entirely southerly to westerly. The predominant ecological sites were very shallow, silty and shallow clay, associated with the Ringling loam, Ringling-Twilight-Barvon Complex, Fort Collins-Delpoint silt loams and Midway-Delpoint silty clay loams soils. Of the 20 sample sites, three sites (15 percent) were associated with prairie dog colonies.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

Stipa comata/Agropyron smithii
n=20

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	58	Perennial	22	Shrub	1
Annual	17	Annual/Biennial	12	Tree	-
Agropyron smithii	21	*Melilotus officinalis*	7		
Stipa comata	18	*Artemisia dracunculus*	3		
Bouteloua gracilis	9	*Psoralea argophylla*	3		
Bromus tectorum	9	*Filago arvensis*	3		
Bromus japonicus	7	*Artemisia ludoviciana*	3		
Carex filifolia	3	*Taraxacum laevigatum*	2		
Koeleria cristata	1	*Aster falcatus*	2		
Aristida longiseta	1	*Tragopogon dubius*	1		
Poa sandbergii	1	*Dalea purpurea*	1		
Carex heliophila	1	*Ambrosia psilostachya*	1		
Stipa viridula	<1	*Gaura coccinea*	1		
Agropyron cristatum	<1	*Sphaeralcea coccinea*	1		

Shrub density averaged 330 live stems per acre, of which 49 percent was *Artemisia tridentata,* 31 percent *Ceratoides lanata* and 20 percent was *Artemisia cana.* No trees were recorded in the twenty 0.1-acre density plots.

Similarity index (range condition) of this mapping unit was 42 percent (fair) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the very shallow, silty and shallow clay ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Stipa comata/Agropyron smithii* community type can be expected to produce 922 pounds per acre (79 percent cattle forage) overall.

Stipa comata/Carex filifolia

The *Stipa comata/Carex filifolia* community type is common in the northwestern part of the study area, occupying 146 acres (approaching 2 percent) of the Otter Creek study area. Twelve plots were sampled on lower slopes to ridges of gentle to moderate (3-16 percent) slope gradient. Aspect varied from southerly through westerly to northerly. The predominant ecological sites were very shallow and silty, associated with the Ringling-Twilight-Barvon Complex, Ringling loam and Relan loam soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

Stipa comata/Carex filifolia
n=12

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	59	Perennial	11	Shrub	<1
Annual	16	Annual/Biennial	6	Tree	-
Stipa comata	19	*Melilotus officinalis*	5		
Carex filifolia	15	*Artemisia dracunculus*	3		
Bromus japonicus	15	*Astragalus gracilis*	2		
Bouteloua gracilis	13	*Psoralea argophylla*	2		
Carex heliophila	3	*Phlox hoodii*	1		
Agropyron smithii	2	*Artemisia frigida*	<1		
Koeleria cristata	2				
Agropyron cristatum	2				
Poa sandbergii	1				
Bromus tectorum	1				
Agropyron spicatum	<1				
Aristida longiseta	<1				

Shrub density averaged 211 live stems per acre, of which 68 percent was *Artemisia tridentata,* 28 percent *Artemisia cana* and 4 percent was *Rhus aromatica.* No trees were recorded in the twelve 0.1-acre density plots.

Similarity index (range condition) of this mapping unit was 34 percent (fair) within the baseline study area, using 2011-2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the silty and very shallow ecological sites, which are interpolated for current condition in Table 36. In the study area, the *Stipa comata/Carex filifolia* community type can be expected to produce 817 pounds per acre (65 percent cattle forage) overall.

Agropyron spicatum/Stipa comata

The *Agropyron spicatum/Stipa comata* community type is relatively common, occupying 95 acres (1 percent) of the Otter Creek study area. Seven plots were sampled on midslopes and ridges of gentle to moderately steep (5-30 percent) slope gradient. Aspect was variable, but seldom easterly. The seven sample plots occurred on a wide variety of ecological sites including silty, very shallow, shallow, sandy and shallow clay, associated with six different soils types (Table 33).

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

Agropyron spicatum/Stipa comata
n=7

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	56	Perennial	19	Shrub	1
Annual	5	Annual/Biennial	11	Tree	-
Carex filifolia	19	*Melilotus officinalis*	8	*Artemisia tridentata*	<1
Agropyron spicatum	12	*Psoralea argophylla*	4		
Stipa comata	10	*Gutierrezia sarothrae*	3		
Bromus japonicus	5	*Artemisia frigida*	2		
Koeleria cristata	4	*Polygala alba*	1		
Bouteloua gracilis	4	*Astragalus spatulatus*	1		
Agropyron smithii	2	*Phlox hoodii*	1		
Stipa viridula	2	*Orthocarpus luteus*	1		
Poa sandbergii	1	*Dalea candida*	<1		
Andropogon scoparius	<1				
Muhlenbergia cuspidata	<1				
Agropyron cristatum	<1				

Shrub density averaged 202 live stems per acre, entirely *Artemisia tridentata.* No trees occurred in the seven 0.1-acre density plots.

Similarity index (range condition) of this mapping unit was 52 percent (low good) within the baseline study area, using 2011-2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the silty, shallow and very shallow ecological sites, which are interpolated for current condition in Table 36. In the study area, the *Agropyron spicatum/Stipa comata* community type can be expected to produce 1162 pounds per acre (78 percent cattle forage) overall.

Agropyron spicatum/Bouteloua curtipendula

The *Agropyron spicatum/Bouteloua curtipendula* community type is common, occupying 149 acres (2 percent) of the Otter Creek study area. A total of twelve plots were sampled on middle and upper slopes to ridge shoulders of mostly moderate (8-18 percent) slope, occasionally steeper (25-50 percent) slope gradient. Aspect was variable, commonly easterly and southerly. The predominant ecological sites were silty, shallow clay and shallow, associated with the Midway-Delpoint silty clay loams, Blacksheep-Cabba-Cabbart Complex and Relan loam soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

Agropyron spicatum/Bouteloua curtipendula
n=12

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	41	Perennial	11	Shrub	4
Annual	4	Annual/Biennial	5	Tree	<1
Agropyron spicatum	11	*Melilotus officinalis*	4	*Artemisia tridentata*	3
Bouteloua curtipendula	8	*Gutierrezia sarothrae*	2	*Juniperus scopulorum*	<1
Agropyron smithii	5	*Phlox hoodii*	1		
Carex filifolia	3	*Psoralea argophylla*	<1		
Bouteloua gracilis	3				
Bromus japonicus	3				
Koeleria cristata	2				
Muhlenbergia cuspidata	2				
Poa sandbergii	2				
Stipa viridula	1				
Stipa comata	1				
Agropyron dasystachyum	<1				
Carex heliophila	<1				
Poa pratensis	<1				

Shrub density averaged 767 live stems per acre, of which 70 percent was *Artemisia tridentata,* 11 percent *Rosa woodsii,* 8 percent *Rosa arkansana* and 8 percent was *Symphoricarpos occidentalis.* Density of trees less than four inches dbh (diameter at breast height) averaged eight *Juniperus scopulorum* per acre.

Similarity index (range condition) of this mapping unit was 65 percent (good) within the baseline study area, using 2011-2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow clay, shallow, very shallow and silty ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Agropyron spicatum/Bouteloua curtipendula* community type can be expected to produce 1137 pounds per acre (78 percent cattle forage) overall.

Andropogon scoparius/Carex filifolia

The *Andropogon scoparius / Carex filifolia* community type is very minor, occupying only 11 acres (0.1 percent) of the Otter Creek study area. Two plots were sampled on a middle slope and ridge of moderate (10-20 percent) slope gradient. Aspect was northerly and southerly. The type occurred on the very shallow and silty ecological sites, associated with the Ringling-Twilight-Barvon Complex and Relan loam soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

Andropogon scoparius/Carex filifolia
n=2

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	41	Perennial	21	Shrub	-
Annual	3	Annual/Biennial	<1	Tree	-
Andropogon scoparius	14	*Antennaria parvifolia*	11		
Carex heliophila	14	*Phlox hoodii*	6		
Carex filifolia	4				
Stipa comata	3				
Bouteloua gracilis	3				
Bromus japonicus	3				
Koeleria cristata	2				
Aristida longiseta	1				

Shrub density was negligible; no trees were recorded in the two 0.1-acre density plots.

Similarity index (range condition) of this mapping unit was 41 percent (fair) within the baseline study area, using 2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the very shallow and silty ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Andropogon scoparius/ Carex filifolia* community type can be expected to produce 850 pounds per acre (75 percent cattle forage) overall.

Andropogon scoparius/Agropyron spicatum

The *Andropogon scoparius/Agropyron spicatum* community type is common, occupying 173 acres (2 percent) of the Otter Creek study area. A total of 11 plots were sampled, primarily on middle slopes, upper slopes and ridges of moderate to steep (10-40 percent) slope gradient. Aspect was mostly westerly and northerly, occasionally southerly. The type occurred on a wide variety of ecological sites, including shallow clay, very shallow, silty and shallow. The most commonly associated soils were Ringling-Twilight-Barvon Complex, Relan loam and Blacksheep-Cabba-Twilight Complex.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

Andropogon scoparius/Agropyron spicatum
n=11

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	41	Perennial	22	Shrub	2
Annual	1	Annual/Biennial	5	Tree	<1
Andropogon scoparius	21	*Melilotus officinalis*	4	*Artemisia tridentata*	1
Agropyron spicatum	7	*Psoralea argophylla*	4		
Stipa comata	3	*Yucca glauca*	2		
Carex filifolia	3	*Echinacea angustifolia*	1		
Bouteloua gracilis	2	*Oxytropis lambertii*	1		
Bouteloua curtipendula	1	*Aster falcatus*	1		
Agropyron smithii	1	*Gutierrezia sarothrae*	1		
Bromus japonicus	1	*Cerastium arvense*	1		
Koeleria cristata	1	*Polygala alba*	<1		
Aristida longiseta	1	*Aster oblongifolius*	<1		

Shrub density averaged 957 live stems per acre, of which 33 percent was *Artemisia tridentata,* 30 percent *Rosa arkansana,* 16 percent *Calylophus serrulatus,* 11 percent *Symphoricarpos occidentalis* and 5 percent was *Artemisia cana.* Density of trees less than four inches dbh (diameter at breast height) averaged 13 *Pinus ponderosa* per acre and 13 *Juniperus scopulorum* per acre.

Similarity index (range condition) of this mapping unit was 57 percent (low good) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow clay, very shallow, and silty ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Andropogon scoparius/Agropyron spicatum* community type can be expected to produce 1016 pounds per acre (79 percent cattle forage) overall.

Andropogon scoparius/Bouteloua curtipendula

The *Andropogon scoparius/Bouteloua curtipendula* community type is relatively common, occupying 156 acres (2 percent) of the Otter Creek study area. A total of ten plots were sampled, primarily on lower slopes to upper slopes of moderate (10-30 percent) slope gradient. Aspect was variable, most commonly southeasterly to southwesterly. The predominant ecological site was shallow clay, shallow and very shallow, associated with the Midway-Cabbart shallow loams, Midway-Delpoint silty clay loams, and Ringling loam soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

Andropogon scoparius/Bouteloua curtipendula
n=10

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	50	Perennial	15	Shrub	2
Annual	7	Annual/Biennial	3	Tree	-
Bouteloua curtipendula	12	*Gutierrezia sarothrae*	2	*Artemisia tridentata*	<1
Andropogon scoparius	11	*Psoralea argophylla*	2		
Bouteloua gracilis	6	*Echinacea angustifolia*	1		
Carex filifolia	6	*Aster falcatus*	1		
Bromus japonicus	6	*Phlox hoodii*	1		
Stipa comata	5	*Cerastium arvense*	<1		
Agropyron smithii	3	*Artemisia frigida*	<1		
Agropyron spicatum	2	*Cirsium undulatum*	<1		
Muhlenbergia cuspidata	2				
Stipa viridula	1				
Koeleria cristata	1				
Aristida longiseta	<1				

Shrub density averaged 1022 live stems per acre, of which 49 percent was *Artemisia tridentata,* 38 percent *Rosa arkansana,* and 7 percent was *Ceratoides lanata.* Tree density was negligible in the *Andropogon scoparius/Bouteloua curtipendula* community.

Similarity index (range condition) of this mapping unit was 54 percent (low good) within the baseline study area, using 2011-2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow clay, shallow and very shallow ecological sites, which are interpolated for current condition in Table 36. In the study area, the *Andropogon scoparius/Bouteloua curtipendula* community type can be expected to produce 791 pounds per acre (80 percent cattle forage) overall.

Andropogon scoparius/Andropogon gerardii

The *Andropogon scoparius/Andropogon gerardii* community type is very infrequent, occupying only 1.5 acres (0.02 percent) of the Otter Creek study area. Two plots were sampled on toeslopes and midslopes of moderately steep (25-30 percent) slope gradient, and northerly aspect. The ecological sites were shallow and very shallow, associated with the Blacksheep-Cabba-Cabbart Complex and Ringling loam soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

Andropogon scoparius/Andropogon gerardii
n=2

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	74	Perennial	12	Shrub	6
Annual	1	Annual/Biennial	<1	Tree	5
Andropogon gerardii	21	*Phlox hoodii*	2	*Juniperus scopulorum*	5
Agropyron spicatum	14	*Artemisia frigida*	2	*Juniperus horizontalis*	4
Andropogon scoparius	13	*Cerastium arvense*	1	*Artemisia tridentata*	1
Carex filifolia	11	*Antennaria parvifolia*	1	*Rosa woodsii*	1
Bouteloua curtipendula	10	*Oxytropis lambertii*	1		
Poa pratensis	3				
Bromus japonicus	1				
Koeleria cristata	1				
Bouteloua gracilis	1				

Shrub density averaged 506 live stems per acre, of which 40 percent was *Artemisia tridentata,* 30 percent *Juniperus horizontalis* and 30 percent was *Rosa woodsii.* Density of trees less than four inches dbh averaged 50 *Juniperus scopulorum* per acre.

Similarity index (range condition) of this mapping unit was 84 percent (excellent) within the baseline study area, using 2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow and very shallow ecological sites, which are interpolated for current condition in Table 36. In the study area, the *Andropogon scoparius/Andropogon gerardii* community type can be expected to produce 930 pounds per acre (85 percent cattle forage) overall.

Andropogon scoparius/Calamovilfa longifolia

The *Andropogon scoparius/Calamovilfa longifolia* community type is relatively uncommon, occupying 82 acres (about 1 percent) of the Otter Creek study area. Six plots were sampled primarily on lower slopes and midslopes of mostly gentle to moderate (5-20 percent) slope gradient. Aspect was variable. The predominant ecological sites were complexes of shallow, clayey and sandy-steep, with the six sample sites associated with six different soils (Table 33).

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

Andropogon scoparius/Calamovilfa longifolia
n=6

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	58	Perennial	17	Shrub	3
Annual	<1	Annual/Biennial	2	Tree	5
Andropogon scoparius	24	*Oxytropis lambertii*	3	*Juniperus scopulorum*	5
Carex filifolia	8	*Melilotus officinalis*	1	*Artemisia tridentata*	2
Calamovilfa longifolia	5	*Gutierrezia sarothrae*	1	*Juniperus horizontalis*	<1
Bouteloua curtipendula	5	*Phlox hoodii*	1		
Agropyron spicatum	5	*Artemisia frigida*	1		
Koeleria cristata	4	*Polygala alba*	<1		
Muhlenbergia cuspidata	2	*Antennaria parvifolia*	<1		
Stipa comata	2	*Psoralea argophylla*	<1		
Stipa viridula	1	*Solidago rigida*	<1		
Bouteloua gracilis	1	*Yucca glauca*	<1		
Poa pratensis	<1	*Solidago nemoralis*	<1		
Bromus japonicus	<1				

Shrub density averaged 725 live stems per acre, of which 61 percent was *Artemisia tridentata,* 16 percent *Symphoricarpos occidentalis, 7* percent was *Juniperus horizontalis,* 7 percent *Chrysothamnus nauseosus* and 5 percent was *Calylophus serrulatus.* Density of trees less than four inches dbh (diameter at breast height) averaged 25 *Juniperus scopulorum* per acre and 3 *Pinus ponderosa* per acre.

Similarity index (range condition) of this mapping unit was 67 percent (high good) within the baseline study area, using 2011-2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow, very shallow and silty ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Andropogon scoparius/ Calamovilfa longifolia* community type can be expected to produce 1170 pounds per acre (83 percent cattle forage) overall.

Calamovilfa longifolia/Stipa comata

The *Calamovilfa longifolia/Stipa comata* community type is uncommon, occupying 48 acres (0.5 percent) of the Otter Creek study area. Eleven plots were sampled on toeslopes to ridges of gentle to moderate (5-15 percent), occasionally steep (30-50 percent) slope gradient. Aspect was variable, from northerly through easterly to southwesterly. Five of the eleven sample sites occurred on the very shallow ecological site, associated with the Ringling loam soil. Other important ecological sites were the silty and sandy-steep sites, associated with six additional soils types (Tables 32 and 33).

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

Calamovilfa longifolia/Stipa comata
n=11

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	64	Perennial	13	Shrub	3
Annual	5	Annual/Biennial	1	Tree	-
Stipa comata	23	*Artemisia dracunculus*	2	*Artemisia cana*	1
Calamovilfa longifolia	10	*Yucca glauca*	2	*Rhus aromatica*	1
Carex filifolia	10	*Psoralea argophylla*	2		
Bouteloua gracilis	6				
Bromus japonicus	5				
Carex heliophila	4				
Agropyron cristatum	3				
Koeleria cristata	2				
Agropyron smithii	2				
Andropogon scoparius	1				
Bouteloua curtipendula	<1				
Agropyron spicatum	<1				
Poa sandbergii	<1				

Shrub density averaged 396 live stems per acre, of which 46 percent was *Artemisia cana,* 28 percent was *Artemisia tridentata,* 19 percent *Rhus aromatica* and 5 percent was *Rosa woodsii.* Density of trees less than four inches dbh (diameter at breast height) averaged three *Pinus ponderosa* per acre.

Similarity index (range condition) of this mapping unit was 50 percent (low good) within the baseline study area, using 2011-2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the silty, sandy steep and very shallow ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Calamovilfa longifolia/ Stipa comata* community type can be expected to produce 977 pounds per acre (79 percent cattle forage) overall.

3.2.2 Tame Pasture

As explained in Section 3.2.1, upland herbaceous communities ("grasslands") were identified according to two principal categories, Native Grassland and Tame Pasture. Two types of Tame Pasture were present in the study area, including Hay Cropland (Farmed) and Grazed/Go-Back Pastureland. The latter generally fits the definition of "Special Use Pasture" based on considerations of land use (management-related and programmatic activities) rather than the vegetative cover of the land. In the context of this baseline vegetation inventory, pastureland (special use pasture) is distinguished from grazing land as follows:

> "Pastureland" means land that has been seeded or interseeded to native, introduced, or a combination of native and introduced forage species of limited diversity that provides special or seasonal use for livestock on a more intensively managed basis than that which would occur if the land was grazing land as defined below. Pastureland (special use pasture) may include the occasional cutting of the forage species for livestock feed (Hay Cropland is regularly cut and baled).
>
> "Grazing land" means land, including both grasslands and forest lands, where the indigenous vegetation is actively managed for grazing or browsing by livestock and/or wildlife.

In the Otter Creek baseline study area, Hay Cropland tame pasture is represented by areas seeded to and currently dominated entirely by introduced grass and forb species, essentially restricted to floodplain terraces encompassing Otter Creek, Tenmile Creek and a portion of Threemile Creek. These areas are regularly mowed and baled for hay production for livestock feed. The second tame pasture type, Grazed/Go-Back Pastureland, comprises areas apparently seeded decades ago but not reseeded since then, and currently dominated by introduced grasses (mostly *Agropyron cristatum)* but with a fair representation of reestablished native shrubs and grasses. These Go-Back areas usually adjoin Typical Tame Pasture areas on fans and toeslopes, occasionally on isolated terraces or high benches, and are only sporadically mowed for hay production.

In the Otter Creek baseline study area, Hay Cropland occurred on 749 acres (8 percent of the study area), while Grazed/Go-Back Pastureland occupied 835 acres (9 percent of the study area).

Tame Pasture cover and constancy data are presented by sample site (plot) in Appendix Tables B9-H and B9-P (2011 data) and Appendix Tables G5 and G6 (2012 data), and summarized for both Tame Pasture types in Table 3. Shrub density data are given by plot in Appendix Table C9 (2011 data) and Appendix Tables H5 and H6 (2012 data), and summarized for Tame Pasture types in Table 14.

A correlation of soils mapping units, ecological sites and community types is listed by plot in Appendix E (2011 data) and Appendix K (2012 data), and summarized by parameter in Tables 32 through 34. Calculations of ecological site condition (similarity index determinations) are presented by Tame Pasture type in Appendix Tables F2 and L2, and summarized for all community types in Table 35. Predicted cropland yields (NRCS 2012a,b) are given for Tame Pasture categories in Table 38.

Plant species of concern listed by MTNHP (2012) for Powder River and Rosebud Counties are summarized in Table 39. Tame Pasture species diversity is given by functional class in Table 40. Appendix M provides a synopsis of important site parameters (topographical position, slope gradient and slope aspect) recorded for Tame Pasture types. Acreage of vegetation types is given in Table 41. All vegetation sample site locations are shown on the community type map (Plate 1).

A number of Pastureland sites are associated with current and recent prairie dog colonies (plot numbers marked with an asterisk in Table 1). Prairie dogs conspicuously impact vegetation ecology in substantial portions of the study area, primarily in lower elevation Grassland and Pastureland, significantly affecting plant composition and diversity in the vicinity of their colonies.

Hay Cropland (Farmed Tame Pasture)

The Hay Cropland type is abundant, occupying 749 acres (8 percent) of the Otter Creek study area. Most of the 66 sample sites were on subirrigated/naturally flood-irrigated floodplains and lower terraces along Otter Creek (Plate 1). Other sample sites occurred on adjacent, less mesic toeslopes, fans, high terraces and low benches. Nearly all sites were on very gentle slopes of 0-5 percent gradient; aspect was variable. The predominant ecological sites were saline lowland (Haverson silty clay – Saline and Heldt silty clay loam - Saline soils), clayey (Heldt silty clay loam soils), and silty (McRae silt loam soils).

Hay is the only crop grown in the study area, restricted to the primary valley bottoms. Hay fields are typically dominated by introduced pasture grasses, with alfalfa variable among fields. Dominant hay species are crested wheatgrass (*Agropyron cristatum*), smooth brome (*Bromus inermis*), alfalfa (*Medicago sativa*) and quackgrass (*Agropyron repens*). Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

Hay Cropland
n=66

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	93	Perennial	18	Shrub	<1
Annual	<1	Annual/Biennial	4	Tree	-
Agropyron cristatum	42	*Medicago sativa*	15		
Bromus inermis	21	*Melilotus officinalis*	2		
Agropyron repens	13	*Taraxacum laevigatum*	1		
Agropyron elongatum	7	*Atriplex heterosperma*	1		
Poa pratensis	3	*Cirsium arvense*	<1		
Agropyron smithii	3				
Agropyron intermedium	1				
Elymus junceus	1				

Shrub density was negligible, averaging only three *Atriplex nuttallii* and two *Artemisia cana* plants per acre. No trees occurred in the sixty-six 0.1-acre density plots.

Hay production is discussed in section 3.5.2.

Pastureland (Grazed/Go-Back Tame Pasture)

The Grazed/Go-Back Pastureland type is abundant, occupying 835 acres (9 percent) of the Otter Creek study area. Most of the 40 sample sites were on high terraces, benches and undulating bench slopes adjoining the Otter Creek floodplain and along the Threemile Creek valley (Plate 1). Most sites were on gentle slopes of 0-5 percent gradient, occasionally moderate slopes up to 15 percent; aspect was variable. The predominant ecological sites were silty (McRae silt loam, Haverson silty clay, and Relan loam soils), and saline lowland (McRae silt loam - Saline soils). Seven (18 percent) of the 40 Pastureland sample sites were associated with prairie dog colonies.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

Pastureland
n=40

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	71	Perennial	9	Shrub	6
Annual	5	Annual/Biennial	8	Tree	-
Agropyron cristatum	53	*Melilotus officinalis*	6	*Artemisia cana*	4
Agropyron smithii	5	*Medicago sativa*	3		
Bromus inermis	4	*Taraxacum laevigatum*	3		
Poa pratensis	4				
Bromus japonicus	4				
Stipa comata	1				
Stipa viridula	1				
Bouteloua gracilis	1				

Shrub density averaged 1217 live stems per acre, of which 73 percent was *Artemisia cana,* 7 percent *Atriplex nuttallii,* 7 percent *Ceratoides lanata,* and 5 percent *Artemisia tridentata.* No trees occurred in the forty 0.1-acre density plots.

Tame Pasture productivity is discussed in section 3.5.2.

3.2.3 Shrub/Grassland

There were four Shrub/Grassland communities identified in two series during the 2011-2012 inventory, comprising 2655 acres or 29 percent of total study area acreage. The two Shrub/Grassland series were dominated by *Artemisia cana* (one community type totaling 12 percent of Shrub/Grassland acreage), and *Artemisia tridentata* (three communities, 88 percent).

The *Artemisia cana* and *Artemisia tridentata* communities are very similar compositionally to their grassland counterparts, dominated variously by *Agropyron smithii, Agropyron spicatum* or *Andropogon scoparius* in the understory, however *Artemisia cana* or *Artemisia tridentata* average substantially higher cover and density in the shrub communities. *Artemisia cana* normally increases where soil moisture is suitable, often in relation to sustained grazing. *Artemisia tridentata* generally increases on more finely-textured (often clayey) soils.

The relative abundance of Shrub/Grassland community types in the Otter Creek baseline study area is listed below:

SHRUB/GRASSLAND COMMUNITY TYPE	PERCENTAGE OF SHRUB/GRASSLAND ACREAGE	PERCENTAGE OF STUDY AREA ACREAGE
Artemisia cana / Agropyron smithii	12	3
Artemisia tridentata / Agropyron smithii	50	14
Artemisia tridentata / Agropyron spicatum	23	7
Artemisia tridentata / Andropogon scoparius	15	4

Shrub/Grassland cover and constancy data are presented by sample site (plot) in Appendix Tables B10 through B13 (2011 data) and Appendix Tables G7 through G9 (2012 data), and summarized by community type in Table 4. Shrub density data are given by plot in Appendix Tables C10 through C13 (2011 data) and Appendix Tables H7 through H9 (2012 data), and summarized for Shrub/Grassland community types in Table 15. Tree density data are presented by plot in Appendix Tables D2 and J2, and summarized by Shrub/Grassland community type in Table 24.

A correlation of soils mapping units, ecological sites and community types is listed by plot in Appendix E (2011 data) and Appendix K (2012 data), and summarized by parameter in Tables 32 through 34. Calculations of ecological site condition (similarity index determinations) are presented by Shrub/ Grassland community type in Appendix Tables F3 and L3 (2011 and 2012), and summarized for all community types in Table 35; condition data were used to determine rangeland productivity values for each community type (using NRCS stocking rate guides) as shown in Table 36 and rangeland stocking rates in Table 37.

Plant species of concern listed by MTNHP (2012) for Powder River and Rosebud Counties are summarized in Table 39. Shrub/Grassland species diversity is given by functional class in Table 40. Appendix M provides a synopsis of important site parameters (topographical position, slope gradient

and slope aspect) recorded for Shrub/Grassland communities. A literature review of eastern Montana Shrub/Grassland communities is synthesized in Appendix Table N2. Acreage of vegetation types is given in Table 41. All vegetation sample site locations are shown on the community type map (Plate 1).

Similarly to Grassland, Shrub/Grassland community types were sampled on a wide variety of soils (fine to coarse soil texture), low to high topographical positions, and aspects (warm southerly to cool northerly). The *Artemisia cana/Agropyron smithii* community type was most commonly found on silt loam and silty clay loam soils associated with the overflow, silty and shallow clay ecological sites. The *Artemisia tridentata/Agropyron smithii* type was primarily associated with silty clay loam, silt loam and shallow loam soils in the shallow clay, silty and shallow ecological sites. The *Artemisia tridentata/ Agropyron spicatum* type was found primarily on silty clay loams and shallow loams representing the shallow clay and shallow ecological sites. The *Artemisia tridentata/Andropogon scoparius* community was primarily associated with shallow loam and silty clay loam soils in the shallow and shallow clay ecological sites.

Using NRCS guidelines, Shrub/Grassland in the Otter Creek study area is in low good condition (about 56 percent), ranging among predominant ecological sites from high fair in the overflow site to mid-good in the silty and shallow clay sites. This translates, again using NRCS guidelines, to a projected total annual production of approximately 1305 pounds per acre for Shrub/Grassland in current condition in the study area overall. This figure is 11 percent higher than the 1180 pounds per acre total production estimate for study area Grassland.

In the following text, Shrub/Grassland community types are arranged approximately in order of finer to coarser soil texture, and lower to higher topographical position.

Artemisia cana/Agropyron smithii

The *Artemisia cana/Agropyron smithii* community type is abundant, occupying 308 acres (3 percent) of the Otter Creek study area. A total of 52 plots were sampled, primarily on low topography; bottoms-banks, terraces, swales and toeslopes accounted for 88 percent of sample sites. About 88 percent of samples occurred on gentle (0-10 percent) slope gradients. Aspect was variable, but seldom easterly. The predominant ecological sites were silty, overflow and shallow clay, associated with the Nihill-Havre outwash areas, Haverson silty clay, Relan loam, Fort Collins-Hesper silt loams, Fort Collins-Delpoint silt loams soils, Midway-Delpoint silty clay loams and Midway-Cabbart shallow loams soils.

Many eastern Montana studies (Appendix Table N2) recognize *Stipa viridula* and *Stipa comata* phases or communities in the *Artemisia cana* series, but *Agropyron smithii* generally prevails as the overall dominant native perennial grass species associated with *Artemisia cana* in the region. Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

Artemisia cana/Agropyron smithii
n=52

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	75	Perennial	13	Shrub	20
Annual	5	Annual/Biennial	15	Tree	<1
Agropyron smithii	31	*Melilotus officinalis*	12	*Artemisia cana*	18
Poa pratensis	17	*Taraxacum laevigatum*	4	*Artemisia tridentata*	1
Stipa viridula	11	*Aster falcatus*	1		
Bromus japonicus	5	*Artemisia ludoviciana*	1		
Stipa comata	5	*Achillea millefolium*	1		
Agropyron cristatum	5	*Medicago lupulina*	1		
Bouteloua gracilis	2	*Astragalus agrestis*	<1		
Koeleria cristata	1	*Sphaeralcea coccinea*	<1		
Bromus inermis	<1				

Shrub density averaged 3360 live stems per acre, of which 62 percent was *Artemisia cana,* 28 percent *Symphoricarpos occidentalis* and 6 percent was *Artemisia tridentata.* Density of trees less than four inches dbh (diameter at breast height) averaged less than one *Pinus ponderosa* per acre and about two *Juniperus scopulorum* per acre.

Similarity index (range condition) of this mapping unit was 48 percent (high fair) within the baseline study area, using 2011-2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the silty, overflow, shallow, shallow clay and very shallow ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Artemisia cana/Agropyron smithii* community type can be expected to produce 1422 pounds per acre (74 percent cattle forage) overall.

Artemisia tridentata/Agropyron smithii

The *Artemisia tridentata/Agropyron smithii* community type is the most abundant shrub/grassland community, occupying 1332 acres (14 percent) of the Otter Creek study area. A total of 73 plots were sampled on all topographic positions, with middle and upper slopes comprising 48 percent of sample sites. Slope gradients were mostly gentle to moderate (1-15 percent), with only three sites on steeper slopes up to 40 percent. Aspect was variable, particularly westerly, but seldom east to southeast. Ecological sites were variable, including shallow clay, silty, clayey and shallow. The most commonly associated soils were Midway-Delpoint silty clay loams, Fort Collins-Hesper silt loams, Fort Collins-Delpoint silt loams, Midway-Cabbart shallow loams, Blacksheep-Cabba-Twilight Complex, Hydro-Hesper silty clay loams and McRae silt loam soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

Artemisia tridentata/Agropyron smithii
n=73

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	59	Perennial	14	Shrub	22
Annual	7	Annual/Biennial	5	Tree	<1
Agropyron smithii	20	*Psoralea argophylla*	2	*Artemisia tridentata*	21
Stipa comata	9	*Melilotus officinalis*	2	*Artemisia cana*	<1
Stipa viridula	9	*Taraxacum laevigatum*	2		
Bouteloua gracilis	8	*Aster falcatus*	1		
Bromus japonicus	6	*Gutierrezia sarothrae*	1		
Koeleria cristata	3	*Achillea millefolium*	1		
Carex filifolia	3	*Phlox hoodii*	<1		
Poa pratensis	2	*Artemisia frigida*	<1		
Agropyron spicatum	<1				
Bromus tectorum	<1				
Agropyron cristatum	<1				
Poa sandbergii	<1				

Shrub density averaged 2844 live stems per acre, of which 87 percent was *Artemisia tridentata,* 4 percent *Artemisia cana, and Rosa woodsii* and *Ceratoides lanata* were 3 percent each. Density of trees greater than four inches dbh (diameter at breast height) averaged less than one *Juniperus scopulorum* per acre; trees less than four inches dbh averaged one *Juniperus scopulorum* per acre.

Similarity index (range condition) of this mapping unit was 59 percent (good) within the baseline study area, using 2011-2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow clay, clayey, silty, and shallow ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Artemisia tridentata/Agropyron smithii* community type can be expected to produce 1322 pounds per acre (77 percent cattle forage) overall.

Artemisia tridentata/Agropyron spicatum

The *Artemisia tridentata/Agropyron spicatum* community type is common to abundant, occupying 602 acres (6.5 percent) of the Otter Creek study area. A total of 36 plots were sampled, primarily on middle slopes, upper slopes and ridges of gentle to moderate (2-18 percent) slope gradient, with only six sites on steeper, 20-50 percent slopes. Aspect was variable, but least often southerly. The predominant ecological sites were shallow clay, shallow and silty, associated with the Midway-Delpoint silty clay loams, Midway-Cabbart shallow loams, Blacksheep-Cabba-Cabbart Complex, Fort Collins-Delpoint silt loams and McRae silt loam soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

Artemisia tridentata/Agropyron spicatum
n=36

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	49	Perennial	17	Shrub	18
Annual	2	Annual/Biennial	6	Tree	-
Agropyron spicatum	11	*Melilotus officinalis*	4	*Artemisia tridentata*	18
Bouteloua gracilis	6	*Gutierrezia sarothrae*	3		
Stipa comata	6	*Psoralea argophylla*	2		
Carex filifolia	6	*Phlox hoodii*	1		
Agropyron smithii	5	*Artemisia frigida*	1		
Koeleria cristata	4	*Aster falcatus*	<1		
Stipa viridula	3	*Vicia americana*	<1		
Muhlenbergia cuspidata	2				
Bromus japonicus	2				
Bouteloua curtipendula	2				
Agropyron dasystachyum	1				
Poa sandbergii	1				
Carex heliophila	<1				
Calamovilfa longifolia	<1				

Shrub density averaged 2929 live stems per acre, of which 91 percent was *Artemisia tridentata,* 4 percent *Ceratoides lanata* and 2 percent was *Chrysothamnus nauseosus.* Density of trees less than four inches dbh (diameter at breast height) averaged four *Juniperus scopulorum* per acre.

Similarity index (range condition) of this mapping unit was 59 percent (good) within the baseline study area, using 2011-2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow clay, shallow and silty ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Artemisia tridentata/Agropyron spicatum* community type can be expected to produce 1154 pounds per acre (79 percent cattle forage) overall.

Artemisia tridentata/Andropogon scoparius

The *Artemisia tridentata/Andropogon scoparius* community type is common, occupying 413 acres (4.5 percent) of the Otter Creek study area. A total of 11 plots were sampled on middle and upper slopes of moderate to moderately steep (10-25 percent) gradient. Sample sites occurred on all aspects. The predominant ecological sites were shallow clay, shallow and silty, associated with soils such as Midway-Cabbart shallow loams and Blacksheep-Cabba-Twilight Complex.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

Artemisia tridentata/Andropogon scoparius
n=11

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	55	Perennial	20	Shrub	12
Annual	2	Annual/Biennial	10	Tree	4
Stipa comata	7	*Melilotus officinalis*	8	*Artemisia tridentata*	12
Andropogon scoparius	6	*Psoralea argophylla*	4	*Juniperus scopulorum*	4
Agropyron spicatum	6	*Phlox hoodii*	2		
Stipa viridula	6	*Gutierrezia sarothrae*	2		
Bouteloua curtipendula	6	*Cerastium arvense*	1		
Bouteloua gracilis	5	*Aster falcatus*	1		
Carex filifolia	5	*Ratibida columnifera*	1		
Koeleria cristata	4	*Echinacea angustifolia*	<1		
Agropyron smithii	4	*Oxytropis lambertii*	<1		
Bromus japonicus	2	*Aster oblongifolius*	<1		
Poa pratensis	2	*Artemisia frigida*	<1		
Calamovilfa longifolia	1				
Festuca idahoensis	1				
Muhlenbergia cuspidata	<1				
Aristida longiseta	<1				

Shrub density averaged 1959 live stems per acre, of which 96 percent was *Artemisia tridentata* and 2 percent was *Artemisia cana.* Density of trees greater than four inches dbh (diameter at breast height) averaged about five *Juniperus scopulorum* per acre; trees less than four inches dbh averaged ten *Juniperus scopulorum* per acre.

Similarity index (range condition) of this mapping unit was 61 percent (good) within the baseline study area, using 2011-2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow clay, shallow, very shallow and silty ecological sites which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Artemisia tridentata/Andropogon scoparius* community type can be expected to produce 1126 pounds per acre (78 percent cattle forage) overall.

3.2.4 Breaks

A number of earlier vegetation inventories conducted in eastern Montana have identified a Breaks Complex (or Badlands) type that normally occurs on broken, moderately steep to very steep, occasionally gentle, erodible slopes on shallow, skeletal soils frequently associated with rock outcroppings. Vegetation cover is generally sparse, variously dominated by grass, shrub and/or conifer species depending on edaphic conditions. Culwell and Scow (1982a) provided a synoptic review of 1970s–early 1980s studies reporting Breaks Complex vegetation in eastern Montana and adjacent states. Payne (1973) described the breaks along the Tongue and Powder Rivers as "badlands grasslands". He noted that the badlands topography distinguished the type more than the species present, although *Atriplex confertifolia* was listed as a distinguishing species.

Brown (1971) investigated badland plant communities in and near the Ashland Division, Custer National Forest in southeastern Montana. He identified seven types based on dominant species, as shown below. Community distribution was related to diverse habitats resulting from variations in geology, topography and soils.

BROWN (1971) CLASSIFICATION OF PLANT COMMUNITIES IN SOUTHEASTERN MONTANA BADLANDS

	Percent Cover of Dominant Species by Community Type						
	SAR VER n=6	ATR CON-ART TRI n=7	ART TRI-ATR CON-AGR SPI n=6	ART TRI-AGR SPI n=6	RHU ARO-AGR SPI n=5	JUN SCO-AGR SPI n=6	PIN PON-JUN SCO n=5
GRAMINOIDS							
Agropyron spicatum	<0.1	0.1	1.2	2.2	1.3	0.7	0.9
Andropogon scoparius	-	-	-	-	<0.1	<0.1	0.5
Bouteloua curtipendula	-	-	<0.1	0.2	0.2	0.1	0.5
Bouteloua gracilis	0.2	-	-	0.2	-	-	0.2
SHRUBS							
Artemisia tridentata	2.4	3.2	7.0	6.4	-	0.3	-
Atriplex confertifolia	0.9	8.2	4.5	0.3	-	<0.1	-
Chrysothamnus nauseosus	<0.1	0.5	<0.1	-	-	<0.1	-
Eriogonum pauciflorum	0.2	0.8	<0.1	<0.1	0.1	-	-
Gutierrezia sarothrae	0.1	0.3	0.1	0.2	<0.1	0.1	0.1
Rhus aromatica	-	<0.1	<0.1	-	8.3	0.6	0.6
Sarcobatus vermiculatus	9.9	0.1	0.2	-	-	-	-
Suaeda moquinii	1.4	-	-	-	-	-	-
Yucca glauca	-	<0.1	<0.1	0.2	0.4	0.1	-
TREES							
Juniperus scopulorum	-	-	-	-	1.0	40.2	5.9
Pinus ponderosa	-	-	-	-	1.4	0.4	23.2
TOTAL VEGETATION	**15.4**	**13.3**	**15.8**	**9.9**	**13.1**	**43.4**	**33.0**
Percent Slope	0-80	60-90	40-70	30-65	40-80	20-60	0-40
Mean Slope	36	76	61	NA	65	44	22
Dominant Aspect	S to SW	S to W	SE to SW	S to SW	SE to W	SW to NW	S to NW

n=number of sample sites, using a variable number and length of line-intercept transects at each site, according to stand size.
Full binomials are given for plant species codes in Appendix A.

In the Otter Creek baseline study area, the highly dissected breaks topography creates a high diversity of microsite conditions which are reflected in a comparable diversity of plant community associations. In the study area, it is convenient to group Breaks community types into three physiognomic subtypes dominated by grass, shrub or conifer tree species. Four Grass-Dominated Breaks communities are defined by *Agropyron smithii, Agropyron spicatum, Sporobolus airoides,* or *Calamovilfa longifolia.* Seven Shrub-Dominated Breaks types are indicated by various associations of *Artemisia tridentata, Sarcobatus vermiculatus, Chrysothamnus nauseosus, Rhus aromatica* and *Atriplex confertifolia,* with *Agropyron spicatum* (occasionally *Agropyron smithii)* dominating the understory. Five Conifer-Dominated Breaks types are defined by scattered *Pinus ponderosa* and *Juniperus scopulorum* over an understory of *Agropyron spicatum, Andropogon scoparius, Artemisia tridentata* and/or *Atriplex confertifolia.* These sites are compositionally intermediate between sparsely vegetated stands representing big sagebrush/grassland types and pine-juniper savannah types.

The 16 Breaks Complex communities identified during the 2011-2012 inventory comprised 1244 acres or 13 percent of total study area acreage. The four Grass-Dominated Breaks community types totaled 10 percent of Breaks acreage, the seven Shrub-Dominated Breaks communities comprised 72 percent, and the five Conifer-Dominated Breaks communities composed 17 percent of Breaks Complex acreage.

The relative abundance of Breaks community types in the Otter Creek baseline study area is listed below:

BREAKS COMPLEX COMMUNITY TYPE	PERCENTAGE OF BREAKS ACREAGE	PERCENTAGE OF STUDY AREA ACREAGE
Grass-Dominated Breaks	10	1
Agropyron smithii Breaks	5	<1
Agropyron spicatum Breaks	1	<1
Sporobolus airoides Breaks	2	<1
Calamovilfa longifolia Breaks	3	<1
Shrub-Dominated Breaks	72	10
Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron smithii	31	4
Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron spicatum	<1	<<1
Rhus aromatica / Agropyron spicatum-Andropogon scoparius	3	<1
Artemisia tridentata-Rhus aromatica- Chrysothamnus nauseosus/ Agropyron spicatum	7	<1
Artemisia tridentata-Rhus aromatica- Sarcobatus vermiculatus / Agropyron spicatum	7	1
Artemisia tridentata-Atriplex confertifolia-Sarcobatus vermiculatus / Agropyron spicatum	17	2
Artemisia tridentata-Atriplex confertifolia- Rhus aromatica / Agropyron spicatum	7	1
Conifer-Dominated Breaks	17	2
Juniperus scopulorum / Agropyron spicatum Breaks	5	<1
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum Breaks	4	<1
Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius Breaks	5	<1
Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata Breaks	1	<1
Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata-Atriplex confertifolia Breaks	2	<1

Breaks cover and constancy data are presented by sample site (plot) in Appendix Tables B14 through B27 (2011 data) and Appendix Table G10 (2012 data), and summarized by community type in Table 5 (Grass Breaks), Table 6 (Shrub Breaks) and Table 7 (Conifer Breaks). Shrub density data are given by plot

in Appendix Tables C14 through C27 (2011 data) and Appendix Table H10 (2012 data), and summarized for Breaks community types in Tables 16 to 18. Tree density data are presented by plot in Appendix Tables D3 through D8 (2011 data) and Appendix Table J3 (2012 data), and summarized by Breaks community type in Tables 25 to 27.

A correlation of soils mapping units, ecological sites and community types is listed by plot in Appendix E (2011 data) and Appendix K (2012 data), and summarized by parameter in Tables 32 through 34. Calculations of ecological site condition (similarity index determinations) are presented by Breaks community type in Appendix Tables F4 to F6 (2011 data) and Appendix Table L4 (2012 data), and summarized for all community types in Table 35; condition data were used to determine rangeland productivity values for each community type (using NRCS stocking rate guides) as shown in Table 36 and rangeland stocking rates in Table 37.

Plant species of concern listed by MTNHP (2012) for Powder River and Rosebud Counties are summarized in Table 39. Breaks species diversity is given by functional class in Table 40. Appendix M provides a synopsis of important site parameters (topographical position, slope gradient and slope aspect) recorded for Breaks communities. A literature review of eastern Montana Breaks communities is synthesized in Appendix Table N3. Acreage of vegetation types is given in Table 41. All vegetation sample site locations are shown on the community type map (Plate 1).

Breaks community types were sampled on a wide variety of soils (fine to coarse soil texture), predominantly middle to high topographical positions, and various aspects (often southerly). Slope gradients were also variable, from gentle to very steep. The Grass-Dominated Breaks subtype was most commonly found on shallow loam and silty clay loam soils associated with the shallow clay ecological site. The Shrub-Dominated Breaks subtype was primarily associated with shallow loam, silty clay loam and slaty loam soils in the shallow clay, shallow and very shallow ecological sites. The Conifer-Dominated Breaks subtype was primarily associated with shallow loam soils in the shallow ecological site.

Using NRCS guidelines, the Breaks Complex in the Otter Creek study area is in low good to mid-good condition (about 58 percent), ranging among predominant ecological sites from low good (58 percent) in the shallow site to mid-good (59 percent) in the shallow clay site. Condition ranged from low good (55 percent) in the Conifer-Dominated Breaks to mid-good in Shrub-Dominated Breaks (59 percent) and Grass-Dominated Breaks (61 percent). This translates, again using NRCS guidelines, to an expected total annual production of approximately 954 pounds per acre for the Breaks Complex in current condition in the study area overall. The value presents a weighted mean of total production estimates for Grass Breaks (1035 pounds per acre), Shrub Breaks (915 pounds per acre) and Conifer Breaks (985 pounds per acre).

In the following text, Breaks community types are arranged first by physiognomic subtype (lower to taller vegetation stratum) and secondly, within each subtype, a general correlation with lower to higher topographical positions/elevations and gentler to steeper slope gradients (see Appendix M).

3.2.4.1 Grass-Dominated Breaks

Agropyron smithii Breaks

The *Agropyron smithii* Breaks community type is relatively common, occupying 61 acres (about 0.7 percent) of the Otter Creek study area. A total of ten plots were sampled on lower slopes to ridges of mostly gentle (1-10 percent) slope gradient. Aspect was southerly to westerly. The predominant ecological sites were shallow clay, silty and clayey, associated with the Midway-Cabbart shallow loams, Fort Collins-Delpoint silt loams and Hydro-Hesper silty clay loams soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Agropyron smithii* Breaks**
n=10

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	22	Perennial	12	Shrub	1
Annual	2	Annual/Biennial	8	Tree	-
Agropyron smithii	12	*Gutierrezia sarothrae*	5	*Artemisia tridentata*	1
Agropyron dasystachyum	3	*Melilotus officinalis*	2		
Bromus japonicus	2	*Plantago patagonica*	1		
Koeleria cristata	1	*Grindelia squarrosa*	1		
Poa sandbergii	1	*Aster falcatus*	1		
Distichlis stricta	1	*Plantago elongata*	<1		
Agropyron spicatum	<1	*Eriogonum pauciflorum*	<1		
Bouteloua gracilis	<1	*Lepidium densiflorum*	<1		
		Alyssum desertorum	<1		
		Suaeda moquinii	<1		

Shrub density averaged 708 live stems per acre, of which 44 percent was *Atriplex nuttallii,* 31 percent *Artemisia tridentata,* 13 percent *Chrysothamnus nauseosus* and 6 percent was *Ceratoides lanata.* Density of trees less than four inches dbh (diameter at breast height) averaged three *Juniperus scopulorum* per acre.

Similarity index (range condition) of this mapping unit was 57 percent (low good) within the baseline study area, using 2011-2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow clay, silty and clayey ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Agropyron smithii* Breaks community type can be expected to produce 1202 pounds per acre (79 percent cattle forage) overall.

Agropyron spicatum Breaks

The *Agropyron spicatum* Breaks community type is infrequent, occupying 15 acres (0.2 percent) of the Otter Creek study area. Four plots were sampled from toeslopes to ridges, mostly on gentle to moderate (2-15 percent) slope gradients. Aspect was variable, commonly northerly. The predominant ecological site was shallow clay, associated with the Midway-Cabbart shallow loams and Midway-Delpoint silty clay loams soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Agropyron spicatum* Breaks**
n=4

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	14	Perennial	11	Shrub	2
Annual	-	Annual/Biennial	1	Tree	-
Agropyron spicatum	5	*Eriogonum pauciflorum*	4	*Chrysothamnus nauseosus*	<1
Distichlis stricta	4	*Gutierrezia sarothrae*	3		
Agropyron smithii	1	*Melilotus officinalis*	1		
Andropogon scoparius	1	*Aster falcatus*	<1		
Agropyron dasystachyum	1				
Poa scabrella	<1				

Shrub density averaged 961 live stems per acre, of which 40 percent was *Chrysothamnus nauseosus,* 37 percent *Artemisia tridentata,* 13 percent *Rosa arkansana,* 5 percent *Atriplex confertifolia* and 5 percent was *Rhus aromatica.* No trees occurred in the four 0.1-acre density plots.

Similarity index (range condition) of this mapping unit was 55 percent (low good) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow clay ecological site, which is interpolated for current condition in Table 36. In the study area, the *Agropyron spicatum* Breaks community type can be expected to produce 875 pounds per acre (81 percent cattle forage) overall.

Sporobolus airoides Breaks

The *Sporobolus airoides* Breaks community type is uncommon, occupying 19 acres (0.2 percent) of the Otter Creek study area. Four plots were sampled from toeslopes to upper slopes of gentle (5-10 percent) gradient. Aspect was variable, commonly westerly. The predominant ecological site was saline upland (shallow clay), associated with the Midway clay loam – Eroded and Midway-Delpoint silty clay loams soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Sporobolus airoides* Breaks**
n=4

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	27	Perennial	11	Shrub	2
Annual	1	Annual/Biennial	1	Tree	2
Sporobolus airoides	12	*Gutierrezia sarothrae*	4	*Juniperus scopulorum*	2
Agropyron smithii	4	*Dalea candida*	1	*Artemisia tridentata*	2
Bouteloua gracilis	2	*Eriogonum pauciflorum*	1		
Bromus japonicus	1	*Aster falcatus*	<1		
Aristida longiseta	1	*Polygala alba*	<1		
Agropyron dasystachyum	1				
Andropogon scoparius	1				
Distichlis stricta	1				
Agropyron spicatum	1				
Muhlenbergia cuspidata	<1				

Shrub density averaged only 228 live stems per acre, of which 56 percent was *Artemisia tridentata,* 33 percent *Chrysothamnus nauseosus* and 11 percent was *Ceratoides lanata.* Density of trees less than four inches dbh (diameter at breast height) averaged about two *Juniperus scopulorum* per acre.

Similarity index (range condition) of this mapping unit was 71 percent (high good) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the saline upland ecological site, which is interpolated for current condition in Table 36. In the study area, the *Sporobolus airoides* Breaks community type can be expected to produce 730 pounds per acre (79 percent cattle forage) overall.

Calamovilfa longifolia Breaks

The *Calamovilfa longifolia* Breaks community type is relatively uncommon, occupying 32 acres (0.4 percent) of the Otter Creek study area. Five plots were sampled on midslopes to ridges of gentle to moderate (1-20 percent) gradient. Aspect was commonly southerly and westerly. The predominant ecological sites were shallow clay and shallow, associated with the Midway-Cabbart shallow loams, Midway-Delpoint silty clay loams and Blacksheep-Cabba-Twilight Complex soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Calamovilfa longifolia* Breaks**
n=5

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	21	Perennial	13	Shrub	1
Annual	<1	Annual/Biennial	1	Tree	-
Calamovilfa longifolia	4	*Gutierrezia sarothrae*	3		
Agropyron spicatum	4	*Eriogonum pauciflorum*	1		
Andropogon scoparius	3				
Muhlenbergia cuspidata	2				
Agropyron dasystachyum	2				
Bouteloua gracilis	2				
Agropyron smithii	2				
Stipa comata	<1				

Shrub density averaged 770 live stems per acre, of which 36 percent was *Artemisia tridentata,* 29 percent *Chrysothamnus nauseosus,* 21 percent *Artemisia cana* and 14 percent was *Rhus aromatica.* No trees occurred in the five 0.1-acre density plots.

Similarity index (range condition) of this mapping unit was 67 percent (good) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow ecological site, which is interpolated for current condition in Table 36. In the study area, the *Calamovilfa longifolia* Breaks community type can be expected to produce 1075 pounds per acre (73 percent cattle forage) overall.

3.2.4.2 Shrub-Dominated Breaks

Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus/Agropyron smithii Breaks

The *Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus/Agropyron smithii* Breaks community type is one of the most abundant breaks types, occupying 386 acres (4 percent) of the Otter Creek study area. A total of 26 plots were sampled on all topographic positions from bottoms to ridges, most commonly upper slopes and ridges. Slope gradients were most often gentle to moderate (1-15 percent), but ranged up to 60 percent; 18 (69 percent) of the sample sites were on 1 to 15 percent slopes, and 31 percent of the sites were on 20 to 60 percent slopes. Aspect was variable, commonly southerly to westerly. The predominant ecological sites were shallow clay, shallow and silty, associated with the Midway-Cabbart shallow loams, Midway-Delpoint silty clay loams and Blacksheep-Cabba-Twilight Complex soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus/Agropyron smithii* Breaks**
n=26

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	21	Perennial	8	Shrub	12
Annual	2	Annual/Biennial	9	Tree	-
Agropyron smithii	8	*Melilotus officinalis*	7	*Artemisia tridentata*	6
Bouteloua gracilis	3	*Gutierrezia sarothrae*	2	*Sarcobatus vermiculatus*	3
Agropyron dasystachyum	3	*Grindelia squarrosa*	1	*Chrysothamnus nauseosus*	2
Distichlis spicata	2	*Iva axillaris*	<1		
Bromus japonicus	1				
Agropyron spicatum	<1				
Poa juncifolia	<1				

Shrub density averaged 2382 live stems per acre, of which 51 percent was *Artemisia tridentata,* 25 percent *Chrysothamnus nauseosus* and 19 percent was *Sarcobatus vermiculatus.* Tree density was negligible in the *Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus/Agropyron smithii* Breaks community.

Similarity index (range condition) of this mapping unit was 58 percent (low good) within the baseline study area, using 2011-2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow clay ecological site, which is interpolated for current condition in Table 36. In the study area, the *Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus/Agropyron smithii* Breaks community type can be expected to produce 883 pounds per acre (81 percent cattle forage) overall.

Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus/Agropyron spicatum Breaks

The *Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus/Agropyron spicatum* Breaks community type is very uncommon, occupying only 5 acres (less than 0.1 percent) of the Otter Creek study area. Three plots were sampled on upper slopes and ridges. Slope gradients were mostly gentle (1-5 percent), but ranged up to 20 percent. Aspect was variable, commonly westerly. The ecological sites were shallow clay and shallow, associated with the Midway-Cabbart shallow loams, and Blacksheep-Cabba-Cabbart Complex soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus/Agropyron spicatum* Breaks**
n=3

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	16	Perennial	10	Shrub	17
Annual	<1	Annual/Biennial	<1	Tree	-
Agropyron spicatum	11	*Eriogonum pauciflorum*	3	*Artemisia tridentata*	10
Koeleria cristata	3	*Gutierrezia sarothrae*	2	*Sarcobatus vermiculatus*	4
Bouteloua gracilis	1	*Astragalus gilviflorus*	2	*Chrysothamnus nauseosus*	2

Shrub density averaged 5800 live stems per acre, of which 44 percent was *Rosa arkansana,* 22 percent *Chrysothamnus nauseosus,* 19 percent *Artemisia tridentata* and 15 percent was *Sarcobatus vermiculatus.* Tree density was negligible in the *Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus/Agropyron spicatum* Breaks community.

Similarity index (range condition) of this mapping unit was 61 percent (good) within the baseline study area, using 2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow clay and shallow ecological sites, which are interpolated for current condition in Table 36. In the study area, the *Calamovilfa longifolia* Breaks community type can be expected to produce 947 pounds per acre (70 percent cattle forage) overall.

Rhus aromatica/Agropyron spicatum-Andropogon scoparius Breaks

The *Rhus aromatica/Agropyron spicatum-Andropogon scoparius* Breaks community type is infrequent, occupying 32 acres (0.4 percent) of the Otter Creek study area. Eight plots were sampled, primarily on ridges/ridge shoulders and knobs of gentle to moderate (6-15 percent) gradient. Aspect was variable. The predominant ecological site was very shallow, associated with the Ringling loam soil mapping unit. Six of the eight sample sites were associated with isolated, small scoria outcroppings in the northwestern corner of the study area. These hard-baked clinker outcrops form resistant pedestals scattered along ridges and sideslopes. Vegetation ecology of these outcrops shows a contrast to the surrounding grassland ecology.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Rhus aromatica/Agropyron spicatum-Andropogon scoparius* Breaks**
n=8

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	37	Perennial	15	Shrub	26
Annual	15	Annual/Biennial	8	Tree	-
Stipa comata	12	*Melilotus officinalis*	5	*Rhus aromatica*	22
Bromus japonicus	11	*Psoralea argophylla*	2	*Prunus virginiana*	3
Agropyron spicatum	6	*Gutierrezia sarothrae*	2	*Ribes cereum*	1
Bouteloua gracilis	6	*Artemisia frigida*	2		
Carex filifolia	5	*Cerastium arvense*	1		
Bromus tectorum	4	*Artemisia dracunculus*	1		
Andropogon scoparius	3	*Oxytropis sericea*	1		
Carex heliophila	1	*Potentilla arguta*	<1		
Bouteloua curtipendula	1	*Ambrosia psilostachya*	<1		
Aristida longiseta	<1	*Dalea purpurea*	<1		
Calamovilfa longifolia	<1				

Shrub density averaged 3187 live stems per acre, of which 59 percent *Rhus aromatica,* 37 percent was *Prunus virginiana,* and 4 percent was *Ribes cereum.* No trees occurred in the eight 0.1-acre density plots.

Similarity index (range condition) of this mapping unit was 51 percent (low good) within the baseline study area, using 2011-2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow and very shallow ecological sites, which are interpolated for current condition in Table 36. In the study area, the *Rhus aromatica/Agropyron spicatum-Andropogon scoparius* Breaks community type can be expected to produce 592 pounds per acre (77 percent cattle forage) overall.

Artemisia tridentata-Rhus aromatica-Chrysothamnus nauseosus/Agropyron spicatum Breaks

The *Artemisia tridentata-Rhus aromatica-Chrysothamnus nauseosus/Agropyron spicatum* Breaks community type is common, occupying 83 acres (about 1 percent) of the Otter Creek study area. A total of 15 plots were sampled, primarily on upper slopes and ridges. Sample sites were about evenly distributed among gentle, moderate and steep gradients ranging from 1 to 50 percent. This community type occurred on virtually all aspects, with no particular aspect favored. The predominant ecological sites were shallow and shallow clay, associated with the Blacksheep-Cabba-Twilight Complex, Midway-Cabbart shallow loams and Midway-Delpoint silty clay loams soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Artemisia tridentata-Rhus aromatica-Chrysothamnus nauseosus/Agropyron spicatum* Breaks**
n=15

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	20	Perennial	13	Shrub	11
Annual	2	Annual/Biennial	10	Tree	<1
Agropyron spicatum	9	*Melilotus officinalis*	9	*Artemisia tridentata*	6
Andropogon scoparius	2	*Gutierrezia sarothrae*	3	*Chrysothamnus nauseosus*	2
Bouteloua curtipendula	2	*Eriogonum pauciflorum*	2	*Rhus aromatica*	2
Bromus japonicus	1			*Artemisia cana*	<1
Agropyron dasystachyum	1				
Calamovilfa longifolia	1				
Koeleria cristata	<1				
Agropyron smithii	<1				
Oryzopsis hymenoides	<1				

Shrub density averaged 3744 live stems per acre, of which 32 percent was *Artemisia tridentata,* 32 percent *Chrysothamnus nauseosus,* 20 percent *Rosa arkansana,* 8 percent *Rhus aromatica* and 6 percent was *Rosa woodsii.* Density of trees less than four inches dbh (diameter at breast height) averaged seven *Pinus ponderosa* per acre and five *Juniperus scopulorum* per acre.

Similarity index (range condition) of this mapping unit was 59 percent (low good) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow and shallow clay ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Artemisia tridentata-Rhus aromatica-Chrysothamnus nauseosus/Agropyron spicatum* Breaks community type can be expected to produce 970 pounds per acre (76 percent cattle forage) overall.

Artemisia tridentata-Rhus aromatica-Sarcobatus vermiculatus/Agropyron spicatum Breaks

The *Artemisia tridentata-Rhus aromatica-Sarcobatus vermiculatus/Agropyron spicatum* Breaks community type is common, occupying 92 acres (1 percent) of the Otter Creek study area. Six plots were sampled, primarily on steep (30-60 percent) upper slopes. Aspect was southwesterly and westerly. The predominant ecological sites were shallow clay and shallow, associated with the Midway-Cabbart shallow loams and Blacksheep-Cabba-Cabbart Complex soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Artemisia tridentata-Rhus aromatica-Sarcobatus vermiculatus/Agropyron spicatum* Breaks**
n=6

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	20	Perennial	9	Shrub	21
Annual	<1	Annual/Biennial	6	Tree	<1
Agropyron spicatum	8	*Melilotus officinalis*	5	*Artemisia tridentata*	15
Agropyron smithii	4	*Gutierrezia sarothrae*	1	*Sarcobatus vermiculatus*	3
Stipa viridula	2	*Dalea candida*	1	*Rhus aromatica*	2
Bouteloua curtipendula	1			*Chrysothamnus nauseosus*	1
Stipa comata	1				
Bouteloua gracilis	1				
Distichlis stricta	1				

Shrub density averaged 2277 live stems per acre, of which 70 percent was *Artemisia tridentata,* 13 percent *Sarcobatus vermiculatus,* 11 percent *Rhus aromatica,* and 6 percent *Chrysothamnus nauseosus.* Density of trees greater than four inches dbh (diameter at breast height) averaged two *Juniperus scopulorum* per acre; trees less than four inches dbh averaged eight *Pinus ponderosa* per acre and three *Juniperus scopulorum* per acre.

Similarity index (range condition) of this mapping unit was 61 percent (good) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow clay and shallow ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Artemisia tridentata-Rhus aromatica-Sarcobatus vermiculatus/Agropyron spicatum* Breaks community type can be expected to produce 968 pounds per acre (77 percent cattle forage) overall.

Artemisia tridentata-Atriplex confertifolia-Sarcobatus vermiculatus/Agropyron spicatum Breaks

The *Artemisia tridentata-Atriplex confertifolia-Sarcobatus vermiculatus/Agropyron spicatum* Breaks community type is one of the most abundant breaks types, occupying 211 acres (2 percent) of the Otter Creek study area. A total of 26 plots were sampled on nearly all topography, from bottoms to ridges, with 73 percent of sample sites on upper slopes and ridges. Slope gradients were widely diverse, ranging from 1 to over 90 percent, with 42 percent of sample sites on slopes of 1 to 20 percent, and 54 percent of sites on 25 to 70 percent slopes. Aspect was also variable, the type occurring on virtually all exposures, but the majority (81 percent) of sites facing southerly to westerly. The predominant ecological sites were shallow clay and shallow, associated with the Midway-Cabbart shallow loams, Midway-Delpoint silty clay loams, Blacksheep-Cabba-Cabbart Complex and Cabbart-Cabba shallow loams soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Artemisia tridentata-Atriplex confertifolia-Sarcobatus vermiculatus/Agropyron spicatum* Breaks**
n=26

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	18	Perennial	10	Shrub	18
Annual	2	Annual/Biennial	4	Tree	<1
Agropyron spicatum	7	*Eriogonum pauciflorum*	2	*Artemisia tridentata*	12
Agropyron dasystachyum	4	*Gutierrezia sarothrae*	2	*Atriplex confertifolia*	3
Bromus japonicus	2	*Melilotus officinalis*	2	*Sarcobatus vermiculatus*	2
Agropyron smithii	2				
Stipa viridula	1				
Bouteloua curtipendula	1				
Stipa comata	<1				

Shrub density averaged 2911 live stems per acre, of which 62 percent was *Artemisia tridentata,* 15 percent *Atriplex confertifolia,* 9 percent *Sarcobatus vermiculatus,* 6 percent *Chrysothamnus nauseosus,* and 5 percent was *Rosa arkansana.* Density of trees less than four inches dbh (diameter at breast height) averaged one *Pinus ponderosa* per acre and one *Juniperus scopulorum* per acre.

Similarity index (range condition) of this mapping unit was 60 percent (good) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow clay and shallow ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Artemisia tridentata-Atriplex confertifolia-Sarcobatus vermiculatus/Agropyron spicatum* Breaks community type can be expected to produce 940 pounds per acre (78 percent cattle forage) overall.

Artemisia tridentata-Atriplex confertifolia-Rhus aromatica/Agropyron spicatum Breaks

The *Artemisia tridentata-Atriplex confertifolia-Rhus aromatica/Agropyron spicatum* Breaks community type is common, occupying 91 acres (1 percent) of the Otter Creek study area. A total of 13 plots were sampled on upper slopes and ridges of moderately steep to very steep (30-90 percent) gradient, with one plot on a slope exceeding 100 percent. Aspect was southeast to west, chiefly southwesterly. The predominant ecological sites were shallow and shallow clay, associated with the Blacksheep-Cabba-Cabbart Complex, Cabbart-Cabba shallow loams and Midway-Cabbart shallow loams soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Artemisia tridentata-Atriplex confertifolia-Rhus aromatica/Agropyron spicatum* Breaks**
n=13

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	12	Perennial	8	Shrub	19
Annual	<1	Annual/Biennial	1	Tree	<1
Agropyron spicatum	5	*Gutierrezia sarothrae*	3	*Artemisia tridentata*	9
Agropyron smithii	2	*Eriogonum pauciflorum*	2	*Atriplex confertifolia*	7
Oryzopsis hymenoides	1	*Yucca glauca*	1	*Rhus aromatica*	2
				Chrysothamnus nauseosus	1

Shrub density averaged 2483 live stems per acre, of which 45 percent was *Artemisia tridentata,* 42 percent *Atriplex confertifolia,* 5 percent *Rosa arkansana,* 4 percent *Rhus aromatica,* and 4 percent was *Chrysothamnus nauseosus.* Density of trees greater than four inches dbh (diameter at breast height) averaged two *Pinus ponderosa* per acre and two *Juniperus scopulorum* per acre; trees less than four inches dbh averaged 13 *Pinus ponderosa* per acre and four *Juniperus scopulorum* per acre.

Similarity index (range condition) of this mapping unit was 59 percent (low good) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow and shallow clay ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Artemisia tridentata-Atriplex confertifolia-Rhus aromatica/Agropyron spicatum* Breaks community type can be expected to produce 997 pounds per acre (74 percent cattle forage) overall.

3.2.4.3 Conifer-Dominated Breaks

***Juniperus scopulorum/Agropyron spicatum* Breaks**

The *Juniperus scopulorum/Agropyron spicatum* Breaks community type is common, occupying 62 acres (0.7 percent) of the Otter Creek study area. A total of 11 plots were sampled on toeslopes to ridges on a great range of slope gradients from gentle to very steep (5-90 percent). Aspect was variable, most commonly northwesterly to northeasterly (73 percent of sample sites). The predominant ecological sites were shallow, silty and shallow clay, associated chiefly with the Blacksheep-Cabba-Cabbart Complex, Nihill-Havre outwash areas and Midway-Cabbart shallow loams soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Juniperus scopulorum/Agropyron spicatum* Breaks**
n=11

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	17	Perennial	13	Shrub	2
Annual	<1	Annual/Biennial	3	Tree	38
Agropyron spicatum	9	*Melilotus officinalis*	2	*Juniperus scopulorum*	37
Bouteloua curtipendula	2	*Gutierrezia sarothrae*	1	*Artemisia tridentata*	1
Andropogon scoparius	2	*Psoralea argophylla*	1		
		Astragalus adsurgens	1		
		Cerastium arvense	1		
		Dalea candida	1		
		Aster laevis	<1		
		Thermopsis rhombifolia	<1		

Shrub density averaged 708 live stems per acre, of which 25 percent was *Artemisia tridentata,* 25 percent *Rhus aromatica,* 21 percent *Symphoricarpos occidentalis,* 16 percent *Chrysothamnus nauseosus,* and 13 percent was *Rosa arkansana.* Density of trees greater than four inches dbh (diameter at breast height) averaged 110 *Juniperus scopulorum* per acre and one *Pinus ponderosa* per acre; trees less than four inches dbh averaged 170 *Juniperus scopulorum* per acre and 37 *Pinus ponderosa* per acre.

Similarity index (range condition) of this mapping unit was 42 percent (fair) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow and silty ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Juniperus scopulorum/Agropyron spicatum* Breaks community type can be expected to produce 900 pounds per acre (65 percent cattle forage) overall.

Pinus ponderosa-Juniperus scopulorum/Agropyron spicatum Breaks

The *Pinus ponderosa-Juniperus scopulorum/Agropyron spicatum* Breaks community type is a common conifer breaks type, occupying 54 acres (0.6 percent) of the Otter Creek study area. A total of 18 plots were sampled on middle slopes to ridges of gentle to very steep (1-80 percent) slope gradient; most sites (72 percent) were on slopes of 30 to 80 percent gradient. The type was found on all aspects, particularly southerly to westerly (61 percent of samples). The predominant ecological site was shallow, associated with the Blacksheep-Cabba-Cabbart Complex, Cabbart-Cabba shallow loams, Blacksheep-Cabba-Twilight Complex and Midway-Cabbart shallow loams soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Pinus ponderosa-Juniperus scopulorum/Agropyron spicatum* Breaks**
n=18

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	15	Perennial	15	Shrub	4
Annual	<1	Annual/Biennial	6	Tree	14
Agropyron spicatum	9	*Melilotus officinalis*	5	*Pinus ponderosa*	11
Andropogon scoparius	1	*Yucca glauca*	2	*Juniperus scopulorum*	3
Carex filifolia	1	*Dalea candida*	2	*Juniperus horizontalis*	2
		Gutierrezia sarothrae	1	*Rhus aromatica*	1
		Astragalus tenellus	1	*Chrysothamnus nauseosus*	<1
		Thermopsis rhombifolia	<1		

Shrub density averaged 1062 live stems per acre, of which 31 percent was *Artemisia tridentata,* 25 percent *Chrysothamnus nauseosus,* 20 percent *Rhus aromatica* and 14 percent was *Rosa arkansana.* Density of trees greater than four inches dbh (diameter at breast height) averaged 23 *Pinus ponderosa* per acre and 20 *Juniperus scopulorum* per acre; trees less than four inches dbh averaged 55 *Pinus ponderosa* per acre and 79 *Juniperus scopulorum* per acre.

Similarity index (range condition) of this mapping unit was 52 percent (low good) within the baseline study area, using 2011-2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow and shallow clay ecological sites, which are interpolated for current condition in Table 36. In the study area, the *Pinus ponderosa-Juniperus scopulorum/Agropyron spicatum* Breaks community type can be expected to produce 959 pounds per acre (73 percent cattle forage) overall.

Pinus ponderosa-Juniperus scopulorum/Andropogon scoparius Breaks

The *Pinus ponderosa-Juniperus scopulorum/Andropogon scoparius* Breaks community type is relatively common, occupying 62 acres (0.7 percent) of the Otter Creek study area. A total of 15 plots were sampled on lower slopes to ridges of gentle to very steep (5-70 percent) slope; 40 percent of sample sites were on 5 to 25 percent slopes, and 60 percent of sites on 30 to 70 percent gradients. Aspect was variable, usually southeasterly to southwesterly (80 percent of samples). The predominant ecological site was shallow, associated with the Blacksheep-Cabba-Cabbart Complex and Ringling-Twilight-Barvon Complex soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Pinus ponderosa-Juniperus scopulorum/Andropogon scoparius* Breaks**
n=15

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	30	Perennial	16	Shrub	3
Annual	1	Annual/Biennial	6	Tree	18
Andropogon scoparius	11	*Melilotus officinalis*	5	*Pinus ponderosa*	9
Bouteloua curtipendula	5	*Yucca glauca*	3	*Juniperus scopulorum*	9
Agropyron spicatum	3	*Astragalus tenellus*	2	*Rhus aromatica*	1
Stipa comata	2	*Gutierrezia sarothrae*	1	*Chrysothamnus nauseosus*	1
Agropyron smithii	2	*Dalea candida*	1		
Carex filifolia	2	*Psoralea argophylla*	1		
Calamovilfa longifolia	2				
Bouteloua gracilis	1				
Bromus japonicus	1				
Koeleria cristata	<1				

Shrub density averaged 958 live stems per acre, of which 29 percent was *Artemisia tridentata,* 27 percent *Rhus aromatica,* 17 percent *Chrysothamnus nauseosus,* 8 percent *Calylophus serrulatus,* 8 percent *Symphoricarpos occidentalis* and 6 percent was *Artemisia cana. D*ensity of trees greater than four inches dbh (diameter at breast height) averaged 29 *Pinus ponderosa* per acre and 21 *Juniperus scopulorum* per acre; trees less than four inches dbh averaged 87 *Pinus ponderosa* per acre and 59 *Juniperus scopulorum* per acre.

Similarity index (range condition) of this mapping unit was 63 percent (good) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow ecological site, which is interpolated for current condition in Table 36. In the study area, the *Pinus ponderosa-Juniperus scopulorum/Andropogon scoparius* Breaks community type can be expected to produce 1050 pounds per acre (73 percent cattle forage) overall.

Pinus ponderosa-Juniperus scopulorum/Artemisia tridentata Breaks

The *Pinus ponderosa-Juniperus scopulorum/Artemisia tridentata* Breaks community type is relatively infrequent, occupying 14 acres (0.2 percent) of the Otter Creek study area. Four plots were sampled on lower slopes to ridges of moderate to moderately steep (10-40 percent) gradient. Aspect was most commonly westerly and southwesterly. The predominant ecological site was shallow, associated with the Blacksheep-Cabba-Cabbart Complex soil mapping unit.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Pinus ponderosa-Juniperus scopulorum/Artemisia tridentata* Breaks**
n=4

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	32	Perennial	21	Shrub	16
Annual	<1	Annual/Biennial	4	Tree	10
Agropyron spicatum	5	*Gutierrezia sarothrae*	6	*Artemisia tridentata*	10
Bouteloua curtipendula	5	*Psoralea argophylla*	3	*Juniperus scopulorum*	5
Andropogon scoparius	4	*Erigeron pumilus*	3	*Pinus ponderosa*	5
Agropyron dasystachyum	4	*Melilotus officinalis*	2	*Chrysothamnus nauseosus*	4
Stipa comata	3	*Balsamorhiza sagittata*	2	*Symphoricarpos oreophilus*	1
Agropyron smithii	3	*Phlox hoodii*	1		
Stipa viridula	3	*Yucca glauca*	1		
Carex filifolia	2				
Koeleria cristata	1				
Bouteloua gracilis	1				
Distichlis stricta	1				
Bromus japonicus	<1				

Shrub density averaged 3769 live stems per acre, of which 40 percent was *Artemisia tridentata,* 32 percent *Symphoricarpos oreophilus* and 18 percent was *Chrysothamnus nauseosus.* Density of trees greater than four inches dbh (diameter at breast height) averaged 13 *Pinus ponderosa* per acre and 30 *Juniperus scopulorum* per acre; trees less than four inches dbh averaged 132 *Pinus ponderosa* per acre and 88 *Juniperus scopulorum* per acre.

Similarity index (range condition) of this mapping unit was 62 percent (good) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow ecological site, which is interpolated for current condition in Table 36. In the study area, the *Pinus ponderosa-Juniperus scopulorum/Artemisia tridentata* Breaks community type can be expected to produce 1040 pounds per acre (73 percent cattle forage) overall.

Pinus ponderosa-Juniperus scopulorum/Artemisia tridentata-Atriplex confertifolia Breaks

The *Pinus ponderosa-Juniperus scopulorum/Artemisia tridentata-Atriplex confertifolia* Breaks community type is relatively common, occupying 25 acres (0.3 percent) of the Otter Creek study area. Seven plots were sampled on steep (40-70 percent gradient) middle slopes and upper slopes. Aspect of sample sites was southerly through west to northwesterly. The predominant ecological site was shallow, associated with the Cabbart-Cabba shallow loams and Midway-Cabbart shallow loams soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Pinus ponderosa-Juniperus scopulorum/Artemisia tridentata-Atriplex confertifolia* Breaks**
n=7

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	23	Perennial	8	Shrub	30
Annual	<1	Annual/Biennial	<1	Tree	4
Agropyron spicatum	14	*Gutierrezia sarothrae*	3	*Artemisia tridentata*	17
Agropyron smithii	4	*Eriogonum pauciflorum*	<1	*Atriplex confertifolia*	9
Stipa viridula	2			*Juniperus scopulorum*	4
Poa pratensis	1			*Chrysothamnus nauseosus*	1
				Sarcobatus vermiculatus	1

Shrub density averaged 3440 live stems per acre, of which 42 percent was *Artemisia tridentata,* 20 percent *Atriplex confertifolia,* 12 percent *Symphoricarpos occidentalis,* 6 percent *Rhus aromatica,* 6 percent *Rosa woodsii,* 5 percent *Chrysothamnus nauseosus* and 4 percent was *Sarcobatus vermiculatus.* Density of trees greater than four inches dbh (diameter at breast height) averaged 9 *Pinus ponderosa* per acre and 40 *Juniperus scopulorum* per acre; trees less than four inches dbh averaged 27 *Pinus ponderosa* per acre and 61 *Juniperus scopulorum* per acre.

Similarity index (range condition) of this mapping unit was 65 percent (good) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow ecological site, which is interpolated for current condition in Table 36. In the study area, the *Pinus ponderosa-Juniperus scopulorum/Artemisia tridentata-Atriplex confertifolia* Breaks community type can be expected to produce 1060 pounds per acre (73 percent cattle forage) overall.

3.2.5 Ponderosa Pine-Juniper Forest And Savannah

There were six Pine-Juniper communities identified during the 2011-2012 Otter Creek baseline inventory, accounting for 740 acres (8 percent) of the study area. Four communities were named for the grass understory union, characterized by *Agropyron spicatum, Oryzopsis micrantha, Festuca idahoensis* or *Andropogon scoparius,* and two for the shrub understory, characterized by *Symphoricarpos occidentalis* or *Prunus virginiana*. Five Pine-Juniper Breaks communities were treated as the Conifer-Dominated Breaks subtype of the Breaks physiognomic type, and are addressed in Section 3.2.4.

The four Pine-Juniper/Grass communities collectively comprised 686 acres (93 percent of acreage in the Pine-Juniper series), and the two Pine-Juniper/Shrub types totaled 54 acres (7 percent of Pine-Juniper acreage).

The relative abundance of Ponderosa Pine-Juniper community types in the Otter Creek baseline study area is listed below:

PONDEROSA PINE-JUNIPER COMMUNITY TYPE	PERCENTAGE OF PINE-JUNIPER ACREAGE	PERCENTAGE OF STUDY AREA ACREAGE
Ponderosa Pine-Juniper / Grass	93	7
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum	58	5
Juniperus scopulorum-Pinus ponderosa / Oryzopsis micrantha	<1	<<1
Pinus ponderosa-Juniperus scopulorum / Festuca idahoensis	2	<1
Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius	33	3
Ponderosa Pine-Juniper / Shrub	7	<1
Drainage *Juniperus scopulorum-Pinus ponderosa / Symphoricarpos occidentalis-Agropyron smithii*	6	<1
Pinus ponderosa-Juniperus scopulorum / Prunus virginiana	1	<<1

Ponderosa Pine-Juniper Forest and Savannah cover and constancy data are presented by sample site (plot) in Appendix Tables B28 through B32 (2011 data) and Appendix Table G11 (2012 data), and summarized by community type in Table 8. Shrub density data are given by plot in Appendix Tables C28 through C32 (2011 data) and Appendix Table H11 (2012 data), and summarized for Ponderosa Pine-Juniper Forest and Savannah community types in Table 19. Tree density data are presented by plot in Appendix Tables D9 through D12 (2011 data) and Appendix Table J4 (2012 data), and summarized by Ponderosa Pine-Juniper Forest and Savannah community type in Table 28.

A correlation of soils mapping units, ecological sites and community types is listed by plot in Appendix E (2011 data) and Appendix K (2012 data), and summarized by parameter in Tables 32 through 34. Calculations of ecological site condition (similarity index determinations) are presented by Ponderosa Pine-Juniper Forest and Savannah community type in Appendix Tables F7 and L5 (2011 and 2012), and summarized for all community types in Table 35; condition data were used to determine rangeland productivity values for each community type (using NRCS stocking rate guides) as shown in Table 36 and rangeland stocking rates in Table 37.

Plant species of concern listed by MTNHP (2012) for Powder River and Rosebud Counties are summarized in Table 39. Ponderosa Pine-Juniper Forest and Savannah species diversity is given by functional class in Table 40. Appendix M provides a synopsis of important site parameters (topographical position, slope gradient and slope aspect) recorded for Ponderosa Pine-Juniper Forest and Savannah communities. A literature review of eastern Montana ponderosa pine communities is synthesized in Appendix Table N4. Acreage of vegetation types is given in Table 41. All vegetation sample site locations are shown on the community type map (Plate 1).

Forest and Savannah community types were sampled on a wide variety of soils, topographical positons and aspects. Pine-Juniper/Grass communities were normally associated with middle to high topographical positions and moderately steep to steep slope gradients on cool, northwesterly to northeasterly exposures. These sites were most commonly shallow loam and slaty loam soils associated with the shallow, sandy steep and very shallow ecological sites. Pine-Juniper/Shrub communities were associated with drainage bottoms/banks and low slope positions of variable steepness and exposure. Soils were mostly silt loams and shallow loams, associated with the overflow and shallow ecological sites, respectively.

Using NRCS guidelines, Pine-Juniper Forest and Savannah in the Otter Creek study area is in high fair condition (about 44 percent), ranging from 43 percent mean condition for Pine-Juniper/Grass to 49 percent for Pine-Juniper/Shrub. Mean condition was high fair for the three predominant ecological sites associated with Pine – Juniper communities, including shallow (43 percent condition), very shallow (45 percent) and overflow (47 percent). This translates, again using NRCS guidelines, to an expected total annual production of approximately 765 pounds per acre for Forest and Savannah in current condition in the study area overall, ranging from 685 pounds per acre in Pine-Juniper/Grass to 1535 pounds per acre in Pine-Juniper/Shrub.

In the following text, Pine-Juniper Forest and Savannah community types are arranged roughly in order of postulated successional status (in part using Pfister *et al*. 1977; Cooper and Pfister 1984), as well as moisture regime (xeric to mesic). Soil texture and understory species composition were also taken into account.

3.2.5.1 Ponderosa Pine-Juniper/Grass

Pinus ponderosa-Juniperus scopulorum/Agropyron spicatum

The *Pinus ponderosa-Juniperus scopulorum/Agropyron spicatum* community type is by far the most abundant pine-juniper community, occupying 429 acres (5 percent) of the Otter Creek study area. A total of 93 plots were sampled from bottoms to ridges, chiefly on middle slopes to ridges. Gradients were gentle to very steep (1-90 percent slope gradient). Of the 93 sample sites, 17 percent occurred on 1-15 percent slope gradients, 70 percent of samples on 15-60 percent slopes, and 13 percent on slopes of 60-90 percent. Aspect was commonly northwesterly to northeasterly (83 percent of sample sites), with only two plots (2 percent) on southeast to southwest aspects. The predominant ecological sites were shallow (78 percent of sample sites), very shallow and sandy steep, associated with the Blacksheep-Cabba-Cabbart Complex (70 percent of sample sites), Blacksheep-Cabba-Twilight Complex, Ringling-Twilight-Barvon Complex, Midway clay loam – Eroded and Midway-Cabbart shallow loams soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

Pinus ponderosa-Juniperus scopulorum/Agropyron spicatum
n=93

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	21	Perennial	13	Shrub	3
Annual	<1	Annual/Biennial	3	Tree	55
Agropyron spicatum	8	*Melilotus officinalis*	3	*Pinus ponderosa*	30
Bouteloua curtipendula	3	*Cerastium arvense*	1	*Juniperus scopulorum*	25
Andropogon scoparius	2	*Astragalus adsurgens*	<1	*Artemisia tridentata*	1
Agropyron smithii	1	*Gutierrezia sarothrae*	<1	*Rhus aromatica*	<1
Stipa viridula	1				
Carex filifolia	1				
Koeleria cristata	<1				
Stipa comata	<1				
Bromus japonicus	<1				

Shrub density averaged 1060 live stems per acre, of which 23 percent was *Symphoricarpos occidentalis,* 22 percent was *Artemisia tridentata,* 21 percent *Rosa arkansana,* 16 percent *Rhus aromatica,* 7 percent *Artemisia cana,* 4 percent *Rosa woodsii* and 4 percent was *Ceratoides lanata.* Density of trees greater than four inches dbh (diameter at breast height) averaged 66 *Pinus ponderosa* per acre and 40 *Juniperus scopulorum* per acre; trees less than four inches dbh averaged 255 *Pinus ponderosa* per acre and 263 *Juniperus scopulorum* per acre.

Similarity index (range condition) of this mapping unit was 40 percent (fair) within the baseline study area, using 2011-2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow, very shallow and sandy steep ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Pinus ponderosa-Juniperus scopulorum/Agropyron spicatum* community type can be expected to produce 597 pounds per acre (65 percent cattle forage) overall.

Juniperus scopulorum-Pinus ponderosa/Oryzopsis micrantha

The *Juniperus scopulorum-Pinus ponderosa/Oryzopsis micrantha* community type is very infrequent, occupying 3 acres (less than 0.1 percent) of the Otter Creek study area. Two plots were sampled on steep (40-50 percent gradient) midslopes of northerly aspect. The ecological site was shallow, associated with the Blacksheep-Cabba-Cabbart Complex soil.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

Juniperus scopulorum-Pinus ponderosa/Oryzopsis macrantha
n=2

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	16	Perennial	8	Shrub	1
Annual	-	Annual/Biennial	<1	Tree	98
Oryzopsis micrantha	13	*Toxicodendron rydbergii*	2	*Juniperus scopulorum*	63
Agropyron spicatum	1	*Achillea millefolium*	1	*Pinus ponderosa*	35
Stipa viridula	1	*Berberis repens*	1		

Shrub density averaged 760 live stems per acre, of which 86 percent was *Symphoricarpos oreophilus,* 7 percent *Prunus virginiana* and 7 percent was *Rhus aromatica.* Density of trees greater than four inches dbh (diameter at breast height) averaged 90 *Juniperus scopulorum* per acre and 50 *Pinus ponderosa* per acre; trees less than four inches dbh averaged 380 *Juniperus scopulorum* and 20 *Pinus ponderosa* per acre.

Similarity index (range condition) of this mapping unit was 23 percent (high poor) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow ecological site, which is interpolated for current condition in Table 36. In the study area, the *Juniperus scopulorum-Pinus ponderosa/Oryzopsis micrantha* community type can be expected to produce 315 pounds per acre (59 percent cattle forage) overall.

Pinus ponderosa-Juniperus scopulorum/Festuca idahoensis

The *Pinus ponderosa -Juniperus scopulorum/Festuca idahoensis* community type is infrequent, occupying 13 acres (0.1 percent) of the Otter Creek study area. Two plots were sampled on a 56 percent gradient lower slope and an 8 percent ridge/shoulder. Aspect was north and northeast. The predominant ecological site was shallow, associated with the Blacksheep-Cabba-Cabbart Complex and Twilight-Blacksheep sandy loams soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

Pinus ponderosa -Juniperus scopulorum/Festuca idahoensis
n=2

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	38	Perennial	17	Shrub	1
Annual	<1	Annual/Biennial	<1	Tree	56
Festuca idahoensis	20	*Psoralea argophylla*	8	*Juniperus scopulorum*	36
Stipa viridula	6	*Cerastium arvense*	2	*Pinus ponderosa*	20
Bouteloua curtipendula	5	*Gutierrezia sarothrae*	2	*Artemisia tridentata*	1
Stipa comata	4				
Agropyron spicatum	3				

Shrub density averaged 405 live stems per acre, of which 50 percent was *Rhus aromatica,* 38 percent *Artemisia cana* and 12 percent was *Artemisia tridentata.* Density of trees greater than four inches dbh (diameter at breast height) averaged 105 *Pinus ponderosa* per acre and 35 *Juniperus scopulorum* per acre; trees less than four inches dbh averaged 140 *Pinus ponderosa* per acre and 260 *Juniperus scopulorum* per acre.

Similarity index (range condition) of this mapping unit was 50 percent (high fair) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow ecological site, which is interpolated for current condition in Table 36. In the study area, the *Pinus ponderosa-Juniperus scopulorum/Festuca idahoensis* community type can be expected to produce 950 pounds per acre (73 percent cattle forage) overall.

Pinus ponderosa-Juniperus scopulorum/Andropogon scoparius

The *Pinus ponderosa-Juniperus scopulorum/Andropogon scoparius* community type is very common, occupying 241 acres (3 percent) of the Otter Creek study area. A total of 30 plots were sampled, occurring on essentially all topographic positions from bottoms to ridges, most frequently middle and upper slope positions (57 percent of sample sites). Slope gradients varied from 5 to 60 percent, with 67 percent of samples on 5-25 percent grades, and 33 percent of sites on 25-60 percent grades. The *Pinus ponderosa-Juniperus scopulorum/Andropogon scoparius* community occurred on all aspects, however only five plots (17 percent) occurred on southeast to southwest exposures. The predominant ecological sites were shallow (approximately 71 percent of sample sites) and shallow clay, associated with the Blacksheep-Cabba-Cabbart Complex (60 percent of sample sites), Blacksheep-Cabba-Twilight Complex, Midway-Cabbart shallow loams and Midway clay loam – Eroded soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

Pinus ponderosa-Juniperus scopulorum/Andropogon scoparius
n=30

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	40	Perennial	16	Shrub	2
Annual	1	Annual/Biennial	3	Tree	34
Andropogon scoparius	15	*Melilotus officinalis*	2	*Juniperus scopulorum*	18
Bouteloua curtipendula	8	*Artemisia ludoviciana*	1	*Pinus ponderosa*	16
Carex filifolia	3	*Psoralea argophylla*	1	*Artemisia tridentata*	1
Agropyron spicatum	3	*Cerastium arvense*	1		
Stipa comata	2	*Gutierrezia sarothrae*	<1		
Bouteloua gracilis	2	*Antennaria howellii*	<1		
Stipa viridula	1	*Astragalus agrestis*	<1		
Koeleria cristata	1				
Bromus japonicus	1				
Agropyron smithii	1				
Poa pratensis	1				
Calamovilfa longifolia	1				
Aristida longiseta	<1				
Muhlenbergia cuspidata	<1				

Shrub density averaged 793 live stems per acre, of which 26 percent was *Artemisia tridentata,* 21 percent *Symphoricarpos occidentalis,* 17 percent *Rhus aromatica,* 16 percent *Symphoricarpos oreophilus*, 9 percent *Rosa arkansana* and 7 percent was *Artemisia cana.* Density of trees greater than four inches dbh (diameter at breast height) averaged 57 *Pinus ponderosa* per acre and 38 *Juniperus scopulorum* per acre; trees less than four inches dbh averaged 288 *Pinus ponderosa* per acre and 157 *Juniperus scopulorum* per acre.

Similarity index (range condition) of this mapping unit was 56 percent (low good) within the baseline study area, using 2011-2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow, shallow clay and very shallow ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Pinus ponderosa-Juniperus scopulorum/Andropogon scoparius* community type can be expected to produce 951 pounds per acre (75 percent cattle forage) overall.

3.2.5.2 Ponderosa Pine-Juniper/Shrub

Drainage *Juniperus scopulorum-Pinus ponderosa/Symphoricarpos occidentalis-Agropyron smithii*
The Drainage *Juniperus scopulorum-Pinus ponderosa/Symphoricarpos occidentalis-Agropyron smithii* community type is relatively common, occupying 48 acres (0.5 percent) of the Otter Creek study area. A total of 11 plots were sampled, primarily on bottoms/banks of gentle (0-5 percent) slope gradient, but up to 30 percent grade on banks. Aspect was generally westerly to northerly (direction of drainage). The ecological sites were overflow and shallow, associated with the Nihill-Havre outwash areas and Blacksheep-Cabba-Cabbart Complex soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

Drainage *Juniperus scopulorum-Pinus ponderosa/Symphoricarpos occidentalis-Agropyron smithii*
n=11

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	41	Perennial	18	Shrub	15
Annual	<1	Annual/Biennial	9	Tree	52
Agropyron smithii	18	*Melilotus officinalis*	6	*Juniperus scopulorum*	42
Stipa viridula	8	*Artemisia ludoviciana*	3	*Symphoricarpos occidentalis*	11
Poa pratensis	7	*Taraxacum laevigatum*	3	*Pinus ponderosa*	11
Bouteloua curtipendula	1	*Medicago lupulina*	2	*Rhus aromatica*	2
Calamovilfa longifolia	1	*Toxicodendron rydbergii*	1	*Rosa woodsii*	1
Stipa comata	1	*Aster falcatus*	1		
Agropyron trachycaulum	1	*Achillea millefolium*	<1		
Poa compressa	1	*Solidago rigida*	<1		
Koeleria cristata	<1				

Shrub density averaged 11,160 live stems per acre, of which 85 percent was *Symphoricarpos occidentalis,* 8 percent *Rosa woodsii* and 4 percent was *Rhus aromatica.* Density of trees greater than four inches dbh (diameter at breast height) averaged 32 *Pinus ponderosa* per acre and 72 *Juniperus scopulorum* per acre; trees less than four inches dbh averaged 114 *Pinus ponderosa* per acre and 167 *Juniperus scopulorum* per acre.

Similarity index (range condition) of this mapping unit was 47 percent (high fair) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the overflow and shallow ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the Drainage *Juniperus scopulorum-Pinus ponderosa/ Symphoricarpos occidentalis-Agropyron smithii* community type can be expected to produce 1630 pounds per acre (75 percent cattle forage) overall.

Pinus ponderosa- Juniperus scopulorum/Prunus virginiana

The *Pinus ponderosa- Juniperus scopulorum/Prunus virginiana* community type is very limited, occupying 6 acres (less than 0.1 percent) of the Otter Creek study area. Two plots were sampled on bottoms/ banks of 3 percent slope gradient (bottoms) to 40 percent slope (banks). Aspects were to the north and east (direction of drainage). The ecological site was shallow, associated with the Blacksheep-Cabba-Cabbart Complex soil.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

Pinus ponderosa- Juniperus scopulorum/Prunus virginiana
n=2

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	67	Perennial	46	Shrub	55
Annual	-	Annual/Biennial	22	Tree	37
Agropyron smithii	23	*Toxicodendron rydbergii*	21	*Juniperus scopulorum*	23
Poa pratensis	14	*Melilotus officinalis*	18	*Prunus virginiana*	23
Stipa viridula	12	*Artemisia ludoviciana*	6	*Pinus ponderosa*	14
Agropyron trachycaulum	10	*Monarda fistulosa*	5	*Rhus aromatica*	12
Elymus canadensis	4	*Smilacina stellata*	4	*Symphoricarpos occidentalis*	7
Bouteloua curtipendula	2	*Medicago lupulina*	4	*Ribes aureum*	6
Andropogon scoparius	2	*Aster falcatus*	2	*Rosa woodsii*	3
		Solidago rigida	2	*Rosa arkansana*	3
		Apocynum cannabinum	1	*Ribes setosum*	2
		Aster laevis	1		
		Berberis repens	1		

Shrub density averaged 11,840 live stems per acre, of which 34 percent was *Symphoricarpos occidentalis,* 20 percent *Rosa arkansana,* 18 percent *Prunus virginiana,* 13 percent *Ribes aureum ,* 8 percent *Rosa woodsii* and 6 percent was *Rhus aromatica.* Density of trees greater than four inches dbh (diameter at breast height) averaged 15 *Pinus ponderosa* per acre and 25 *Juniperus scopulorum* per acre; trees less than four inches dbh averaged 160 *Pinus ponderosa* per acre and 75 *Juniperus scopulorum* per acre.

Similarity index (range condition) of this mapping unit was 57 percent (low good) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the shallow ecological site, which is interpolated for current condition in Table 36. In the study area, the *Pinus ponderosa-Juniperus scopulorum/ Prunus virginiana* community type can be expected to produce 1005 pounds per acre (73 percent cattle forage) overall.

3.2.6 Drainage Bottom

Four primary Drainage Bottom types were identified in the Otter Creek baseline study area, and classified according to physiognomic type, including Herbaceous, Low Shrub, Tall Shrub and Deciduous Tree. Drainage Bottom types collectively comprised about 215 acres (2 percent) of the study area. These communities are restricted to drainage bottoms and adjacent toeslopes, swales and coulee banks, sites which receive supplemental water from snow catchment, overflow, subirrigation or seepage. The following type descriptions are arranged primarily with regard to the stratification of plant physiognomy.

The Herbaceous Bottom type is comprised of eighteen mesophytic/hydrophytic community types representing eight series dominated by various associations of *Distichlis stricta, Sporobolus airoides, Spartina gracilis, Spartina pectinata, Scirpus maritimus, Eleocharis palustris, Typha latifolia* and *Scirpus acutus-Scirpus validus.* Due to the mosaic distribution of these often small-scale communities, it would be impractical to map these sites on a species-dominance basis, therefore they are mapped according to series or physiognomic type. Herbaceous Bottom types totaled 62 acres, or 29 percent of Drainage Bottom acreage.

The Low Shrub Bottom type includes four mesophytic shrub community types in one series with *Symphoricarpos occidentalis, Artemisia cana* and *Rosa woodsii* generally the dominant shrubs, and *Agropyron smithii* and *Poa pratensis* dominant in the understory. The Low Shrub Bottom series comprised 90 acres (42 percent of Drainage Bottom acreage). The Tall Shrub Bottom type (very minor in the study area) was represented by two mesophytic community types in two series, *Prunus virginiana* and *Salix exigua,* totaling only 1.4 acres, or 1 percent of Drainage Bottom acreage.

Deciduous Tree Bottom was comprised of three mesophytic series, including six *Populus deltoides* community types at 28 acres (13 percent of Drainage Bottom acreage), three *Acer negundo* community types at 30 acres (14 percent) and one *Fraxinus pennsylvanica* community (2 acres or 1 percent).

The relative abundance of Drainage Bottom community types in the Otter Creek baseline study area is listed below:

DRAINAGE BOTTOM COMMUNITY TYPE	PERCENTAGE OF DRAINAGE BOTTOM ACREAGE	PERCENTAGE OF STUDY AREA ACREAGE
Mesophytic/Hydrophytic Herbaceous Bottom	29	<1
Distichlis stricta Bottom Series	4	<<1
Sporobolus airoides Bottom Series	2	<<1
Spartina gracilis Bottom Series	<<1	<<1
Spartina pectinata Bottom Series	16	<1
Scirpus maritimus Bottom Series	<1	<<1
Eleocharis palustris Bottom Series	<1	<<1
Typha latifolia Bottom Series	<1	<<1
Scirpus acutus-Scirpus validus Bottom Series	5	<<1
Mesophytic Low Shrub Bottom	42	1
Symphoricarpos occidentalis Bottom Series	42	1
Mesophytic Tall Shrub Bottom	1	<<1
Prunus virginiana Bottom Series	1	<<1
Salix exigua Bottom Series	<<1	<<1
Mesophytic Deciduous Tree Bottom	28	<1
Populus deltoides Bottom Series	13	<1
Acer negundo Bottom Series	14	<1
Fraxinus pennsylvanica Bottom Series	1	<<1

Drainage Bottom cover and constancy data are presented by sample site (plot) in Appendix Tables B33 through B39 (2011 data) and Appendix Tables G12 through G16 (2012 data), and summarized by community type in Table 9 (Herbaceous Bottoms), Table 10 (Low Shrub Bottoms), Table 11 (Tall Shrub Bottoms) and Table 12 (Deciduous Tree Bottoms). Shrub density data are given by plot in Appendix Tables C33 through C36 (2011 data) and Appendix Tables H12 through H16 (2012 data), and summarized for Drainage Bottom community types in Tables 20 to 22. Tree density data are presented by plot in Appendix Tables D13 through D16 (2011 data) and Appendix Tables J5 and J6 (2012 data), and summarized by Drainage Bottom community type in Tables 29 to 31.

A correlation of soils mapping units, ecological sites and community types is listed by plot in Appendix E (2011 data) and Appendix K (2012 data), and summarized by parameter in Tables 32 through 34. Calculations of ecological site condition (similarity index determinations) are presented by Drainage Bottom community type in Appendix Tables F8 to F10 (2011 data) and L6 to L8 (2012 data), and summarized for all community types in Table 35; condition data were used to determine rangeland productivity values for each community type (using NRCS stocking rate guides) as shown in Table 36 and rangeland stocking rates in Table 37.

Plant species of concern listed by MTNHP (2012) for Powder River and Rosebud Counties are summarized in Table 39. Drainage Bottom species diversity is given by functional class in Table 40. Appendix M provides a synopsis of important site parameters (topographical position, slope gradient and slope aspect) recorded for Drainage Bottom communities. A literature review of eastern Montana Drainage Bottom communities is synthesized in Appendix Table N5. Acreage of vegetation types is given in Table 41. All vegetation sample site locations are shown on the community type map (Plate 1).

Herbaceous Bottom communities were mostly tied to the riparian fringe (*i.e.,* organic muck) and silt loam soils associated with the subirrigated, riparian wet meadow and overflow ecological sites. Low Shrub and Tall Shrub Bottom communities occurred on silt loams and silty clay loams on overflow ecological sites. The Deciduous Tree Bottom type was primarily associated with silt loams and silty clays related to the overflow and subirrigated-wet meadow complex ecological sites.

Using NRCS guidelines, Drainage Bottom types in the Otter Creek study area are in poor to high-fair condition, ranging from poor (14 percent) in Deciduous Tree Bottom to mid-fair (41 percent) in Herbaceous Bottom and high fair (43 percent) in Low Shrub Bottom. This translates, again using NRCS guidelines, to an expected total annual production of approximately 3070 pounds per acre for Herbaceous Bottoms in current condition in the study area overall, 1660 pounds per acre for Low Shrub Bottoms, and 1610 pounds per acre for Deciduous Tree Bottoms.

In the following text, Drainage Bottom community types are arranged first by physiognomic subtype (lower to taller vegetation stratum) and secondly, within each subtype, a moisture gradient from moderately mesophytic to clearly hydrophytic.

3.2.6.1 Mesophytic/Hydrophytic Herbaceous Bottom

***Distichlis stricta* Bottom Series**

The *Distichlis stricta* Bottom Series comprises two wetland community types, together occupying 8 acres (less than 0.1 percent) of the Otter Creek study area. In the study area, the series is represented by the *Distichlis stricta/Agropyron smithii* and *Distichlis stricta/Hordeum jubatum* communities. Three plots were sampled on drainage bottoms/banks and adjacent toeslopes of 2-15 percent gradient. Aspect was northwesterly to northeasterly, as dictated by drainage direction. The ecological site was saline lowland, associated with the Nihill-Havre outwash areas and Midway-Cabbart shallow loams soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Distichlis stricta* Bottom Series**
n=3

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	49	Perennial	4	Shrub	1
Annual	-	Annual/Biennial	2	Tree	<1
Distichlis stricta	28	*Aster pansus*	2		
Hordeum jubatum	8	*Melilotus officinalis*	1		
Agropyron smithii	4				
Scirpus americanus	4				
Poa juncifolia	3				
Poa pratensis	1				

Shrub and tree density were negligible in the *Distichlis stricta* Bottom Series.

Similarity index (range condition) of this mapping unit was 36 percent (fair) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the saline lowland ecological site, which is interpolated for current condition in Table 36. In the study area, the *Distichlis stricta* Bottom Series can be expected to produce 1530 pounds per acre (66 percent cattle forage) overall.

***Sporobolus airoides* Bottom Series**

The *Sporobolus airoides* Bottom Series comprises two wetland community types, together occupying 5 acres (less than 0.1 percent) of the Otter Creek study area. In the study area, the series is represented by the *Sporobolus airoides/Agropyron smithii* and *Sporobolus airoides/Distichlis stricta* communities. Seven plots were sampled on drainage bottoms/banks and midslope swales of 1-15 percent gradient. Aspect was northwesterly to northeasterly, as dictated by drainage direction. The ecological sites were saline lowland and saline upland, associated with the Midway-Cabbart shallow loams, Midway clay loam – Eroded and Blacksheep-Cabba-Cabbart Complex soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Sporobolus airoides* Bottom Series**
n=7

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	50	Perennial	3	Shrub	<1
Annual	<1	Annual/Biennial	2	Tree	-
Sporobolus airoides	22	*Aster pansus*	1		
Agropyron smithii	11	*Melilotus officinalis*	1		
Distichlis stricta	10				
Scirpus americanus	3				
Poa glaucifolia	2				

Shrub and tree density were negligible in the *Sporobolus airoides* Bottom Series.

Similarity index (range condition) of this mapping unit was 73 percent (high good) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the saline lowland and saline upland ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Sporobolus airoides* Bottom Series can be expected to produce 1940 pounds per acre (77 percent cattle forage) overall.

Spartina gracilis Bottom Series

The *Spartina gracilis* Bottom Series comprises one wetland community type occupying less than 1 acre (less than 0.1 percent) of the Otter Creek study area. In the study area, the series is represented by the *Spartina gracilis/Distichlis stricta* community. One plot was sampled on a toeslope of 10 percent gradient. Aspect was northwesterly. The ecological site was saline lowland, associated with the Nihill-Havre outwash areas soil mapping unit.

Plant species dominance is shown below, based on percent canopy cover.

***Spartina gracilis* Bottom Series**
n=1

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	71	Perennial	3	Shrub	-
Annual	-	Annual/Biennial	-	Tree	-
Spartina gracilis	60	*Ambrosia psilostachya*	3		
Distichlis stricta	5				
Agropyron smithii	3				
Poa glaucifolia	3				

Shrub and tree density were negligible in the *Spartina gracilis* Bottom Series.

Similarity index (range condition) of this mapping unit was 44 percent (high fair) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the saline lowland ecological site, which is interpolated for current condition in Table 36. In the study area, the *Spartina gracilis* Bottom Series can be expected to produce 2145 pounds per acre (66 percent cattle forage) overall.

***Spartina pectinata* Bottom Series**

The *Spartina pectinata* Bottom Series comprises six wetland community types, occupying 34 acres (0.4 percent) of the Otter Creek study area. In the study area, the series is represented by the *Spartina pectinata/Bromus inermis, Spartina pectinata/Poa pratensis, Spartina pectinata/Hordeum jubatum, Spartina pectinata/Puccinellia nuttalliana, Spartina pectinata/Panicum virgatum,* and *Spartina pectinata/Scirpus americanus* communities. Fifteen plots were sampled on drainage bottoms/banks and adjacent floodplain terraces of 1-10 percent slope gradient. Aspect was variable, as dictated by drainage direction. The ecological sites were a water/wet meadow/subirrigated complex, associated with the Water/Riparian Fringe and Heldt silty clay loam soils mapping units.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Spartina pectinata* Bottom Series**
n=15

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	87	Perennial	12	Shrub	2
Annual	<1	Annual/Biennial	3	Tree	<1
Spartina pectinata	41	*Typha latifolia*	2	*Symphoricarpos occidentalis*	1
Scirpus americanus	14	*Potamogeton pectinatus*	2		
Bromus inermis	9	*Rumex salicifolius*	1		
Puccinellia nuttalliana	5	*Aster hesperius*	1		
Poa pratensis	4	*Atriplex heterosperma*	1		
Agropyron smithii	4	*Helianthus maximilianii*	<1		
Hordeum jubatum	3	*Cirsium arvense*	<1		
Panicum virgatum	2	*Apocynum cannabinum*	<1		
Agropyron cristatum	1				
Scirpus maritimus	1				
Agropyron repens	1				
Poa compressa	<1				

Shrub density averaged 5160 live stems per acre, of which 72 percent was *Symphoricarpos occidentalis,* 18 percent *Rosa woodsii* and 9 percent was *Humulus lupulus.* Density of trees greater than four inches dbh (diameter at breast height) averaged 7 *Acer negundo* per acre; trees less than four inches dbh averaged 1 *Acer negundo* per acre.

Similarity index (range condition) of this mapping unit was 44 percent (high fair) within the baseline study area, using 2011-2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the subirrigated and wet meadow ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Spartina pectinata* Bottom Series can be expected to produce about 4020 pounds per acre (80 percent cattle forage) overall.

***Scirpus maritimus* Bottom Series**

The *Scirpus maritimus* Bottom Series comprises two wetland community types, together occupying 1 acre (less than 0.1 percent) of the Otter Creek study area. In the study area, the series is represented by the *Scirpus maritimus/Sporobolus airoides-Distichlis stricta* and *Scirpus maritimus/Scirpus americanus-Eleocharis palustris* communities. Two plots were sampled on drainage bottoms/banks of 6 – 10 percent slope gradient. Aspect was northerly and northeasterly, as dictated by drainage direction. The ecological sites were a water/wet meadow/subirrigated complex, associated with the Water/Riparian Fringe and Nihill-Havre outwash areas soils mapping units.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Scirpus maritimus* Bottom Series**
n=2

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	94	Perennial	3	Shrub	<1
Annual	<1	Annual/Biennial	3	Tree	-
Scirpus maritimus	58	*Suaeda depressa*	2		
Distichlis stricta	15	*Aster hesperius*	1		
Sporobolus airoides	12	*Iva axillaris*	1		
Hordeum jubatum	4	*Melilotus officinalis*	1		
Poa arida	3				
Spartina pectinata	2				

Shrub and tree density were negligible in the *Scirpus maritimus* Bottom Series.

Similarity index (range condition) of this mapping unit was 10 percent (poor) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the subirrigated and wet meadow ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Scirpus maritimus* Bottom Series can be expected to produce 2410 pounds per acre (70 percent cattle forage) overall.

Eleocharis palustris Bottom Series

The *Eleocharis palustris* Bottom Series comprises one wetland community type occupying 1 acre (less than 0.1 percent) of the Otter Creek study area. In the study area, the series is represented by the *Eleocharis palustris/Scirpus americanus-Juncus torreyi* community. Three plots were sampled on drainage bottoms/banks of 0-5 percent gradient. Aspect was variable, commonly easterly and westerly as dictated by drainage direction. The ecological sites were a water/wet meadow/subirrigated complex, associated with the Nihill-Havre outwash areas and Water/Riparian Fringe soils mapping units.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Eleocharis palustris* Bottom Series**
n=3

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	74	Perennial	25	Shrub	9
Annual	4	Annual/Biennial	6	Tree	<1
Eleocharis palustris	36	*Helianthus maximilianii*	9	*Symphoricarpos occidentalis*	4
Scirpus americanus	11	*Apocynum cannabinum*	7	*Rosa woodsii*	2
Panicum virgatum	9	*Melilotus officinalis*	5	*Artemisia cana*	2
Juncus torreyi	6	*Aster pansus*	2	*Salix exigua*	1
Hordeum jubatum	5	*Solidago rigida*	1		
Poa pratensis	2	*Typha latifolia*	1		
Agropyron smithii	2				
Bromus japonicus	2				
Agropyron trachycaulum	1				
Hordeum caespitosum	1				
Bromus tectorum	1				

Shrub density averaged 2024 live stems per acre, of which 67 percent was *Symphoricarpos occidentalis,* 18 percent *Salix exigua* and 10 percent was *Artemisia cana.*

Similarity index (range condition) of this mapping unit was 31 percent (low fair) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the subirrigated and wet meadow ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Eleocharis palustris* Bottom Series can be expected to produce 2970 pounds per acre (80 percent cattle forage) overall.

Typha latifolia Bottom Series

The *Typha latifolia* Bottom Series comprises two wetland community types, together occupying 1 acre (less than 0.1 percent) of the Otter Creek study area. In the study area, the series is represented by the *Typha latifolia/Bromus inermis* and *Typha latifolia/Spartina pectinata* communities. Four plots were sampled on drainage bottoms/banks of 0-8 percent gradient and variable aspect. The ecological sites were a water/wet meadow/subirrigated complex, associated with the Water/Riparian Fringe soils mapping unit.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Typha latifolia* Bottom Series**
n=4

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	61	Perennial	39	Shrub	6
Annual	-	Annual/Biennial	4	Tree	-
Bromus inermis	26	*Typha latifolia*	34	*Symphoricarpos occidentalis*	4
Spartina pectinata	18	*Atriplex heterosperma*	3	*Rosa woodsii*	1
Agropyron elongatum	7	*Cirsium arvense*	2		
Festuca arundinacea	4	*Apocynum cannabinum*	2		
Agropyron cristatum	3				
Poa pratensis	2				
Carex lanuginosa	1				

Shrub density averaged 3314 live stems per acre, of which 86 percent was *Symphoricarpos occidentalis,* 8 percent was *Rosa woodsii* and 7 percent *Ribes aureum.* Density of trees greater than four inches dbh (diameter at breast height) averaged 3 *Acer negundo* per acre; trees less than four inches dbh averaged 18 *Acer negundo* per acre and 5 *Fraxinus pennsylvanica* per acre.

Similarity index (range condition) of this mapping unit was 23 percent (high poor) within the baseline study area, using 2011-2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the subirrigated and wet meadow ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Typha latifolia* Bottom Series can be expected to produce 2900 pounds per acre (72 percent cattle forage) overall.

***Scirpus acutus-Scirpus validus* Bottom Series**

The *Scirpus acutus-Scirpus validus* Bottom Series comprises two wetland community types, together occupying 11.5 acres (0.1 percent) of the Otter Creek study area. In the study area, the series is represented by the *Scirpus acutus-Scirpus validus/Spartina pectinata* and *Scirpus acutus-Scirpus validus/Typha latifolia* communities. Ten plots were sampled on drainage bottoms/banks and pond margins of 0-2 percent slope gradient. Aspect was commonly northerly. The ecological sites were a water/wet meadow/ subirrigated complex, associated with the Water/Riparian Fringe soils mapping unit, and saline lowland associated with the Haverson silty clay-Saline soil.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Scirpus acutus-Scirpus validus* Bottom Series**
n=10

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	77	Perennial	23	Shrub	8
Annual	-	Annual/Biennial	8	Tree	<1
Scirpus acutus	32	*Typha latifolia*	18	*Rosa woodsii*	4
Spartina pectinata	16	*Atriplex heterosperma*	6	*Symphoricarpos occidentalis*	2
Scirpus americanus	9	*Potamogeton pectinatus*	2	*Ribes aureum*	1
Scirpus validus	7	*Chenopodium rubrum*	2		
Bromus inermis	7	*Rumex patienta*	1		
Agropyron elongatum	3	*Asclepias speciosa*	1		
Agropyron cristatum	2				
Carex lanuginosa	1				
Scirpus maritimus	1				

Shrub density averaged 4209 live stems per acre, of which 69 percent was *Symphoricarpos occidentalis,* 22 percent was *Rosa woodsii* and 7 percent *Ribes aureum.* Density of trees greater than four inches dbh (diameter at breast height) averaged 6 *Acer negundo* per acre; trees less than four inches dbh averaged 20 *Acer negundo* per acre.

Similarity index (range condition) of this mapping unit was 32 percent (low fair) within the baseline study area, using 2011-2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the subirrigated and wet meadow ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Scirpus acutus-Scirpus validus* Bottom Series can be expected to produce 3230 pounds per acre (80 percent cattle forage) overall.

3.2.6.2 Mesophytic Low Shrub Bottom

***Symphoricarpos occidentalis* Bottom Series**

The *Symphoricarpos occidentalis* Bottom Series comprises four drainage community types, collectively occupying 90 acres (1 percent) of the Otter Creek study area. In the study area, the series is represented by the *Symphoricarpos occidentalis-Artemisia tridentata-Sarcobatus vermiculatus/ Agropyron smithii, Artemisia cana-Rosa woodsii/Agropyron smithii-Poa pratensis, Symphoricarpos occidentalis-Artemisia cana/Agropyron smithii-Poa pratensis* and *Symphoricarpos occidentalis-Rosa woodsii/Poa pratensis-Agropyron smithii* communities. A total of 27 plots were sampled on drainage bottoms/banks and pronounced swales of mostly 1-5 percent slope gradient. Aspect was variable, as dictated by drainage direction. The ecological site was overflow, primarily associated with the Nihill-Havre outwash areas and Midway-Cabbart shallow loams soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Symphoricarpos occidentalis* Bottom Series**
n=27

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	65	Perennial	14	Shrub	50
Annual	2	Annual/Biennial	9	Tree	<1
Poa pratensis	34	*Melilotus officinalis*	7	*Symphoricarpos occidentalis*	39
Agropyron smithii	20	*Artemisia ludoviciana*	3	*Artemisia cana*	6
Stipa viridula	4	*Aster falcatus*	2	*Rosa woodsii*	3
Bromus japonicus	2	*Glycyrrhiza lepidota*	1	*Artemisia tridentata*	1
Calamovilfa longifolia	1	*Aster pansus*	1		
Panicum virgatum	1	*Lactuca oblongifolia*	<1		
Hordeum jubatum	<1	*Xanthium strumarium*	<1		
Agropyron spicatum	<1				

Shrub density averaged 44,140 live stems per acre, of which 92 percent was *Symphoricarpos occidentalis,* 5 percent *Rosa woodsii* and 2 percent was *Artemisia cana.* Scattered trees often occur in mesophytic low shrub communities. Density of trees greater than four inches dbh (diameter at breast height) averaged 2 *Juniperus scopulorum* per acre; trees less than four inches dbh averaged 7 *Juniperus scopulorum* per acre, 4 *Pinus ponderosa* per acre and 1 *Fraxinus pennsylvanica* per acre.

Similarity index (range condition) of this mapping unit was 43 percent (high fair) within the baseline study area, using 2011-2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the overflow ecological site, which is interpolated for current condition in Table 36. In the study area, the *Symphoricarpos occidentalis* Bottom Series can be expected to produce 1660 pounds per acre (80 percent cattle forage) overall.

3.2.6.3 Mesophytic Tall Shrub Bottom

Prunus virginiana/Symphoricarpos occidentalis-Poa pratensis

The *Prunus virginiana/Symphoricarpos occidentalis-Poa pratensis* community type accounts for 2 acres (less than 0.1 percent) of the Otter Creek study area. In the study area, the *Prunus virginiana* type is one of two mesophytic tall shrub bottom communities. Two plots were sampled on drainage bottoms/steep banks of 30-50 percent gradient. Aspect was northerly and westerly, as dictated by drainage direction. The ecological site was overflow, associated with the Nihill-Havre outwash areas and Midway-Delpoint silty clay loams soils.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

Prunus virginiana/Symphoricarpos occidentalis-Poa pratensis
n=2

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	33	Perennial	12	Shrub	95
Annual	<1	Annual/Biennial	5	Tree	-
Poa pratensis	28	*Toxicodendron rydbergii*	10	*Symphoricarpos occidentalis*	43
Agropyron smithii	5	*Melilotus officinalis*	4	*Prunus virginiana*	35
				Artemisia cana	13
				Ribes setosum	4

Shrub density averaged 10,170 live stems per acre, of which 67 percent was *Symphoricarpos occidentalis,* 15 percent *Prunus virginiana,* 8 percent *Artemisia cana,* 6 percent *Ribes setosum,* and 3 percent *Rhus aromatica.* Tree density was negligible in the *Prunus virginiana/Symphoricarpos occidentalis-Poa pratensis* community.

Similarity index (range condition) of this mapping unit was 27 percent (low fair) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the overflow ecological site, which is interpolated for current condition in Table 36. In the study area, the *Prunus virginiana/Symphoricarpos occidentalis-Poa pratensis* community type can be expected to produce 1685 pounds per acre (70 percent cattle forage) overall.

Salix exigua/Scirpus americanus-Juncus torreyi

The *Salix exigua/Scirpus americanus-Juncus torreyi* community type accounts for less than 1 acre (less than 0.1 percent) of the Otter Creek study area. In the study area, the *Salix exigua* type is one of two mesophytic tall shrub bottom communities. One plot was sampled on a drainage bottom of 2-3 percent gradient and northerly aspect. The ecological sites were a water/wet meadow/subirrigated complex, associated with the Nihill-Havre outwash areas soils mapping unit.

Plant species dominance is shown below, based on percent canopy cover.

Salix exigua/Scirpus americanus-Juncus torreyi
n=1

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	39	Perennial	12	Shrub	77
Annual	-	Annual/Biennial	-	Tree	-
Scirpus americanus	15	*Apocynum cannabinum*	5	*Salix exigua*	75
Juncus torreyi	10	*Aster hesperius*	5	*Symphoricarpos occidentalis*	2
Eleocharis palustris	7	*Helianthus maximilianii*	2		
Poa pratensis	5				
Panicum virgatum	2				

Shrub and tree density data were not obtained for the *Salix exigua* plot sampled.

Similarity index (range condition) of this mapping unit was 27 percent (low fair) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the subirrigated and wet meadow ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Salix exigua/Scirpus americanus-Juncus torreyi* community type can be expected to produce 2760 pounds per acre (80 percent cattle forage) overall.

3.2.6.4 Mesophytic Deciduous Tree Bottom

***Populus deltoides* Bottom Series**

The *Populus deltoides* Bottom Series comprises nine riparian (interrupted gallery forest) community types, collectively occupying 28 acres (0.3 percent) of the Otter Creek study area. In the study area, the series is represented by the *Populus deltoides/Bromus inermis, Populus deltoides-Acer negundo/ Bromus inermis, Populus deltoides-Fraxinus pennsylvanica-Acer negundo/ Poa pratensis, Populus deltoides/ Symphoricarpos occidentalis-Poa pratensis, Populus deltoides-Fraxinus pennsylvanica-Acer negundo/ Symphoricarpos occidentalis, Populus deltoides-Salix amygdaloides/Poa pratensis, Populus deltoides-Salix amygdaloides/Salix exigua, Populus deltoides/Prunus virginiana* and *Populus deltoides-Fraxinus pennsylvanica-Acer negundo/Prunus virginiana* communities bordering Threemile Creek and one of its southern tributaries. Thirteen plots were sampled on drainage bottoms/banks of 0-5 percent slope gradient (bottoms) and 10-50 percent slope gradient (banks). Aspect was variable (except southeasterly to southwesterly), as dictated by drainage direction. The ecological site was overflow (loamy terrace-silty), associated with the Haverson silty clay, Heldt silty clay loam and Nihill-Havre outwash areas soils mapping units.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Populus deltoides* Bottom Series**
n=13

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	61	Perennial	9	Shrub	14
Annual	<1	Annual/Biennial	3	Tree	75
Poa pratensis	23	*Artemisia ludoviciana*	1	*Populus deltoides*	44
Bromus inermis	22	*Aster hesperius*	1	*Acer negundo*	15
Agropyron cristatum	9	*Helianthus maximilianii*	1	*Salix amygdaloides*	11
Hordeum jubatum	2	*Thlaspi arvense*	1	*Symphoricarpos occidentalis*	6
Agropyron repens	1	*Rumex crispus*	1	*Fraxinus pennsylvanica*	5
		Toxicodendron rydbergii	1	*Prunus virginiana*	4
		Aster pansus	<1	*Salix exigua*	2
				Rosa woodsii	2

Shrub density averaged 6810 live stems per acre, of which 80 percent was *Symphoricarpos occidentalis,* 9 percent was *Rosa woodsii* and 8 percent *Prunus virginiana.* Density of trees greater than four inches dbh (diameter at breast height) averaged 38 *Populus deltoides* per acre (including 9 per acre in the range of 28 to 44 inches dbh), 20 *Acer negundo* per acre, 18 *Salix amygdaloides* per acre, and 6 *Fraxinus pennsylvanica* per acre. Trees less than four inches dbh averaged 12 *Salix amygdaloides* per acre, 9 *Acer negundo* per acre, 7 *Fraxinus pennsylvanica* per acre and 2 *Populus deltoides* per acre.

Similarity index (range condition) of this mapping unit was 15 percent (poor) within the baseline study area, using 2011-2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the overflow ecological site, which is interpolated for current condition in Table 36. In the study area, the *Populus deltoides* Bottom Series can be expected to produce 1190-1200 pounds per acre (65 percent cattle forage) overall.

***Acer negundo* Bottom Series**

The *Acer negundo* Bottom Series comprises three riparian (interrupted gallery forest) community types, together occupying 30 acres (0.3 percent) of the Otter Creek study area. In the study area, the series is represented by the *Acer negundo/Bromus inermis, Acer negundo /Spartina pectinata* and *Acer negundo/Prunus virginiana* communities bordering Otter Creek and associated floodplain oxbows. Twenty-two plots were sampled on drainage bottoms/banks and adjacent floodplain terraces of mostly 0-5 percent gradient and variable aspect, with *Acer negundo/Prunus virginiana* occurring on high, ancient cutbanks of 40-60 percent slope gradient and northerly aspect. The primary ecological sites were riparian wet meadow-subirrigated and saline lowland, chiefly associated with the Water/Riparian Fringe soils mapping unit and Haverson silty clay-Saline soil.

Plant species dominance is shown below, based on mean percent canopy cover rounded to the nearest percent.

***Acer negundo* Bottom Series**
n=22

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	62	Perennial	5	Shrub	7
Annual	<1	Annual/Biennial	6	Tree	56
Bromus inermis	50	*Atriplex heterosperma*	2	*Acer negundo*	56
Spartina pectinata	7	*Cirsium arvense*	2	*Prunus virginiana*	3
Agropyron cristatum	2	*Sisymbrium loeselii*	2	*Symphoricarpos occidentalis*	2
Agropyron repens	1	*Typha latifolia*	2	*Rosa woodsii*	2
Scirpus americanus	1	*Arctium minus*	<1	*Ribes aureum*	<1
Poa pratensis	<1	*Apocynum cannabinum*	<1		
		Taraxacum laevigatum	<1		

Shrub density averaged 5156 live stems per acre, of which 58 percent was *Symphoricarpos occidentalis,* 19 percent *Prunus virginiana,* 14 percent *Rosa woodsii,* 5 percent *Ribes setosum* and 3 percent was *Ribes aureum.* Density of trees greater than four inches dbh (diameter at breast height) averaged 81 *Acer negundo* per acre and 4 *Fraxinus pennsylvanica* per acre; trees less than four inches dbh averaged 123 *Acer negundo* per acre and 6 *Fraxinus pennsylvanica* per acre.

Similarity index (range condition) of this mapping unit was 13 percent (poor) within the baseline study area, using 2011-2012 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the saline lowland, overflow and subirrigated ecological sites, which are interpolated for current condition in Table 36. Weighting these production values for relative occurrence in the study area, the *Acer negundo* Bottom Series can be expected to produce 1860 pounds per acre (60 percent cattle forage) overall.

Fraxinus pennsylvanica Bottom Series

The *Fraxinus pennsylvanica* Bottom Series comprises one riparian community type, accounting for 2 acres (less than 0.1 percent) of the Otter Creek study area. In the study area, the series is represented by the *Fraxinus pennsylvanica/Poa pratensis* community. One plot was sampled on a toeslope of 4-12 percent gradient and northerly aspect. The ecological site was overflow, associated with the Blacksheep-Cabba-Cabbart Complex soils.

Plant species dominance is shown below, based on percent canopy cover.

***Fraxinus pennsylvanica* Bottom Series**
n=1

GRAMINOIDS		FORBS		WOODY PLANTS	
Class/Species	Percent Cover	Class/Species	Percent Cover	Class/Species	Percent Cover
Perennial	89	Perennial	36	Shrub	-
Annual	<1	Annual/Biennial	16	Tree	30
Stipa viridula	33	*Artemisia ludoviciana*	20	*Fraxinus pennsylvanica*	24
Poa pratensis	25	*Medicago lupulina*	10	*Juniperus scopulorum*	6
Agropyron smithii	23	*Astragalus agrestis*	5		
Phleum pratense	7	*Melilotus officinalis*	4		
Koeleria cristata	1	*Aster falcatus*	3		
		Achillea millefolium	2		
		Astragalus drummondii	2		
		Lactuca oblongifolia	2		
		Ratibida columnifera	1		
		Sisymbrium loeselii	1		
		Tragopogon dubius	1		

Shrub density averaged 1012 live stems per acre, of which 80 percent was *Symphoricarpos occidentalis,* 10 percent *Rhus aromatica* and 10 percent was *Artemisia tridentata.* Density of trees greater than four inches dbh (diameter at breast height) averaged 40 *Fraxinus pennsylvanica* per acre, 40 *Juniperus scopulorum* and 10 *Pinus ponderosa* per acre; trees less than four inches dbh averaged 90 *Pinus ponderosa* per acre and 60 *Juniperus scopulorum* per acre.

Similarity index (range condition) of this site was 43 percent (high fair) within the baseline study area, using 2011 composition data and NRCS (2003) guidelines. Based on compilation of long-term annual production data, the NRCS (2003) has determined a representative value for total production in the overflow ecological site, which is interpolated for current condition in Table 36. In the study area, the *Fraxinus pennsylvanica* Bottom Series can be expected to produce 1650 pounds per acre (80 percent cattle forage).

3.3 ECOLOGICAL SITE CONDITION (SIMILARITY INDEX)

Appendices E and K identify the ecological site and soil mapping unit for each vegetation plot sampled in the baseline study area in 2011-2012. Soil types are correlated with ecological sites in Table 32. Vegetation community types are correlated with soil types in Table 33, and with ecological sites in Table 34. Calculations of ecological site condition or similarity index (using relative cover values presented in Appendices F and L) are summarized by community type in Table 35, giving a reasonable assessment of the condition of grazing land in the baseline study area to the extent that NRCS technical guides (NRCS 2003) are accepted as the basis for determining vegetation condition. Using NRCS (2003) stocking rate guides, rangeland productivity was calculated by interpolation of the guide values for stocking in each ecological site at current condition (similarity index), as presented in Table 36. Condition values in Table 35 and productivity values in Table 36 are briefly summarized below, excluding minor ecological sites.

Vegetation Type/Ecological Site	Weighted Abundance (Sample Sites)	Weighted Mean Condition (Percent)	Total Annual Production (pounds/acre)		Current Production as a % of HCPC
			HCPC*	Current Condition**	
GRASSLAND	**1.000**	**55**	**1650**	**1180**	**72**
Clayey	.142	62	2000	1555	78
Silty	.389	54	2200	1500	68
Shallow	.068	62	1300	1000	77
Shallow Clay	.191	60	1100	930	85
Sandy Steep	.012	71	1800	1465	81
Very Shallow	.179	42	700	490	70
Saline Lowland	.019	32	3500	1250	36
TAME PASTURE	**1.000**	**9**	**2690**	**NA**	**NA**
Clayey	.135	6	2000	NA	NA
Silty	.385	13	2200	NA	NA
Very Shallow	.038	18	700	NA	NA
Saline Lowland	.442	6	3500	NA	NA
SHRUB/GRASSLAND	**1.000**	**56**	**1795**	**1305**	**73**
Clayey	.064	55	2000	1430	72
Silty	.395	58	2200	1660	75
Shallow	.140	52	1300	980	75
Shallow Clay	.306	59	1100	895	81
Very Shallow	.019	43	700	495	71
Overflow	.076	45	3500	1775	51
GRASS BREAKS	**1.000**	**61**	**1315**	**1035**	**79**
Clayey	.091	58	2000	1495	75
Silty	.136	51	2200	1510	69
Shallow	.182	67	1300	1075	83
Shallow Clay	.409	58	1100	890	81
Saline Upland	.182	71	800	730	91
SHRUB BREAKS	**1.000**	**59**	**1145**	**915**	**80**
Shallow	.376	59	1300	1015	78
Shallow Clay	.553	59	1100	895	81
Very Shallow	.071	52	700	530	76
CONIFER BREAKS	**1.000**	**55**	**1370**	**985**	**72**
Silty	.083	43	2200	1335	61
Shallow	.896	56	1300	955	73
Shallow Clay	.021	44	1100	870	79

Vegetation Type/Ecological Site	Weighted Abundance (Sample Sites)	Weighted Mean Condition (Percent)	Total Annual Production (pounds/acre)		Current Production as a % of HCPC
			HCPC*	Current Condition**	
PINE-JUNIPER FOREST AND SAVANNAH	**1.000**	**44**	**1385**	**765**	**55**
PINE-JUNIPER/GRASS	**1.000**	**43**	**1250**	**685**	**55**
Shallow	.835	43	1300	685	53
Shallow Clay	.033	53	1100	865	79
Sandy Steep	.033	41	1800	1040	58
Very Shallow	.099	45	700	495	71
PINE-JUNIPER/SHRUB	**1.000**	**49**	**2655**	**1535**	**58**
Shallow	.385	51	1300	895	69
Overflow	.615	47	3500	1930	55
HERBACEOUS BOTTOM	**1.000**	**41**	**5015**	**3070**	**61**
Saline Lowland	.178	50	3500	2250	64
Saline Upland	.067	86	800	765	96
Subirrigated	.378	35	5000	2935	59
Wet Meadow	.377	34	6500	4000	62
LOW SHRUB BOTTOM	**1.000**	**43**	**3500**	**1660**	**47**
Overflow	1.000	43	3500	1660	47
TALL SHRUB BOTTOM	**1.000**	**27**	**4250**	**2045**	**48**
Overflow	.667	27	3500	1685	48
Subirrigated	.167	29	5000	2365	47
Wet Meadow	.166	24	6500	3155	49
DECIDUOUS TREE BOTTOM	**1.000**	**14**	**4250**	**1610**	**38**
Saline Lowland	.056	16	3500	1100	31
Overflow	.444	17	3500	1205	34
Subirrigated	.500	12	5000	2030	41

*HCPC = Historic Climax Plant Community (NRCS 2003), 14-inch precipitation zone.

**Production for current condition in the study area is interpolated from the Stocking Rate Guides in NRCS (2003).

NA = Not Applicable

Ecological site condition varied considerably among community types in the study area. Grassland range condition collectively averaged 55 percent (low good condition), among the predominant ecological sites ranging from 42 percent in the very shallow ecological site to 62 percent in the clayey and shallow ecological sites (Table 35). The dominant Grassland ecological site, silty, averaged nearly the same condition as all Grassland sites collectively at 54 percent. By comparison, the Grass-Dominated Breaks types collectively averaged higher condition at 61 percent, possibly a result of lower grazing pressure in Breaks topography occurring predominantly on steep slopes. Condition of Grass Breaks communities ranged from 51 percent in the silty ecological site to 71 percent in saline upland, and averaged 58 percent in the most commonly associated site, shallow clay.

Range condition cannot technically be calculated for Tame Pasture, as any land tilled and seeded for tame pasture or cropland is not considered to represent an ecological site (due to soil disturbance and, typically, the deliberate seeding of exotic species). However, condition was calculated for Tame Pasture for the sake of comparison, averaging 9 percent condition collectively (poor condition).

Shrub/Grassland condition averaged about the same as Grassland condition at 56 percent (low good) collectively, ranging from 45 percent in the overflow ecological site to 58 percent in the silty and 59 percent in the shallow clay ecological sites. By comparison, Shrub-Dominated Breaks condition was very similar to Shrub/ Grassland at 59 percent, with the predominant ecological sites, shallow and shallow clay, each averaging 59 percent.

The six Ponderosa Pine Forest and Savannah communities collectively averaged 44 percent condition (high fair), varying from 41 percent in the sandy steep ecological site to 53 percent in the shallow clay site. The ecological site most commonly associated with Pine-Juniper Forest and Savannah, the shallow site, averaged 43 percent condition, about the same as Pine-Juniper types collectively. Conifer-Dominated Breaks communities (nearly all samples were in the shallow ecological site) averaged higher condition at 55 percent, primarily because they averaged substantially less conifer canopy cover (21 percent versus 49 percent), and occurred on sites generally less accessible to cattle, than did Forest/Savannah communities.

Drainage Bottom types were generally in lower condition than most other physiognomic types, as cattle tend to congregate in low-lying areas where grazing and trampling tend to diminish vegetation composition and structure over time. Herbaceous Bottom types averaged 41 percent (mid-fair) condition, ranging from about 35 percent in the subirrigated and wet meadow ecological sites to 50 percent in saline lowland (and 86 percent in saline upland, a minor ecological site). Low Shrub Bottom (the *Symphoricarpos occidentalis* series) condition was similar at 43 percent (high fair). Tall Shrub Bottom was lower at 27 percent (low fair) condition, and Deciduous Tree Bottom lowest of all community types at 14 percent (poor) condition.

3.4 RANGELAND PRODUCTIVITY

Annual production was determined for each vegetation type/ecological site using long-term productivity data developed by SCS and its successor NRCS, as presented in NRCS (2003) for Major Land Resource Area: 58A, “Sedimentary Plains, East (MLRA 58AE – Northern Rolling High Plains, North Part)” in the 14-inch mean annual precipitation zone. Production data derived from this publication are presented alongside site condition calculations in the previous Section 3.3.

Two assessments of annual production are given for each vegetation type by ecological site. The first uses long-term data to predict productivity for each “Historic Climax Plant Community (HCPC)” to represent range in excellent condition, and the second indicates productivity for range in the condition calculated for the current study area. Both data sets were determined using the technical guides in NRCS (2003).

Productivity varies considerably among vegetation types in the study area, depending on current condition and the ecological sites involved. Grassland productivity collectively averaged 1180 pounds per acre (72 percent of HCPC), ranging from 490 pounds per acre (70 percent) in the Very Shallow ecological site to 1500 pounds per acre (68 percent) in the Silty and 1555 pounds per acre (78 percent)

in the Clayey ecological sites. Grass Breaks productivity was 1035 pounds per acre (about 12 percent less than Grassland productivity), varying from 730 pounds per acre (91 percent of HCPC) in the Saline Upland ecological site to 1495 pounds per acre (75 percent) in the Clayey and 1510 pounds per acre (69 percent) in the Silty ecological sites.

Productivity was determined for Tame Pasture using NRCS (2012) data, as discussed in the following section 3.5.2 and summarized in Table 38.

Shrub/Grassland productivity was about 10 percent higher than Grassland productivity at 1305 pounds per acre (73 percent of HCPC) collectively, ranging from 895 pounds per acre (81 percent) in the Shallow Clay ecological site to 1660 and 1775 pounds per acre (75 and 51 percent) in the Silty and Overflow ecological sites, respectively. By comparison, productivity of the Shrub Breaks type was 30 percent less than that of Shrub/Grassland at 915 pounds per acre (80 percent of HCPC). Shrub Breaks productivity ranged from 530 pounds per acre in the Very Shallow ecological site to 895 pounds per acre in Shallow Clay (the predominant ecological site) and 1015 in the Shallow ecological site.

Productivity of the six Ponderosa Pine Forest and Savannah communities collectively averaged 765 pounds per acre (55 percent of HCPC), varying from 495 pounds per acre (71 percent) in the Very Shallow ecological site to 1930 pounds per acre (55 percent) in the Overflow ecological site. Seventy-nine percent of Pine-Juniper Forest and Savannah samples were associated with the Shallow ecological site, averaging 685 pounds per acre productivity (53 percent of HCPC). Conifer-Dominated Breaks communities (90 percent of samples were in the Shallow ecological site) averaged higher productivity than did Forest and Savannah communities, at 985 pounds per acre (72 percent of HCPC), ranging from 955 pounds per acre (73 percent) in Shallow to 1335 pounds per acre (61 percent) in the Silty ecological site.

Although Drainage Bottom types were in generally lower condition than most other physiognomic types, they averaged the highest productivity per unit area, owing to the ecological sites in which they occur. Herbaceous Bottom types averaged 3070 pounds per acre (61 percent of HCPC), ranging from 765 pounds per acre (96 percent) in the Saline Upland to 4000 (62 percent) in the Wet Meadow ecological sites. Low Shrub Bottom (the *Symphoricarpos occidentalis* series) productivity was 46 percent less at 1660 pounds per acre (47 percent of HCPC). Tall Shrub Bottom averaged 2045 pounds per acre (48 percent of HCPC), and Deciduous Tree Bottom was lowest of all Drainage Bottom types at 1610 pounds per acre (38 percent).

3.5 UTILITY

The primary land uses in the Otter Creek baseline study area are livestock grazing (rangeland and pastureland) and hay production (hay cropland). NRCS technical guides (2003 and 2012) present recommended stocking rates for the applicable ecological sites in Powder River County, relative to

current condition. Additionally, NRCS (2012) gives long-term irrigated and nonirrigated hay yields by soils mapping unit that can be expected under a high level of management. Information pertinent to the Otter Creek study area is summarized below.

3.5.1 Range Analysis

The predominant land use in the Otter Creek study area is cattle grazing (rangeland or grazing land), with essentially all native plant communities (7585 acres or 82 percent of the study area) being used for this purpose. Additionally, grazing land includes 830 acres of go-back tame pasture (about 9 percent of the study area), land that is seldom mowed for hay but more commonly is grazed the same as native rangeland. Calculations of recommended stocking rates are given in Table 37. Condition of the various ecological sites, as determined from 2011-2012 baseline vegetation sampling, ranged from poor to low-excellent, but were commonly in the low good condition class. These data can be used to assist in reclamation planning and evaluation of revegetation success.

Livestock utilization of forage, under nominal grazing management, can be expected to range from 60 to 80 percent of total production values projected for the study area in current condition, depending on the ecological site (Table 36).

The dominant ecological sites study area-wide were, in descending order of acreage, silty, shallow, shallow clay, clayey and very shallow, collectively comprising 85 percent of native grazing land in the study area. Among these five prevalent ecological sites, recommended stocking rates derived from technical guides (NRCS 2003) ranged from .12 to .37 AUM per acre in the very shallow site and silty site, respectively. Stocking rates for the five dominant ecological sites, weighted by acreage, constitute 82 percent of the total 2155 AUMs grazing capacity estimated for the study area as a whole. This figure is a composite, and does not distinguish differing grazing capacities among livestock operations within the study area which reflect various historical management strategies in association with differing soils and ecological sites. The composite estimate of 2155 AUMs also does not adjust for site grazability factors, such as steep slopes, site inaccessibility, or distance to water.

3.5.2 Cropland Productivity

Hay is the only crop grown in the Otter Creek study area; hay fields are typically dominated by introduced pasture grasses, with alfalfa variable among fields. Dominant hay species are *Agropyron cristatum* (crested wheatgrass), *Bromus inermis* (smooth brome), *Medicago sativa* (alfalfa) and quackgrass (*Agropyron repens)*. For purposes of this discussion, the term “Hay Cropland” or “Farmed Tame Pasture” includes areas predominantly vegetated by these introduced hay species. The term “farmed” is defined as tame pasture areas where plant production is managed accordingly, *i.e.*, in most years mowed, baled and stored as hay for livestock feed. “Pastureland” refers to tame pasture areas not managed *i.e.,* unfarmed, or generally not mowed but grazed later in the season following harvest of adjacent farmed areas, and includes go-back fields.

Some hay cropland areas have a naturally enhanced soil moisture regime, to varying extent resulting from irregular seasonal inundation from snow melt and/or spring rainfall, a high water table, or both. There are no developed irrigation systems other than spreader dikes in some areas to detain and infiltrate spring runoff. Neither flood irrigation by diversion of stream flow nor sprinkler irrigation is practiced during the growing season. Hence, there is no artificial application of water during the growing season in and adjacent to the floodplains of Otter Creek and three of its major tributaries - Home Creek, Threemile Creek and Tenmile Creek - in the vicinity of the Otter Creek coal tracts. For purposes of this discussion, "naturally moisture-enhanced" hay cropland is distinguished from "dryland" pastureland.

Tame Pasture occupies 1585 acres or 17 percent of the baseline study area, comprised of two categories (Table 38). These include 755 acres of farmed Hay Cropland which is developed and managed for hay production. An additional 830 acres of mostly dryland pastureland represents "go-back" tame pasture fields generally found in the upslope vicinity of the developed floodplain and low terrace pastures.

Based on compilation of long-term annual production data, the NRCS (2012) has determined representative values for total irrigated and non-irrigated hay production for pertinent soils in the study area (Table 38). The Hay Cropland type can be expected to produce, on average, 3 to 6 irrigated tons per acre and 1 to 2 non-irrigated tons per acre, depending on the soil and crop grown. Based on USDA Farm Service Agency (FSA) data provided by local ranchers, typical grass hay yields in the Otter Creek valley in the project area are about 1.5 tons per acre. This typical yield is commensurate with the non-irrigated yields for those soils for which NRCS-predicted yield data are available.

3.5.3 Timber Productivity

Timbered areas in the baseline study area do not constitute a commercial timber resource. Much of forest and savannah tree density in the study area is composed of non-commercial Rocky Mountain juniper, and sapling to pole-size ponderosa pine (Table 28). Merchantable pine is generally present only as relatively scattered trees or in small stands, often associated with very steep terrain and other sites with difficult access.

3.6 SPECIES LIST/MTNHP-LISTED SPECIES

Appendix A is a list of vascular plant taxa identified during the 2011-2012 quantitative and mapping inventories of the 14.5-square mile Otter Creek vegetation baseline study area. A total of 385 taxa were identified, with forbs (275 species) comprising the majority (71 percent). Forbs included 177 perennial taxa (163 native, 11 introduced and 3 fern allies), and 98 annual/ biennial taxa (69 native and 29 introduced). Of 81 grasses and grass-like plants identified (21 percent of the total), there were 70 perennial taxa (58 native and 12 introduced), and 11 annual grass taxa (3 native and 8 introduced). The 29 woody plant taxa (8 percent of the total) recorded in the study area included 22 shrub and 7 tree species.

Approximately eight miles west of the Otter Creek baseline study area, the Montco baseline inventories (Olson-Elliott and Associates 1980, Culwell and Scow 1982b) produced a list of 355 vascular plant species compiled throughout the 1977-1981 sampling period. Quantitative field sampling was conducted within a 39.0-square-mile study area, substantially larger than the 14.5-square-mile Otter Creek study area, as summarized below.

	NUMBER OF SPECIES			
Class	**Otter Creek (2011-2012) 14.5 square miles**	***Percent***	**Montco (1977-1981) 39.0 square miles**	***Percent***
Native Perennial Graminoid (Cool)	43	*11.2*	35	*9.9*
Native Perennial Graminoid (Warm)	15	*3.9*	11	*3.1*
Introduced Perennial Grass	12	*3.1*	8	*2.3*
Native Annual Grass	3	*0.8*	6	*1.7*
Introduced Annual Grass	8	*2.1*	5	*1.4*
Native Perennial Forb and Subshrub	163	*42.3*	166	*46.8*
Ferns and Allies	3	*0.8*	4	*1.1*
Introduced Perennial Forb	11	*2.9*	10	*2.8*
Native Annual/Biennial Forb	69	*17.9*	52	*14.6*
Introduced Annual/Biennial Forb	29	*7.5*	26	*7.3*
Shrub and Vine	22	*5.7*	26	*7.3*
Tree	7	*1.8*	6	*1.7*
TOTAL	**385**	***100.0***	**355**	***100.0***

No federally listed or proposed endangered or threatened plant species are known to occur in the area of the Otter Creek study area, and none were recorded during the 2011-2012 baseline vegetation inventories. The Montana Natural Heritage Program (2012) website lists "plant species of concern" for Montana. A search of MTNHP's records (MTNHP 2012) for Powder River and Rosebud Counties found seventeen plant species of concern, including eleven taxa listed for Powder River County, of which five are in common with Rosebud County. An additional six plant taxa of concern are listed for Rosebud County, but are not currently listed for Powder River County, as shown in Table 39.

One of the taxa listed for Powder River County and Rosebud County was identified in the Otter Creek baseline study area during the 2011 vegetation inventory. *Psoralea hypogaea*, or *Pediomelum hypogaeum,* (little breadroot) is listed as G5 S2S3 by MTNHP where: "G5" indicates the species is globally demonstrably secure, and "S2S3" indicates a range of uncertainty whether the species is at risk ("S2") or potentially at risk ("S3") in the state due to limited and/or declining abundance or distribution in Montana, even though it may be abundant elsewhere. In the study area, *Psoralea hypogaea* was found in the west-central portion of Tract 2 in association with sandy aprons skirting sandstone outcrops, a habitat of relatively limited extent in the study area. It was recorded on plot 373 (Appendix Table B25) in a *Pinus ponderosa-Juniperus scopulorum/Agropyron spicatum* Breaks mapping unit (Plate 1).

3.7 PLANT SPECIES DIVERSITY

The diversity of vascular plant species was evaluated by determining the average number of species per plot in each general vegetation physiognomic type (Table 40). These tallies are dependent on sample size, however, for types with similarly large samples such as Grassland (n=185) and Shrub Grassland (n=172), Table 40 provides a reasonable assessment of the relative diversity of species by functional class among physiognomic types.

3.8 WEEDS

State-listed noxious weeds are given on the "Montana Noxious Weed List, Effective December 2013" (Montana Department of Agriculture 2014). Two state-listed weed species, both Priority 2B, were encountered on the Otter Creek study area during the 2011-2012 baseline inventory.

Priority 2B noxious weeds are weeds that are abundant in Montana and widespread in many counties. Management criteria will require eradication or containment where less abundant. Management shall be prioritized by local weed districts. These weeds are capable of rapid spread and render land unfit or greatly limit beneficial uses. The two species recorded in the study area were *Cirsium arvense* (Canada thistle), and *Convolvulus arvensis* (field bindweed).

The distribution of 871 sample plots throughout vegetation communities in the study area provides a fair assessment of the relative abundance of vascular plant species among community types, including state-listed noxious weed species. Noxious weed canopy cover and constancy data are shown below, excerpted from summary Tables 2 through 12. The most common weed in the study area is Canada thistle, with minor occurrences of field bindweed. Canada thistle is mostly restricted to mesic sites, and was recorded in a wide variety of community types, particularly Drainage Bottom communities and portions of Tame Pasture. Field bindweed was recorded on one sample site in the *Artemisia cana/Agropyron smithii* community type, and three of 66 sample sites in the Hay Cropland type; it also occurs occasionally at road margins or isolated disturbed sites in drainage bottom pastures.

Noxious Weed Distribution by Community Type,
Otter Creek Baseline Study Area, 2011-2012.

		Percent Cover/Constancy	
COMMUNITY TYPE	**n**	***Cirsium arvense***	***Convolvulus arvensis***
GRASSLAND	**185**		
Agropyron smithii / Bouteloua gracilis	15	0.07/7	-
Agropyron smithii / Stipa viridula	77	0.16/4	-
TAME PASTURE	**106**		
Hay Cropland	66	0.80/9	0.43/5
Pastureland	40	0.16/3	-
SHRUB / GRASSLAND	**172**		
Artemisia cana / Agropyron smithii	52	0.29/8	0.03/2
BREAKS	**175**		
Conifer-Dominated Breaks	**55**		
Pinus ponderosa/Juniperus scopulorum/Agropyron spicatum Breaks	18	0.02/6	-
DRAINAGE BOTTOM	**113**		
Herbaceous Bottom	46		
Spartina pectinata/Bromus inermis	4	1.50/50	-
Spartina pectinata/Poa pratensis	1	3/100	-
Typha latifolia/Bromus inermis	2	3.50/100	-
Typha latifolia/Spartina pectinata	2	0.15/50	-
Scirpus acutus-Scirpus validus/Spartina pectinata	7	0.57/29	-
Mesophytic Low Shrub Bottom	**27**		
Symphoricarpos occidentalis-Rosa woodsii/Poa pratensis-Agropyron smithii	17	0.47/6	-
Mesophytic Deciduous Tree Bottom	**37**		
Populus deltoides/Bromus inermis	2	0.50/50	-
Acer negundo/Bromus inermis	15	2.00/53	-
Acer negundo/Spartina pectinata	4	1.00/25	-
Acer negundo/Prunus virginiana	3	1.00/67	-

n = number of sample sites

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OTTER CREEK VEGETATION BASELINE 2011-2012

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Table 1
Community Types Identified in the Otter Creek Tract 2 (2011) and Facilities (2012) Baseline Study Areas, Powder River County, Montana, 2011-2012.

COMMUNITY TYPE[1]	PLOT NUMBERS[2]	2011 n	2012 n	Total n
GRASSLAND		**152**	**33**	**185**
Agropyron smithii / Bouteloua gracilis	039*, 041*, 069*, 071*, 080*, 106*, 110, 188, 192, 193, 209*, 210*, 645*, 744, 810	13	2	15
Agropyron smithii / Stipa viridula	002, 005, 013, 017, 027, 028, 030, 034, 053, 057, 058, 059*, 061, 065*, 066, 068*, 075, 087, 091, 101, 113, 124, 127, 128, 130, 137, 139, 140, 141, 143, 152, 153, 154, 155, 157, 158, 159, 160, 165, 171, 175, 184, 185*, 190, 194, 202, 203, 207, 208, 262, 570, 575, 586, 592, 593, 594, 595, 596, 597, 598, 599, 612, 613, 627, 628, 635, 636, 643*, 644*, 656*, 683, 684, 689, 691, 695, 697, 700	77	-	77
Stipa comata / Agropyron smithii	020, 038, 042, 050, 051, 054*, 055*, 063, 072*, 076, 093, 095, 109, 115, 125, 166, 191, 211, 234, 340	20	-	20
Stipa comata / Carex filifolia	142, 168, 226, 751, 754, 798, 854, 857, 858*, 861, 863, 866	3	9	12
Agropyron spicatum / Stipa comata	015, 084, 189, 248, 742, 809, 871	4	3	7
Agropyron spicatum / Bouteloua curtipendula	024, 074, 098, 163, 266, 320, 321, 332, 820, 831, 832, 846	8	4	12
Andropogon scoparius / Carex filifolia	856, 867	-	2	2
Andropogon scoparius / Agropyron spicatum	178, 227, 232, 247*, 264, 322, 338, 339, 343, 408, 611	11	-	11
Andropogon scoparius / Bouteloua curtipendula	007, 011, 016, 036, 060, 221,299, 803, 815, 825	7	3	10
Andropogon scoparius / Andropogon gerardii	756, 833	-	2	2
Andropogon scoparius / Calamovilfa longifolia	129, 145, 290, 311, 813, 853	4	2	6
Calamovilfa longifolia / Stipa comata	116, 121, 126, 180, 197, 745, 752, 758, 796, 802, 870	5	6	11
TAME PASTURE		**43**	**63**	**106**
Hay Cropland – Farmed	545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 564, 565, 566, 567, 568, 660, 661, 704, 705, 706, 707, 708, 709, 711-740, 748, 761, 768, 786, 788	25	41	66
Pastureland – Grazed/Go-Back	006, 022, 023, 033*, 035*, 040*, 056*, 169, 174, 176, 204, 563, 573, 576, 578, 581, 582, 655, 741, 743, 746, 747, 749, 753, 757, 759, 760, 792*, 793, 795, 797, 799*, 801, 806, 807, 834, 843, 860, 862*, 864	18	22	40
SHRUB / GRASSLAND		**149**	**23**	**172**
Artemisia cana / Agropyron smithii	044, 045, 046, 064, 070, 119, 148, 230, 259, 571, 572, 574, 579, 580, 583, 584, 585, 587, 589, 590, 591, 600, 603, 604, 605, 607, 609, 622, 623, 624, 626, 629, 630, 634, 638, 639, 641, 642, 678, 679, 693, 694, 701, 702, 703, 755, 805, 817, 835, 845, 868, 869	45	7	52
Artemisia tridentata / Agropyron smithii	001, 004, 008, 009, 014, 018, 019, 021, 025, 026, 029, 032, 043, 052, 062, 067, 073, 078, 082, 085, 088, 089, 092, 096, 100, 102, 103, 105, 107, 108, 111, 112, 114, 117, 120, 122, 123, 132, 133, 134, 136, 138, 146, 147, 150, 151, 156, 162, 164, 167, 170, 173, 177, 181, 182, 186, 195, 198, 205, 206, 218, 312, 341, 602, 625, 647, 651,750, 816, 821, 829, 847, 850	67	6	73
Artemisia tridentata / Agropyron spicatum	003, 012, 037, 079, 086, 090, 097, 099, 118, 135, 161, 172, 179, 183, 187, 196, 199, 201, 228, 229, 252, 260, 327, 342, 344, 345, 588, 814, 818, 819, 822, 827, 828, 839, 840, 844	27	9	36
Artemisia tridentata / Andropogon scoparius	010, 031, 081, 083, 094, 144, 149, 200, 220, 313, 812	10	1	11
BREAKS		**165**	**10**	**175**
Grass-Dominated Breaks		**(22)**	**(1)**	**(23)**
Agropyron smithii Breaks	245, 256, 283, 300, 302, 303, 307, 325, 331, 849	9	1	10
Agropyron spicatum Breaks	217, 287, 292, 346	4	-	4
Sporobolus airoides Breaks	215, 223, 236, 347	4	-	4
Calamovilfa longifolia Breaks	288, 328, 335, 336, 410	5	-	5
Shrub-Dominated Breaks		**(89)**	**(8)**	**(97)**
Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron smithii	077, 104, 131, 212, 233, 235, 238, 240, 244, 246, 251, 258, 261, 263, 265, 271, 276, 296, 301, 308, 310, 314, 326, 334, 337, 848	25	1	26
Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron spicatum	823, 830, 838	-	3	3

Table 1
Community Types Identified in the Otter Creek Tract 2 (2011) and Facilities (2012) Baseline Study Areas, Powder River County, Montana, 2011-2012.

COMMUNITY TYPE[1]	PLOT NUMBERS[2]	2011 n	2012 n	Total n
Rhus aromatica / Agropyron spicatum – Andropogon scoparius	047, 048, 049, 388, 836, 855, 859, 865	4	4	8
Artemisia tridentata-Rhus aromatica-Chrysothamnus nauseosus / Agropyron spicatum	213, 219, 222, 224, 225, 231, 241, 242, 243, 255, 268, 272, 289, 309, 315	15	-	15
Artemisia tridentata-Rhus aromatica-Sarcobatus vermiculatus / Agropyron spicatum	214, 239, 285, 295, 324, 360	6	-	6
Artemisia tridentata-Atriplex confertifolia-Sarcobatus vermiculatus / Agropyron spicatum	237, 249, 250, 253, 254, 257, 269, 270, 273, 274, 275, 277, 278, 279, 280, 281, 282, 284, 286, 291, 306, 323, 329, 330, 333, 517	26	-	26
Artemisia tridentata-Atriplex confertifolia-Rhus aromatica / Agropyron spicatum	216, 267, 293, 294, 297, 298, 304, 305, 317, 318, 319, 363, 379	13	-	13
Conifer-Dominated Breaks		**(54)**	**(1)**	**(55)**
Juniperus scopulorum / Agropyron spicatum Breaks	361, 381, 387, 390, 402, 416, 430, 515, 516, 520, 538	11	-	11
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum Breaks	348, 349, 351, 353, 356, 364, 368, 371, 372, 373, 380, 382, 383, 384, 403, 415, 425, 824	17	1	18
Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius Breaks	350, 355, 357, 359, 362, 365, 366, 369, 370, 374, 375, 378, 437, 449, 465	15	-	15
Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata Breaks	358, 367, 376, 377	4	-	4
Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata-Atriplex confertifolia Breaks	316, 352, 354, 385, 386, 404, 534	7	-	7
PONDEROSA PINE-JUNIPER FOREST AND SAVANNAH		**131**	**9**	**140**
Ponderosa Pine-Juniper / Grass		**(118)**	**(9)**	**(127)**
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum	391, 392, 393, 396, 397, 399, 400, 401, 405, 406, 413, 414, 417, 418, 419, 420, 421, 422, 423, 424, 426, 436, 438, 439, 440, 441, 444, 445, 446, 447, 448, 453, 454, 456, 457, 458, 459, 460, 461, 462, 463, 464, 470, 471, 473, 475, 476, 478, 479, 481, 482, 483, 484, 485, 486, 487, 488, 490, 492, 493, 494, 497, 498, 499, 505, 506, 508, 511, 512, 514, 519, 524, 526, 527, 528, 529, 532, 533, 535, 536, 539, 540, 541, 542, 543, 544, 791, 804, 826, 837, 841, 851, 852	86	7	93
Juniperus scopulorum-Pinus ponderosa / Oryzopsis micrantha	411, 412	2	-	2
Pinus ponderosa-Juniperus scopulorum / Festuca idahoensis	442, 468	2	-	2
Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius	394, 395, 398, 407, 409, 427, 428, 443, 452, 466, 467, 469, 474, 477, 480, 489, 491, 495, 500, 501, 502, 503, 509, 513, 518, 523, 525, 537, 794, 800	28	2	30
Ponderosa Pine-Juniper / Shrub		**(13)**	**(0)**	**(13)**
Drainage *Juniperus scopulorum-Pinus ponderosa / Symphoricarpos occidentalis-Agropyron smithii*	389, 429, 431, 432, 433, 434, 435, 450, 504, 510, 521	11	-	11
Pinus ponderosa-Juniperus scopulorum / Prunus virginiana	496, 507	2	-	2
DRAINAGE BOTTOM[3]		**83**	**30**	**113**
Mesophytic/Hydrophytic Herbaceous Bottom		**(34)**	**(12)**	**(46)**
Distichlis stricta / Agropyron smithii	WL 27	1	-	1
Distichlis stricta / Hordeum jubatum	WL 03, WL 09	2	-	2
Sporobolus airoides / Agropyron smithii	685	1	-	1
Sporobolus airoides / Distichlis stricta	WL 07, WL 08, WL 21, WL 22, WL 23, WL 31	6	-	6
Spartina gracilis / Distichlis stricta	WL 29	1	-	1
Spartina pectinata / Bromus inermis	617, 658, 773, 775	2	2	4
Spartina pectinata / Poa pratensis	WL 19	1	-	1
Spartina pectinata / Hordeum jubatum	577, WL 20	2	-	2

Table 1
Community Types Identified in the Otter Creek Tract 2 (2011) and Facilities (2012) Baseline Study Areas, Powder River County, Montana, 2011-2012.

COMMUNITY TYPE[1]	PLOT NUMBERS[2]	2011 n	2012 n	Total n
Spartina pectinata / Puccinellia nuttalliana	710	-	1	1
Spartina pectinata / Panicum virgatum	680	1	-	1
Spartina pectinata / Scirpus americanus	WL 05, WL 06, WL 36, WL 46, WL 47, 772, 774	5	2	7
Scirpus maritimus / Sporobolus airoides-Distichlis stricta	688	1	-	1
Scirpus maritimus / Scirpus americanus-Eleocharis palustris	WL 45	1	-	1
Eleocharis palustris / Scirpus americanus-Juncus torreyi	451, 681, 686	3	-	3
Typha latifolia / Bromus inermis	662, 666	2	-	2
Typha latifolia / Spartina pectinata	665, 777	1	1	2
Scirpus acutus -Scirpus validus / Spartina pectinata	606, 618, 769, 771, 776, 782, 787	2	5	7
Scirpus acutus -Scirpus validus / Typha latifolia	667, 687, 789	2	1	3
Mesophytic Low Shrub Bottom		**(24)**	**(3)**	**(27)**
Symphoricarpos occidentalis-Artemisia tridentata-Sarcobatus vermiculatus / Agropyron smithii	649, 650	2	-	2
Artemisia cana-Rosa woodsii / Agropyron smithii-Poa pratensis	682	1	-	1
Symphoricarpos occidentalis-Artemisia cana / Agropyron smithii-Poa pratensis	610, 614, 640, 646, 692, 808, 811	5	2	7
Symphoricarpos occidentalis-Rosa woodsii / Poa pratensis-Agropyron smithii	455, 569, 601, 608, 621, 631, 632, 633, 637, 652, 653, 654, 674, 675, 676, 677, 842	16	1	17
Mesophytic Tall Shrub Bottom		**(3)**	**(0)**	**(3)**
Prunus virginiana / Symphoricarpos occidentalis-Poa pratensis	648, 696	2	-	2
Salix exigua / Scirpus americanus-Juncus torreyi	WL 26	1	-	1
Mesophytic Deciduous Tree Bottom		**(22)**	**(15)**	**(37)**
Populus deltoides / Bromus inermis	671, 673	2	-	2
Populus deltoides-Acer negundo / Bromus inermis	672, 698	2	-	2
Populus deltoides-Fraxinus pennsylvanica-Acer negundo / Poa pratensis	765, 767	-	2	2
Populus deltoides / Symphoricarpos occidentalis-Poa pratensis	530, WL 25	2	-	2
Populus deltoides-Fraxinus pennsylvanica-Acer negundo / Symphoricarpos occidentalis	699	1	-	1
Populus deltoides-Salix amygdaloides / Poa pratensis	766	-	1	1
Populus deltoides-Salix amygdaloides / Salix exigua	522	1	-	1
Populus deltoides / Prunus virginiana	531	1	-	1
Populus deltoides-Fraxinus pennsylvanica-Acer negundo / Prunus virginiana	763, 764	-	2	2
Acer negundo / Bromus inermis	615, 616, 620, 657, 659, 663, 668, 669, 670, 690, 778, 779, 780, 781, 783	10	5	15
Acer negundo / Spartina pectinata	619, 664, 770, 785	2	2	4
Acer negundo / Prunus virginiana	762, 784, 790	-	3	3
Fraxinus pennsylvanica / Poa pratensis	472	1	-	1
TOTAL Vegetation Sample Sites		**703**	**168**	**871**
TOTAL Wetland Supplemental Sites		**20**	**NA**	**20**
Study Area Acres		**7812**	**1458**	**9270**

Table 1
Community Types Identified in the Otter Creek Tract 2 (2011) and Facilities (2012) Baseline Study Areas, Powder River County, Montana, 2011-2012.

[1]In this classification, community types are named according to the following convention:

A slash (/) indicates a separation of species dominating one or more strata, namely the herbaceous, shrub and/or tree layers.

A hyphen (-) indicates species dominating the same stratum (understory, middle story or overstory) either or both of which may be dominant or codominant at a given sample site.

[2]All plot locations are shown on the vegetation community type map (Plate 1). Plot numbers with an asterisk indicate sites associated with current and recent prairie dog colonies; prairie dogs conspicuously impact vegetation ecology in substantial portions of the study area, significantly affecting plant composition and diversity in the vicinity of their colonies.

[3]Wetlands in the study area are often associated with relatively small hillside seeps and aprons, or narrow streamside fringes. Such sites are generally missed by the stratified random procedure used to select vegetation sample sites, whereas these sites are specifically targeted for identification and delineation during the baseline wetland inventory. Accordingly, selected wetland cover/composition data were drawn from the wetland inventory to supplement the vegetation baseline database. These sample sites were prefixed with "WL".

Table 2
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Twelve GRASSLAND Community Types,
Otter Creek Baseline Study Area, 2011-2012.

	AGR SMI / BOU GRA		*AGR SMI/ STI VIR*		*STI COM/ AGR SMI*		*STI COM/ CAR FIL*		*AGR SPI/ STI COM*		*AGR SPI/ BOU CUR*		*AND SCO/ CAR FIL*		*AND SCO/ AGR SPI*		*AND SCO/ BOU CUR*	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=15		**n=77**		**n=20**		**n=12**		**n=7**		**n=12**		**n=2**		**n=11**		**n=10**	
GROUND COVER																		
Bare Ground	31.00	*93*	20.42	*99*	37.97	*100*	31.50	*100*	35.71	*100*	28.50	*100*	42.50	*100*	35.36	*100*	33.80	*100*
Rock	0.15	*33*	0.23	*27*	1.34	*55*	7.44	*92*	6.76	*71*	23.94	*100*	16.50	*100*	27.09	*91*	10.13	*100*
Litter	59.53	*100*	69.82	*100*	53.30	*100*	54.17	*100*	41.57	*100*	42.58	*100*	34.00	*100*	29.73	*100*	44.90	*100*
Lichens	5.11	*67*	4.64	*66*	3.19	*80*	2.01	*92*	11.80	*100*	1.44	*58*	2.15	*100*	2.59	*91*	6.66	*100*
Moss	0.37	*27*	0.47	*31*	0.12	*15*	0.50	*33*	0.51	*71*	0.16	*33*			0.45	*36*	0.62	*70*
Basal Vegetation	4.00	*100*	4.55	*100*	4.20	*100*	4.58	*100*	3.86	*100*	3.42	*100*	5.00	*100*	4.91	*100*	4.00	*100*
VEGETATION STRUCTURE (nonstratified cover)																		
Total Vegetation	74.40	*100*	82.17	*100*	75.20	*100*	70.58	*100*	69.00	*100*	52.42	*100*	53.00	*100*	57.18	*100*	59.20	*100*
Perennial Graminoids	61.00	*100*	65.55	*100*	51.55	*100*	52.25	*100*	49.71	*100*	37.25	*100*	38.00	*100*	38.00	*100*	45.30	*100*
Annual Graminoids	9.11	*93*	6.82	*88*	15.77	*100*	16.33	*100*	5.13	*100*	3.66	*92*	3.00	*100*	1.15	*55*	6.46	*100*
Perennial Forbs and Subshrubs	8.75	*100*	14.83	*100*	19.75	*100*	10.75	*100*	16.86	*100*	10.00	*100*	20.00	*100*	19.91	*100*	14.00	*100*
Annual/Biennial Forbs	7.89	*100*	11.17	*99*	11.70	*100*	5.73	*92*	10.09	*100*	4.29	*92*	0.30	*100*	4.90	*100*	2.92	*100*
Shrubs	0.51	*27*	2.58	*64*	0.83	*60*	0.67	*17*	0.90	*43*	3.78	*83*			2.09	*73*	1.73	*60*
Trees 0.01-acre											0.83	*8*			0.64	*18*		
Trees 0.1-acre			0.06	*4*							0.67	*25*			1.00	*27*	0.10	*10*
CLASS\SPECIES																		
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																		
XAgrohordeum macounii			0.04	*1*														
Agropyron dasystachyum var. dasy.			0.22	*5*					0.29	*14*	0.83	*25*						
Agropyron dasystachyum var. riparium					0.20	*5*												
Agropyron smithii	46.40	*100*	36.47	*100*	21.30	*100*	1.58	*33*	1.90	*43*	4.86	*67*			0.96	*55*	2.93	*60*
Agropyron spicatum			0.29	*14*	0.15	*10*	0.63	*50*	11.57	*100*	10.83	*100*	0.15	*50*	7.30	*100*	1.80	*50*
Agropyron trachycaulum			0.01	*1*														
Aristida longiseta	0.02	*7*	0.92	*19*	1.30	*30*	0.67	*42*	0.19	*29*	0.53	*42*	1.00	*100*	0.94	*27*	0.73	*40*
Calamagrostis montanensis											0.03	*8*						
Carex filifolia	0.67	*20*	0.36	*21*	2.88	*55*	14.83	*100*	19.14	*100*	2.75	*42*	4.00	*100*	2.94	*82*	6.03	*90*
Carex heliophila			0.44	*4*	1.00	*5*	2.67	*33*			0.75	*8*	14.00	*100*			0.40	*20*
Carex stenophylla							0.03	*8*										
Hordeum jubatum			0.16	*1*														

Table 2
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Twelve GRASSLAND Community Types, Otter Creek Baseline Study Area, 2011-2012.

	AGR SMI / BOU GRA		*AGR SMI/ STI VIR*		*STI COM/ AGR SMI*		*STI COM/ CAR FIL*		*AGR SPI/ STI COM*		*AGR SPI/ BOU CUR*		*AND SCO/ CAR FIL*		*AND SCO/ AGR SPI*		*AND SCO/ BOU CUR*	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=15		**n=77**		**n=20**		**n=12**		**n=7**		**n=12**		**n=2**		**n=11**		**n=10**	
Koeleria cristata	1.00	*33*	1.14	*49*	1.03	*65*	1.75	*25*	3.71	*86*	1.78	*58*	2.00	*100*	1.12	*36*	0.96	*60*
Oryzopsis hymenoides											0.03	*8*						
Poa arida			0.06	*1*														
Poa glaucifolia															0.03	*9*		
Poa juncifolia			0.03	*1*														
Poa sandbergii	1.80	*27*	0.42	*27*	1.00	*40*	1.28	*67*	1.04	*57*	2.19	*50*			0.03	*9*	0.36	*30*
Poa scabrella	0.47	*20*	0.15	*13*	0.25	*10*					0.08	*8*			0.18	*9*		
Scirpus maritimus			0.01	*1*														
Stipa comata	0.17	*20*	2.55	*40*	17.55	*100*	19.42	*100*	10.43	*100*	0.94	*42*	3.00	*100*	3.21	*45*	4.80	*80*
Stipa viridula	0.15	*13*	15.35	*100*	0.75	*25*	0.03	*8*	1.57	*29*	1.19	*42*					1.10	*20*
TOTAL NPG(C)	**50.68**	***100***	**58.61**	***100***	**47.40**	***100***	**42.88**	***100***	**49.84**	***100***	**26.78**	***100***	**24.15**	***100***	**16.70**	***100***	**19.11**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																		
Andropogon gerardii																	0.40	*10*
Andropogon scoparius			0.03	*3*			0.19	*25*	0.71	*43*	0.58	*33*	14.00	*100*	20.91	*100*	11.20	*100*
Bouteloua curtipendula	0.13	*7*	0.29	*8*	0.28	*20*	0.41	*42*			7.75	*100*			1.12	*55*	11.70	*100*
Bouteloua gracilis	12.17	*87*	6.01	*51*	9.33	*90*	13.00	*92*	3.76	*86*	2.92	*58*	3.00	*100*	1.82	*64*	5.90	*80*
Calamovilfa longifolia			0.08	*5*			0.05	*17*	0.13	*43*	0.42	*33*			0.21	*27*	0.26	*30*
Distichlis stricta			0.01	*3*														
Muhlenbergia cuspidata			0.12	*6*	0.50	*5*	0.08	*8*	0.71	*14*	1.86	*58*			0.15	*27*	1.80	*40*
Schedonnardus paniculatus			0.14	*6*														
Spartina gracilis															0.03	*9*		
Sporobolus cryptandrus	0.02	*7*	0.02	*3*														
TOTAL NPG(W)	**12.33**	***87***	**6.69**	***56***	**10.11**	***90***	**13.73**	***100***	**5.31**	***100***	**13.53**	***100***	**17.00**	***100***	**24.23**	***100***	**31.26**	***100***
INTRODUCED PERENNIAL GRAMINOIDS																		
Agropyron cristatum	1.95	*33*	0.95	*19*	0.73	*20*	2.42	*42*	0.71	*29*	0.03	*8*			0.03	*9*		
Agropyron elongatum			0.04	*1*														
Bromus inermis	0.20	*7*	0.04	*3*			0.08	*8*										
Phleum pratense			0.01	*1*														
Poa bulbosa	1.00	*7*	0.07	*3*														
Poa compressa			0.43	*8*														
Poa pratensis	0.67	*13*	9.52	*52*	0.12	*10*	0.03	*8*			0.67	*8*			0.03	*9*	0.10	*10*
TOTAL IPG	**3.82**	***40***	**11.07**	***60***	**0.85**	***30***	**2.53**	***42***	**0.71**	***29***	**0.69**	***17***	**0.00**	***0***	**0.05**	***18***	**0.10**	***10***

Table 2
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Twelve GRASSLAND Community Types,
Otter Creek Baseline Study Area, 2011-2012.

	AGR SMI / BOU GRA		*AGR SMI/ STI VIR*		*STI COM/ AGR SMI*		*STI COM/ CAR FIL*		*AGR SPI/ STI COM*		*AGR SPI/ BOU CUR*		*AND SCO/ CAR FIL*		*AND SCO/ AGR SPI*		*AND SCO/ BOU CUR*	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=15		**n=77**		**n=20**		**n=12**		**n=7**		**n=12**		**n=2**		**n=11**		**n=10**	
NATIVE ANNUAL GRAMINOIDS																		
Festuca octoflora	0.09	*13*	0.05	*13*	0.22	*45*	0.03	*8*	0.04	*14*					0.03	*9*	0.13	*20*
Hordeum pusillum			0.004	*1*														
TOTAL NAG	**0.09**	***13***	**0.05**	***13***	**0.22**	***45***	**0.03**	***8***	**0.04**	***14***	**0.00**	***0***	**0.00**	***0***	**0.03**	***9***	**0.13**	***20***
INTRODUCED ANNUAL GRAMINOIDS																		
Bromus japonicus	4.24	*93*	6.39	*88*	7.42	*100*	15.17	*100*	4.84	*100*	3.33	*92*	3.00	*100*	0.96	*55*	6.36	*100*
Bromus tectorum	5.09	*33*	0.61	*14*	9.18	*75*	1.25	*33*	0.57	*14*	0.50	*17*			0.21	*18*	0.13	*20*
TOTAL IAG	**9.33**	***93***	**7.00**	***88***	**16.60**	***100***	**16.42**	***100***	**5.41**	***100***	**3.83**	***92***	**3.00**	***100***	**1.17**	***55***	**6.49**	***100***
NATIVE PERENNIAL FORBS AND SUBSHRUBS																		
Achillea millefolium	0.20	*20*	0.74	*48*					0.04	*14*	0.08	*25*			0.11	*36*	0.06	*20*
Agoseris glauca			0.004	*1*														
Allium textile	0.06	*20*	0.03	*6*	0.03	*10*	0.03	*8*	0.09	*29*	0.03	*8*			0.05	*18*	0.06	*20*
Ambrosia psilostachya			0.09	*8*	1.32	*20*	0.05	*17*	0.13	*43*	0.50	*25*			0.56	*64*	0.06	*20*
Antennaria dimorpha			0.02	*3*					0.09	*29*					0.03	*9*	0.03	*10*
Antennaria howellii (neglecta)	0.07	*7*			0.08	*15*					0.08	*8*			0.03	*9*		
Antennaria microphylla			0.02	*3*					0.29	*14*	0.13	*25*			0.39	*18*	0.06	*20*
Antennaria parvifolia	0.07	*7*	0.06	*10*	0.07	*10*	0.28	*17*	0.61	*57*	0.08	*8*	10.50	*100*	0.15	*27*	0.16	*30*
Apocynum cannabinum																		
Arnica sororia			0.01	*3*					0.04	*14*	0.03	*8*						
Artemisia campestris							0.03	*8*							0.03	*9*		
Artemisia dracunculus			0.02	*3*	3.37	*35*	2.67	*75*					0.50	*50*				
Artemisia frigida	0.17	*40*	0.13	*23*	0.37	*60*	0.72	*75*	1.61	*86*	0.49	*58*	0.30	*100*	0.62	*91*	0.79	*80*
Artemisia ludoviciana			0.76	*16*	2.65	*10*	0.11	*17*	0.04	*14*	0.17	*17*			0.17	*36*	0.20	*10*
Asclepias verticillata			0.01	*3*														
Asclepias viridiflora					0.02	*5*					0.03	*8*					0.06	*20*
Aster falcatus	0.04	*13*	1.25	*49*	1.81	*50*	0.13	*25*	0.37	*57*	0.29	*58*	0.15	*50*	1.39	*45*	1.09	*70*
Aster laevis															0.09	*9*		
Aster oblongifolius			0.08	*4*			0.03	*8*	0.04	*14*	0.05	*17*			0.72	*45*	0.56	*40*
Aster pansus			0.18	*4*														
Astragalus adsurgens			0.02	*4*					0.04	*14*	0.03	*8*			0.30	*18*		
Astragalus agrestis	0.27	*7*	0.14	*13*			0.03	*8*			0.03	*8*			0.30	*18*		
Astragalus crassicarpus	0.02	*7*	0.004	*1*	0.05	*5*			0.04	*14*								

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	AGR SMI / BOU GRA		*AGR SMI/ STI VIR*		*STI COM/ AGR SMI*		*STI COM/ CAR FIL*		*AGR SPI/ STI COM*		*AGR SPI/ BOU CUR*		*AND SCO/ CAR FIL*		*AND SCO/ AGR SPI*		*AND SCO/ BOU CUR*	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=15		**n=77**		**n=20**		**n=12**		**n=7**		**n=12**		**n=2**		**n=11**		**n=10**	
Astragalus drummondii			0.06	*8*							0.33	*25*			0.03	*9*		
Astragalus flexuosus																	0.03	*10*
Astragalus gilviflorus					0.02	*5*	0.05	*17*	0.09	*29*	0.05	*17*	0.30	*100*	0.08	*27*	0.03	*10*
Astragalus gracilis			0.03	*4*	0.02	*5*	2.08	*8*							0.11	*36*	0.06	*20*
Astragalus lotiflorus					0.05	*15*	0.03	*8*	0.04	*14*							0.03	*10*
Astragalus missouriensis			0.04	*10*	0.06	*20*	0.05	*17*	0.04	*14*	0.08	*25*	0.15	*50*	0.08	*27*	0.12	*40*
Astragalus plattensis	0.11	*20*	0.03	*8*	0.20	*25*									0.03	*9*		
Astragalus purshii			0.01	*3*											0.03	*9*	0.03	*10*
Astragalus spatulatus									0.90	*43*	0.05	*17*			0.03	*9*		
Besseya wyomingensis			0.01	*3*							0.08	*8*			0.11	*36*		
Calochortus nuttallii	0.04	*13*	0.02	*8*	0.03	*10*	0.03	*8*			0.03	*8*			0.05	*18*	0.03	*10*
Campanula rotundifolia			0.03	*1*											0.08	*27*	0.03	*10*
Castilleja sessiliflora					0.02	*5*			0.23	*43*	0.03	*8*			0.05	*18*	0.09	*30*
Cerastium arvense			0.05	*5*			0.11	*17*	0.04	*14*	0.11	*17*	0.50	*50*	0.82	*18*	0.80	*20*
Chrysopsis villosa			0.004	*1*	0.03	*10*	0.11	*17*			0.11	*17*	0.65	*100*	0.20	*45*	0.03	*10*
Cirsium undulatum			0.02	*5*	0.17	*15*	0.13	*25*	0.47	*43*	0.11	*17*	0.30	*100*	0.35	*36*	0.69	*40*
Comandra umbellata			0.02	*4*	0.02	*5*	0.03	*8*	0.19	*29*	0.24	*33*			0.12	*18*	0.06	*20*
Coryphantha missouriensis			0.004	*1*														
Crepis occidentalis			0.004	*1*											0.03	*9*		
Cryptantha spiculifera (interrupta)											0.03	*8*						
Dalea candida			0.004	*1*			0.03	*8*	0.71	*29*	0.05	*17*			0.36	*9*	0.03	*10*
Dalea purpurea			0.03	*8*	1.32	*25*	0.11	*17*	0.04	*14*	0.18	*42*			0.35	*64*	0.19	*40*
Delphinium bicolor					0.02	*5*									0.03	*9*		
Echinacea angustifolia			0.13	*14*	0.22	*15*	0.22	*25*	0.17	*57*	0.28	*75*			1.26	*82*	1.39	*80*
Erigeron ochroleucus					0.02	*5*												
Erigeron pumilus var. pumilus	0.06	*20*	0.15	*26*	0.12	*40*	0.05	*17*	0.19	*29*	0.03	*8*	0.15	*50*			0.03	*10*
Eriogonum flavum											0.03	*8*			0.03	*9*		
Eriogonum pauciflorum									0.14	*14*	0.16	*33*			0.03	*9*	0.06	*20*
Erysimum inconspicuum																	0.03	*10*
Euphorbia robusta	0.02	*7*	0.004	*1*														
Evolvulus nuttallianus					0.36	*30*	0.03	*8*			0.03	*8*	0.30	*100*	0.05	*18*	0.06	*20*
Fritillaria atropurpurea																		
Gaillardia aristata																		
Gaura coccinea	0.24	*20*	0.37	*43*	1.06	*75*	0.18	*58*	0.17	*57*	0.25	*83*	0.15	*50*	0.19	*64*	0.21	*70*

Table 2
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Twelve GRASSLAND Community Types, Otter Creek Baseline Study Area, 2011-2012.

	AGR SMI / BOU GRA		*AGR SMI/ STI VIR*		*STI COM/ AGR SMI*		*STI COM/ CAR FIL*		*AGR SPI/ STI COM*		*AGR SPI/ BOU CUR*		*AND SCO/ CAR FIL*		*AND SCO/ AGR SPI*		*AND SCO/ BOU CUR*	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=15		**n=77**		**n=20**		**n=12**		**n=7**		**n=12**		**n=2**		**n=11**		**n=10**	
Geum triflorum			0.004	*1*														
Gilia congesta var. pseudotypica															0.03	*9*	0.03	*10*
Glycyrrhiza lepidota			0.22	*3*														
Gutierrezia sarothrae	0.44	*27*	1.29	*31*	0.27	*50*	0.13	*25*	2.90	*86*	1.52	*92*	0.65	*100*	1.11	*73*	2.26	*80*
Haplopappus armerioides													0.15	*50*				
Haplopappus spinulosus			0.004	*1*	0.03	*10*	0.05	*17*	0.13	*43*							0.06	*20*
Hedeoma drummondii	0.02	*7*	0.004	*1*											0.03	*9*	0.03	*10*
Hymenopappus filifolius											0.03	*8*			0.03	*9*		
Iva axillaris			0.004	*1*							0.42	*8*			0.03	*9*	0.03	*10*
Kuhnia eupatorioides					0.10	*5*	0.33	*17*			0.08	*25*	0.15	*50*	0.15	*27*	0.10	*10*
Lactuca oblongifolia			0.02	*4*														
Lesquerella alpina											0.03	*8*					0.03	*10*
Leucocrinum montanum	0.13	*7*	0.04	*6*			0.03	*8*			0.03	*8*						
Liatris punctata					0.02	*5*	0.03	*8*	0.04	*14*	0.08	*25*	0.15	*50*	0.05	*18*	0.09	*30*
Linum lewisii			0.06	*17*			0.05	*17*	0.04	*14*	0.05	*17*			0.22	*73*	0.09	*30*
Lithospermum incisum			0.01	*3*	0.08	*15*	0.08	*25*	0.19	*29*	0.05	*17*	0.15	*50*	0.05	*18*	0.10	*10*
Lomatium foeniculaceum			0.01	*4*	0.02	*5*												
Lomatium orientale	0.10	*33*	0.03	*9*			0.03	*8*										
Lygodesmia juncea			0.01	*3*	0.05	*15*	0.08	*25*	0.23	*43*					0.03	*9*	0.03	*10*
Machaeranthera grindelioides									0.14	*14*	0.05	*17*			0.05	*18*	0.03	*10*
Mentzelia decapetala							0.08	*8*										
Microseris nutans	0.02	*7*	0.004	*1*													0.03	*10*
Mirabilis linearis	0.02	*7*			0.02	*5*					0.03	*8*			0.03	*9*		
Musineon divaricatum	0.02	*7*	0.01	*3*	0.02	*5*					0.08	*25*			0.08	*27*		
Opuntia fragilis							0.03	*8*										
Opuntia polyacantha	0.46	*40*	0.53	*57*	0.21	*45*	0.18	*42*	0.17	*57*	0.27	*50*	0.15	*50*	0.08	*27*	0.38	*80*
Oxytropis lambertii			0.01	*4*	0.02	*5*					0.05	*17*			1.30	*55*	0.13	*20*
Oxytropis sericea					0.05	*5*	0.05	*17*			0.22	*25*	0.15	*50*	0.15	*27*	0.03	*10*
Penstemon albidus	0.04	*13*	0.004	*1*	0.09	*30*			0.19	*29*	0.03	*8*			0.03	*9*	0.06	*20*
Penstemon eriantherus									0.04	*14*	0.03	*8*						
Phlox hoodii	0.22	*13*	0.36	*29*	0.31	*40*	0.92	*50*	0.94	*71*	0.97	*75*	5.50	*100*	0.21	*27*	0.96	*60*
Picradeniopsis oppositifolia	1.24	*20*	0.28	*8*	0.05	*15*												
Polygala alba	0.02	*7*	0.26	*31*	0.11	*25*	0.03	*8*	1.29	*43*	0.30	*25*			0.77	*55*	0.46	*50*
Psoralea argophylla	0.02	*7*	1.65	*35*	3.06	*65*	1.50	*17*	3.61	*57*	0.66	*50*			3.82	*82*	1.96	*70*

Table 2
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Twelve GRASSLAND Community Types, Otter Creek Baseline Study Area, 2011-2012.

	AGR SMI / BOU GRA		***AGR SMI/ STI VIR***		***STI COM/ AGR SMI***		***STI COM/ CAR FIL***		***AGR SPI/ STI COM***		***AGR SPI/ BOU CUR***		***AND SCO/ CAR FIL***		***AND SCO/ AGR SPI***		***AND SCO/ BOU CUR***	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=15		**n=77**		**n=20**		**n=12**		**n=7**		**n=12**		**n=2**		**n=11**		**n=10**	
Psoralea esculenta	0.07	*7*	0.04	*12*	0.03	*10*	0.05	*17*	0.13	*43*	0.24	*42*			0.25	*64*	0.15	*50*
Psoralea tenuiflora									0.04	*14*								
Ratibida columnifera	0.04	*13*	0.37	*51*	0.14	*35*	0.03	*8*	0.23	*43*	0.15	*50*			0.35	*45*	0.18	*60*
Senecio canus									0.14	*14*	0.05	*17*			0.05	*18*	0.06	*20*
Sisyrinchium angustifolium			0.01	*4*											0.15	*27*		
Solidago missouriensis			0.01	*1*							0.05	*17*			0.08	*27*	0.09	*30*
Solidago mollis			0.38	*9*	0.05	*5*									0.03	*9*		
Solidago nemoralis																		
Solidago rigida			0.07	*12*							0.03	*8*			0.48	*18*		
Sphaeralcea coccinea	1.17	*60*	0.70	*69*	1.01	*70*	0.34	*75*	0.41	*57*	0.27	*50*	0.15	*50*	0.30	*18*	0.32	*50*
Thermopsis rhombifolia			0.01	*3*											0.03	*9*		
Townsendia hookeri															0.05	*18*		
Tradescantia occidentalis					0.02	*5*												
Vicia americana	0.20	*7*	0.63	*48*							0.13	*25*			0.05	*18*	0.03	*10*
Viola nuttallii											0.03	*8*			0.03	*9*		
Yucca glauca					0.02	*5*					0.61	*50*			1.82	*27*		
Zigadenus venenosus	0.02	*7*	0.09	*26*	0.03	*10*	0.03	*8*	0.14	*14*	0.10	*33*			0.19	*64*	0.06	*20*
TOTAL NPF AND SUBSHRUBS	**5.60**	***93***	**11.70**	***100***	**19.19**	***100***	**11.28**	***100***	**17.89**	***100***	**10.80**	***100***	**21.15**	***100***	**21.55**	***100***	**14.94**	***100***
INTRODUCED PERENNIAL FORBS																		
Cirsium arvense	0.07	*7*	0.16	*4*														
Medicago sativa	0.07	*7*	0.32	*26*	0.60	*5*			0.57	*14*	0.03	*8*					0.30	*10*
Rumex crispus			0.01	*3*														
Taraxacum laevigatum	3.73	*93*	3.81	*83*	1.94	*80*	0.11	*17*	0.27	*57*	0.08	*25*			0.12	*18*	0.12	*40*
Taraxacum officinale			0.03	*1*														
TOTAL IPF	**3.86**	***93***	**4.32**	***88***	**2.54**	***85***	**0.11**	***17***	**0.84**	***57***	**0.10**	***33***	**0.00**	***0***	**0.12**	***18***	**0.42**	***40***
FERNS AND ALLIES																		
TOTAL F&A	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***

Table 2
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Twelve GRASSLAND Community Types, Otter Creek Baseline Study Area, 2011-2012.

	AGR SMI / BOU GRA		*AGR SMI/ STI VIR*		*STI COM/ AGR SMI*		*STI COM/ CAR FIL*		*AGR SPI/ STI COM*		*AGR SPI/ BOU CUR*		*AND SCO/ CAR FIL*		*AND SCO/ AGR SPI*		*AND SCO/ BOU CUR*	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=15		**n=77**		**n=20**		**n=12**		**n=7**		**n=12**		**n=2**		**n=11**		**n=10**	
NATIVE ANNUAL/BIENNIAL FORBS																		
Androsace occidentalis			0.01	*4*														
Arabis hirsuta			0.004	*1*														
Arabis holboellii			0.02	*5*	0.06	*20*	0.03	*8*	0.09	*29*			0.15	*50*	0.03	*9*		
Atriplex argentea			0.01	*3*														
Collomia linearis																		
Conyza canadensis	0.69	*13*	0.004	*1*													0.03	*10*
Cryptantha celosioides							0.05	*17*			0.03	*8*			0.05	*18*	0.03	*10*
Descurainia pinnata	0.02	*7*							0.04	*14*					0.03	*9*		
Draba reptans	0.04	*13*	0.004	*1*							0.05	*17*					0.06	*20*
Dyssodia papposa	0.09	*13*																
Erigeron strigosus			0.004	*1*														
Erysimum asperum					0.02	*5*	0.03	*8*							0.03	*9*	0.03	*10*
Euphorbia glyptosperma	0.09	*13*																
Euphorbia spathulata	0.02	*7*	0.05	*16*													0.03	*10*
Gaura parviflora			0.01	*3*														
Grindelia squarrosa			0.004	*1*							0.03	*8*					0.10	*10*
Hedeoma hispidum	0.43	*60*	0.24	*45*	0.22	*60*	0.08	*25*	0.09	*29*					0.03	*9*	0.56	*40*
Helianthus annuus	0.02	*7*			0.02	*5*											0.03	*10*
Helianthus petiolaris			0.01	*3*														
Lappula redowskii			0.01	*4*	0.03	*10*					0.03	*8*			0.03	*9*		
Lepidium densiflorum	0.08	*27*	0.03	*9*	0.05	*15*											0.03	*10*
Linum rigidum	0.04	*13*	0.04	*12*	0.12	*40*			0.13	*43*	0.05	*17*			0.05	*18*	0.12	*40*
Machaeranthera canescens							0.05	*17*	0.04	*14*								
Mentzelia dispersa											0.03	*8*						
Microsteris gracilis			0.01	*3*														
Oenothera albicaulis					0.02	*5*											0.06	*20*
Oenothera strigosa (villosa)	0.02	*7*			0.02	*5*												
Orthocarpus luteus	0.02	*7*	0.24	*29*					1.00	*43*	0.11	*17*			0.03	*9*	0.09	*30*
Phacelia linearis			0.02	*8*	0.02	*5*					0.03	*8*			0.03	*9*		
Plantago elongata			0.09	*3*			0.03	*8*									0.03	*10*
Plantago patagonica	0.30	*47*	0.14	*44*	0.49	*80*	0.24	*42*	0.27	*57*	0.05	*17*			0.03	*9*	0.42	*60*
Polygonum douglasii			0.01	*3*					0.04	*14*								

Table 2
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Twelve GRASSLAND Community Types, Otter Creek Baseline Study Area, 2011-2012.

	AGR SMI / BOU GRA		***AGR SMI/ STI VIR***		***STI COM/ AGR SMI***		***STI COM/ CAR FIL***		***AGR SPI/ STI COM***		***AGR SPI/ BOU CUR***		***AND SCO/ CAR FIL***		***AND SCO/ AGR SPI***		***AND SCO/ BOU CUR***	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=15		**n=77**		**n=20**		**n=12**		**n=7**		**n=12**		**n=2**		**n=11**		**n=10**	
Polygonum sawatchense			0.004	*1*														
Silene antirrhina			0.01	*3*	0.03	*10*												
Solanum triflorum			0.004	*1*														
Triodanis leptocarpa			0.01	*3*														
Xanthium strumarium			0.03	*1*														
TOTAL NAF	**1.85**	***93***	**0.99**	***75***	**1.06**	***95***	**0.49**	***58***	**1.70**	***71***	**0.38**	***83***	**0.15**	***50***	**0.33**	***64***	**1.62**	***80***
INTRODUCED ANNUAL/BIENNIAL FORBS																		
Alyssum alyssoides	0.02	*7*	0.08	*17*	0.09	*30*	0.13	*42*	0.23	*43*	0.08	*25*	0.15	*50*	0.03	*9*	0.35	*60*
Alyssum desertorum	0.50	*67*	0.14	*36*	0.20	*65*	0.10	*33*	0.13	*43*	0.22	*25*			0.16	*55*	0.09	*30*
Atriplex heterosperma			0.004	*1*														
Camelina microcarpa	0.02	*7*	0.06	*19*	0.16	*40*	0.10	*33*			0.03	*8*	0.15	*50*	0.03	*9*	0.06	*20*
Chenopodium album			0.004	*1*														
Draba nemorosa			0.01	*4*	0.03	*10*												
Filago arvensis	3.43	*80*	0.48	*31*	2.59	*65*	0.03	*8*			0.03	*8*			0.03	*9*	0.09	*30*
Lactuca serriola	0.48	*47*	0.29	*40*	0.26	*45*	0.19	*17*							0.03	*9*	0.09	*30*
Lepidium perfoliatum			0.01	*4*	0.05	*5*					0.03	*8*						
Medicago lupulina	0.49	*13*	2.04	*17*											0.03	*9*		
Melilotus alba			0.09	*3*											0.18	*9*	0.10	*10*
Melilotus officinalis	0.95	*67*	7.13	*65*	6.83	*60*	4.88	*25*	8.33	*29*	3.80	*33*			4.48	*64*	0.53	*40*
Scorzonera laciniata			0.004	*1*														
Sisymbrium altissimum	0.02	*7*	0.01	*3*	0.03	*10*					0.03	*8*						
Sisymbrium loeselii			0.02	*6*											0.03	*9*		
Thlaspi arvense	0.02	*7*	0.03	*3*														
Tragopogon dubius	0.58	*80*	0.54	*81*	1.17	*90*	0.08	*25*	0.46	*71*	0.13	*42*			0.08	*27*	0.18	*60*
Veronica arvensis			0.01	*1*			0.03	*8*										
TOTAL IAF	**6.51**	***100***	**10.95**	***97***	**11.39**	***100***	**5.53**	***83***	**9.14**	***86***	**4.32**	***75***	**0.30**	***100***	**5.07**	***91***	**1.49**	***100***

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Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Twelve GRASSLAND Community Types,
Otter Creek Baseline Study Area, 2011-2012.

	AGR SMI / BOU GRA		*AGR SMI/ STI VIR*		*STI COM/ AGR SMI*		*STI COM/ CAR FIL*		*AGR SPI/ STI COM*		*AGR SPI/ BOU CUR*		*AND SCO/ CAR FIL*		*AND SCO/ AGR SPI*		*AND SCO/ BOU CUR*	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=15		**n=77**		**n=20**		**n=12**		**n=7**		**n=12**		**n=2**		**n=11**		**n=10**	
SHRUBS																		
Artemisia cana	0.02	*7*	0.76	*21*	0.07	*10*	0.42	*8*	0.04	*14*					0.27	*9*		
Artemisia tridentata	0.20	*13*	0.82	*34*	0.55	*30*	0.25	*8*	0.71	*29*	2.67	*67*			0.94	*55*	0.76	*40*
Atriplex nuttallii	0.09	*13*																
Calylophus serrulatus															0.08	*27*	0.03	*10*
Ceratoides lanata	0.20	*7*	0.26	*18*	0.23	*30*					0.17	*8*					0.33	*30*
Chrysothamnus nauseosus											0.11	*17*					0.40	*10*
Juniperus horizontalis																		
Rhus aromatica											0.47	*25*			0.21	*18*		
Ribes aureum			0.004	*1*														
Rosa arkansana			0.54	*10*					0.14	*14*	0.13	*25*			0.33	*36*	0.13	*20*
Rosa woodsii			0.10	*4*							0.25	*17*					0.03	*10*
Symphoricarpos occidentalis			0.09	*1*							0.03	*8*			0.39	*18*		
TOTAL SHRUBS	**0.51**	***27***	**2.58**	***64***	**0.84**	***60***	**0.67**	***17***	**0.90**	***43***	**3.82**	***83***	**0.00**	***0***	**2.22**	***73***	**1.68**	***60***
TREES 0.01-acre																		
Juniperus scopulorum											0.83	*8*			0.36	*18*		
Pinus ponderosa															0.27	*9*		
TOTAL TREES 0.01-acre	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.83**	***8***	**0.00**	***0***	**0.64**	***18***	**0.00**	***0***
TREES 0.1-acre																		
Juniperus scopulorum			0.06	*4*							0.67	*25*			0.55	*27*	0.10	*10*
Pinus ponderosa															0.45	*18*		
TOTAL TREES 0.1-acre	**0.00**	***0***	**0.06**	***4***	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.67**	***25***	**0.00**	***0***	**1.00**	***27***	**0.10**	***10***
TOTAL VEGETATION (Stratified)	**94.57**	***100***	**113.96**	***100***	**110.18**	***100***	**93.64**	***100***	**91.80**	***100***	**65.08**	***100***	**65.75**	***100***	**72.10**	***100***	**77.24**	***100***

Table 2
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Twelve GRASSLAND Community Types, Otter Creek Baseline Study Area, 2011-2012.

	AND SCO/ AND GER		*AND SCO/ CAL LON*		*CAL LON/ STI COM*		**GRASSLAND COMPOSITE**	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=2		**n=6**		**n=11**		**n=185**	
GROUND COVER								
Bare Ground	28.00	*100*	24.00	*83*	29.09	*100*	**27.559**	***98***
Rock	6.50	*100*	7.22	*67*	10.60	*73*	**5.816**	***55***
Litter	50.00	*100*	57.50	*100*	52.18	*100*	**57.568**	***100***
Lichens	7.00	*100*	4.88	*83*	3.35	*82*	**4.330**	***76***
Moss	3.50	*100*	2.43	*100*	0.42	*36*	**0.502**	***36***
Basal Vegetation	5.00	*100*	4.17	*100*	4.55	*100*	**4.357**	***100***
VEGETATION STRUCTURE (nonstratified cover)								
Total Vegetation	74.00	*100*	66.00	*100*	66.45	*100*	**73.016**	***100***
Perennial Graminoids	65.00	*100*	51.67	*100*	56.18	*100*	**56.326**	***100***
Annual Graminoids	1.15	*100*	0.77	*67*	4.69	*100*	**7.538**	***90***
Perennial Forbs and Subshrubs	10.50	*100*	15.50	*100*	12.64	*100*	**14.526**	***100***
Annual/Biennial Forbs	0.15	*50*	1.65	*100*	1.02	*82*	**8.153**	***97***
Shrubs	6.00	*50*	2.72	*83*	2.87	*73*	**2.068**	***59***
Trees 0.01-acre	5.00	*50*	5.17	*33*			**0.314**	***3***
Trees 0.1-acre	2.50	*50*	2.38	*50*	0.09	*9*	**0.241**	***8***
CLASS\SPECIES								
NATIVE PERENNIAL GRAMINOIDS (Cool Season)								
XAgrohordeum macounii							**0.016**	***1***
Agropyron dasystachyum var. dasy.							**0.157**	***4***
Agropyron dasystachyum var. riparium							**0.022**	***1***
Agropyron smithii			0.05	*17*	1.66	*45*	**22.049**	***78***
Agropyron spicatum	14.00	*50*	4.55	*83*	0.66	*45*	**2.188**	***36***
Agropyron trachycaulum							**0.005**	***1***
Aristida longiseta			0.55	*33*	0.24	*27*	**0.748**	***26***
Calamagrostis montanensis							**0.002**	***1***
Carex filifolia	11.00	*100*	8.33	*100*	9.64	*91*	**3.886**	***50***
Carex heliophila					4.18	*27*	**0.935**	***9***
Carex stenophylla							**0.002**	***1***
Hordeum jubatum							**0.065**	***1***

Table 2
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Twelve GRASSLAND Community Types, Otter Creek Baseline Study Area, 2011-2012.

	AND SCO/ AND GER		*AND SCO/ CAL LON*		*CAL LON/ STI COM*		**GRASSLAND COMPOSITE**	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=2		**n=6**		**n=11**		**n=185**	
Koeleria cristata	1.00	*50*	4.00	*100*	2.03	*55*	**1.436**	***52***
Oryzopsis hymenoides							**0.002**	***1***
Poa arida							**0.027**	***1***
Poa glaucifolia							**0.002**	***1***
Poa juncifolia							**0.011**	***1***
Poa sandbergii	0.50	*50*	0.22	*33*	0.66	*45*	**0.764**	***34***
Poa scabrella			0.33	*17*	0.03	*9*	**0.158**	***10***
Scirpus maritimus							**0.005**	***1***
Stipa comata			1.67	*83*	22.64	*100*	**6.570**	***59***
Stipa viridula			0.88	*33*	0.55	*9*	**6.739**	***52***
TOTAL NPG(C)	**26.50**	***100***	**20.58**	***100***	**42.28**	***100***	**45.788**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)								
Andropogon gerardii	20.50	*100*					**0.243**	***2***
Andropogon scoparius	12.50	*100*	23.50	*100*	1.00	*45*	**3.046**	***26***
Bouteloua curtipendula	10.00	*100*	4.67	*67*	0.73	*27*	**1.692**	***29***
Bouteloua gracilis	1.00	*50*	1.22	*50*	6.24	*82*	**6.551**	***67***
Calamovilfa longifolia			5.00	*100*	9.55	*100*	**0.824**	***19***
Distichlis stricta							**0.003**	***1***
Muhlenbergia cuspidata	0.50	*50*	2.33	*67*	0.55	*18*	**0.477**	***16***
Schedonnardus paniculatus							**0.057**	***3***
Spartina gracilis							**0.002**	***1***
Sporobolus cryptandrus							**0.009**	***2***
TOTAL NPG(W)	**44.50**	***100***	**36.72**	***100***	**18.05**	***100***	**12.905**	***79***
INTRODUCED PERENNIAL GRAMINOIDS								
Agropyron cristatum					2.73	*36*	**0.982**	***20***
Agropyron elongatum							**0.016**	***1***
Bromus inermis							**0.038**	***2***
Phleum pratense							**0.005**	***1***
Poa bulbosa							**0.110**	***2***
Poa compressa					0.18	*9*	**0.191**	***4***
Poa pratensis	3.00	*50*	0.83	*17*	0.48	*27*	**4.170**	***29***
TOTAL IPG	**3.00**	***50***	**0.83**	***17***	**3.39**	***55***	**5.512**	***42***

Table 2
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Twelve GRASSLAND Community Types, Otter Creek Baseline Study Area, 2011-2012.

	AND SCO/ AND GER		*AND SCO/ CAL LON*		*CAL LON/ STI COM*		**GRASSLAND COMPOSITE**	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=2		**n=6**		**n=11**		**n=185**	
NATIVE ANNUAL GRAMINOIDS								
Festuca octoflora					0.03	*9*	**0.064**	***15***
Hordeum pusillum							**0.002**	***1***
TOTAL NAG	**0.00**	***0***	**0.00**	***0***	**0.03**	***9***	**0.066**	***15***
INTRODUCED ANNUAL GRAMINOIDS								
Bromus japonicus	1.15	*100*	0.77	*67*	4.51	*100*	**5.928**	***90***
Bromus tectorum					0.18	*9*	**1.824**	***23***
TOTAL IAG	**1.15**	***100***	**0.77**	***67***	**4.69**	***100***	**7.751**	***90***
NATIVE PERENNIAL FORBS AND SUBSHRUI								
Achillea millefolium	0.30	*100*	0.05	*17*			**0.345**	***29***
Agoseris glauca							**0.002**	***1***
Allium textile			0.10	*33*	0.08	*27*	**0.041**	***12***
Ambrosia psilostachya			0.05	*17*	0.48	*36*	**0.289**	***17***
Antennaria dimorpha							**0.014**	***3***
Antennaria howellii (neglecta)							**0.021**	***3***
Antennaria microphylla	0.15	*50*	0.05	*17*			**0.056**	***6***
Antennaria parvifolia	1.00	*50*	0.72	*67*	0.09	*9*	**0.254**	***17***
Apocynum cannabinum					0.03	*9*	**0.002**	***1***
Arnica sororia							**0.006**	***2***
Artemisia campestris	0.15	*50*	0.10	*33*			**0.008**	***3***
Artemisia dracunculus					2.36	*27*	**0.690**	***12***
Artemisia frigida	1.50	*100*	0.93	*83*	0.53	*82*	**0.407**	***51***
Artemisia ludoviciana	0.15	*50*	0.22	*33*	0.18	*18*	**0.663**	***16***
Asclepias verticillata					0.05	*18*	**0.006**	***2***
Asclepias viridiflora			0.05	*17*			**0.008**	***3***
Aster falcatus	0.65	*100*	0.10	*33*	0.27	*27*	**0.930**	***45***
Aster laevis							**0.005**	***1***
Aster oblongifolius			0.15	*50*			**0.117**	***10***
Aster pansus							**0.076**	***2***
Astragalus adsurgens			0.10	*33*	0.05	*18*	**0.036**	***6***
Astragalus agrestis							**0.099**	***8***
Astragalus crassicarpus							**0.010**	***2***

Table 2
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Twelve GRASSLAND Community Types, Otter Creek Baseline Study Area, 2011-2012.

	AND SCO/ AND GER		*AND SCO/ CAL LON*		*CAL LON/ STI COM*		**GRASSLAND COMPOSITE**	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=2		**n=6**		**n=11**		**n=185**	
Astragalus drummondii							**0.050**	***5***
Astragalus flexuosus	0.15	*50*					**0.003**	***1***
Astragalus gilviflorus	0.50	*50*	0.27	*50*	0.27	*9*	**0.051**	***10***
Astragalus gracilis			0.05	*17*	0.03	*9*	**0.164**	***7***
Astragalus lotiflorus					0.03	*9*	**0.011**	***4***
Astragalus missouriensis			0.05	*17*	0.03	*9*	**0.049**	***15***
Astragalus plattensis					0.03	*9*	**0.046**	***9***
Astragalus purshii							**0.006**	***2***
Astragalus spatulatus	0.50	*50*	0.55	*33*			**0.062**	***5***
Besseya wyomingensis	0.15	*50*					**0.017**	***4***
Calochortus nuttallii					0.11	*36*	**0.031**	***10***
Campanula rotundifolia			0.05	*17*			**0.019**	***3***
Castilleja sessiliflora	0.15	*50*	0.22	*33*			**0.029**	***7***
Cerastium arvense	1.15	*100*	0.22	*33*			**0.154**	***10***
Chrysopsis villosa	0.30	*100*	0.55	*67*	0.15	*27*	**0.069**	***13***
Cirsium undulatum	0.50	*50*	0.10	*33*	0.08	*27*	**0.133**	***17***
Comandra umbellata			0.05	*17*			**0.046**	***9***
Coryphantha missouriensis							**0.002**	***1***
Crepis occidentalis							**0.003**	***1***
Cryptantha spiculifera (interrupta)							**0.002**	***1***
Dalea candida			0.22	*33*			**0.064**	***5***
Dalea purpurea			0.20	*67*	0.05	*18*	**0.217**	***19***
Delphinium bicolor							**0.003**	***1***
Echinacea angustifolia	0.15	*50*	0.37	*83*	0.39	*27*	**0.304**	***30***
Erigeron ochroleucus							**0.002**	***1***
Erigeron pumilus var. pumilus			0.05	*17*			**0.098**	***21***
Eriogonum flavum							**0.003**	***1***
Eriogonum pauciflorum							**0.021**	***4***
Erysimum inconspicuum							**0.002**	***1***
Euphorbia robusta							**0.003**	***1***
Evolvulus nuttallianus					0.08	*27*	**0.057**	***9***
Fritillaria atropurpurea			0.05	*17*			**0.002**	***1***
Gaillardia aristata					0.18	*9*	**0.011**	***1***
Gaura coccinea	0.15	*50*	0.27	*50*	0.26	*36*	**0.372**	***51***

Table 2
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Twelve GRASSLAND Community Types, Otter Creek Baseline Study Area, 2011-2012.

	AND SCO/ AND GER		*AND SCO/ CAL LON*		*CAL LON/ STI COM*		**GRASSLAND COMPOSITE**	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=2		**n=6**		**n=11**		**n=185**	
Geum triflorum			0.05	*17*			**0.003**	***1***
Gilia congesta var. pseudotypica							**0.003**	***1***
Glycyrrhiza lepidota					0.09	*9*	**0.097**	***2***
Gutierrezia sarothrae	0.15	*50*	1.17	*50*	0.11	*36*	**1.059**	***45***
Haplopappus armerioides							**0.002**	***1***
Haplopappus spinulosus					0.05	*18*	**0.019**	***6***
Hedeoma drummondii							**0.006**	***2***
Hymenopappus filifolius			0.05	*17*			**0.005**	***2***
Iva axillaris							**0.032**	***2***
Kuhnia eupatorioides					0.05	*18*	**0.056**	***7***
Lactuca oblongifolia			0.33	*17*			**0.019**	***2***
Lesquerella alpina			0.05	*17*			**0.005**	***2***
Leucocrinum montanum							**0.030**	***4***
Liatris punctata	0.15	*50*			0.30	*27*	**0.039**	***9***
Linum lewisii			0.10	*33*	0.05	*18*	**0.057**	***18***
Lithospermum incisum					0.48	*27*	**0.066**	***10***
Lomatium foeniculaceum							**0.006**	***2***
Lomatium orientale							**0.021**	***7***
Lygodesmia juncea			0.05	*17*	0.21	*18*	**0.039**	***9***
Machaeranthera grindelioides			0.22	*33*			**0.021**	***4***
Mentzelia decapetala							**0.005**	***1***
Microseris nutans							**0.005**	***2***
Mirabilis linearis					0.03	*9*	**0.008**	***3***
Musineon divaricatum			0.10	*33*	0.03	*9*	**0.021**	***7***
Opuntia fragilis							**0.002**	***1***
Opuntia polyacantha	0.15	*50*	0.15	*50*	0.20	*45*	**0.363**	***51***
Oxytropis lambertii	1.00	*50*	2.98	*83*	0.21	*18*	**0.214**	***12***
Oxytropis sericea	0.15	*50*	0.22	*33*			**0.043**	***8***
Penstemon albidus							**0.028**	***8***
Penstemon eriantherus			0.05	*17*	0.03	*9*	**0.006**	***2***
Phlox hoodii	2.00	*100*	1.10	*67*	0.57	*36*	**0.576**	***39***
Picradeniopsis oppositifolia			0.05	*17*			**0.225**	***7***
Polygala alba			0.77	*67*	0.24	*27*	**0.301**	***30***
Psoralea argophylla			0.72	*50*	1.73	*45*	**1.754**	***42***

Table 2
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Twelve GRASSLAND Community Types, Otter Creek Baseline Study Area, 2011-2012.

	AND SCO/ AND GER		*AND SCO/ CAL LON*		*CAL LON/ STI COM*		**GRASSLAND COMPOSITE**	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=2		**n=6**		**n=11**		**n=185**	
Psoralea esculenta	0.15	*50*	0.10	*33*	0.03	*9*	**0.077**	***21***
Psoralea tenuiflora							**0.002**	***1***
Ratibida columnifera			0.05	*17*	0.03	*9*	**0.225**	***38***
Senecio canus	0.15	*50*	0.33	*17*			**0.028**	***5***
Sisyrinchium angustifolium							**0.014**	***3***
Solidago missouriensis	0.15	*50*	0.10	*33*	0.03	*9*	**0.025**	***7***
Solidago mollis							**0.167**	***5***
Solidago nemoralis			0.67	*17*			**0.022**	***1***
Solidago rigida			0.72	*50*			**0.081**	***8***
Sphaeralcea coccinea	0.15	*50*	0.05	*17*	0.25	*64*	**0.606**	***61***
Thermopsis rhombifolia			0.05	*17*			**0.006**	***2***
Townsendia hookeri							**0.003**	***1***
Tradescantia occidentalis					0.05	*18*	**0.005**	***2***
Vicia americana					0.03	*9*	**0.292**	***24***
Viola nuttallii					0.03	*9*	**0.005**	***2***
Yucca glauca			0.67	*33*	2.09	*18*	**0.295**	***8***
Zigadenus venenosus			0.05	*17*	0.05	*18*	**0.074**	***22***
TOTAL NPF AND SUBSHRUBS	**11.80**	***100***	**16.80**	***100***	**12.80**	***100***	**13.256**	***99***
INTRODUCED PERENNIAL FORBS								
Cirsium arvense							**0.070**	***2***
Medicago sativa			0.05	*17*	0.03	*9*	**0.245**	***15***
Rumex crispus							**0.003**	***1***
Taraxacum laevigatum			0.10	*33*	0.60	*45*	**2.173**	***63***
Taraxacum officinale							**0.011**	***1***
TOTAL IPF	**0.00**	***0***	**0.15**	***33***	**0.63**	***55***	**2.503**	***66***
FERNS AND ALLIES								
TOTAL F&A	**0.00**	***0***	**0.00**	**0.00**	**0.00**	***0***	**0.000**	***0***

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	AND SCO/ AND GER		*AND SCO/ CAL LON*		*CAL LON/ STI COM*		**GRASSLAND COMPOSITE**	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=2		**n=6**		**n=11**		**n=185**	
NATIVE ANNUAL/BIENNIAL FORBS								
Androsace occidentalis					0.03	*9*	**0.006**	***2***
Arabis hirsuta			0.05	*17*			**0.003**	***1***
Arabis holboellii					0.03	*9*	**0.023**	***8***
Atriplex argentea							**0.003**	***1***
Collomia linearis					0.03	*9*	**0.002**	***1***
Conyza canadensis							**0.059**	***2***
Cryptantha celosioides							**0.010**	***3***
Descurainia pinnata							**0.005**	***2***
Draba reptans							**0.011**	***4***
Dyssodia papposa							**0.007**	***1***
Erigeron strigosus							**0.002**	***1***
Erysimum asperum					0.03	*9*	**0.008**	***3***
Euphorbia glyptosperma							**0.007**	***1***
Euphorbia spathulata							**0.023**	***8***
Gaura parviflora							**0.003**	***1***
Grindelia squarrosa			0.05	*17*			**0.010**	***2***
Hedeoma hispidum					0.03	*9*	**0.199**	***36***
Helianthus annuus							**0.005**	***2***
Helianthus petiolaris							**0.003**	***1***
Lappula redowskii							**0.011**	***4***
Lepidium densiflorum							**0.024**	***8***
Linum rigidum			0.10	*33*	0.05	*18*	**0.055**	***18***
Machaeranthera canescens							**0.005**	***2***
Mentzelia dispersa							**0.002**	***1***
Microsteris gracilis							**0.003**	***1***
Oenothera albicaulis							**0.005**	***2***
Oenothera strigosa (villosa)							**0.003**	***1***
Orthocarpus luteus					0.03	*9*	**0.155**	***18***
Phacelia linearis							**0.015**	***5***
Plantago elongata							**0.043**	***2***
Plantago patagonica	0.15	*50*	0.10	*33*	0.19	*64*	**0.205**	***46***
Polygonum douglasii							**0.005**	***2***

Table 2
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Twelve GRASSLAND Community Types, Otter Creek Baseline Study Area, 2011-2012.

	AND SCO/ AND GER		*AND SCO/ CAL LON*		*CAL LON/ STI COM*		**GRASSLAND COMPOSITE**	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=2		**n=6**		**n=11**		**n=185**	
Polygonum sawatchense							**0.002**	***1***
Silene antirrhina							**0.006**	***2***
Solanum triflorum							**0.002**	***1***
Triodanis leptocarpa							**0.003**	***1***
Xanthium strumarium							**0.011**	***1***
TOTAL NAF	**0.15**	***50***	**0.30**	***67***	**0.41**	***64***	**0.944**	***76***
INTRODUCED ANNUAL/BIENNIAL FORBS								
Alyssum alyssoides			0.10	*33*	0.03	*9*	**0.094**	***23***
Alyssum desertorum			0.10	*33*	0.14	*45*	**0.170**	***42***
Atriplex heterosperma							**0.002**	***1***
Camelina microcarpa					0.11	*36*	**0.064**	***20***
Chenopodium album							**0.002**	***1***
Draba nemorosa							**0.008**	***3***
Filago arvensis					0.09	*9*	**0.774**	***30***
Lactuca serriola							**0.208**	***29***
Lepidium perfoliatum							**0.012**	***3***
Medicago lupulina							**0.889**	***9***
Melilotus alba							**0.054**	***2***
Melilotus officinalis			1.38	*50*	0.39	*18*	**5.025**	***52***
Scorzonera laciniata							**0.002**	***1***
Sisymbrium altissimum					0.03	*9*	**0.011**	***4***
Sisymbrium loeselii							**0.010**	***3***
Thlaspi arvense							**0.014**	***2***
Tragopogon dubius			0.15	*50*	0.11	*36*	**0.452**	***65***
Veronica arvensis							**0.007**	***1***
TOTAL IAF	**0.00**	***0***	**1.73**	***100***	**0.89**	***73***	**7.796**	***92***

Table 2
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Twelve GRASSLAND Community Types, Otter Creek Baseline Study Area, 2011-2012.

	AND SCO/ AND GER		*AND SCO/ CAL LON*		*CAL LON/ STI COM*		**GRASSLAND COMPOSITE**	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=2		**n=6**		**n=11**		**n=185**	
SHRUBS								
Artemisia cana					1.39	*27*	**0.452**	***14***
Artemisia tridentata	1.00	*50*	1.72	*83*	0.55	*18*	**0.830**	***34***
Atriplex nuttallii							**0.007**	***1***
Calylophus serrulatus			0.05	*17*			**0.008**	***3***
Ceratoides lanata			0.05	*17*			**0.178**	***14***
Chrysothamnus nauseosus							**0.029**	***2***
Juniperus horizontalis	4.00	*50*	0.67	*17*			**0.065**	***1***
Rhus aromatica					0.85	*18*	**0.093**	***4***
Ribes aureum							**0.002**	***1***
Rosa arkansana			0.22	*33*	0.03	*9*	**0.274**	***11***
Rosa woodsii	1.00	*50*	0.17	*17*	0.03	*9*	**0.079**	***5***
Symphoricarpos occidentalis							**0.063**	***2***
TOTAL SHRUBS	**6.00**	***50***	**2.87**	***83***	**2.84**	***73***	**2.079**	***59***
TREES 0.01-acre								
Juniperus scopulorum	5.00	*50*	5.17	*33*			**0.297**	***3***
Pinus ponderosa							**0.016**	***1***
TOTAL TREES 0.01-acre	**5.00**	***50***	**5.17**	***33***	**0.00**	***0***	**0.314**	***3***
TREES 0.1-acre								
Juniperus scopulorum	2.50	*50*	2.33	*33*			**0.207**	***7***
Pinus ponderosa			0.05	*17*	0.09	*9*	**0.034**	***2***
TOTAL TREES 0.1-acre	**2.50**	***50***	**2.38**	***50***	**0.09**	***9***	**0.241**	***8***
TOTAL VEGETATION (Stratified)	**98.10**	***100***	**85.92**	***100***	**86.01**	***100***	**98.914**	***100***

Table 3
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Two TAME PASTURE Types, Otter Creek Baseline Study Area, 2011-2012.

	HAY CROPLAND-FARMED		PASTURELAND-GRAZED/GO-BACK		TAME PASTURE COMPOSITE	
	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*
	n=66		n=40		n=106	
GROUND COVER						
Bare Ground	26.93	*95*	23.12	*95*	**25.492**	***95***
Rock	0.09	*15*	0.88	*45*	**0.387**	***26***
Litter	67.35	*100*	70.38	*100*	**68.491**	***100***
Lichens	0.39	*17*	1.37	*50*	**0.758**	***29***
Moss	0.06	*8*	0.07	*10*	**0.064**	***9***
Basal Vegetation	5.28	*100*	4.35	*100*	**4.927**	***100***
VEGETATION STRUCTURE (nonstratified cover)						
Total Vegetation	87.15	*100*	75.83	*100*	**82.877**	***100***
Perennial Graminoids	80.45	*100*	66.13	*100*	**75.047**	***100***
Annual Graminoids	0.09	*11*	4.69	*70*	**1.829**	***33***
Perennial Forbs	16.98	*74*	8.80	*93*	**13.893**	***81***
Annual/Biennial Forbs	3.86	*65*	8.10	*80*	**5.458**	***71***
Shrubs	0.01	*5*	5.60	*55*	**2.121**	***24***
Trees 0.01-acre						
Trees 0.1-acre	0.03	*1*			**0.019**	***1***
CLASS\SPECIES NATIVE PERENNIAL GRAMINOIDS (Cool Season)						
Agropyron dasystachyum var. dasys.	0.02	*2*			**0.009**	***1***
Agropyron smithii	3.22	*17*	4.92	*45*	**3.863**	***27***
Aristida longiseta			0.06	*5*	**0.022**	***2***
Carex filifolia			0.25	*5*	**0.094**	***2***
Carex heliophila			0.03	*3*	**0.009**	***1***
Hordeum jubatum	0.61	*8*	0.01	*3*	**0.383**	***6***
Koeleria cristata			0.11	*8*	**0.041**	***3***
Poa glaucifolia	0.06	*2*			**0.038**	***1***
Poa juncifolia			0.05	*3*	**0.019**	***1***
Poa sandbergii	0.005	*2*	0.22	*15*	**0.084**	***7***
Stipa comata			1.15	*28*	**0.433**	***10***
Stipa viridula	0.24	*6*	1.00	*28*	**0.524**	***14***
TOTAL NPG(C)	**4.15**	***29***	**7.78**	***73***	**5.519**	***45***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)						
Bouteloua gracilis	0.005	*2*	0.98	*30*	**0.373**	***12***
Buchloe dactyloides			0.03	*3*	**0.009**	***1***
Distichlis stricta	0.30	*3*	0.13	*5*	**0.236**	***4***
Spartina pectinata	0.11	*5*			**0.066**	***3***
Sporobolus cryptandrus			0.05	*3*	**0.019**	***1***
TOTAL NPG(W)	**0.41**	***8***	**1.18**	***35***	**0.703**	***18***
INTRODUCED PERENNIAL GRAMINOIDS						
Agropyron cristatum	41.52	*83*	53.08	*100*	**45.880**	***90***
Agropyron elongatum	6.56	*17*			**4.085**	***10***
Agropyron intermedium	1.45	*6*	0.03	*3*	**0.915**	***5***
Agropyron repens	12.53	*35*	0.30	*5*	**7.915**	***24***
Bromus inermis	21.45	*56*	4.28	*25*	**14.971**	***44***
Elymus junceus	0.95	*8*	0.01	*3*	**0.597**	***6***
Festuca arundinacea	0.45	*3*			**0.283**	***2***
Phleum pratense	0.03	*3*	0.05	*5*	**0.041**	***4***
Poa bulbosa	0.02	*3*	0.05	*5*	**0.031**	***4***
Poa compressa			0.16	*5*	**0.059**	***2***
Poa pratensis	3.18	*26*	4.28	*25*	**3.594**	***25***
TOTAL IPG	**88.16**	***100***	**62.22**	***100***	**78.372**	***100***

Table 3
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Two TAME PASTURE Types, Otter Creek Baseline Study Area, 2011-2012.

	HAY CROPLAND-FARMED		PASTURELAND-GRAZED/GO-BACK		TAME PASTURE COMPOSITE	
	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*
	n=66		n=40		n=106	
NATIVE ANNUAL GRAMINOIDS						
TOTAL NAG	**0.00**	***0***	**0.00**	***0***	**0.000**	***0***
INTRODUCED ANNUAL GRAMINOIDS						
Bromus japonicus	0.04	*9*	3.97	*68*	**1.521**	***31***
Bromus tectorum	0.06	*3*	0.73	*10*	**0.311**	***6***
Setaria viridis	0.005	*2*			**0.003**	***1***
TOTAL IAG	**0.10**	***11***	**4.69**	***70***	**1.835**	***33***
NATIVE PERENNIAL FORBS AND SUBSHRUBS						
Achillea millefolium			0.22	*20*	**0.084**	***8***
Artemisia dracunculus			0.50	*5*	**0.189**	***2***
Artemisia frigida			0.05	*15*	**0.017**	***6***
Artemisia ludoviciana			0.11	*10*	**0.041**	***4***
Aster falcatus	0.04	*5*	0.50	*10*	**0.213**	***7***
Aster pansus	0.03	*2*			**0.019**	***1***
Astragalus agrestis			0.01	*3*	**0.003**	***1***
Astragalus drummondii			0.08	*5*	**0.031**	***2***
Astragalus lotiflorus			0.01	*3*	**0.003**	***1***
Astragalus purshii			0.01	*3*	**0.003**	***1***
Cerastium arvense	0.02	*2*	0.04	*8*	**0.025**	***4***
Echinacea angustifolia			0.05	*3*	**0.019**	***1***
Evolvulus nuttallianus	0.005	*2*	0.01	*3*	**0.006**	***2***
Gaura coccinea	0.01	*3*	0.09	*23*	**0.038**	***10***
Gutierrezia sarothrae			0.05	*5*	**0.019**	***2***
Haplopappus spinulosus			0.01	*3*	**0.003**	***1***
Kuhnia eupatorioides	0.005	*2*			**0.003**	***1***
Linum lewisii			0.01	*3*	**0.003**	***1***
Lygodesmia juncea			0.08	*8*	**0.031**	***3***
Opuntia fragilis			0.02	*5*	**0.006**	***2***
Opuntia polyacantha			0.12	*18*	**0.045**	***7***
Phlox hoodii			0.05	*5*	**0.019**	***2***
Picradeniopsis oppositifolia			0.13	*3*	**0.047**	***1***
Polygala alba			0.02	*8*	**0.008**	***3***
Psoralea argophylla			0.02	*5*	**0.006**	***2***
Psoralea esculenta			0.01	*3*	**0.003**	***1***
Ratibida columnifera			0.05	*15*	**0.017**	***6***
Solidago mollis			0.03	*5*	**0.011**	***2***
Sphaeralcea coccinea	0.01	*5*	0.35	*60*	**0.141**	***25***
Typha latifolia	0.005	*2*			**0.003**	***1***
Verbena bracteata	0.005	*2*			**0.003**	***1***
Vicia americana	0.01	*3*	0.14	*10*	**0.058**	***6***
TOTAL NPF AND SUBSHRUBS	**0.13**	***24***	**2.73**	***85***	**1.115**	***47***
INTRODUCED PERENNIAL FORBS						
Cirsium arvense	0.80	*11*	0.16	*5*	**0.558**	***8***
Convolvulus arvensis	0.43	*5*			**0.267**	***3***
Medicago sativa	14.96	*59*	3.30	*20*	**10.561**	***44***
Rumex crispus	0.05	*5*	0.01	*3*	**0.034**	***4***
Rumex patienta	0.10	*5*			**0.062**	***3***
Taraxacum laevigatum	1.08	*24*	3.06	*50*	**1.829**	***34***
Taraxacum officinale	0.26	*8*	0.01	*3*	**0.163**	***6***
TOTAL IPF	**17.68**	***67***	**6.53**	***55***	**13.475**	***62***
FERNS AND ALLIES						
TOTAL F&A	**0.00**	***0***	**0.00**	***0***	**0.000**	***0***

Table 3
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Two TAME PASTURE Types, Otter Creek Baseline Study Area, 2011-2012.

	HAY CROPLAND-FARMED		PASTURELAND-GRAZED/GO-BACK		TAME PASTURE COMPOSITE	
	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*
	n=66		n=40		n=106	
NATIVE ANNUAL/BIENNIAL FORBS						
Ambrosia trifida	0.005	*2*			**0.003**	***1***
Androsace occidentalis			0.01	*3*	**0.003**	***1***
Chenopodium leptophyllum			0.01	*3*	**0.003**	***1***
Chenopodium rubrum	0.03	*2*	0.03	*3*	**0.028**	***2***
Conyza canadensis			0.01	*3*	**0.003**	***1***
Descurainia pinnata	0.005	*2*			**0.003**	***1***
Dyssodia papposa			0.01	*3*	**0.003**	***1***
Erysimum asperum			0.01	*3*	**0.003**	***1***
Hedeoma hispidum			0.02	*5*	**0.006**	***2***
Helianthus annuus	0.005	*2*	0.02	*5*	**0.008**	***3***
Helianthus petiolaris			0.01	*3*	**0.003**	***1***
Iva xanthifolia	0.03	*3*	0.13	*3*	**0.066**	***3***
Lappula redowskii	0.005	*2*	0.02	*8*	**0.011**	***4***
Linum rigidum			0.02	*5*	**0.006**	***2***
Orthocarpus luteus			0.03	*10*	**0.011**	***4***
Phacelia linearis			0.01	*3*	**0.003**	***1***
Plantago elongata			0.02	*5*	**0.006**	***2***
Plantago patagonica	0.01	*5*	0.05	*18*	**0.028**	***9***
Polygonum arenastrum	0.005	*2*	0.01	*3*	**0.006**	***2***
Polygonum ramosissimum	0.005	*2*			**0.003**	***1***
Polygonum sawatchense	0.07	*6*			**0.046**	***4***
TOTAL NAF	**0.18**	***20***	**0.38**	***40***	**0.251**	***27***
INTRODUCED ANNUAL/BIENNIAL FORBS						
Alyssum alyssoides	0.12	*12*	0.05	*15*	**0.091**	***13***
Alyssum desertorum	0.03	*9*	0.05	*18*	**0.037**	***12***
Atriplex heterosperma	1.13	*23*			**0.703**	***14***
Camelina microcarpa	0.05	*14*	0.08	*20*	**0.061**	***16***
Capsella bursa-pastoris	0.02	*2*	0.03	*3*	**0.019**	***2***
Chenopodium album	0.01	*3*	0.01	*3*	**0.008**	***3***
Chorispora tenella			0.03	*3*	**0.009**	***1***
Descurainia sophia	0.01	*3*	0.08	*5*	**0.037**	***4***
Filago arvensis	0.04	*6*	0.31	*23*	**0.142**	***12***
Kochia scoparia	0.08	*8*			**0.049**	***5***
Lactuca serriola	0.06	*15*	0.03	*10*	**0.046**	***13***
Lepidium perfoliatum	0.02	*6*	0.01	*3*	**0.014**	***5***
Medicago lupulina	0.005	*2*	0.25	*5*	**0.097**	***3***
Melilotus alba			0.03	*3*	**0.009**	***1***
Melilotus officinalis	1.50	*20*	6.35	*30*	**3.326**	***24***
Polygonum convolvulus	0.02	*5*			**0.015**	***3***
Sisymbrium altissimum			0.01	*3*	**0.003**	***1***
Sisymbrium loeselii	0.25	*8*	0.07	*10*	**0.184**	***9***
Sonchus asper	0.005	*2*			**0.003**	***1***
Thlaspi arvense	0.51	*23*	0.53	*18*	**0.515**	***21***
Tragopogon dubius	0.17	*23*	0.14	*35*	**0.157**	***27***
TOTAL IAF	**4.01**	***64***	**8.03**	***78***	**5.526**	***69***

Table 3
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Two TAME PASTURE Types, Otter Creek Baseline Study Area, 2011-2012.

	HAY CROPLAND-FARMED		PASTURELAND-GRAZED/GO-BACK		TAME PASTURE COMPOSITE	
	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*
	n=66		n=40		n=106	
SHRUBS						
Artemisia cana	0.005	*2*	4.27	*33*	**1.612**	***13***
Artemisia tridentata			0.50	*8*	**0.189**	***3***
Atriplex nuttallii	0.01	*3*	0.21	*10*	**0.084**	***6***
Ceratoides lanata			0.43	*5*	**0.160**	***2***
Chrysothamnus nauseosus			0.01	*3*	**0.003**	***1***
Rhus aromatica			0.05	*3*	**0.019**	***1***
Rosa arkansana			0.01	*3*	**0.003**	***1***
Rosa woodsii			0.06	*5*	**0.022**	***2***
Symphoricarpos occidentalis			0.08	*5*	**0.028**	***2***
TOTAL SHRUBS	**0.01**	***5***	**5.60**	***55***	**2.120**	***24***
TREES 0.01-acre						
TOTAL TREES 0.01-acre	**0.00**	***0***	**0.00**	***0***	**0.000**	***0***
TREES 0.1-acre						
Acer negundo	0.03	*2*			**0.019**	***1***
TOTAL TREES 0.1-1cre	**0.03**	***2***	**0.00**	***0***	**0.019**	***1***
TOTAL VEGETATION (Stratified)	**114.85**	***100***	**99.13**	***100***	**108.916**	***100***

Table 4
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Four SHRUB/GRASSLAND Community Types, Otter Creek Baseline Study Area, 2011-2012.

	ART CAN/ AGR SMI		ART TRI/ AGR SMI		ART TRI / AGR SPI		ART TRI/ AND SCO		SHRUB/ GRASSLAND COMPOSITE	
	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy
	n=52		n=73		n=36		n=11		n=172	
GROUND COVER										
Bare Ground	21.83	92	25.419	99	32.22	100	32.09	100	26.184	97
Rock	0.49	31	1.452	63	6.99	89	6.63	100	2.650	61
Litter	71.65	100	60.274	100	46.64	100	48.09	100	60.081	100
Lichens	0.71	40	6.762	90	8.61	92	7.03	100	5.335	76
Moss	0.20	31	1.659	74	1.59	72	1.39	82	1.188	61
Basal Vegetation	5.27	100	4.589	100	4.11	100	4.73	100	4.703	100
VEGETATION STRUCTURE (nonstratified cover)										
Total Vegetation	85.46	100	76.384	100	66.03	100	72.55	100	76.715	100
Perennial Graminoids	63.54	100	51.137	100	43.08	100	47.27	100	52.953	100
Annual Graminoids	5.03	87	6.826	97	2.33	86	2.38	91	5.058	91
Perennial Forbs and Subshrubs	11.98	100	13.255	100	15.22	100	18.27	100	13.602	100
Annual/Biennial Forbs	13.89	94	4.300	99	5.64	100	9.20	100	7.792	98
Shrubs	19.71	100	21.795	100	18.42	100	12.18	100	19.843	100
Trees 0.01-acre	0.04	2	0.045	3			3.55	27	0.258	3
Trees 0.1-acre	0.33	12	0.099	11	0.68	19	1.64	36	0.388	15
CLASS\SPECIES NATIVE PERENNIAL GRAMINOIDS (Cool Season)										
Agropyron dasystachyum var. dasy.			0.401	7	1.15	14	0.27	9	0.428	6
Agropyron dasystachyum var. riparium			0.027	1					0.012	1
Agropyron smithii	31.13	100	20.027	100	5.08	81	3.73	64	19.215	94
Agropyron spicatum	0.11	10	0.848	30	10.69	100	5.73	100	2.997	43
Agropyron trachycaulum			0.014	1					0.006	1
Aristida longiseta	0.12	6	0.533	19	0.31	22	0.48	36	0.358	17
Calamagrostis montanensis							0.09	9	0.006	1
Carex filifolia	0.25	6	2.652	37	6.02	78	5.18	82	2.792	39
Carex heliophila	0.67	6	0.027	1	0.89	6			0.401	3
Carex stenophylla			0.018	3	0.01	3			0.009	2
Elymus canadensis			0.004	1					0.002	1
Festuca idahoensis							1.09	9	0.070	1
Hordeum jubatum	0.02	2							0.006	1
Koeleria cristata	0.93	44	2.641	70	4.14	89	4.18	91	2.536	67
Oryzopsis hymenoides			0.055	1					0.023	1
Poa glaucifolia			0.027	1					0.012	1

Table 4
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Four SHRUB/GRASSLAND Community Types, Otter Creek Baseline Study Area, 2011-2012.

	ART CAN/ AGR SMI		ART TRI/ AGR SMI		ART TRI / AGR SPI		ART TRI/ AND SCO		SHRUB/ GRASSLAND COMPOSITE	
	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy
	n=52		n=73		n=36		n=11		n=172	
Poa sandbergii	0.13	12	0.715	49	0.95	47	0.05	18	0.544	35
Poa scabrella	0.26	15	0.392	21	0.30	22			0.307	18
Scirpus maritimus	0.01	2							0.002	1
Sitanion hystrix			0.004	1					0.002	1
Stipa comata	4.65	38	9.278	81	5.61	75	7.21	100	6.980	68
Stipa viridula	11.23	87	9.214	75	2.56	47	5.82	82	8.215	73
TOTAL NPG(C)	**49.50**	**100**	**46.878**	**100**	**37.71**	**100**	**33.84**	**100**	**44.920**	**100**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)										
Andropogon scoparius	0.03	4	0.055	4	0.23	14	6.36	100	0.486	12
Bouteloua curtipendula	0.18	6	0.196	8	1.66	31	5.55	82	0.838	17
Bouteloua gracilis	2.15	29	7.597	74	5.62	81	5.09	91	5.375	63
Calamovilfa longifolia	0.19	13	0.274	3	0.79	19	1.27	27	0.420	11
Distichlis stricta	0.19	2	0.032	3					0.072	2
Muhlenbergia cuspidata			0.210	10	2.31	39	0.66	36	0.614	15
Panicum virgatum			0.014	1					0.006	1
Schedonnardus paniculatus	0.01	2	0.114	5					0.050	3
Sporobolus airoides	0.04	2	0.018	3					0.019	2
Sporobolus cryptandrus					0.06	6			0.013	1
TOTAL NPG(W)	**2.78**	**37**	**8.508**	**82**	**10.66**	**92**	**18.94**	**100**	**7.893**	**72**
INTRODUCED PERENNIAL GRAMINOIDS										
Agropyron cristatum	4.59	31	0.889	19	0.03	3			1.770	18
Bromus inermis	0.87	4	0.219	1					0.355	2
Phleum pratense	0.01	4							0.003	1
Poa compressa	0.19	6	0.137	4					0.116	3
Poa pratensis	17.44	87	2.484	27	0.23	8	2.45	18	6.533	41
TOTAL IPG	**23.10**	**90**	**3.729**	**44**	**0.26**	**11**	**2.45**	**18**	**8.777**	**49**
NATIVE ANNUAL GRAMINOIDS										
Festuca octoflora	0.02	6	0.089	23	0.11	19	0.03	9	0.067	16
TOTAL NAG	**0.02**	**6**	**0.089**	**23**	**0.11**	**19**	**0.03**	**9**	**0.067**	**16**
INTRODUCED ANNUAL GRAMINOIDS										
Bromus japonicus	4.64	87	6.305	97	2.25	86	2.38	91	4.703	91
Bromus tectorum	0.57	12	0.751	19	0.04	6			0.498	13
TOTAL IAG	**5.21**	**87**	**7.056**	**97**	**2.29**	**86**	**2.38**	**91**	**5.201**	**91**

Table 4
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Four SHRUB/GRASSLAND Community Types, Otter Creek Baseline Study Area, 2011-2012.

	ART CAN/ AGR SMI		ART TRI/ AGR SMI		ART TRI / AGR SPI		ART TRI/ AND SCO		SHRUB/ GRASSLAND COMPOSITE	
	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy
	n=52		n=73		n=36		n=11		n=172	
NATIVE PERENNIAL FORBS AND SUBSHRUBS										
Achillea millefolium	1.01	58	1.141	58	0.32	33	0.38	64	0.880	53
Agoseris glauca	0.01	2	0.004	1	0.02	6			0.007	2
Allium textile	0.02	6	0.082	27	0.17	56	0.05	18	0.078	26
Ambrosia psilostachya	0.15	12	0.205	7	0.02	6			0.135	8
Antennaria dimorpha			0.049	5	0.18	14	0.12	18	0.065	6
Antennaria howellii (neglecta)			0.073	7	0.01	3			0.033	3
Antennaria microphylla	0.01	2	0.008	3	0.17	19	0.30	36	0.060	8
Antennaria parvifolia			0.197	19	0.03	11	0.03	9	0.092	11
Arnica sororia			0.004	1	0.12	6			0.027	2
Artemisia campestris					0.02	6			0.003	1
Artemisia dracunculus	0.12	6	0.081	5					0.071	4
Artemisia frigida	0.13	31	0.630	66	0.97	67	0.55	91	0.546	57
Artemisia ludoviciana	1.21	46	0.045	4	0.01	3	0.03	9	0.390	17
Asclepias speciosa	0.01	2							0.002	1
Asclepias verticillata					0.01	3			0.002	1
Asclepias viridiflora	0.01	4			0.02	6	0.05	18	0.010	3
Aster falcatus	1.18	56	1.242	44	0.69	58	1.05	82	1.096	53
Aster oblongifolius	0.02	8	0.089	12	0.04	14	0.78	45	0.103	13
Aster pansus	0.50	6							0.151	2
Astragalus adsurgens	0.02	6	0.036	5	0.20	19	0.09	9	0.068	9
Astragalus agrestis	0.70	29	0.082	4	0.06	6	0.27	9	0.276	12
Astragalus bisulcatus					0.06	3			0.012	1
Astragalus crassicarpus	0.01	2	0.008	3	0.02	6			0.009	3
Astragalus drummondii			0.149	12	0.15	25	0.20	45	0.108	13
Astragalus flexuosus			0.018	3	0.02	6			0.011	2
Astragalus gilviflorus			0.008	3	0.04	14	0.03	9	0.014	5
Astragalus gracilis	0.03	4	0.012	4	0.03	8	0.12	18	0.026	6
Astragalus lotiflorus			0.008	3			0.05	18	0.007	2
Astragalus missouriensis	0.02	2	0.041	14	0.08	25	0.03	9	0.041	12
Astragalus plattensis	0.01	2	0.055	4	0.01	3			0.027	3
Astragalus purshii			0.038	10	0.06	19	0.08	27	0.034	10
Astragalus spatulatus			0.032	3	0.31	22	0.09	9	0.084	6
Besseya wyomingensis			0.016	5	0.03	8	0.11	36	0.019	6
Calochortus nuttallii	0.03	10	0.053	18	0.04	14	0.15	27	0.049	15
Castilleja sessiliflora			0.025	8	0.10	33	0.23	55	0.046	14
Cerastium arvense	0.27	10	0.648	10	0.22	17	1.27	27	0.484	12
Chrysopsis villosa	0.01	4	0.004	1	0.02	6	0.03	9	0.010	3
Cirsium undulatum	0.09	13	0.070	12	0.15	17	0.08	27	0.093	15

Table 4
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Four SHRUB/GRASSLAND Community Types, Otter Creek Baseline Study Area, 2011-2012.

	ART CAN/ AGR SMI		ART TRI/ AGR SMI		ART TRI / AGR SPI		ART TRI/ AND SCO		SHRUB/ GRASSLAND COMPOSITE	
	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy
	n=52		n=73		n=36		n=11		n=172	
Comandra umbellata	0.01	2	0.038	10	0.31	39	0.08	27	0.089	15
Crepis occidentalis			0.049	16	0.04	14	0.03	9	0.031	10
Cymopterus acaulis			0.004	1					0.002	1
Dalea candida	0.01	2			0.24	11	0.15	27	0.061	5
Dalea purpurea	0.02	6	0.021	7	0.15	33	0.12	18	0.052	13
Echinacea angustifolia	0.05	13	0.066	12	0.21	39	0.81	82	0.140	23
Erigeron pumilus var. pumilus	0.01	4	0.122	34	0.06	19	0.11	36	0.074	22
Eriogonum pauciflorum			0.004	1	0.16	14			0.034	3
Evolvulus nuttallianus	0.01	4	0.008	3					0.007	2
Gaillardia aristata			0.004	1					0.002	1
Gaura coccinea	0.50	62	0.459	56	0.41	61	0.34	91	0.454	61
Geum triflorum							0.03	9	0.002	1
Gilia congesta var. pseudotypica					0.02	6	0.03	9	0.005	2
Gutierrezia sarothrae	0.11	17	1.288	42	2.96	89	1.60	73	1.302	47
Haplopappus spinulosus	0.01	4	0.008	3			0.03	9	0.009	3
Hedeoma drummondii	0.01	2			0.01	3			0.003	1
Hedysarum boreale					0.11	3			0.023	1
Helianthus maximilianii	0.01	2							0.002	1
Helianthus rigidus					0.01	3	0.09	9	0.008	1
Hymenopappus filifolius					0.03	8			0.005	2
Iva axillaris			0.045	3	0.04	6			0.027	2
Kuhnia eupatorioides	0.03	6							0.009	2
Lactuca oblongifolia	0.04	4	0.008	3					0.017	2
Lesquerella alpina					0.02	6			0.003	1
Leucocrinum montanum			0.008	3	0.03	8	0.12	18	0.016	4
Liatris punctata	0.01	4			0.03	11	0.08	27	0.016	5
Linum lewisii	0.05	17	0.074	25	0.06	19	0.25	64	0.076	24
Lithospermum incisum	0.05	8	0.026	5	0.02	6			0.030	6
Lomatium foeniculaceum	0.01	4	0.021	7	0.01	3	0.03	9	0.016	5
Lomatium orientale	0.01	2	0.038	10	0.03	11	0.05	18	0.028	8
Lygodesmia juncea			0.016	5			0.03	9	0.009	3
Machaeranthera grindelioides			0.004	1	0.10	28	0.03	9	0.025	7
Mentzelia decapetala	0.02	2							0.006	1
Mertensia lanceolata	0.01	2	0.008	3					0.005	2
Mirabilis linearis	0.01	2							0.002	1
Musineon divaricatum	0.01	2	0.029	10	0.10	33	0.08	27	0.040	13
Oenothera nuttallii	0.01	2							0.002	1
Opuntia fragilis			0.014	1					0.006	1
Opuntia polyacantha	0.04	13	0.547	75	0.40	72	0.28	73	0.345	56

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	ART CAN/ AGR SMI		ART TRI/ AGR SMI		ART TRI / AGR SPI		ART TRI/ AND SCO		SHRUB/ GRASSLAND COMPOSITE	
	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy
	n=52		n=73		n=36		n=11		n=172	
Orobanche fasciculata			0.004	1	0.01	3			0.003	1
Oxytropis lambertii	0.01	2			0.24	28	0.82	18	0.105	8
Oxytropis sericea			0.012	4	0.08	28	0.15	27	0.032	9
Penstemon albidus			0.034	8			0.03	9	0.016	4
Penstemon eriantherus					0.03	8			0.005	2
Penstemon nitidus					0.05	11	0.03	9	0.013	3
Phlox alyssifolia					0.06	3			0.012	1
Phlox hoodii	0.03	4	0.711	51	1.29	83	1.75	100	0.691	47
Physalis longifolia	0.01	2							0.002	1
Picradeniopsis oppositifolia			0.077	5	0.01	3			0.034	3
Polygala alba	0.04	13	0.118	21	0.21	44	0.37	73	0.130	27
Potentilla pensylvanica			0.004	1	0.01	3			0.003	1
Psoralea argophylla	0.51	23	2.333	45	2.31	67	3.57	91	1.856	46
Psoralea esculenta	0.01	2	0.097	26	0.13	36	0.08	27	0.075	21
Ratibida columnifera	0.27	38	0.166	32	0.25	36	0.86	82	0.260	38
Senecio canus					0.04	14	0.05	18	0.012	4
Senecio plattensis			0.004	1					0.002	1
Sisyrinchium angustifolium	0.01	2			0.01	3			0.003	1
Solidago missouriensis	0.01	2	0.055	1	0.04	14	0.05	18	0.037	5
Solidago mollis	0.03	4	0.014	1					0.013	2
Solidago rigida	0.01	4	0.018	3			0.03	9	0.013	3
Sphaeralcea coccinea	0.61	52	0.403	63	0.28	50	0.14	45	0.422	56
Thermopsis rhombifolia					0.14	8			0.029	2
Townsendia hookeri							0.03	9	0.002	1
Vicia americana	0.38	42	0.611	36	0.61	50	0.54	55	0.534	42
Viola nuttallii	0.01	2	0.041	14	0.02	6			0.023	8
Yucca glauca					0.29	11	0.12	18	0.067	3
Zigadenus venenosus	0.03	12	0.058	19	0.09	31	0.14	45	0.063	21
TOTAL NPF AND SUBSHRUBS	**8.50**	**98**	**12.825**	**100**	**16.08**	**100**	**19.29**	**100**	**12.613**	**99**
INTRODUCED PERENNIAL FORBS										
Cirsium arvense	0.29	8							0.089	2
Convolvulus arvensis	0.04	2							0.012	1
Medicago sativa	0.33	27	0.053	8	0.06	14	0.03	9	0.136	15
Rumex crispus	0.01	2							0.002	1
Taraxacum laevigatum	3.57	77	1.530	85	0.45	64	0.44	64	1.851	77
Taraxacum officinale	0.08	4	0.055	5					0.047	3
TOTAL IPF	**4.31**	**87**	**1.638**	**89**	**0.51**	**67**	**0.46**	**73**	**2.135**	**83**
FERNS AND ALLIES										
TOTAL F&A	**0.00**	**0**	**0.000**	**0**	**0.00**	**0**	**0.00**	**0**	**0.000**	**0**

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	ART CAN/ AGR SMI		*ART TRI/ AGR SMI*		*ART TRI / AGR SPI*		*ART TRI/ AND SCO*		**SHRUB/ GRASSLAND COMPOSITE**	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=52		**n=73**		**n=36**		**n=11**		**n=172**	
NATIVE ANNUAL/BIENNIAL FORBS										
Androsace occidentalis			0.021	*7*					**0.009**	***3***
Arabis hirsuta	0.01	*2*	0.004	*1*					**0.003**	***1***
Arabis holboellii			0.047	*12*	0.03	*8*			**0.025**	***7***
Collinsia parviflora			0.004	*1*					**0.002**	***1***
Collomia linearis	0.01	*2*					0.03	*9*	**0.003**	***1***
Conyza canadensis	0.01	*2*							**0.002**	***1***
Cryptantha celosioides			0.008	*3*	0.02	*6*	0.03	*9*	**0.009**	***3***
Descurainia pinnata	0.01	*4*	0.016	*5*	0.02	*6*			**0.014**	***5***
Draba reptans			0.021	*7*	0.03	*8*	0.05	*18*	**0.017**	***6***
Epilobium paniculatum	0.01	*2*	0.004	*1*			0.03	*9*	**0.005**	***2***
Erigeron divergens			0.045	*3*					**0.019**	***1***
Erysimum asperum			0.016	*5*	0.02	*6*	0.03	*9*	**0.012**	***4***
Euphorbia spathulata	0.02	*8*	0.030	*7*					**0.020**	***5***
Evax prolifera			0.004	*1*					**0.002**	***1***
Galium aparine	0.01	*2*	0.004	*1*					**0.003**	***1***
Grindelia squarrosa	0.01	*2*	0.012	*4*	0.10	*11*			**0.028**	***5***
Hedeoma hispidum	0.03	*10*	0.267	*42*	0.09	*14*	0.09	*9*	**0.147**	***24***
Helianthus annuus			0.008	*3*					**0.003**	***1***
Helianthus petiolaris	0.01	*2*							**0.002**	***1***
Lappula redowskii	0.01	*2*	0.016	*5*	0.02	*6*			**0.012**	***4***
Lepidium densiflorum	0.01	*4*	0.025	*8*					**0.014**	***5***
Linanthus septentrionalis			0.004	*1*					**0.002**	***1***
Linum rigidum	0.01	*2*	0.103	*34*	0.05	*17*			**0.056**	***19***
Microsteris gracilis			0.004	*1*					**0.002**	***1***
Orthocarpus luteus	0.13	*15*	0.289	*36*	0.34	*31*	0.25	*64*	**0.251**	***30***
Parietaria pensylvanica	0.04	*2*							**0.012**	***1***
Phacelia linearis			0.029	*10*	0.04	*8*			**0.022**	***6***
Plantago elongata			0.012	*4*					**0.005**	***2***
Plantago patagonica	0.08	*25*	0.273	*66*	0.21	*56*	0.22	*73*	**0.195**	***52***
Polygonum douglasii	0.01	*2*	0.012	*4*					**0.007**	***2***
Silene antirrhina	0.01	*2*	0.008	*3*	0.01	*3*	0.03	*9*	**0.009**	***3***
Xanthium strumarium	0.02	*6*	0.004	*1*					**0.007**	***2***
TOTAL NAF	**0.40**	***54***	**1.290**	***93***	**0.96**	***78***	**0.75**	***100***	**0.917**	***78***
INTRODUCED ANNUAL/BIENNIAL FORBS										
Alyssum alyssoides	0.02	*8*	0.053	*18*	0.11	*36*	0.23	*55*	**0.067**	***21***
Alyssum desertorum	0.07	*23*	0.168	*56*	0.17	*50*	0.33	*27*	**0.149**	***43***
Camelina microcarpa	0.06	*15*	0.101	*27*	0.09	*22*	0.05	*18*	**0.083**	***22***
Chorispora tenella					0.01	*3*			**0.002**	***1***
Draba nemorosa			0.016	*5*					**0.007**	***2***

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	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy
	n=52		n=73		n=36		n=11		n=172	
Filago arvensis	0.06	10	0.630	37	0.10	17	0.03	9	0.308	23
Lactuca serriola	0.38	46	0.092	27	0.05	17	0.05	18	0.168	30
Lepidium perfoliatum	0.02	2	0.008	3	0.01	3			0.011	2
Medicago lupulina	1.23	13	0.008	3	0.01	3	0.09	9	0.383	6
Melilotus alba							0.30	18	0.019	1
Melilotus officinalis	12.39	75	2.034	58	4.28	42	7.94	36	6.013	58
Sisymbrium altissimum	0.03	6	0.004	1	0.01	3			0.013	3
Sisymbrium loeselii	0.09	8	0.022	4					0.036	4
Thlaspi arvense	0.04	8	0.004	1					0.013	3
Tragopogon dubius	0.25	52	0.367	88	0.24	67	0.19	64	0.293	71
Veronica arvensis			0.014	1					0.006	1
TOTAL IAF	**14.64**	**92**	**3.523**	**99**	**5.06**	**97**	**9.21**	**100**	**7.569**	**97**
SHRUBS										
Artemisia cana	18.21	100	0.621	10			0.18	18	5.781	35
Artemisia tridentata	1.03	31	20.795	100	17.78	100	11.91	100	13.620	79
Atriplex nuttallii			0.041	3	0.09	6			0.037	2
Ceratoides lanata	0.02	2	0.308	26	0.39	14			0.218	15
Chrysothamnus nauseosus			0.004	1	0.20	11			0.044	3
Rhus aromatica	0.04	2	0.008	3					0.015	2
Rosa arkansana	0.04	2	0.041	1			0.09	9	0.035	2
Rosa woodsii	0.14	10							0.042	3
Sarcobatus vermiculatus			0.068	3					0.029	1
Symphoricarpos occidentalis	0.57	15							0.172	5
TOTAL SHRUBS	**20.05**	**100**	**21.886**	**100**	**18.46**	**100**	**12.18**	**100**	**19.993**	**100**
TREES 0.01-acre										
Juniperus scopulorum	0.04	2	0.045	3			3.55	27	0.258	3
TOTAL TREES 0.01-acre	**0.04**	**2**	**0.045**	**3**	**0.00**	**0**	**3.55**	**27**	**0.258**	**3**
TREES 0.1-acre										
Acer negundo	0.02	2							0.006	1
Juniperus scopulorum	0.28	10	0.099	11	0.68	17	1.64	36	0.371	13
Pinus ponderosa	0.03	4			0.01	3			0.009	2
TOTAL TREES 0.1-acre	**0.32**	**12**	**0.099**	**11**	**0.68**	**19**	**1.64**	**36**	**0.386**	**15**
TOTAL VEGETATION (Stratified)	**128.55**	**100**	**107.462**	**100**	**92.09**	**100**	**103.08**	**100**	**110.341**	**100**

Table 5
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Four GRASS-DOMINATED BREAKS Community Types, Otter Creek Baseline Study Area, 2011-2012.

	AGROPYRON SMITHII BREAKS		*AGROPYRON SPICATUM* BREAKS		*SPOROBOLUS AIROIDES* BREAKS		*CALAMOVILFA LONGIFOLIA* BREAKS		*GRASS-DOMINATED BREAKS COMPOSITE*	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=10		**n=4**		**n=4**		**n=5**		**n=23**	
GROUND COVER										
Bare Ground	63.80	*100*	65.50	*100*	60.50	*100*	55.40	*100*	**61.70**	***100***
Rock	8.99	*90*	22.75	*100*	13.08	*100*	27.60	*100*	**16.14**	***96***
Litter	20.93	*100*	10.33	*100*	24.25	*100*	12.80	*100*	**17.90**	***100***
Lichens	4.09	*60*	0.08	*25*	0.25	*25*	2.66	*60*	**2.41**	***48***
Moss							0.06	*20*	**0.01**	***4***
Basal Vegetation	2.30	*100*	1.58	*100*	2.00	*100*	1.60	*100*	**1.97**	***100***
VEGETATION STRUCTURE (nonstratified cover)										
Total Vegetation	38.00	*100*	24.50	*100*	39.25	*100*	30.60	*100*	**34.26**	***100***
Perennial Graminoids	20.70	*100*	13.00	*100*	25.25	*100*	19.00	*100*	**19.78**	***100***
Annual Graminoids	1.96	*60*			1.33	*50*	0.24	*80*	**1.13**	***52***
Perennial Forbs and Subshrubs	11.20	*100*	10.75	*100*	10.75	*100*	12.00	*100*	**11.22**	***100***
Annual/Biennial Forbs	6.96	*100*	1.40	*75*	1.15	*75*	1.18	*100*	**3.73**	***91***
Shrubs	1.33	*80*	1.40	*100*	2.25	*75*	0.92	*100*	**1.41**	***87***
Trees 0.01-acre					2.50	*25*			**0.43**	***4***
Trees 0.1-acre	0.20	*10*			0.25	*25*			**0.13**	***9***
CLASS\SPECIES NATIVE PERENNIAL GRAMINOIDS (Cool Season)										
Agropyron dasystachyum var. dasy.	3.40	*40*	1.00	*25*	1.25	*50*	2.00	*40*	**2.30**	***39***
Agropyron smithii	11.60	*100*	1.25	*25*	4.33	*75*	1.60	*40*	**6.36**	***70***
Agropyron spicatum	0.76	*50*	4.50	*100*	1.00	*25*	3.66	*80*	**2.08**	***61***
Aristida longiseta	0.13	*20*			1.25	*75*	0.18	*60*	**0.31**	***35***
Carex filifolia	0.03	*10*			0.50	*25*	0.66	*60*	**0.24**	***22***
Hordeum jubatum					0.08	*25*			**0.01**	***4***
Koeleria cristata	1.39	*60*	0.25	*25*	0.40	*75*	0.58	*100*	**0.84**	***65***
Oryzopsis hymenoides			0.08	*25*					**0.01**	***4***
Poa glaucifolia	0.10	*10*							**0.04**	***4***
Poa sandbergii	1.33	*40*			0.08	*25*	0.06	*20*	**0.60**	***26***
Poa scabrella	0.10	*10*	0.75	*25*			0.06	*20*	**0.19**	***13***
Scirpus americanus					0.25	*25*			**0.04**	***4***
Sitanion hystrix	0.03	*10*							**0.01**	***4***
Stipa comata	0.10	*10*	0.50	*25*			0.72	*60*	**0.29**	***22***
Stipa viridula	0.20	*20*	0.08	*25*	0.50	*25*	0.20	*20*	**0.23**	***22***
TOTAL NPG(C)	**19.17**	***100***	**8.40**	***100***	**9.63**	***100***	**9.72**	***100***	**13.58**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)										
Andropogon scoparius	0.10	*10*	0.90	*75*	1.25	*25*	2.80	*60*	**1.03**	***35***
Bouteloua curtipendula	0.10	*10*	0.58	*50*	0.50	*25*	0.06	*20*	**0.24**	***22***
Bouteloua gracilis	0.80	*10*			1.75	*50*	1.80	*60*	**1.04**	***26***
Calamovilfa longifolia	0.20	*20*	0.25	*25*	0.25	*25*	4.00	*100*	**1.04**	***39***
Distichlis stricta	1.20	*30*	3.50	*25*	1.25	*25*			**1.35**	***22***
Muhlenbergia cuspidata	0.23	*30*			0.75	*50*	2.06	*60*	**0.68**	***35***
Schedonnardus paniculatus	0.30	*10*							**0.13**	***4***
Sporobolus airoides					12.00	*100*			**2.09**	***17***
Sporobolus cryptandrus	0.03	*10*	0.08	*25*					**0.03**	***9***
TOTAL NPG(W)	**2.96**	***50***	**5.30**	***75***	**17.75**	***100***	**10.72**	***100***	**7.63**	***74***
INTRODUCED PERENNIAL GRAMINOIDS										
Agropyron cristatum	0.03	*10*					0.06	*20*	**0.03**	***9***
TOTAL IPG	**0.03**	***10***	**0.00**	***0***	**0.00**	***0***	**0.06**	***20***	**0.03**	***9***

Table 5
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Four GRASS-DOMINATED BREAKS Community Types, Otter Creek Baseline Study Area, 2011-2012.

	AGROPYRON SMITHII BREAKS		*AGROPYRON SPICATUM* BREAKS		*SPOROBOLUS AIROIDES* BREAKS		*CALAMOVILFA LONGIFOLIA* BREAKS		*GRASS-DOMINATED BREAKS COMPOSITE*	
	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*
	n=10		n=4		n=4		n=5		n=23	
NATIVE ANNUAL GRAMINOIDS										
Festuca octoflora	0.03	*10*					0.06	*20*	**0.03**	***9***
Hordeum pusillum	0.12	*40*							**0.05**	***17***
TOTAL NAG	**0.15**	***40***	**0.00**	***0***	**0.00**	***0***	**0.06**	***20***	**0.08**	***22***
INTRODUCED ANNUAL GRAMINOIDS										
Bromus japonicus	1.96	*60*			1.33	*50*	0.24	*80*	**1.13**	***52***
Bromus tectorum	0.03	*10*			0.08	*25*			**0.03**	***9***
TOTAL IAG	**1.99**	***60***	**0.00**	***0***	**1.40**	***50***	**0.24**	***80***	**1.16**	***52***
NATIVE PERENNIAL FORBS AND SUBSHRUBS										
Achillea millefolium			0.08	*25*	0.08	*25*			**0.03**	***9***
Allium textile	0.09	*30*	0.08	*25*	0.15	*50*	0.24	*80*	**0.13**	***43***
Antennaria dimorpha							0.20	*20*	**0.04**	***4***
Antennaria howellii (neglecta)					0.25	*25*			**0.04**	***4***
Artemisia campestris							0.06	*20*	**0.01**	***4***
Artemisia frigida	0.03	*10*					0.20	*20*	**0.06**	***9***
Asclepias viridiflora							0.06	*20*	**0.01**	***4***
Aster falcatus	0.93	*40*	0.75	*25*	0.75	*50*	0.52	*60*	**0.78**	***43***
Astragalus adsurgens	0.03	*10*					0.06	*20*	**0.03**	***9***
Astragalus crassicarpus			0.08	*25*					**0.01**	***4***
Astragalus gilviflorus	0.06	*20*	0.08	*25*	0.15	*50*	0.32	*60*	**0.13**	***35***
Astragalus hyalinus							0.06	*20*	**0.01**	***4***
Astragalus missouriensis					0.08	*25*	0.26	*40*	**0.07**	***13***
Astragalus plattensis	0.03	*10*							**0.01**	***4***
Astragalus spatulatus	0.03	*10*	0.08	*25*			0.06	*20*	**0.04**	***13***
Calochortus nuttallii	0.09	*30*					0.12	*40*	**0.07**	***22***
Campanula rotundifolia							0.06	*20*	**0.01**	***4***
Castilleja sessiliflora			0.08	*25*	0.08	*25*			**0.03**	***9***
Chrysopsis villosa							0.06	*20*	**0.01**	***4***
Comandra umbellata	0.09	*30*	0.08	*25*	0.08	*25*	0.06	*20*	**0.08**	***26***
Crepis occidentalis	0.03	*10*							**0.01**	***4***
Cryptantha spiculifera (interrupta)	0.03	*10*							**0.01**	***4***
Dalea candida	0.33	*20*	0.33	*50*	0.83	*75*	0.12	*40*	**0.37**	***39***
Dalea purpurea	0.09	*30*	0.08	*25*	0.15	*50*	0.18	*60*	**0.12**	***39***
Echinacea angustifolia			0.15	*50*	0.33	*50*	0.12	*40*	**0.11**	***26***
Erigeron pumilus var. pumilus	0.13	*20*			0.08	*25*	0.12	*40*	**0.10**	***22***
Eriogonum pauciflorum	0.63	*30*	3.58	*100*	0.83	*50*	0.98	*100*	**1.25**	***61***
Gaura coccinea	0.03	*10*	0.15	*50*	0.15	*50*	0.26	*40*	**0.12**	***30***
Gilia congesta var. pseudotypica	0.09	*30*							**0.04**	***13***
Glycyrrhiza lepidota							0.46	*40*	**0.10**	***9***
Gutierrezia sarothrae	4.76	*80*	3.25	*100*	3.50	*75*	2.66	*100*	**3.82**	***87***
Hedeoma drummondii							0.06	*20*	**0.01**	***4***
Hymenopappus filifolius			0.08	*25*	0.08	*25*	0.18	*60*	**0.07**	***22***
Iva axillaris	0.66	*50*			0.50	*50*	0.66	*60*	**0.52**	***43***
Kuhnia eupatorioides							0.06	*20*	**0.01**	***4***
Lesquerella alpina							0.12	*40*	**0.03**	***9***
Liatris punctata			0.08	*25*			0.06	*20*	**0.03**	***9***
Linum lewisii			0.15	*50*					**0.03**	***9***
Lithospermum incisum							0.06	*20*	**0.01**	***4***
Lomatium foeniculaceum	0.06	*20*							**0.03**	***9***
Lomatium orientale	0.06	*20*							**0.03**	***9***
Machaeranthera grindelioides	0.13	*20*	0.23	*75*	0.25	*25*	0.24	*80*	**0.19**	***43***
Musineon divaricatum	0.12	*40*	0.15	*50*			0.18	*60*	**0.12**	***39***
Oenothera caespitosa	0.13	*20*					0.06	*20*	**0.07**	***13***
Opuntia polyacantha	0.50	*10*			0.33	*50*	0.40	*40*	**0.36**	***22***
Oxytropis lambertii	0.03	*10*	0.08	*25*			0.06	*20*	**0.04**	***13***
Penstemon albidus	0.06	*20*					0.06	*20*	**0.04**	***13***

Table 5
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Four GRASS-DOMINATED BREAKS Community Types, Otter Creek Baseline Study Area, 2011-2012.

	AGROPYRON SMITHII BREAKS		*AGROPYRON SPICATUM* BREAKS		*SPOROBOLUS AIROIDES* BREAKS		*CALAMOVILFA LONGIFOLIA* BREAKS		*GRASS-DOMINATED BREAKS COMPOSITE*	
	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*
	n=10		n=4		n=4		n=5		n=23	
Penstemon eriantherus							0.06	*20*	**0.01**	***4***
Penstemon nitidus							0.06	*20*	**0.01**	***4***
Phlox hoodii	0.29	*50*	0.33	*50*	0.08	*25*	0.66	*60*	**0.34**	***48***
Polygala alba	0.06	*20*	0.08	*25*	0.75	*50*	0.38	*80*	**0.25**	***39***
Psoralea argophylla	0.33	*40*			0.58	*50*	0.12	*40*	**0.27**	***35***
Psoralea esculenta	0.09	*30*	0.08	*25*	0.33	*50*	0.38	*80*	**0.19**	***43***
Ratibida columnifera	0.03	*10*			0.15	*50*	0.12	*40*	**0.07**	***22***
Senecio canus	0.03	*10*	0.40	*75*	0.15	*50*	0.20	*20*	**0.15**	***30***
Solidago missouriensis	0.03	*10*					0.26	*40*	**0.07**	***13***
Solidago nemoralis			0.25	*25*			0.26	*40*	**0.10**	***13***
Solidago rigida							0.06	*20*	**0.01**	***4***
Sphaeralcea coccinea	0.20	*20*							**0.09**	***9***
Suaeda moquinii	0.70	*10*							**0.30**	***4***
Thermopsis rhombifolia			0.50	*25*	0.33	*50*			**0.14**	***13***
Townsendia hookeri	0.03	*10*							**0.01**	***4***
Vicia americana	0.49	*50*							**0.21**	***22***
Yucca glauca			0.25	*25*			0.60	*40*	**0.17**	***13***
Zigadenus venenosus							0.06	*20*	**0.01**	***4***
TOTAL NPF AND SUBSHRUBS	**11.53**	***100***	**11.43**	***100***	**10.95**	***100***	**12.66**	***100***	**11.66**	***100***
INTRODUCED PERENNIAL FORBS										
Taraxacum laevigatum	0.55	*60*			0.08	*25*	0.18	*60*	**0.29**	***43***
TOTAL IPF	**0.55**	***60***	**0.00**	***0***	**0.08**	***25***	**0.18**	***60***	**0.29**	***43***
FERNS AND ALLIES										
TOTAL F&A	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS										
Arabis holboellii							0.06	*20*	**0.01**	***4***
Atriplex argentea	0.23	*20*							**0.10**	***9***
Atriplex suckleyi	0.03	*10*							**0.01**	***4***
Cryptantha celosioides	0.03	*10*	0.08	*25*			0.06	*20*	**0.04**	***13***
Draba reptans							0.06	*20*	**0.01**	***4***
Grindelia squarrosa	1.29	*80*	0.08	*25*	0.08	*25*	0.46	*40*	**0.69**	***52***
Hedeoma hispidum					0.08	*25*	0.06	*20*	**0.03**	***9***
Lepidium densiflorum	0.63	*20*							**0.27**	***9***
Linum rigidum					0.08	*25*	0.06	*20*	**0.03**	***9***
Machaeranthera tanacetifolia	0.20	*10*							**0.09**	***4***
Orthocarpus luteus					0.15	*50*	0.12	*40*	**0.05**	***17***
Plantago elongata	0.83	*20*			0.08	*25*			**0.37**	***13***
Plantago patagonica	1.36	*40*					0.12	*40*	**0.62**	***26***
Polygonum arenastrum	0.03	*10*							**0.01**	***4***
TOTAL NAF	**4.63**	***100***	**0.15**	***50***	**0.45**	***75***	**1.00**	***80***	**2.33**	***83***
INTRODUCED ANNUAL/BIENNIAL FORBS										
Alyssum alyssoides	0.03	*10*							**0.01**	***4***
Alyssum desertorum	0.63	*20*					0.12	*40*	**0.30**	***17***
Filago arvensis	0.06	*20*			0.08	*25*			**0.04**	***13***
Lactuca serriola	0.03	*10*			0.08	*25*	0.06	*20*	**0.04**	***13***
Melilotus officinalis	2.10	*30*	1.33	*50*	0.50	*25*	0.06	*20*	**1.24**	***30***
Tragopogon dubius	0.12	*40*			0.08	*25*	0.18	*60*	**0.10**	***35***
TOTAL IAF	**2.97**	***80***	**1.33**	***50***	**0.73**	***25***	**0.42**	***80***	**1.74**	***65***

Table 5
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Four GRASS-DOMINATED BREAKS Community Types, Otter Creek Baseline Study Area, 2011-2012.

	AGROPYRON SMITHII BREAKS		*AGROPYRON SPICATUM* BREAKS		*SPOROBOLUS AIROIDES* BREAKS		*CALAMOVILFA LONGIFOLIA* BREAKS		*GRASS-DOMINATED BREAKS COMPOSITE*	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=10		**n=4**		**n=4**		**n=5**		**n=23**	
SHRUBS										
Artemisia tridentata	0.93	*50*	0.50	*25*	1.50	*75*	0.66	*60*	**0.90**	***52***
Atriplex confertifolia			0.25	*25*					**0.04**	***4***
Atriplex nuttallii	0.03	*10*							**0.01**	***4***
Ceratoides lanata	0.10	*10*			0.50	*25*			**0.13**	***9***
Chrysothamnus nauseosus	0.26	*40*	0.73	*100*	0.25	*25*	0.18	*60*	**0.32**	***52***
Rhus aromatica							0.20	*20*	**0.04**	***4***
Rosa arkansana			0.15	*50*					**0.03**	***9***
Sarcobatus vermiculatus	0.10	*10*							**0.04**	***4***
TOTAL SHRUBS	**1.42**	***80***	**1.63**	***100***	**2.25**	***75***	**1.04**	***100***	**1.52**	***87***
TREES 0.01-acre										
Juniperus scopulorum					2.50	*25*			**0.43**	***4***
TOTAL TREES 0.01-acre	**0.00**	***0***	**0.00**	***0***	**2.50**	***25***	**0.00**	***0***	**0.43**	***4***
TREES 0.1-acre										
Juniperus scopulorum	0.20	*10*			0.25	*25*			**0.13**	***9***
TOTAL TREES 0.1-acre	**0.20**	***10***	**0.00**	***0***	**0.25**	***25***	**0.00**	***0***	**0.13**	***9***
TOTAL VEGETATION (Stratified)	**45.40**	***100***	**28.23**	***100***	**45.73**	***100***	**36.10**	***100***	**40.45**	***100***

Table 6
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Seven SHRUB-DOMINATED BREAKS Community Types, Otter Creek Baseline Study Area, 2011-2012.

	ART TRI-SAR VER-CHR NAU/AGR SMI BREAKS		ART TRI-SAR VER-CHR NAU/AGR SPI BREAKS		RHU ARO/AGR SPI-AND SCO BREAKS		ART TRI-RHU ARO-CHR NAU/AGR SPI BREAKS		ART TRI -RHU ARO - SAR VER /AGR SPI BREAKS		ART TRI -ATR CON - SAR VER /AGR SPI BREAKS		ART TRI -ATR CON - RHU ARO /AGR SPI BREAKS		SHRUB-DOMINATED BREAKS COMPOSITE	
	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy
	n=26		n=3		n=8		n=15		n=6		n=26		n=13		n=97	
GROUND COVER																
Bare Ground	62.24	100	59.67	100	13.00	100	48.82	100	24.67	100	60.77	100	53.62	100	**52.15**	**100**
Rock	9.21	85	19.67	100	49.38	100	23.67	100	53.72	100	19.79	100	24.41	100	**22.71**	**96**
Litter	24.20	100	18.33	100	32.00	100	22.00	100	19.00	100	16.81	100	18.31	100	**21.23**	**100**
Lichens	2.05	50	0.43	67	1.95	100	2.55	60	0.27	50	0.41	54	1.12	62	**1.40**	**59**
Moss	0.06	12	0.10	33	0.40	63	0.44	33			0.07	15	0.23	15	**0.17**	**21**
Basal Vegetation	2.38	100	2.00	100	3.50	100	2.60	100	2.50	100	2.28	100	2.38	100	**2.48**	**100**
VEGETATION STRUCTURE (nonstratified cover)																
Total Vegetation	42.08	100	37.33	100	70.50	100	45.13	100	44.83	100	42.54	100	35.00	100	**44.09**	**100**
Perennial Graminoids	18.96	100	15.00	100	33.00	100	18.33	100	18.67	100	17.19	100	11.23	100	**18.37**	**100**
Annual Graminoids	1.52	81	0.33	33	14.75	100	2.27	80	0.65	67	1.84	92	0.65	69	**2.61**	**81**
Perennial Forbs and Subshrubs	7.68	100	10.33	100	13.00	100	11.80	100	8.17	100	8.88	100	7.31	100	**9.14**	**100**
Annual/Biennial Forbs	8.97	92	0.30	100	6.79	88	9.77	93	5.43	100	3.49	100	0.98	92	**5.89**	**95**
Shrubs	11.88	100	16.67	100	24.38	100	10.80	100	19.83	100	17.08	100	17.92	100	**15.59**	**100**
Trees 0.01-acre							0.33	13	0.05	17	0.05	8	0.54	23	**0.14**	**8**
Trees 0.1-acre	0.04	4					0.82	27	0.72	50	0.10	15	1.02	46	**0.35**	**19**
CLASS\SPECIES NATIVE PERENNIAL GRAMINOIDS (Cool Season)																
Agropyron albicans var. griffithsii							0.35	13							**0.05**	**2**
Agropyron dasystachyum var. dasy.	2.93	54					1.13	40	0.33	17	3.77	65	0.46	8	**2.05**	**40**
Agropyron dasystachyum var. riparium											0.38	8			**0.10**	**2**
Agropyron smithii	7.91	92			0.08	25	0.80	33	4.33	67	1.50	50	1.54	46	**3.13**	**56**
Agropyron spicatum	0.68	38	11.00	100	6.38	100	8.55	100	8.17	100	6.57	85	5.18	100	**5.33**	**79**
Agropyron trachycaulum							0.02	7							**0.003**	**1**
Aristida longiseta	0.10	12			0.79	63	0.35	20			0.09	12	0.38	8	**0.22**	**15**
Carex filifolia	0.19	8			4.91	88	0.07	7			0.12	8	0.08	8	**0.51**	**13**
Carex heliophila					1.25	38									**0.10**	**3**
Koeleria cristata	0.43	38	3.33	67	0.08	25	0.73	60			0.25	19	0.02	8	**0.41**	**30**
Oryzopsis hymenoides							0.80	27			0.23	8	1.10	46	**0.33**	**12**
Poa glaucifolia	0.15	15													**0.04**	**4**

Table 6
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	ART TRI-SAR VER-CHR NAU/AGR SMI BREAKS		ART TRI-SAR VER-CHR NAU/AGR SPI BREAKS		RHU ARO/AGR SPI-AND SCO BREAKS		ART TRI-RHU ARO-CHR NAU/AGR SPI BREAKS		ART TRI -RHU ARO - SAR VER /AGR SPI BREAKS		ART TRI -ATR CON - SAR VER /AGR SPI BREAKS		ART TRI -ATR CON - RHU ARO /AGR SPI BREAKS		SHRUB-DOMINATED BREAKS COMPOSITE	
	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy
	n=26		n=3		n=8		n=15		n=6		n=26		n=13		n=97	
Poa juncifolia	0.75	23									0.01	4			0.21	7
Poa sandbergii	0.09	12			0.08	25					0.05	15	0.05	15	0.05	11
Poa scabrella	0.24	19					0.06	20			0.29	23			0.15	14
Sitanion hystrix							0.02	7			0.41	15	0.23	8	0.14	6
Stipa comata	0.46	19			11.88	100	0.69	20	1.33	17	0.70	19	0.46	15	1.54	25
Stipa viridula	**0.67**	**31**			**0.04**	**13**	0.33	27	2.10	67	1.31	23	0.46	8	0.78	25
TOTAL NPG(C)	**14.60**	**100**	**14.33**	**100**	**25.46**	**100**	**13.91**	**100**	**16.27**	**100**	**15.68**	**100**	**9.96**	**100**	**15.15**	**100**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																
Andropogon scoparius					2.79	50	2.00	53	0.50	17	0.40	12	0.08	8	0.69	18
Bouteloua curtipendula	0.41	19			0.88	25	1.93	47	1.33	67	0.83	19	0.62	15	0.87	26
Bouteloua gracilis	3.27	23	1.33	33	6.16	88	0.07	7	0.83	17	0.27	23	0.46	8	1.62	24
Calamovilfa longifolia	0.19	12			0.61	63	0.89	33			0.23	15			0.30	18
Distichlis stricta	1.75	27					0.20	7	0.83	17	0.55	19			0.70	14
Muhlenbergia cuspidata	0.12	8			0.50	38	0.60	20			0.12	8	0.08	8	0.21	11
Sporobolus airoides	0.08	4									0.17	8	0.62	8	0.15	4
Sporobolus cryptandrus							0.09	13			0.01	4			0.02	3
TOTAL NPG(W)	**5.82**	**54**	**1.33**	**33**	**10.94**	**100**	**5.77**	**73**	**3.50**	**83**	**2.57**	**50**	**1.85**	**23**	**4.55**	**57**
INTRODUCED PERENNIAL GRAMINOIDS																
Agropyron cristatum	0.08	4			0.25	13									0.04	2
Bromus inermis							0.02	7							0.003	1
Poa pratensis	0.04	4			0.29	25									0.03	3
TOTAL IPG	**0.12**	**8**	**0.00**	**0**	**0.54**	**25**	**0.02**	**7**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.08**	**5**
NATIVE ANNUAL GRAMINOIDS																
Festuca octoflora	0.01	4			0.04	13	0.04	13							0.01	4
Hordeum pusillum	0.03	12													0.01	3
TOTAL NAG	**0.05**	**15**	**0.00**	**0**	**0.04**	**13**	**0.04**	**13**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.02**	**7**
INTRODUCED ANNUAL GRAMINOIDS																
Bromus japonicus	1.48	81	0.33	33	11.04	100	1.74	80	0.65	67	1.57	92	0.65	69	2.14	81
Bromus tectorum	0.09	12			4.38	75	0.62	27			0.45	12	0.05	15	0.61	19
TOTAL IAG	**1.57**	**81**	**0.33**	**33**	**15.41**	**100**	**2.36**	**80**	**0.65**	**67**	**2.02**	**92**	**0.70**	**69**	**2.74**	**81**

Table 6
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Seven SHRUB-DOMINATED BREAKS Community Types, Otter Creek Baseline Study Area, 2011-2012.

	ART TRI-SAR VER-CHR NAU/AGR SMI BREAKS		ART TRI-SAR VER-CHR NAU/AGR SPI BREAKS		RHU ARO/AGR SPI-AND SCO BREAKS		ART TRI-RHU ARO-CHR NAU/AGR SPI BREAKS		ART TRI -RHU ARO - SAR VER /AGR SPI BREAKS		ART TRI -ATR CON - SAR VER /AGR SPI BREAKS		ART TRI -ATR CON - RHU ARO /AGR SPI BREAKS		SHRUB-DOMINATED BREAKS COMPOSITE	
	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy
	n=26		n=3		n=8		n=15		n=6		n=26		n=13		n=97	
NATIVE PERENNIAL FORBS AND SUBSHRUBS																
Achillea millefolium	0.09	8					0.06	20			0.08	4			0.05	6
Agoseris glauca											0.01	4			0.003	1
Allium textile	0.08	27			0.08	25	0.08	27			0.08	27			0.06	21
Ambrosia psilostachya					0.66	38	0.07	7			0.04	4			0.08	5
Antennaria dimorpha							0.04	13			0.04	4			0.02	3
Antennaria howellii (neglecta)							0.02	7							0.003	1
Antennaria microphylla					0.04	13	0.04	13							0.01	3
Antennaria parvifolia							0.02	7							0.003	1
Artemisia campestris							0.08	27							0.01	4
Artemisia dracunculus					0.91	63									0.08	5
Artemisia frigida	0.28	19			1.58	100	0.35	33	0.33	33	0.08	8	0.10	15	0.31	25
Artemisia ludoviciana	0.04	4					0.60	20							0.10	4
Asclepias viridiflora							0.04	13							0.01	2
Aster falcatus	0.28	31			0.08	25	0.31	33	0.17	17	0.09	12	0.02	8	0.16	21
Aster laevis							0.06	20	0.05	17					0.01	4
Aster oblongifolius	0.01	4							0.05	17	0.05	15	0.08	8	0.03	7
Astragalus adsurgens	0.01	4			0.04	13			0.33	17	0.01	4	0.12	23	0.05	7
Astragalus bisulcatus	0.01	4													0.003	1
Astragalus crassicarpus					0.04	13									0.003	1
Astragalus drummondii	0.01	4													0.003	1
Astragalus flexuosus									0.05	17					0.003	1
Astragalus gilviflorus	0.12	19	1.53	100			0.06	20	0.10	33	0.07	15	0.02	8	0.12	19
Astragalus gracilis									0.17	17					0.01	1
Astragalus lotiflorus	0.01	4			0.04	13									0.01	2
Astragalus missouriensis	0.03	12			0.04	13					0.05	15			0.02	8
Astragalus plattensis					0.11	38									0.01	3
Astragalus spatulatus	0.09	8					0.09	13							0.04	4
Astragalus tenellus							0.33	7							0.05	1
Besseya wyomingensis					0.04	13									0.003	1
Calochortus nuttallii	0.03	12			0.04	13					0.02	8			0.02	6
Campanula rotundifolia					0.16	25	0.02	7							0.02	3
Castilleja sessiliflora							0.02	7			0.01	4			0.01	2
Cerastium arvense	0.01	4			1.25	50									0.11	5
Chrysopsis villosa			0.10	33	0.16	25	0.04	13			0.01	4			0.03	6
Cirsium undulatum					0.04	13	0.24	27	0.20	67	0.04	4			0.06	10
Comandra umbellata	0.09	31	0.10	33			0.12	40	0.27	50	0.13	35	0.09	31	0.11	32

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	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy
	n=26		n=3		n=8		n=15		n=6		n=26		n=13		n=97	
Coryphantha missouriensis											0.01	4			0.003	1
Crepis occidentalis	0.01	4					0.06	20			0.03	12			0.02	7
Cryptantha spiculifera (interrupta)	0.01	4					0.06	20	0.05	17	0.03	12	0.07	23	0.03	11
Dalea candida	0.33	12			0.08	25	0.63	67	0.88	67	0.33	15	0.25	15	0.37	26
Dalea purpurea	0.29	23	0.10	33	0.54	38	0.15	33	0.50	33	0.06	12	0.02	8	0.20	22
Echinacea angustifolia	0.04	4			0.04	13	0.28	40	0.22	33			0.02	8	0.07	11
Erigeron pumilus var. concinnus													0.02	8	0.003	1
Erigeron pumilus var. pumilus	0.02	8					0.04	13			0.03	12			0.02	7
Eriogonum flavum	0.01	4													0.003	1
Eriogonum pauciflorum	0.51	35	3.33	67			2.31	80	0.43	67	2.34	69	1.53	69	1.46	56
Euphorbia robusta			0.10	33			0.02	7							0.01	2
Evolvulus nuttallianus					0.38	13	0.02	7			0.05	8			0.05	4
Gaillardia aristata											0.01	4			0.003	1
Gaura coccinea	0.09	31			0.08	25	0.23	60	0.38	33	0.30	35	0.16	54	0.19	38
Gilia congesta var. pseudotypica	0.01	4					0.02	7			0.03	12	0.02	8	0.02	6
Glycyrrhiza lepidota							0.02	7							0.003	1
Gutierrezia sarothrae	2.01	69	2.00	100	1.54	25	2.59	87	1.38	83	2.09	88	2.54	77	2.11	76
Haplopappus armerioides			0.33	33			0.07	7							0.02	2
Hedeoma drummondii			0.10	33	0.04	13	0.09	13	0.05	17					0.02	5
Heuchera richardsonii					0.50	13									0.04	1
Hymenopappus filifolius	0.01	4	0.33	33			0.10	33	0.10	33	0.11	19	0.05	15	0.07	16
Iva axillaris	0.76	46	0.10	33							0.28	15			0.28	18
Kuhnia eupatorioides					0.08	25									0.01	2
Lactuca oblongifolia	0.15	4			0.13	13									0.05	2
Lesquerella alpina							0.02	7							0.003	1
Liatris punctata							0.02	7			0.02	8			0.01	3
Linum lewisii	0.02	8	0.10	33	0.13	13	0.12	40	0.10	33	0.02	8	0.02	8	0.05	15
Lithospermum incisum	0.01	4			0.15	50									0.02	5
Lomatium foeniculaceum	0.01	4					0.02	7							0.01	2
Lomatium orientale	0.01	4									0.01	4			0.01	2
Lupinus argenteus							0.02	7							0.003	1
Lygodesmia juncea									0.05	17					0.003	1
Machaeranthera grindelioides	0.12	23	0.30	100			0.25	67	0.20	67	0.23	42	0.19	46	0.18	41
Mirabilis linearis													0.02	8	0.003	1
Musineon divaricatum	0.07	23					0.06	20			0.05	15			0.04	13
Oenothera caespitosa	0.03	12					0.02	7			0.08	19	0.10	15	0.05	11
Opuntia fragilis					0.04	13									0.003	1

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	ART TRI-SAR VER-CHR NAU/AGR SMI BREAKS		*ART TRI-SAR VER-CHR NAU/AGR SPI* BREAKS		*RHU ARO/AGR SPI-AND SCO* BREAKS		*ART TRI-RHU ARO-CHR NAU/AGR SPI* BREAKS		*ART TRI -RHU ARO -SAR VER /AGR SPI* BREAKS		*ART TRI -ATR CON -SAR VER /AGR SPI* BREAKS		*ART TRI -ATR CON -RHU ARO /AGR SPI* BREAKS		SHRUB-DOMINATED BREAKS COMPOSITE	
	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*
	n=26		n=3		n=8		n=15		n=6		n=26		n=13		n=97	
Opuntia polyacantha	0.13	*23*					0.02	*7*	0.05	*17*	0.03	*12*	0.02	*8*	**0.05**	***12***
Oxytropis lambertii	0.01	*4*	0.10	*33*			0.21	*40*			0.01	*4*			**0.04**	***9***
Oxytropis sericea	0.02	*8*			0.88	*25*			0.05	*17*	0.08	*4*			**0.10**	***6***
Penstemon albidus	0.02	*8*	0.10	*33*			0.04	*13*			0.03	*12*			**0.02**	***8***
Penstemon eriantherus	0.06	*19*					0.06	*20*	0.10	*33*	0.03	*12*			**0.04**	***13***
Penstemon nitidus	0.01	*4*					0.04	*13*	0.05	*17*	0.02	*8*	0.02	*8*	**0.02**	***7***
Phacelia hastata							0.13	*7*					0.02	*8*	**0.02**	***2***
Phlox alyssifolia							0.02	*7*							**0.003**	***1***
Phlox hoodii	0.14	*38*	0.67	*33*	0.54	*50*	0.50	*60*	0.48	*83*	0.36	*46*	0.31	*23*	**0.35**	***45***
Polygala alba	0.12	*23*					0.30	*53*	0.15	*50*	0.15	*23*	0.05	*15*	**0.14**	***26***
Potentilla arguta					0.75	*38*									**0.06**	***3***
Psoralea argophylla	0.44	*35*			2.16	*50*	0.44	*33*	0.22	*33*	0.11	*15*	0.31	*15*	**0.45**	***27***
Psoralea esculenta	0.06	*12*	0.10	*33*			0.16	*53*	0.05	*17*	0.14	*19*			**0.08**	***19***
Ratibida columnifera	0.01	*4*			0.08	*25*									**0.01**	***3***
Senecio canus			0.10	*33*			0.08	*27*	0.05	*17*	0.02	*8*			**0.02**	***8***
Sisyrinchium angustifolium					0.04	*13*									**0.003**	***1***
Solidago missouriensis	0.01	*4*	0.10	*33*	0.50	*13*	0.20	*13*	0.10	*33*					**0.08**	***7***
Solidago nemoralis							0.11	*20*	0.05	*17*					**0.02**	***4***
Solidago rigida			0.33	*33*			0.02	*7*			0.01	*4*			**0.02**	***3***
Sphaeralcea coccinea	0.11	*27*			0.11	*38*	0.19	*33*	0.20	*67*	0.12	*23*	0.45	*69*	**0.17**	***35***
Stephanomeria runcinata							0.02	*7*			0.01	*4*	0.12	*38*	**0.02**	***7***
Suaeda moquinii	0.15	*8*									0.45	*19*	0.02	*8*	**0.16**	***8***
Thermopsis rhombifolia	0.09	*8*	0.33	*33*			0.22	*20*							**0.07**	***6***
Toxicodendron rydbergii							0.13	*7*							**0.02**	***1***
Tradescantia occidentalis					0.04	*13*									**0.003**	***1***
Vicia americana	0.51	*62*			0.04	*13*	0.19	*27*	0.27	*50*	0.40	*31*	0.09	*31*	**0.31**	***37***
Viola nuttallii	0.01	*4*					0.02	*7*					0.02	*8*	**0.01**	***3***
Yucca glauca									0.55	*33*	0.59	*23*	0.85	*15*	**0.31**	***10***
Zigadenus venenosus	0.01	*4*			0.08	*25*	0.08	*27*			0.01	*4*			**0.02**	***8***
TOTAL NPF AND SUBSHRUBS	**7.69**	***100***	**10.37**	***100***	**14.21**	***100***	**13.08**	***100***	**8.43**	***100***	**9.55**	***100***	**7.75**	***100***	**9.69**	***100***
INTRODUCED PERENNIAL FORBS																
Cuscuta approximata							0.02	*7*							**0.003**	***1***
Medicago sativa	0.24	*12*					0.09	*13*	0.05	*17*					**0.08**	***6***
Taraxacum laevigatum	0.27	*31*			0.08	*25*	0.04	*13*	0.22	*33*	0.08	*19*	0.02	*8*	**0.12**	***21***
Taraxacum officinale											0.01	*4*			**0.003**	***1***
TOTAL IPF	**0.52**	***35***	**0.00**	***0***	**0.08**	***25***	**0.15**	***27***	**0.27**	***50***	**0.10**	***23***	**0.02**	***8***	**0.21**	***26***

Table 6
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Seven SHRUB-DOMINATED BREAKS Community Types, Otter Creek Baseline Study Area, 2011-2012.

	ART TRI-SAR VER-CHR NAU/AGR SMI BREAKS		ART TRI-SAR VER-CHR NAU/AGR SPI BREAKS		RHU ARO/AGR SPI-AND SCO BREAKS		ART TRI-RHU ARO-CHR NAU/AGR SPI BREAKS		ART TRI -RHU ARO - SAR VER /AGR SPI BREAKS		ART TRI -ATR CON - SAR VER /AGR SPI BREAKS		ART TRI -ATR CON - RHU ARO /AGR SPI BREAKS		SHRUB-DOMINATED BREAKS COMPOSITE	
	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy
	n=26		n=3		n=8		n=15		n=6		n=26		n=13		n=97	
FERNS AND ALLIES																
Cystopteris fragilis					0.04	13									0.003	1
Woodsia oregana					0.24	50									0.02	4
TOTAL F&A	**0.00**	**0**	**0.00**	**0**	**0.28**	**50**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.02**	**4**
NATIVE ANNUAL/BIENNIAL FORBS																
Androsace occidentalis					0.04	13									0.003	1
Arabis holboellii					0.04	13	0.02	7							0.01	2
Atriplex argentea									0.05	17					0.003	1
Atriplex suckleyi	0.29	19									0.69	4			0.26	6
Chenopodium leptophyllum					0.08	25									0.01	2
Conyza canadensis					0.04	13									0.003	1
Cryptantha celosioides	0.02	8	0.20	67	0.04	13	0.14	47	0.10	33	0.07	23	0.14	46	0.08	27
Cryptantha torreyana					0.16	25									0.01	2
Descurainia pinnata							0.02	7			0.02	8			0.01	3
Descurainia richardsonii	0.01	4													0.003	1
Erigeron strigosus					0.04	13									0.003	1
Erysimum asperum	0.01	4	0.10	33			0.02	7					0.02	8	0.01	4
Euphorbia glyptosperma					0.04	13									0.003	1
Galium aparine					0.04	13									0.003	1
Grindelia squarrosa	1.18	35	0.10	33			0.17	20			0.47	35	0.12	23	0.49	26
Hedeoma hispidum	0.03	12			0.04	13			0.05	17					0.02	5
Helianthus annuus	0.01	4													0.003	1
Helianthus petiolaris					0.04	13	0.02	7	0.05	17			0.12	23	0.03	6
Lappula redowskii					0.08	25					0.01	4	0.07	23	0.02	6
Lepidium densiflorum	0.02	8			0.04	13					0.02	8			0.02	5
Linum rigidum	0.02	8					0.04	13			0.05	15			0.02	8
Machaeranthera canescens	0.01	4			0.04	13			0.05	17	0.02	8	0.02	8	0.02	6
Mentzelia dispersa					0.08	25					0.01	4	0.02	8	0.01	4
Microsteris gracilis							0.02	7							0.003	1
Mimulus suksdorfii					0.04	13									0.003	1
Orthocarpus luteus	0.03	12											0.02	8	0.01	4
Parietaria pensylvanica					0.33	50									0.03	4
Phacelia linearis					0.16	25	0.02	7							0.02	3
Plantago elongata	0.01	4													0.003	1
Plantago patagonica	0.08	27			0.28	63	0.11	20			0.02	8			0.07	18

Table 6
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Seven SHRUB-DOMINATED BREAKS Community Types, Otter Creek Baseline Study Area, 2011-2012.

	ART TRI-SAR VER-CHR NAU/AGR SMI BREAKS		ART TRI-SAR VER-CHR NAU/AGR SPI BREAKS		RHU ARO/AGR SPI-AND SCO BREAKS		ART TRI-RHU ARO-CHR NAU/AGR SPI BREAKS		ART TRI -RHU ARO -SAR VER /AGR SPI BREAKS		ART TRI -ATR CON -SAR VER /AGR SPI BREAKS		ART TRI -ATR CON -RHU ARO /AGR SPI BREAKS		SHRUB-DOMINATED BREAKS COMPOSITE	
	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy
	n=26		n=3		n=8		n=15		n=6		n=26		n=13		n=97	
Polanisia trachysperma					0.04	13									0.003	1
Polygonum douglasii					0.04	13									0.003	1
Silene antirrhina					0.15	50									0.01	4
Suaeda depressa	0.04	4													0.01	1
Triodanis leptocarpa					0.04	13									0.003	1
TOTAL NAF	**1.78**	***77***	**0.40**	***100***	**1.86**	***75***	**0.58**	***87***	**0.30**	***83***	**1.39**	***65***	**0.55**	***92***	**1.20**	***78***
INTRODUCED ANNUAL/BIENNIAL FORBS																
Alyssum alyssoides	0.06	12	0.10	33	0.04	13	0.02	7							0.03	6
Alyssum desertorum	0.06	19			0.15	50	0.11	20	0.05	17	0.06	19			0.06	19
Camelina microcarpa	0.01	4			0.04	13	0.02	7			0.25	23			0.08	9
Filago arvensis	0.40	8			0.15	50	0.02	7	0.05	17	0.01	4			0.13	9
Lactuca serriola	0.05	15			0.15	50	0.11	20	0.15	50	0.09	31	0.05	15	0.08	25
Lepidium perfoliatum	0.01	4													0.003	1
Medicago lupulina	0.01	4													0.003	1
Melilotus alba							0.27	13							0.04	2
Melilotus officinalis	6.77	81			5.25	13	9.01	80	5.27	83	1.68	46	0.33	15	4.46	55
Sisymbrium altissimum	0.01	4			0.08	25	0.02	7			0.04	4			0.02	5
Sisymbrium loeselii					0.08	25							0.08	8	0.02	3
Thlaspi arvense	0.01	4													0.003	1
Tragopogon dubius	0.25	62			0.11	38	0.10	33	0.15	50	0.25	73	0.14	46	0.19	54
TOTAL IAF	**7.64**	***92***	**0.10**	***33***	**6.04**	***88***	**9.67**	***80***	**5.67**	***100***	**2.38**	***92***	**0.59**	***69***	**5.11**	***86***
SHRUBS																
Artemisia cana	0.23	4			0.50	13	0.73	7							0.22	3
Artemisia tridentata	6.32	88	10.00	100			6.02	93	15.33	100	12.04	100	9.02	100	8.32	88
Atriplex confertifolia											2.62	77	6.62	92	1.59	33
Atriplex nuttallii	0.20	12													0.05	3
Ceratoides lanata	0.02	8					0.02	7			0.36	23			0.11	9
Chrysothamnus nauseosus	2.42	77	2.00	100			1.93	73	1.05	67	0.30	42	1.18	62	1.31	59
Prunus virginiana					2.63	38									0.22	3
Rhus aromatica	0.01	4			21.50	100	1.95	53	1.55	50	0.04	4	1.66	62	2.41	30
Ribes cereum					0.88	38									0.07	3
Rosa arkansana	0.01	4	1.00	33			0.35	27	0.10	33	0.12	4	0.15	8	0.15	10
Rosa woodsii	0.01	4					0.09	13							0.02	3
Sarcobatus vermiculatus	3.03	58	3.67	33			0.02	7	3.00	83	2.32	42			1.74	34
Symphoricarpos occidentalis							0.02	7							0.003	1
TOTAL SHRUBS	**12.27**	***100***	**16.67**	***100***	**25.50**	***100***	**11.13**	***100***	**21.03**	***100***	**17.79**	***100***	**18.63**	***100***	**16.19**	***100***

Table 6
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Seven SHRUB-DOMINATED BREAKS Community Types, Otter Creek Baseline Study Area, 2011-2012.

	***ART TRI-SAR VER-CHR NAU/AGR SMI* BREAKS**		***ART TRI-SAR VER-CHR NAU/AGR SPI* BREAKS**		***RHU ARO/AGR SPI-AND SCO* BREAKS**		***ART TRI-RHU ARO-CHR NAU/AGR SPI* BREAKS**		***ART TRI -RHU ARO -SAR VER /AGR SPI* BREAKS**		***ART TRI -ATR CON -SAR VER /AGR SPI* BREAKS**		***ART TRI -ATR CON -RHU ARO /AGR SPI* BREAKS**		**SHRUB-DOMINATED BREAKS COMPOSITE**	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=26		**n=3**		**n=8**		**n=15**		**n=6**		**n=26**		**n=13**		**n=97**	
TREES 0.01-acre																
Juniperus scopulorum							0.20	*7*	0.05	*17*	0.01	*4*	0.31	*15*	**0.08**	***5***
Pinus ponderosa							0.13	*7*			0.04	*4*	0.23	*15*	**0.06**	***4***
TOTAL TREES 0.01-acre	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.33**	***13***	**0.05**	***17***	**0.05**	***8***	**0.54**	***23***	**0.14**	***8***
TREES 0.1-acre																
Juniperus scopulorum	0.04	*4*					0.49	*27*	0.38	*33*	0.09	*12*	0.41	*31*	**0.19**	***14***
Pinus ponderosa							0.35	*20*	0.43	*50*	0.01	*4*	0.64	*46*	**0.17**	***13***
TOTAL TREES 0.1-acre	**0.04**	***4***	**0.00**	***0***	**0.00**	***0***	**0.84**	***27***	**0.82**	***50***	**0.10**	***15***	**1.05**	***46***	**0.36**	***19***
TOTAL VEGETATION (Stratified)	**52.05**	***100***	**43.53**	***100***	**100.35**	***100***	**57.05**	***100***	**56.17**	***100***	**51.52**	***100***	**40.58**	***100***	**55.12**	***100***

Table 7
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Five CONIFER-DOMINATED BREAKS Community Types, Otter Creek Baseline Study Area, 2011-2012.

	JUN SCO /AGR SPI BREAKS		*PIN PON-JUN SCO/ AGR SPI* BREAKS		*PIN PON-JUN SCO/ AND SCO* BREAKS		*PIN PON-JUN SCO/ ART TRI* BREAKS		*PIN PON-JUN SCO/ ART TRI-ATR CON* BREAKS		*CONIFER-DOMINATED BREAKS COMPOSITE*	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=11		**n=18**		**n=15**		**n=4**		**n=7**		**n=55**	
GROUND COVER												
Bare Ground	25.45	*100*	35.24	*100*	40.13	*100*	46.50	*100*	45.86	*100*	**36.79**	***100***
Rock	30.21	*91*	35.94	*94*	24.47	*100*	4.33	*75*	24.86	*100*	**27.96**	***95***
Litter	32.27	*100*	24.07	*100*	29.00	*100*	38.50	*100*	24.29	*100*	**28.13**	***100***
Lichens	5.94	*64*	1.33	*61*	2.49	*87*	5.50	*100*	1.47	*43*	**2.89**	***69***
Moss	3.38	*55*	1.26	*50*	0.87	*53*	1.25	*75*	0.76	*29*	**1.51**	***51***
Basal Vegetation	2.91	*100*	2.28	*100*	3.07	*100*	3.75	*100*	2.71	*100*	**2.78**	***100***
VEGETATION STRUCTURE (nonstratified cover)												
Total Vegetation	58.64	*100*	41.94	*100*	55.27	*100*	58.00	*100*	53.43	*100*	**51.54**	***100***
Perennial Graminoids	15.45	*100*	14.83	*100*	26.93	*100*	28.50	*100*	21.43	*100*	**20.09**	***100***
Annual Graminoids	0.19	*64*	0.27	*50*	0.92	*80*	0.73	*100*	0.17	*57*	**0.45**	***65***
Perennial Forbs and Subshrubs	11.75	*100*	13.78	*100*	14.27	*100*	18.50	*100*	7.14	*100*	**13.01**	***100***
Annual/Biennial Forbs	2.66	*100*	5.94	*100*	5.51	*100*	3.08	*100*	0.50	*100*	**4.27**	***100***
Shrubs	1.96	*73*	4.31	*94*	3.11	*93*	15.50	*100*	27.29	*100*	**7.25**	***91***
Trees 0.01-acre	37.55	*100*	13.06	*94*	16.47	*87*	9.75	*100*	4.00	*57*	**17.49**	***89***
Trees 0.1-acre	40.00	*100*	16.17	*100*	16.00	*100*	10.00	*100*	11.71	*100*	**19.87**	***100***
CLASS\SPECIES NATIVE PERENNIAL GRAMINOIDS (Cool Season)												
Agropyron dasystachyum var. dasy.			0.17	*6*	0.07	*7*	3.50	*100*			**0.33**	***11***
Agropyron smithii	0.51	*27*	0.29	*11*	1.93	*40*	2.50	*25*	3.76	*71*	**1.39**	***31***
Agropyron spicatum	9.18	*100*	9.33	*100*	3.33	*100*	4.75	*100*	13.71	*100*	**7.89**	***100***
Aristida longiseta	0.08	*27*	0.07	*11*	0.33	*27*	0.50	*25*	0.04	*14*	**0.17**	***20***
Carex filifolia	0.39	*27*	1.31	*39*	1.77	*60*	1.75	*50*			**1.12**	***38***
Carex heliophila	0.03	*9*									**0.01**	***2***
Carex rossii	0.36	*18*									**0.07**	***4***
Koeleria cristata	0.60	*55*	0.40	*39*	0.77	*53*	1.25	*50*	0.57	*14*	**0.63**	***44***
Oryzopsis hymenoides	0.09	*9*	0.37	*22*	0.20	*20*			0.57	*29*	**0.27**	***18***
Poa sandbergii	0.05	*18*			0.02	*7*					**0.02**	***5***
Poa scabrella	0.03	*9*					0.25	*25*			**0.02**	***4***
Stipa comata	0.36	*18*	0.63	*17*	2.42	*47*	3.00	*25*	0.14	*14*	**1.17**	***25***
Stipa viridula	0.09	*9*	0.17	*6*	0.13	*7*	2.50	*25*	2.04	*29*	**0.55**	***11***
TOTAL NPG(C)	**11.78**	***100***	**12.74**	***100***	**10.99**	***100***	**20.00**	***100***	**20.84**	***100***	**13.63**	***100***

Table 7
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Five CONIFER-DOMINATED BREAKS Community Types, Otter Creek Baseline Study Area, 2011-2012.

	JUN SCO /AGR SPI BREAKS		*PIN PON-JUN SCO/ AGR SPI* BREAKS		*PIN PON-JUN SCO/ AND SCO* BREAKS		*PIN PON-JUN SCO/ ART TRI* BREAKS		*PIN PON-JUN SCO/ ART TRI-ATR CON* BREAKS		*CONIFER-DOMINATED BREAKS COMPOSITE*	
	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*
	n=11		n=18		n=15		n=4		n=7		n=55	
NATIVE PERENNIAL GRAMINOIDS (Warm Season)												
Andropogon scoparius	2.21	*55*	1.28	*61*	10.67	*100*	4.25	*75*	0.29	*14*	**4.11**	***65***
Bouteloua curtipendula	2.18	*73*	0.61	*33*	4.53	*100*	4.50	*50*	0.29	*14*	**2.24**	***58***
Bouteloua gracilis	0.21	*18*	0.13	*11*	1.29	*27*	1.25	*25*			**0.53**	***16***
Calamovilfa longifolia			0.57	*28*	1.75	*60*	0.50	*25*	0.14	*14*	**0.72**	***29***
Distichlis stricta							1.00	*25*			**0.07**	***2***
Muhlenbergia cuspidata	0.18	*18*			0.51	*33*			0.29	*14*	**0.21**	***15***
Sporobolus cryptandrus			0.06	*6*	0.07	*7*					**0.04**	***4***
TOTAL NPG(W)	**4.78**	***82***	**2.64**	***78***	**18.81**	***100***	**11.50**	***75***	**1.00**	***29***	**7.92**	***78***
INTRODUCED PERENNIAL GRAMINOIDS												
Agropyron cristatum					0.02	*7*					**0.01**	***2***
Poa pratensis	0.03	*9*	0.02	*6*					1.29	*14*	**0.17**	***5***
TOTAL IPG	**0.03**	***9***	**0.02**	***6***	**0.02**	***7***	**0.00**	***0***	**1.29**	***14***	**0.18**	***7***
NATIVE ANNUAL GRAMINOIDS												
Festuca octoflora			0.02	*6*	0.02	*7*					**0.01**	***4***
TOTAL NAG	**0.00**	***0***	**0.02**	***6***	**0.02**	***7***	**0.00**	***0***	**0.00**	***0***	**0.01**	***4***
INTRODUCED ANNUAL GRAMINOIDS												
Bromus japonicus	0.19	*64*	0.23	*50*	0.92	*80*	0.73	*100*	0.17	*57*	**0.44**	***65***
Bromus tectorum			0.07	*11*	0.04	*13*					**0.03**	***7***
TOTAL IAG	**0.19**	***64***	**0.30**	***50***	**0.96**	***80***	**0.73**	***100***	**0.17**	***57***	**0.47**	***65***
NATIVE PERENNIAL FORBS AND SUBSHRUBS												
Achillea millefolium	0.32	*55*	0.08	*28*	0.04	*13*	0.15	*50*	0.13	*43*	**0.13**	***33***
Allium textile	0.03	*9*	0.03	*11*	0.12	*40*	0.08	*25*	0.04	*14*	**0.06**	***20***
Ambrosia psilostachya			0.02	*6*	0.07	*7*					**0.02**	***4***
Anemone multifida	0.03	*9*									**0.01**	***2***
Antennaria dimorpha	0.03	*9*					0.25	*25*			**0.02**	***4***
Antennaria howellii (neglecta)	0.17	*36*									**0.03**	***7***
Antennaria microphylla	0.03	*9*			0.13	*7*					**0.04**	***4***
Antennaria parvifolia	0.05	*18*	0.02	*6*	0.15	*13*	0.25	*25*	0.04	*14*	**0.08**	***13***
Apocynum androsaemifolium			0.02	*6*							**0.01**	***2***
Artemisia campestris	0.05	*18*	0.03	*11*	0.04	*13*					**0.03**	***11***
Artemisia frigida	0.15	*27*	0.26	*28*	0.06	*20*					**0.13**	***20***
Artemisia ludoviciana	0.09	*9*	0.13	*11*	0.20	*7*					**0.11**	***7***
Asclepias viridiflora					0.02	*7*					**0.01**	***2***

Table 7
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Five CONIFER-DOMINATED BREAKS Community Types, Otter Creek Baseline Study Area, 2011-2012.

	JUN SCO /AGR SPI BREAKS		*PIN PON-JUN SCO/ AGR SPI* BREAKS		*PIN PON-JUN SCO/ AND SCO* BREAKS		*PIN PON-JUN SCO/ ART TRI* BREAKS		*PIN PON-JUN SCO/ ART TRI-ATR CON* BREAKS		*CONIFER-DOMINATED BREAKS COMPOSITE*	
	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*
	n=11		n=18		n=15		n=4		n=7		n=55	
Aster falcatus	0.05	*18*	0.28	*11*	0.15	*33*	0.25	*25*	0.04	*14*	**0.17**	***20***
Aster laevis	0.72	*55*	0.02	*6*	0.02	*7*					**0.15**	***15***
Aster oblongifolius	0.05	*18*	0.07	*11*	0.17	*40*			0.04	*14*	**0.09**	***20***
Astragalus adsurgens	0.90	*73*	0.62	*44*	0.28	*40*	0.08	*25*	0.09	*29*	**0.48**	***45***
Astragalus agrestis					0.07	*7*					**0.02**	***2***
Astragalus crassicarpus					0.02	*7*					**0.01**	***2***
Astragalus drummondii	0.15	*27*	0.02	*6*							**0.03**	***7***
Astragalus flexuosus			0.44	*22*	0.02	*7*					**0.15**	***9***
Astragalus gilviflorus	0.05	*18*	0.07	*22*	0.06	*20*					**0.05**	***16***
Astragalus gracilis					0.07	*7*					**0.02**	***2***
Astragalus hyalinus			0.03	*11*	0.07	*7*					**0.03**	***5***
Astragalus missouriensis	0.11	*36*	0.07	*22*	0.21	*53*	0.08	*25*	0.04	*14*	**0.11**	***33***
Astragalus purshii	0.03	*9*									**0.01**	***2***
Astragalus spatulatus	0.36	*9*	0.02	*6*							**0.08**	***4***
Astragalus tenellus	0.12	*18*	1.17	*17*	1.60	*20*					**0.84**	***15***
Balsamorhiza sagittata							1.50	*25*			**0.11**	***2***
Besseya wyomingensis	0.08	*27*			0.04	*13*			0.04	*14*	**0.03**	***11***
Calochortus nuttallii			0.05	*17*	0.04	*13*					**0.03**	***9***
Campanula rotundifolia	0.15	*27*	0.03	*11*	0.02	*7*					**0.05**	***11***
Castilleja sessiliflora	0.05	*18*	0.02	*6*	0.08	*27*	0.08	*25*			**0.04**	***15***
Cerastium arvense	0.94	*45*	0.02	*6*	0.02	*7*					**0.20**	***13***
Chrysopsis villosa			0.22	*11*	0.35	*27*					**0.17**	***11***
Cirsium undulatum	0.05	*18*	0.22	*33*	0.35	*40*			0.04	*14*	**0.18**	***27***
Comandra umbellata	0.08	*27*	0.17	*44*	0.16	*53*	0.23	*75*	0.27	*57*	**0.17**	***47***
Crepis acuminata					0.04	*13*	0.08	*25*			**0.02**	***5***
Crepis intermedia	0.09	*9*									**0.02**	***2***
Crepis occidentalis	0.12	*18*	0.02	*6*			0.08	*25*			**0.03**	***7***
Cryptantha spiculifera (interrupta)			0.02	*6*					0.17	*57*	**0.03**	***9***
Dalea candida	0.87	*45*	1.57	*44*	1.11	*67*	0.58	*75*	0.04	*14*	**1.04**	***49***
Dalea purpurea	0.17	*36*	0.18	*33*	0.12	*40*	0.15	*50*			**0.14**	***33***
Echinacea angustifolia	0.14	*45*	0.07	*11*	0.35	*27*	0.15	*50*			**0.16**	***24***
Erigeron pumilus var. pumilus							2.50	*25*			**0.18**	***2***
Eriogonum pauciflorum	0.03	*9*	0.46	*33*	0.15	*33*			0.80	*57*	**0.30**	***29***
Euphorbia robusta	0.03	*9*			0.02	*7*					**0.01**	***4***
Evolvulus nuttallianus			0.03	*11*	0.13	*27*					**0.05**	***11***
Gaillardia aristata	0.03	*9*									**0.01**	***2***
Gaura coccinea	0.03	*9*	0.39	*72*	0.50	*67*	0.23	*75*	0.51	*43*	**0.35**	***55***
Geum triflorum	0.15	*27*									**0.03**	***5***
Gilia congesta var. pseudotypica	0.05	*18*	0.05	*17*	0.04	*13*			0.04	*14*	**0.04**	***15***

Table 7
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Five CONIFER-DOMINATED BREAKS Community Types, Otter Creek Baseline Study Area, 2011-2012.

	JUN SCO /AGR SPI BREAKS		*PIN PON-JUN SCO/ AGR SPI* BREAKS		*PIN PON-JUN SCO/ AND SCO* BREAKS		*PIN PON-JUN SCO/ ART TRI* BREAKS		*PIN PON-JUN SCO/ ART TRI-ATR CON* BREAKS		*CONIFER-DOMINATED BREAKS COMPOSITE*	
	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*
	n=11		n=18		n=15		n=4		n=7		n=55	
Glycyrrhiza lepidota	0.03	*9*	0.06	*6*	0.13	*7*					**0.06**	***5***
Gutierrezia sarothrae	1.05	*73*	1.46	*78*	1.44	*73*	5.75	*100*	2.80	*100*	**1.85**	***80***
Haplopappus armerioides							0.08	*25*			**0.01**	***2***
Hedeoma drummondii	0.03	*9*	0.02	*6*	0.04	*13*					**0.02**	***7***
Hedysarum boreale							0.50	*25*			**0.04**	***2***
Helianthus rigidus					0.33	*13*					**0.09**	***4***
Hymenopappus filifolius	0.03	*9*	0.27	*44*	0.04	*13*	0.08	*25*			**0.11**	***22***
Iva axillaris									0.57	*14*	**0.07**	***2***
Kuhnia eupatorioides			0.14	*17*							**0.05**	***5***
Lactuca oblongifolia	0.03	*9*	0.02	*6*					0.14	*14*	**0.03**	***5***
Lesquerella alpina			0.11	*11*							**0.04**	***4***
Leucocrinum montanum			0.02	*6*							**0.01**	***2***
Liatris punctata	0.08	*27*	0.16	*39*	0.27	*60*					**0.14**	***35***
Linum lewisii	0.14	*45*	0.07	*22*	0.10	*33*	0.23	*75*	0.09	*29*	**0.10**	***35***
Lithospermum incisum					0.02	*7*					**0.01**	***2***
Lomatium foeniculaceum							0.08	*25*			**0.01**	***2***
Lygodesmia juncea			0.02	*6*	0.02	*7*					**0.01**	***4***
Machaeranthera grindelioides	0.09	*9*	0.29	*39*	0.12	*40*	0.33	*50*	0.13	*43*	**0.19**	***35***
Microseris nutans			0.02	*6*							**0.01**	***2***
Mirabilis linearis					0.04	*13*					**0.01**	***4***
Musineon divaricatum	0.05	*18*			0.06	*20*	0.15	*50*			**0.04**	***13***
Oenothera caespitosa									0.04	*14*	**0.01**	***2***
Opuntia polyacantha	0.03	*9*					0.08	*25*			**0.01**	***4***
Orobanche fasciculata									0.04	*14*	**0.01**	***2***
Oxytropis besseyi			0.02	*6*							**0.01**	***2***
Oxytropis lambertii	0.29	*45*	0.12	*28*	0.27	*20*	0.25	*25*			**0.19**	***25***
Oxytropis sericea	0.05	*18*			0.02	*7*			0.09	*29*	**0.03**	***9***
Penstemon albidus					0.04	*13*			0.04	*14*	**0.02**	***5***
Penstemon eriantherus			0.05	*17*					0.19	*29*	**0.04**	***9***
Penstemon nitidus	0.05	*18*	0.08	*28*	0.04	*13*	0.08	*25*			**0.05**	***18***
Phlox alyssifolia			0.06	*6*	0.07	*7*	0.08	*25*			**0.04**	***5***
Phlox hoodii	0.15	*27*	0.27	*33*	0.24	*27*	1.25	*75*			**0.27**	***29***
Physaria didymocarpa			0.02	*6*							**0.01**	***2***
Polygala alba	0.38	*64*	0.19	*50*	0.34	*60*	0.23	*75*	0.09	*29*	**0.26**	***55***
Psoralea argophylla	1.03	*45*	0.14	*17*	0.84	*53*	2.58	*75*			**0.67**	***35***
Psoralea esculenta	0.05	*18*	0.11	*22*	0.15	*33*	0.23	*75*			**0.10**	***25***
Psoralea hypogaea			0.02	*6*							**0.01**	***2***
Ratibida columnifera	0.03	*9*	0.02	*6*	0.04	*13*			0.04	*14*	**0.03**	***9***
Senecio canus	0.08	*27*	0.16	*39*	0.08	*27*	0.08	*25*			**0.09**	***27***

Table 7
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Five CONIFER-DOMINATED BREAKS Community Types, Otter Creek Baseline Study Area, 2011-2012.

	JUN SCO /AGR SPI BREAKS		*PIN PON-JUN SCO/ AGR SPI* BREAKS		*PIN PON-JUN SCO/ AND SCO* BREAKS		*PIN PON-JUN SCO/ ART TRI* BREAKS		*PIN PON-JUN SCO/ ART TRI-ATR CON* BREAKS		*CONIFER-DOMINATED BREAKS COMPOSITE*	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=11		**n=18**		**n=15**		**n=4**		**n=7**		**n=55**	
Sisyrinchium angustifolium	0.05	*18*									**0.01**	***4***
Smilacina stellata	0.09	*9*									**0.02**	***2***
Solidago missouriensis	0.11	*36*	0.38	*50*	0.31	*27*			0.04	*14*	**0.24**	***33***
Solidago nemoralis	0.51	*36*	0.26	*22*					0.09	*29*	**0.20**	***18***
Solidago rigida	0.63	*55*	0.11	*6*	0.02	*7*					**0.17**	***15***
Sphaeralcea coccinea	0.05	*18*	0.03	*11*	0.06	*20*			0.47	*43*	**0.10**	***18***
Stephanomeria runcinata	0.03	*9*	0.16	*39*	0.13	*27*	0.08	*25*			**0.10**	***24***
Thermopsis rhombifolia	0.73	*27*	0.67	*11*	0.07	*7*	0.25	*25*			**0.40**	***13***
Toxicodendron rydbergii	0.09	*9*			0.02	*7*					**0.02**	***4***
Vicia americana	0.05	*18*	0.22	*33*	0.37	*27*	0.15	*50*	0.13	*43*	**0.21**	***31***
Viola nuttallii					0.02	*7*					**0.01**	***2***
Yucca glauca	0.17	*36*	1.91	*56*	2.57	*80*	0.83	*50*	0.23	*43*	**1.45**	***56***
Zigadenus venenosus	0.14	*45*	0.02	*6*	0.06	*20*	0.08	*25*	0.04	*14*	**0.06**	***20***
TOTAL NPF AND SUBSHRUBS	**12.87**	***100***	**14.52**	***100***	**15.43**	***100***	**20.05**	***100***	**7.61**	***100***	**13.96**	***100***
INTRODUCED PERENNIAL FORBS												
Asparagus officinalis			0.02	*6*							**0.01**	***2***
Medicago sativa	0.39	*18*	0.06	*6*	0.20	*7*	0.50	*25*			**0.19**	***9***
Taraxacum laevigatum	0.14	*45*	0.08	*28*	0.18	*60*	0.08	*25*	0.13	*43*	**0.13**	***42***
Taraxacum officinale	0.03	*9*									**0.01**	***2***
TOTAL IPF	**0.55**	***64***	**0.16**	***33***	**0.38**	***60***	**0.58**	***50***	**0.13**	***43***	**0.32**	***49***
FERNS AND ALLIES												
Cystopteris fragilis	0.03	*9*									**0.01**	***2***
TOTAL F&A	**0.03**	***9***	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.01**	***2***
NATIVE ANNUAL/BIENNIAL FORBS												
Arabis hirsuta	0.03	*9*									**0.01**	***2***
Arabis holboellii	0.03	*9*	0.03	*11*							**0.02**	***5***
Chenopodium fremontii	0.03	*9*									**0.01**	***2***
Chenopodium leptophyllum			0.02	*6*	0.02	*7*					**0.01**	***4***
Collinsia parviflora	0.03	*9*									**0.01**	***2***
Conyza canadensis					0.02	*7*					**0.01**	***2***
Cryptantha celosioides	0.05	*18*	0.10	*33*	0.06	*20*	0.15	*50*	0.09	*29*	**0.08**	***27***
Descurainia pinnata	0.03	*9*							0.09	*29*	**0.02**	***5***
Descurainia richardsonii	0.03	*9*	0.03	*11*	0.02	*7*					**0.02**	***7***
Draba reptans	0.05	*18*	0.02	*6*	0.04	*13*			0.04	*14*	**0.03**	***11***
Eriogonum cernuum	0.03	*9*									**0.01**	***2***
Euphorbia glyptosperma			0.02	*6*							**0.01**	***2***

Table 7
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Five CONIFER-DOMINATED BREAKS Community Types, Otter Creek Baseline Study Area, 2011-2012.

	JUN SCO /AGR SPI BREAKS		*PIN PON-JUN SCO/ AGR SPI* BREAKS		*PIN PON-JUN SCO/ AND SCO* BREAKS		*PIN PON-JUN SCO/ ART TRI* BREAKS		*PIN PON-JUN SCO/ ART TRI-ATR CON* BREAKS		*CONIFER-DOMINATED BREAKS COMPOSITE*	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=11		**n=18**		**n=15**		**n=4**		**n=7**		**n=55**	
Euphorbia spathulata					0.02	*7*					**0.01**	***2***
Grindelia squarrosa					0.02	*7*	0.50	*25*			**0.04**	***4***
Hedeoma hispidum			0.02	*6*					0.04	*14*	**0.01**	***4***
Lappula redowskii			0.03	*11*					0.04	*14*	**0.02**	***5***
Linum rigidum			0.02	*6*	0.02	*7*	0.08	*25*			**0.02**	***5***
Machaeranthera canescens									0.04	*14*	**0.01**	***2***
Orthocarpus luteus	0.03	*9*			0.02	*7*					**0.01**	***4***
Phacelia linearis			0.02	*6*							**0.01**	***2***
Plantago patagonica	0.03	*9*			0.04	*13*	0.08	*25*			**0.02**	***7***
Silene antirrhina			0.02	*6*	0.06	*20*					**0.02**	***7***
TOTAL NAF	**0.35**	***64***	**0.32**	***50***	**0.34**	***67***	**0.80**	***100***	**0.34**	***71***	**0.37**	***64***
INTRODUCED ANNUAL/BIENNIAL FORBS												
Alyssum alyssoides	0.05	*18*			0.04	*13*	0.08	*25*			**0.03**	***9***
Alyssum desertorum	0.11	*36*	0.08	*28*	0.08	*27*	0.08	*25*			**0.08**	***25***
Camelina microcarpa	0.03	*9*	0.02	*6*	0.02	*7*	0.08	*25*			**0.02**	***7***
Draba nemorosa	0.03	*9*	0.02	*6*	0.04	*13*	0.08	*25*			**0.03**	***9***
Filago arvensis					0.06	*20*					**0.02**	***5***
Lactuca serriola	0.05	*18*	0.10	*33*	0.18	*60*	0.23	*75*	0.09	*29*	**0.12**	***40***
Melilotus alba			0.07	*11*							**0.02**	***4***
Melilotus officinalis	2.33	*82*	5.46	*33*	5.06	*67*	2.00	*50*	0.09	*29*	**3.79**	***53***
Sisymbrium loeselii			0.02	*6*							**0.01**	***2***
Tragopogon dubius	0.05	*18*	0.08	*28*	0.22	*73*	0.30	*100*	0.26	*86*	**0.15**	***51***
TOTAL IAF	**2.65**	***100***	**5.85**	***83***	**5.70**	***100***	**2.83**	***100***	**0.43**	***100***	**4.26**	***95***
SHRUBS												
Artemisia cana			0.02	*6*	0.47	*7*					**0.13**	***4***
Artemisia tridentata	1.39	*45*	**0.53**	***33***	0.44	*40*	9.75	*100*	16.71	*100*	**3.41**	***51***
Atriplex confertifolia									9.00	*86*	**1.15**	***11***
Atriplex nuttallii							0.25	*25*			**0.02**	***2***
Calylophus serrulatus					0.20	*13*					**0.05**	***4***
Ceratoides lanata					0.20	*7*	0.33	*50*	0.43	*14*	**0.13**	***7***
Chrysothamnus nauseosus	0.30	*18*	0.87	*44*	0.91	*40*	4.25	*75*	1.14	*43*	**1.05**	***40***
Juniperus horizontalis			1.94	*6*							**0.64**	***2***
Rhus aromatica	0.17	*36*	0.93	*67*	0.90	*67*			0.47	*43*	**0.65**	***53***
Ribes aureum	0.09	*9*									**0.02**	***2***
Ribes cereum	0.03	*9*	0.02	*6*							**0.01**	***4***
Rosa arkansana	0.08	*27*	0.07	*22*	0.04	*13*	0.50	*25*			**0.09**	***18***

Table 7
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Five CONIFER-DOMINATED BREAKS Community Types, Otter Creek Baseline Study Area, 2011-2012.

	JUN SCO /AGR SPI BREAKS		*PIN PON-JUN SCO/ AGR SPI* BREAKS		*PIN PON-JUN SCO/ AND SCO* BREAKS		*PIN PON-JUN SCO/ ART TRI* BREAKS		*PIN PON-JUN SCO/ ART TRI-ATR CON* BREAKS		*CONIFER-DOMINATED BREAKS COMPOSITE*	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=11		**n=18**		**n=15**		**n=4**		**n=7**		**n=55**	
Rosa woodsii							0.08	*25*	0.29	*14*	**0.04**	***4***
Sarcobatus vermiculatus									1.00	*29*	**0.13**	***4***
Shepherdia argentea			0.06	*6*							**0.02**	***2***
Symphoricarpos occidentalis	0.09	*9*							0.57	*14*	**0.09**	***4***
Symphoricarpos oreophilus							1.00	*25*			**0.07**	***2***
TOTAL SHRUBS	**2.15**	***73***	**4.43**	***94***	**3.15**	***93***	**16.15**	***100***	**29.61**	***100***	**7.69**	***91***
TREES 0.01-acre												
Juniperus scopulorum	37.27	*100*	2.52	*61*	8.82	*80*	5.00	*75*	4.00	*57*	**11.56**	***75***
Pinus ponderosa	0.48	*27*	11.39	*89*	9.47	*73*	4.75	*75*			**6.75**	***60***
TOTAL TREES 0.01-acre	**37.75**	***100***	**13.91**	***94***	**18.29**	***87***	**9.75**	***100***	**4.00**	***57***	**18.31**	***89***
TREES 0.1-acre												
Juniperus scopulorum	39.55	*100*	7.07	*100*	7.49	*100*	5.75	*100*	9.29	*100*	**13.87**	***100***
Pinus ponderosa	0.85	*55*	10.11	*100*	9.60	*100*	4.25	*75*	2.66	*71*	**6.74**	***85***
TOTAL TREES 0.1-acre	**40.39**	***100***	**17.18**	***100***	**17.09**	***100***	**10.00**	***100***	**11.94**	***100***	**20.61**	***100***
TOTAL VEGETATION (Stratified)	**73.15**	***100***	**54.89**	***100***	**74.09**	***100***	**82.38**	***100***	**65.43**	***100***	**67.12**	***100***

Table 8

Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Four FOREST AND SAVANNAH/ GRASS and Two FOREST AND SAVANNAH/SHRUB Community Types, Otter Creek Baseline Study Area, 2011-2012.

	PIN PON-JUN SCO/ AGR SPI		*JUN SCO-PIN PON/ ORY MIC*		*PIN PON-JUN SCO/ FES IDA*		*PIN PON-JUN SCO/ AND SCO*		***FOREST AND SAVANNAH/GRASS COMPOSITE***		DRAINAGE *JUN SCO-PIN PON/ SYM OCC-AGR SMI*		*PIN PON-JUN SCO/ PRU VIR*		***FOREST AND SAVANNAH/SHRUB COMPOSITE***	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	**Con-stancy**	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=93		**n=2**		**n=2**		**n=30**		**n=127**		**n=11**		**n=2**		**n=13**	
GROUND COVER																
Bare Ground	20.19	*97*	0.30	*100*	14.00	*100*	24.27	*100*	**20.74**	***98***	27.85	*100*	2.00	*50*	**23.87**	***92***
Rock	8.61	*91*	3.00	*100*	2.50	*100*	8.53	*90*	**8.41**	***91***	1.66	*55*			**1.41**	***46***
Litter	61.30	*100*	61.50	*100*	54.50	*100*	55.93	*100*	**59.93**	***100***	60.73	*100*	92.00	*100*	**65.54**	***100***
Lichens	2.12	*88*	0.30	*100*	15.00	*100*	3.97	*93*	**2.73**	***90***	1.30	*55*			**1.10**	***46***
Moss	4.50	*86*	31.00	*100*	9.00	*100*	3.43	*73*	**4.74**	***83***	2.99	*82*	0.30	*100*	**2.58**	***85***
Basal Vegetation	3.34	*100*	4.00	*100*	5.00	*100*	3.97	*100*	**3.53**	***100***	5.45	*100*	6.00	*100*	**5.54**	***100***
VEGETATION STRUCTURE (nonstratified cover)																
Total Vegetation	68.95	*100*	93.00	*100*	85.00	*100*	70.57	*100*	**69.97**	***100***	86.73	*100*	94.50	*100*	**87.93**	***100***
Perennial Graminoids	19.42	*100*	14.50	*100*	35.00	*100*	36.60	*100*	**23.65**	***100***	37.36	*100*	56.50	*100*	**40.31**	***100***
Annual Graminoids	0.75	*47*			0.15	*50*	1.24	*50*	**0.84**	***47***	0.26	*45*			**0.22**	***38***
Perennial Forbs and Subshrubs	12.20	*100*	7.50	*100*	15.00	*100*	14.67	*100*	**12.75**	***100***	16.82	*100*	40.00	*100*	**20.39**	***100***
Annual/Biennial Forbs	3.09	*80*	0.15	*50*	0.65	*100*	2.34	*90*	**2.83**	***82***	8.33	*100*	19.50	*100*	**10.05**	***100***
Shrubs	2.89	*80*	0.65	*100*	1.15	*100*	2.15	*73*	**2.65**	***79***	13.55	*91*	42.00	*100*	**17.92**	***92***
Trees 0.01-acre	49.04	*100*	87.50	*100*	54.00	*100*	31.40	*97*	**45.56**	***99***	50.73	*100*	37.00	*100*	**48.62**	***100***
Trees 0.1-acre	47.32	*100*	81.50	*100*	44.00	*100*	35.27	*100*	**44.96**	***100***	42.55	*100*	36.00	*100*	**41.54**	***100***
CLASS\SPECIES NATIVE PERENNIAL GRAMINOIDS (Cool Season)																
Agropyron smithii	1.28	*32*					1.13	*40*	**1.20**	***33***	17.73	*100*	23.00	*100*	**18.54**	***100***
Agropyron spicatum	8.40	*100*	1.15	*100*	2.50	*100*	2.52	*83*	**6.80**	***96***	0.30	*18*	0.50	*50*	**0.33**	***23***
Agropyron trachycaulum	0.02	*2*							**0.02**	***2***	1.36	*9*	10.00	*50*	**2.69**	***15***
Aristida longiseta	0.21	*8*					0.77	*37*	**0.33**	***14***						
Carex filifolia	0.93	*48*					2.97	*57*	**1.38**	***49***						
Carex heliophila	0.33	*11*					0.21	*17*	**0.29**	***12***						
Carex rossii	0.30	*38*	0.30	*100*	0.50	*50*	0.20	*20*	**0.28**	***35***	0.05	*18*			**0.05**	***15***
Carex stenophylla	0.003	*1*					0.07	*3*	**0.02**	***2***						
Elymus canadensis											0.21	*18*	3.50	*100*	**0.72**	***31***
Festuca idahoensis	0.01	*1*			20.00	*100*			**0.32**	***2***						
Koeleria cristata	0.78	*54*			0.30	*100*	1.17	*67*	**0.85**	***57***	0.75	*45*			**0.64**	***38***
Oryzopsis hymenoides	0.01	*1*							**0.01**	***1***						
Oryzopsis micrantha	0.003	*1*	12.50	*100*			0.23	*3*	**0.25**	***3***	0.18	*9*			**0.15**	***8***
Poa juncifolia	0.003	*1*							**0.002**	***1***						

Table 8

Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Four FOREST AND SAVANNAH/ GRASS and Two FOREST AND SAVANNAH/SHRUB Community Types, Otter Creek Baseline Study Area, 2011-2012.

	PIN PON-JUN SCO/ AGR SPI		*JUN SCO-PIN PON/ ORY MIC*		*PIN PON-JUN SCO/ FES IDA*		*PIN PON-JUN SCO/ AND SCO*		*FOREST AND SAVANNAH/GRASS COMPOSITE*		DRAINAGE *JUN SCO-PIN PON/ SYM OCC-AGR SMI*		*PIN PON-JUN SCO/ PRU VIR*		*FOREST AND SAVANNAH/SHRUB COMPOSITE*	
	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	Con-stancy	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*
	n=93		n=2		n=2		n=30		n=127		n=11		n=2		n=13	
Poa sandbergii	0.07	*11*	0.15	*50*			0.25	*20*	**0.12**	***13***						
Poa scabrella	0.06	*6*					0.10	*7*	**0.06**	***6***						
Stipa comata	0.76	*20*			4.00	*50*	1.90	*43*	**1.07**	***26***	1.27	*18*			**1.08**	***15***
Stipa occidentalis							0.03	*3*	**0.01**	***1***						
Stipa viridula	1.24	*25*	1.00	*50*	6.00	*50*	1.47	*30*	**1.37**	***27***	7.66	*100*	12.00	*100*	**8.33**	***100***
TOTAL NPG(C)	**14.41**	***100***	**15.10**	***100***	**33.30**	***100***	**13.03**	***100***	**14.39**	***100***	**29.53**	***100***	**49.00**	***100***	**32.52**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																
Andropogon gerardii	0.23	*4*					0.40	*10*	**0.26**	***6***						
Andropogon scoparius	1.57	*53*			0.15	*50*	14.50	*100*	**4.58**	***63***	0.57	*36*	1.50	*50*	**0.72**	***38***
Bouteloua curtipendula	2.93	*53*			5.00	*50*	7.78	*93*	**4.06**	***61***	1.45	*27*	2.00	*50*	**1.54**	***31***
Bouteloua gracilis	0.58	*14*					1.91	*37*	**0.87**	***19***	0.18	*9*			**0.15**	***8***
Buchloe dactyloides							0.01	*3*	**0.002**	***1***						
Calamovilfa longifolia	0.55	*23*					0.92	*37*	**0.62**	***25***	1.18	*45*			**1.00**	***38***
Muhlenbergia cuspidata	0.16	*9*					0.69	*27*	**0.28**	***13***			0.15	*50*	**0.02**	***8***
TOTAL NPG(W)	**6.02**	***75***	**0.00**	***0***	**5.15**	***50***	**26.20**	***100***	**10.68**	***80***	**3.39**	***45***	**3.65**	***50***	**3.43**	***46***
INTRODUCED PERENNIAL GRAMINOIDS																
Agropyron cristatum	0.05	*3*							**0.04**	***2***						
Bromus inermis							0.01	*3*	**0.002**	***1***						
Poa compressa											0.91	*27*			**0.77**	***23***
Poa pratensis	0.68	*12*	0.50	*50*			1.10	*20*	**0.77**	***14***	7.27	*91*	14.00	*50*	**8.31**	***85***
TOTAL IPG	**0.73**	***15***	**0.50**	***50***	**0.00**	***0***	**1.11**	***23***	**0.80**	***17***	**8.18**	***91***	**14.00**	***50***	**9.08**	***85***
NATIVE ANNUAL GRAMINOIDS																
TOTAL NAG	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS																
Bromus japonicus	0.65	*47*			0.15	*50*	1.18	*50*	**0.76**	***47***	0.20	*45*			**0.17**	***38***
Bromus tectorum	0.15	*8*					0.08	*7*	**0.13**	***7***	0.09	*9*			**0.08**	***8***
TOTAL IAG	**0.80**	***47***	**0.00**	***0***	**0.15**	***50***	**1.25**	***50***	**0.89**	***47***	**0.29**	***45***	**0.00**	***0***	**0.25**	***38***

Table 8

Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Four FOREST AND SAVANNAH/ GRASS and Two FOREST AND SAVANNAH/SHRUB Community Types, Otter Creek Baseline Study Area, 2011-2012.

	PIN PON-JUN SCO/ AGR SPI		JUN SCO-PIN PON/ ORY MIC		PIN PON-JUN SCO/ FES IDA		PIN PON-JUN SCO/ AND SCO		FOREST AND SAVANNAH/GRASS COMPOSITE		DRAINAGE JUN SCO-PIN PON/ SYM OCC-AGR SMI		PIN PON-JUN SCO/ PRU VIR		FOREST AND SAVANNAH/SHRUB COMPOSITE	
	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy
	n=93		n=2		n=2		n=30		n=127		n=11		n=2		n=13	
NATIVE PERENNIAL FORBS AND SUBSHRUBS																
Achillea millefolium	0.38	78	1.15	100	0.65	100	0.40	77	0.40	79	0.77	91	0.30	100	0.70	92
Agoseris glauca	0.01	2							0.005	2	0.03	9			0.02	8
Allium textile	0.08	26			0.15	50	0.04	13	0.07	23						
Ambrosia psilostachya	0.02	3					0.06	13	0.03	6	0.21	27			0.18	23
Anemone multifida	0.02	6	0.15	50			0.01	3	0.02	6	0.05	18			0.05	15
Anemone patens	0.003	1							0.002	1						
Antennaria dimorpha	0.003	1					0.07	7	0.02	2						
Antennaria howellii (neglecta)	0.25	35			0.15	50	0.64	43	0.33	37	0.30	36			0.25	31
Antennaria microphylla	0.12	20					0.14	20	0.12	20	0.09	9			0.08	8
Antennaria parvifolia	0.14	35	0.30	100	0.30	100	0.36	57	0.19	43	0.08	27			0.07	23
Apocynum androsaemifolium	0.01	1					0.40	3	0.10	2						
Apocynum cannabinum													1.00	50	0.15	8
Arnica sororia	0.01	1					0.01	3	0.01	2						
Artemisia campestris	0.02	5					0.05	10	0.03	6	0.03	9			0.02	8
Artemisia dracunculus							0.07	3	0.02	1						
Artemisia frigida	0.30	47			0.15	50	0.20	37	0.27	44	0.11	36			0.09	31
Artemisia ludoviciana	0.47	22					1.31	50	0.65	28	3.42	91	6.00	100	3.82	92
Asclepias verticillata							0.01	3	0.002	1						
Asclepias viridiflora	0.003	1							0.002	1	0.05	18			0.05	15
Aster falcatus	0.26	32					0.41	60	0.29	38	0.87	73	2.00	50	1.05	69
Aster laevis	0.37	33					0.13	27	0.30	31	0.54	45	1.00	50	0.61	46
Aster oblongifolius	0.14	25			0.15	50	0.32	57	0.18	32	0.33	36	0.50	50	0.35	38
Aster pansus	0.003	1							0.002	1	0.15	27			0.12	23
Astragalus adsurgens	0.83	52	0.15	50			0.38	37	0.70	47	0.08	27			0.07	23
Astragalus agrestis	0.54	18			0.15	50	0.63	40	0.54	24	0.50	73			0.42	62
Astragalus crassicarpus	0.02	5							0.01	4	0.03	9			0.02	8
Astragalus drummondii	0.21	17					0.09	13	0.18	16						
Astragalus flexuosus	0.06	10					0.05	10	0.06	9						
Astragalus gilviflorus	0.10	12					0.03	10	0.08	11						
Astragalus hyalinus	0.003	1					0.01	3	0.005	2						
Astragalus lotiflorus							0.01	3	0.002	1						
Astragalus missouriensis	0.06	20					0.13	37	0.08	24	0.03	9			0.02	8
Astragalus plattensis	0.01	2							0.00	2						
Astragalus purshii	0.05	15					0.01	3	0.04	12						
Astragalus spatulatus	0.003	1					0.02	7	0.01	2						
Astragalus tenellus	0.05	5					0.01	3	0.04	5						

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Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Four FOREST AND SAVANNAH/ GRASS and Two FOREST AND SAVANNAH/SHRUB Community Types, Otter Creek Baseline Study Area, 2011-2012.

	PIN PON-JUN SCO/ AGR SPI		JUN SCO-PIN PON/ ORY MIC		PIN PON-JUN SCO/ FES IDA		PIN PON-JUN SCO/ AND SCO		FOREST AND SAVANNAH/GRASS COMPOSITE		DRAINAGE JUN SCO-PIN PON/ SYM OCC-AGR SMI		PIN PON-JUN SCO/ PRU VIR		FOREST AND SAVANNAH/SHRUB COMPOSITE	
	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy
	n=93		n=2		n=2		n=30		n=127		n=11		n=2		n=13	
Balsamorhiza sagittata	0.21	9					0.47	10	0.26	9	0.55	9			0.46	8
Berberis repens	0.06	4	1.00	50			0.13	3	0.09	5			1.00	50	0.15	8
Besseya wyomingensis	0.26	42	0.15	50	0.50	50	0.15	43	0.23	43	0.51	45			0.43	38
Calochortus nuttallii	0.01	3							0.01	2	0.03	9			0.02	8
Campanula rotundifolia	0.19	54	0.50	50	0.15	50	0.08	27	0.17	47	0.08	27			0.07	23
Castilleja sessiliflora	0.02	5					0.06	20	0.03	9						
Cerastium arvense	1.10	67	0.65	100	2.00	100	0.98	47	1.08	63	0.47	45			0.40	38
Chrysopsis villosa	0.07	13					0.02	7	0.06	11	0.03	9			0.02	8
Cirsium undulatum	0.08	20					0.11	30	0.09	22	0.08	27			0.07	23
Comandra umbellata	0.10	32					0.07	23	0.09	29	0.08	27			0.07	23
Crepis acuminata	0.20	34			0.15	50	0.17	50	0.19	38	0.09	9			0.08	8
Crepis intermedia	0.03	3							0.02	2						
Crepis occidentalis	0.02	6					0.02	7	0.02	6						
Cryptantha spiculifera (interrupta)	0.003	1							0.002	1						
Dalea candida	0.21	28					0.16	33	0.19	28			0.50	50	0.08	8
Dalea purpurea	0.13	29					0.15	43	0.13	31	0.03	9	0.50	50	0.10	15
Dodecatheon conjugens							0.01	3	0.002	1						
Echinacea angustifolia	0.34	39					0.52	60	0.37	43	0.08	27	0.15	50	0.09	31
Erigeron pumilus var. pumilus							0.01	3	0.002	1						
Eriogonum flavum	0.02	5							0.01	4						
Eriogonum pauciflorum	0.03	10					0.02	7	0.03	9						
Euphorbia robusta	0.01	2							0.005	2						
Evolvulus nuttallianus	0.003	1					0.02	7	0.01	2						
Fragaria virginiana	0.01	3					0.03	3	0.01	3	0.09	9			0.08	8
Fritillaria atropurpurea	0.003	1							0.002	1	0.03	9			0.02	8
Gaillardia aristata	0.01	2			0.15	50			0.01	2						
Gaura coccinea	0.11	29					0.14	47	0.12	32	0.08	27	0.15	50	0.09	31
Geum triflorum	0.26	42	0.15	50	0.15	50	0.20	33	0.24	40	0.47	45			0.40	38
Gilia congesta var. pseudotypica	0.01	4					0.02	7	0.01	5						
Glycyrrhiza lepidota	0.01	2							0.005	2	0.03	9			0.02	8
Gutierrezia sarothrae	0.62	45	0.15	50	2.00	50	0.71	53	0.65	47						
Hedeoma drummondii	0.02	8	0.15	50			0.01	3	0.02	7						
Hedysarum boreale	0.35	3					0.08	7	0.27	4						
Helianthus maximilianii	0.003	1							0.002	1						
Helianthus rigidus	0.01	2					0.04	7	0.02	3	0.27	9			0.23	8
Heuchera richardsonii	0.01	2							0.005	2	0.03	9			0.02	8
Hymenopappus filifolius	0.04	12					0.07	17	0.04	13						

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Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Four FOREST AND SAVANNAH/ GRASS and Two FOREST AND SAVANNAH/SHRUB Community Types, Otter Creek Baseline Study Area, 2011-2012.

	PIN PON-JUN SCO/ AGR SPI		JUN SCO-PIN PON/ ORY MIC		PIN PON-JUN SCO/ FES IDA		PIN PON-JUN SCO/ AND SCO		FOREST AND SAVANNAH/GRASS COMPOSITE		DRAINAGE JUN SCO-PIN PON/ SYM OCC-AGR SMI		PIN PON-JUN SCO/ PRU VIR		FOREST AND SAVANNAH/SHRUB COMPOSITE	
	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy
	n=93		n=2		n=2		n=30		n=127		n=11		n=2		n=13	
Iva axillaris	0.01	1							0.01	1						
Kuhnia eupatorioides	0.01	1					0.06	13	0.02	4	0.03	9			0.02	8
Lactuca oblongifolia	0.03	3							0.02	2	0.17	36			0.15	31
Lesquerella alpina	0.03	9					0.02	7	0.03	8						
Leucocrinum montanum	0.01	4					0.02	7	0.01	5						
Liatris punctata	0.05	16					0.06	20	0.05	17						
Linum lewisii	0.17	49	0.15	50	0.15	50	0.12	40	0.16	47	0.11	36	0.15	50	0.12	38
Lithospermum incisum	0.01	4					0.01	3	0.01	4						
Lomatium foeniculaceum	0.01	4			0.15	50	0.02	7	0.02	6			0.15	50	0.02	8
Lomatium orientale	0.01	3					0.01	3	0.01	3						
Lupinus argenteus	0.07	4					0.11	7	0.08	5						
Lychnis drummondii							0.01	3	0.002	1						
Lygodesmia juncea	0.01	3							0.01	2						
Machaeranthera grindelioides	0.01	3							0.01	2						
Mertensia lanceolata	0.003	1							0.002	1	0.03	9			0.02	8
Mirabilis linearis	0.01	2							0.005	2						
Monarda fistulosa			0.15	50			0.10	3	0.03	2	0.09	9	5.00	100	0.85	23
Musineon divaricatum	0.07	24			0.15	50	0.08	27	0.07	24						
Opuntia polyacantha	0.01	3							0.01	2	0.05	18			0.05	15
Oxytropis lambertii	0.12	20					0.38	40	0.18	24	0.05	18			0.05	15
Oxytropis sericea	0.24	35	0.30	100	0.15	50	0.27	40	0.25	38	0.03	9			0.02	8
Penstemon albidus	0.003	1					0.03	10	0.01	3						
Penstemon nitidus	0.03	9							0.02	6						
Phlox alyssifolia	0.03	4							0.02	3						
Phlox hoodii	0.24	28			0.15	50	0.40	40	0.27	31	0.03	9			0.02	8
Physaria didymocarpa	0.003	1							0.002	1						
Polygala alba	0.25	49			0.15	50	0.26	63	0.25	52	0.08	27			0.07	23
Potentilla pensylvanica							0.01	3	0.002	1						
Psoralea argophylla	0.54	31			8.00	50	1.15	63	0.80	39	0.45	18			0.38	15
Psoralea esculenta	0.12	28					0.29	43	0.16	31	0.09	9	0.50	50	0.15	15
Ratibida columnifera	0.05	13	0.15	50			0.18	43	0.08	20	0.54	64	0.50	50	0.53	62
Senecio canus	0.05	18	0.30	100			0.03	10	0.05	17						
Senecio plattensis	0.003	1							0.002	1						
Sisyrinchium angustifolium	0.01	3	0.15	50	0.15	50	0.05	17	0.02	8	0.05	18	0.15	50	0.07	23
Smilacina stellata	0.10	12	0.15	50			0.08	7	0.09	11	0.14	45	3.50	100	0.65	54
Solidago missouriensis	0.31	38					0.39	33	0.32	35	0.12	18			0.10	15
Solidago mollis	0.01	2					0.03	3	0.02	2						

Table 8

Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Four FOREST AND SAVANNAH/ GRASS and Two FOREST AND SAVANNAH/SHRUB Community Types, Otter Creek Baseline Study Area, 2011-2012.

	PIN PON-JUN SCO/ AGR SPI		*JUN SCO-PIN PON/ ORY MIC*		*PIN PON-JUN SCO/ FES IDA*		*PIN PON-JUN SCO/ AND SCO*		***FOREST AND SAVANNAH/GRASS COMPOSITE***		**DRAINAGE** *JUN SCO-PIN PON/ SYM OCC-AGR SMI*		*PIN PON-JUN SCO/ PRU VIR*		***FOREST AND SAVANNAH/SHRUB COMPOSITE***	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	**Con-stancy**	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=93		**n=2**		**n=2**		**n=30**		**n=127**		**n=11**		**n=2**		**n=13**	
Solidago nemoralis	0.05	*4*							**0.04**	***3***						
Solidago rigida	0.26	*20*					0.30	*33*	**0.27**	***23***	0.81	*55*	1.50	*50*	**0.92**	***54***
Sphaeralcea coccinea	0.04	*9*			0.15	*50*	0.14	*17*	**0.07**	***11***						
Stephanomeria runcinata	0.01	*2*							**0.005**	***2***						
Suaeda moquinii							0.03	*3*	**0.01**	***1***						
Thermopsis rhombifolia	0.29	*11*					0.37	*10*	**0.30**	***10***			0.15	*50*	**0.02**	***8***
Townsendia hookeri							0.01	*3*	**0.002**	***1***						
Toxicodendron rydbergii	0.03	*4*	1.50	*50*			0.03	*3*	**0.05**	***5***	1.27	*18*	21.00	*100*	**4.31**	***31***
Vicia americana	0.11	*27*	0.15	*50*	0.15	*50*	0.06	*20*	**0.10**	***26***	0.38	*45*	0.50	*50*	**0.40**	***46***
Viola nuttallii	0.02	*6*	0.15	*50*			0.01	*3*	**0.02**	***6***						
Yucca glauca	0.24	*11*					0.24	*20*	**0.23**	***13***						
Zigadenus venenosus	0.05	*18*			0.30	*100*	0.16	*53*	**0.08**	***28***	0.08	*27*	0.15	*50*	**0.09**	***31***
TOTAL NPF AND SUBSHRUBS	**12.84**	***100***	**7.65**	***100***	**16.45**	***100***	**16.00**	***100***	**13.56**	***100***	**15.30**	***100***	**46.35**	***100***	**20.08**	***100***
INTRODUCED PERENNIAL FORBS																
Cirsium arvense	0.02	*3*							**0.01**	***2***						
Medicago sativa	0.21	*11*					0.04	*7*	**0.16**	***9***	0.21	*18*			**0.18**	***15***
Taraxacum laevigatum	0.36	*69*	0.65	*100*	0.30	*100*	0.28	*70*	**0.34**	***70***	2.93	*91*			**2.48**	***77***
Taraxacum officinale	0.00	*1*							**0.002**	***1***						
TOTAL IPF	**0.59**	***72***	**0.65**	***100***	**0.30**	***100***	**0.32**	***70***	**0.52**	***72***	**3.14**	***91***	**0.00**	***0***	**2.65**	***77***
FERNS AND ALLIES																
TOTAL F&A	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0**	**0**	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS																
Arabis hirsuta	0.003	*1*			0.15	*50*			**0.005**	***2***						
Arabis holboellii	0.05	*15*					0.02	*7*	**0.04**	***13***						
Chenopodium fremontii							0.01	*3*	**0.002**	***1***						
Collomia linearis	0.01	*4*							**0.01**	***3***						
Conyza canadensis	0.003	*1*							**0.002**	***1***						
Cryptantha celosioides	0.003	*1*					0.03	*10*	**0.01**	***3***						
Cryptantha torreyana	0.003	*1*							**0.002**	***1***						
Descurainia pinnata	0.01	*3*	0.15	*50*			0.01	*3*	**0.01**	***4***						
Descurainia richardsonii	0.01	*3*							**0.01**	***2***						
Draba reptans	0.01	*4*							**0.01**	***3***						
Epilobium paniculatum	0.01	*2*					0.01	*3*	**0.01**	***2***						
Erigeron strigosus							0.01	*3*	**0.002**	***1***						
Erysimum asperum	0.003	*1*					0.03	*10*	**0.01**	***3***						
Grindelia squarrosa	0.003	*1*					0.02	*7*	**0.01**	***2***						

Table 8

Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Four FOREST AND SAVANNAH/ GRASS and Two FOREST AND SAVANNAH/SHRUB Community Types, Otter Creek Baseline Study Area, 2011-2012.

	PIN PON-JUN SCO/ AGR SPI		*JUN SCO-PIN PON/ ORY MIC*		*PIN PON-JUN SCO/ FES IDA*		*PIN PON-JUN SCO/ AND SCO*		*FOREST AND SAVANNAH/GRASS COMPOSITE*		DRAINAGE *JUN SCO-PIN PON/ SYM OCC-AGR SMI*		*PIN PON-JUN SCO/ PRU VIR*		*FOREST AND SAVANNAH/SHRUB COMPOSITE*	
	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	Con-stancy	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*
	n=93		n=2		n=2		n=30		n=127		n=11		n=2		n=13	
Hedeoma hispidum	0.01	*2*							**0.005**	***2***	0.03	*9*			**0.02**	***8***
Iva xanthifolia											0.03	*9*			**0.02**	***8***
Lappula redowskii							0.01	*3*	**0.002**	***1***						
Linum rigidum	0.01	*2*			0.15	*50*	0.01	*3*	**0.01**	***3***	0.03	*9*			**0.02**	***8***
Machaeranthera canescens							0.01	*3*	**0.002**	***1***						
Orthocarpus luteus	0.02	*6*					0.04	*13*	**0.02**	***8***	0.03	*9*			**0.02**	***8***
Parietaria pensylvanica											0.09	*9*			**0.08**	***8***
Phacelia linearis	0.01	*4*					0.01	*3*	**0.01**	***4***						
Plantago patagonica	0.01	*2*			0.15	*50*	0.06	*20*	**0.02**	***7***	0.03	*9*			**0.02**	***8***
Polygonum douglasii	0.003	*1*							**0.002**	***1***						
Silene antirrhina	0.02	*3*							**0.01**	***2***						
Xanthium strumarium											0.03	*9*			**0.02**	***8***
TOTAL NAF	**0.19**	***37***	**0.15**	***50***	**0.45**	***100***	**0.28**	***60***	**0.21**	***43***	**0.25**	***55***	**0.00**	***0***	**0.22**	***46***
INTRODUCED ANNUAL/BIENNIAL FORBS																
Alyssum alyssoides	0.04	*12*					0.03	*10*	**0.03**	***11***	0.05	*18*			**0.05**	***15***
Alyssum desertorum	0.05	*16*					0.03	*10*	**0.04**	***14***						
Camelina microcarpa	0.02	*8*	0.15	*50*			0.07	*23*	**0.04**	***12***	0.03	*9*			**0.02**	***8***
Draba nemorosa	0.003	*1*							**0.002**	***1***						
Filago arvensis	0.02	*6*							**0.01**	***5***						
Lactuca serriola	0.05	*18*					0.03	*10*	**0.05**	***16***	0.08	*27*			**0.07**	***23***
Medicago lupulina	0.14	*3*					0.24	*13*	**0.16**	***6***	2.12	*36*	4.00	*50*	**2.41**	***38***
Melilotus alba	0.09	*2*							**0.07**	***2***			0.50	*50*	**0.08**	***8***
Melilotus officinalis	2.65	*39*					1.82	*50*	**2.37**	***40***	6.15	*82*	17.50	*100*	**7.89**	***85***
Polygonum convolvulus	0.003	*1*							**0.002**	***1***						
Sisymbrium altissimum	0.01	*2*							**0.01**	***2***						
Sisymbrium loeselii	0.02	*3*							**0.02**	***2***	0.03	*9*			**0.02**	***8***
Thlaspi arvense							0.01	*3*	**0.002**	***1***						
Tragopogon dubius	0.12	*41*			0.15	*50*	0.16	*53*	**0.13**	***43***	0.14	*45*	0.15	*50*	**0.14**	***46***
TOTAL IAF	**3.23**	***74***	**0.15**	***50***	**0.15**	***50***	**2.39**	***87***	**2.94**	***76***	**8.59**	***100***	**22.15**	***100***	**10.68**	***100***
SHRUBS																
Artemisia cana	0.49	*13*					0.15	*17*	**0.40**	***13***	0.57	*36*			**0.48**	***31***
Artemisia tridentata	1.21	*35*			1.00	*50*	1.12	*27*	**1.16**	***33***						
Calylophus serrulatus	0.01	*1*					0.01	*3*	**0.01**	***2***						
Ceratoides lanata	0.25	*6*	0.15	*50*			0.01	*3*	**0.19**	***6***						
Chrysothamnus nauseosus	0.09	*11*					0.04	*7*	**0.08**	***9***						
Prunus virginiana	0.05	*4*					0.08	*7*	**0.05**	***5***	0.03	*9*	22.50	*100*	**3.48**	***23***
Rhus aromatica	0.62	*56*	0.30	*100*	0.15	*50*	0.36	*30*	**0.55**	***50***	1.94	*64*	12.00	*100*	**3.48**	***69***

Table 8

Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Four FOREST AND SAVANNAH/ GRASS and Two FOREST AND SAVANNAH/SHRUB Community Types, Otter Creek Baseline Study Area, 2011-2012.

	PIN PON-JUN SCO/ AGR SPI		*JUN SCO-PIN PON/ ORY MIC*		*PIN PON-JUN SCO/ FES IDA*		*PIN PON-JUN SCO/ AND SCO*		***FOREST AND SAVANNAH/GRASS COMPOSITE***		**DRAINAGE** *JUN SCO-PIN PON/ SYM OCC-AGR SMI*		*PIN PON-JUN SCO/ PRU VIR*		***FOREST AND SAVANNAH/SHRUB COMPOSITE***	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	**Con-stancy**	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=93		**n=2**		**n=2**		**n=30**		**n=127**		**n=11**		**n=2**		**n=13**	
Ribes aureum													6.00	*50*	**0.92**	***8***
Ribes cereum	0.02	*1*							**0.02**	***1***						
Ribes setosum													2.00	*50*	**0.31**	***8***
Rosa arkansana	0.09	*13*					0.01	*3*	**0.07**	***10***	0.12	*18*	2.50	*50*	**0.49**	***23***
Rosa woodsii	0.06	*12*					0.21	*10*	**0.09**	***11***	1.30	*64*	3.00	*50*	**1.56**	***62***
Symphoricarpos occidentalis	0.10	*17*			0.15	*50*	0.24	*13*	**0.14**	***17***	10.55	*91*	7.00	*100*	**10.00**	***92***
Symphoricarpos oreophilus	0.06	*6*	0.50	*50*			0.07	*7*	**0.06**	***7***						
TOTAL SHRUBS	**3.05**	***80***	**0.95**	***100***	**1.30**	***100***	**2.30**	***73***	**2.82**	***79***	**14.50**	***91***	**55.00**	***100***	**20.73**	***92***
TREES 0.01-acre																
Fraxinus pennsylvanica							0.07	*3*	**0.02**	***1***	0.03	*9*			**0.02**	***8***
Juniperus scopulorum	24.99	*92*	62.50	*100*	36.00	*100*	17.87	*87*	**24.07**	***91***	41.91	*100*	23.00	*50*	**39.00**	***92***
Pinus ponderosa	29.65	*98*	35.00	*50*	20.00	*100*	15.70	*80*	**26.28**	***93***	10.55	*45*	14.00	*50*	**11.08**	***46***
TOTAL TREES 0.01-acre	**54.64**	***100***	**97.50**	***100***	**56.00**	***100***	**33.63**	***97***	**50.37**	***99***	**52.48**	***100***	**37.00**	***100***	**50.10**	***100***
TREES 0.1-acre																
Fraxinus pennsylvanica			0.15	*50*			0.03	*3*	**0.01**	***2***	0.03	*9*			**0.02**	***8***
Juniperus scopulorum	24.29	*99*	61.00	*100*	22.00	*100*	14.77	*97*	**22.58**	***98***	35.00	*100*	24.00	*100*	**33.31**	***100***
Pinus ponderosa	28.13	*100*	28.00	*100*	25.00	*100*	23.00	*97*	**26.87**	***99***	8.57	*55*	13.00	*50*	**9.25**	***54***
TOTAL TREES 0.1-acre	**52.42**	***100***	**89.15**	***100***	**47.00**	***100***	**37.80**	***100***	**49.46**	***100***	**43.60**	***100***	**37.00**	***100***	**42.58**	***100***
TOTAL VEGETATION (Stratified)	**96.50**	***100***	**122.65**	***100***	**113.25**	***100***	**96.52**	***100***	**97.18**	***100***	**135.65**	***100***	**227.15**	***100***	**149.73**	***100***

Table 9
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Eighteen Mesophytic/Hydrophytic Herbaceous Bottom Community Types, Otter Creek Baseline Study Area, 2011-2012.

	DIS STR/ AGR SMI		*DIS STR/ HOR JUB*		*SPO AIR/ AGR SMI*		*SPO AIR/ DIS STR*		*SPA GRA/ DIS STR*		*SPA PEC/ BRO INE*		*SPA PEC/ POA PRA*		*SPA PEC/ HOR JUB*		*SPA PEC/ PUC NUT*		*SPA PEC/ PAN VIR*	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=1		**n=2**		**n=1**		**n=6**		**n=1**		**n=4**		**n=1**		**n=1**		**n=1**		**n=1**	
GROUND COVER																				
Bare Ground					80						9.00	*100*			28	*100*	62	*100*	18	*100*
Rock																				
Litter					16						61.75	*100*			65	*100*	32	*100*	62	*100*
Lichens																			0.3	*100*
Moss																				
Water											24.00	*100*							13	*100*
Basal Vegetation					4						5.25	*100*			7	*100*	6	*100*	7	*100*
VEGETATION STRUCTURE (nonstratified cover)																				
Total Vegetation	43	*100*	50.50	*100*	72	*100*	47.00	*100*	70	*100*	82.50	*100*	70	*100*	95	*100*	84	*100*	96	*100*
Perennial Graminoids	40	*100*	46.00	*100*	66	*100*	43.50	*100*	68	*100*	72.00	*100*	68	*100*	88	*100*	84	*100*	94	*100*
Annual Graminoids					1	*100*	0.17	*17*											0.3	*100*
Perennial Forbs and Subshrubs	2	*100*	4.00	*100*	5	*100*	3.05	*100*	3	*100*	18.50	*100*	4	*100*	28	*100*			8	*100*
Annual/Biennial Forbs	0.3	*100*	3.00	*100*	6	*100*	0.77	*83*			4.08	*75*					1	*100*	8	*100*
Shrubs	0.3	*100*	1.00	*50*			0.83	*50*			3.75	*50*							8	*100*
Trees 0.01-acre	1	*100*											10	*100*						
Trees 0.1-acre	2	*100*									1.50	*50*	10	*100*					2	*100*
CLASS\SPECIES																				
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																				
XAgrohordeum macounii															1	*100*				
Agropyron smithii	4	*100*	4.00	*50*	60	*100*	2.33	*50*	3	*100*					44	*100*			14	*100*
Agropyron trachycaulum							0.22	*33*												
Carex lanuginosa																				
Carex nebraskensis											0.50	*25*								
Eleocharis palustris															4	*100*	0.3	*100*		
Hordeum caespitosum																				
Hordeum jubatum	2	*100*	11.50	*100*			0.67	*50*			0.33	*50*	3	*100*	28	*100*	3	*100*	4	*100*
Juncus torreyi							0.05	*17*												
Phalaris arundinacea																				
Poa arida					0.3	*100*														
Poa glaucifolia							1.88	*83*	3	*100*										
Poa juncifolia	2	*100*	4.00	*100*																
Puccinellia nuttalliana											0.08	*25*					78	*100*		

Table 9
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Eighteen Mesophytic/Hydrophytic Herbaceous Bottom Community Types, Otter Creek Baseline Study Area, 2011-2012.

	DIS STR/ AGR SMI		*DIS STR/ HOR JUB*		*SPO AIR/ AGR SMI*		*SPO AIR/ DIS STR*		*SPA GRA/ DIS STR*		*SPA PEC/ BRO INE*		*SPA PEC/ POA PRA*		*SPA PEC/ HOR JUB*		*SPA PEC/ PUC NUT*		*SPA PEC/ PAN VIR*	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=1		**n=2**		**n=1**		**n=6**		**n=1**		**n=4**		**n=1**		**n=1**		**n=1**		**n=1**	
Scirpus acutus											0.25	*25*								
Scirpus americanus			6.00	*50*			3.17	*50*			4.75	*75*								
Scirpus maritimus							0.67	*33*			0.75	*25*								
Scirpus validus																				
Stipa viridula					1	*100*														
TOTAL NPG(C)	**8.0**	***100***	**25.50**	***100***	**61.3**	***100***	**8.98**	***100***	**6.0**	***100***	**6.65**	***100***	**3.0**	***100***	**77.0**	***100***	**81.3**	***100***	**18.0**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																				
Calamovilfa longifolia			0.15	*50*																
Distichlis stricta	35	*100*	24.50	*100*			12.00	*100*	5	*100*					1	*100*			1	*100*
Panicum virgatum																			26	*100*
Spartina gracilis									60	*100*										
Spartina pectinata							0.83	*17*			47.50	*100*	40	*100*	16	*100*	9	*100*	48	*100*
Sporobolus airoides					8	*100*	24.17	*100*												
TOTAL NPG(W)	**35.0**	***100***	**24.65**	***100***	**8.0**	***100***	**37.00**	***100***	**65.0**	***100***	**47.50**	***100***	**40.0**	***100***	**17.0**	***100***	**9.0**	***100***	**75.0**	***100***
INTRODUCED PERENNIAL GRAMINOIDS																				
Agropyron cristatum											4.08	*75*			2	*100*				
Agropyron elongatum																				
Agropyron repens											2.75	*50*					1	*100*		
Alopecurus pratensis													6	*100*						
Bromus inermis											28.00	*100*	2	*100*						
Festuca arundinacea																				
Phleum pratense																				
Poa compressa															10	*100*			1	*100*
Poa pratensis			2.00	*50*	2	*100*	0.33	*33*			1.75	*25*	25	*100*	3	*100*			30	*100*
TOTAL IPG	**0.0**	***0***	**2.00**	***50***	**2.0**	***100***	**0.33**	***33***	**0.0**	***0***	**36.58**	***100***	**33.0**	***100***	**15.0**	***100***	**1.0**	***100***	**31.0**	***100***
NATIVE ANNUAL GRAMINOIDS																				
Juncus bufonius																			0.3	*100*
TOTAL NAG	**0.0**	***0***	**0.00**	***0***	**0.0**	***0***	**0.00**	***0***	**0.0**	***0***	**0.00**	***0***	**0.0**	***0***	**0.0**	***0***	**0.0**	***0***	**0.3**	***100***
INTRODUCED ANNUAL GRAMINOIDS																				
Bromus japonicus					1	*100*	0.17	*17*												
Bromus tectorum																				
TOTAL IAG	**0.0**	***0***	**0.00**	***0***	**1.0**	***100***	**0.17**	***17***	**0.0**	***0***	**0.00**	***0***	**0.0**	***0***	**0.0**	***0***	**0.0**	***0***	**0.0**	***0***

Table 9
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Eighteen Mesophytic/Hydrophytic Herbaceous Bottom Community Types, Otter Creek Baseline Study Area, 2011-2012.

	DIS STR/ AGR SMI		*DIS STR/ HOR JUB*		*SPO AIR/ AGR SMI*		*SPO AIR/ DIS STR*		*SPA GRA/ DIS STR*		*SPA PEC/ BRO INE*		*SPA PEC/ POA PRA*		*SPA PEC/ HOR JUB*		*SPA PEC/ PUC NUT*		*SPA PEC/ PAN VIR*	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=1		**n=2**		**n=1**		**n=6**		**n=1**		**n=4**		**n=1**		**n=1**		**n=1**		**n=1**	
NATIVE PERENNIAL FORBS AND SUBSHRUBS																				
Achillea millefolium							0.05	*17*												
Ambrosia psilostachya									3	*100*									0.3	*100*
Apocynum cannabinum											3.00	*25*								
Artemisia ludoviciana											0.25	*25*							3	*100*
Asclepias speciosa											0.75	*25*								
Aster hesperius											1.50	*50*								
Aster pansus			3.00	*50*			1.22	*33*											2	*100*
Cirsium undulatum																			0.3	*100*
Glycyrrhiza lepidota	0.3	*100*					0.83	*33*											0.3	*100*
Gutierrezia sarothrae			1.00	*50*			0.05	*17*												
Helianthus maximilianii	2	*100*					0.38	*33*					1	*100*					2	*100*
Iva axillaris			0.15	*50*																
Lactuca oblongifolia																				
Mentha arvensis													0.3	*100*						
Potamogeton foliosus																				
Potamogeton pectinatus											9.25	*50*								
Ranunculus cymbalaria																				
Ratibida columnifera							0.17	*17*											0.3	*100*
Rumex salicifolius															24	*100*				
Solidago gigantea																				
Solidago rigida																				
Suaeda moquinii							0.17	*17*												
Typha latifolia							0.17	*17*												
TOTAL NPF AND SUBSHRUBS	**2.3**	***100***	**4.15**	***100***	**0.0**	***0***	**3.03**	***100***	**3.0**	***100***	**14.75**	***100***	**1.3**	***100***	**24.0**	***100***	**0.0**	***0***	**8.2**	***100***
INTRODUCED PERENNIAL FORBS																				
Calystegia sepium											2.00	*25*								
Cirsium arvense											1.50	*50*	3	*100*						
Medicago sativa											0.08	*25*								
Rumex crispus											0.08	*25*								
Rumex patienta											0.25	*25*								
Taraxacum laevigatum															2	*100*				
Taraxacum officinale					5	*100*									3	*100*				
TOTAL IPF	**0.0**	***0***	**0.00**	***0***	**5.0**	***100***	**0.00**	***0***	**0.0**	***0***	**3.90**	***75***	**3.0**	***100***	**5.0**	***100***	**0.0**	***0***	**0.0**	***0***

Table 9
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Eighteen Mesophytic/Hydrophytic Herbaceous Bottom Community Types, Otter Creek Baseline Study Area, 2011-2012.

	DIS STR/ AGR SMI		*DIS STR/ HOR JUB*		*SPO AIR/ AGR SMI*		*SPO AIR/ DIS STR*		*SPA GRA/ DIS STR*		*SPA PEC/ BRO INE*		*SPA PEC/ POA PRA*		*SPA PEC/ HOR JUB*		*SPA PEC/ PUC NUT*		*SPA PEC/ PAN VIR*	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=1		**n=2**		**n=1**		**n=6**		**n=1**		**n=4**		**n=1**		**n=1**		**n=1**		**n=1**	
FERNS AND ALLIES																				
Equisetum laevigatum																				
TOTAL F&A	**0.0**	***0***	**0.00**	***0***	**0.0**	***0***	**0.00**	***0***	**0.0**	***0***	**0.00**	***0***	**0.0**	***0***	**0.0**	***0***	**0.0**	***0***	**0.0**	***0***
NATIVE ANNUAL/BIENNIAL FORBS																				
Ambrosia trifida											0.08	*25*								
Artemisia biennis																				
Atriplex suckleyi							0.05	*17*												
Chenopodium rubrum											1.50	*25*								
Euphorbia spathulata																			0.3	*100*
Gaura parviflora																				
Grindelia squarrosa	0.3	*100*	0.50	*50*			0.60	*67*												
Machaeranthera canescens							0.05	*17*												
Orthocarpus luteus																			0.3	*100*
Suaeda depressa																	0.3	*100*		
Xanthium strumarium					0.3	*100*													0.3	*100*
TOTAL NAF	**0.3**	***100***	**0.50**	***50***	**0.3**	***100***	**0.70**	***67***	**0.0**	***0***	**1.58**	***50***	**0.0**	***0***	**0.0**	***0***	**0.3**	***100***	**0.9**	***100***
INTRODUCED ANNUAL/BIENNIAL FORBS																				
Arctium minus																				
Atriplex heterosperma											2.33	*75*					1	*100*		
Camelina microcarpa																				
Chenopodium album																				
Lactuca serriola			0.50	*50*	0.3	*100*	0.05	*17*												
Medicago lupulina																			3	*100*
Melilotus alba																				
Melilotus officinalis			2.00	*50*	6	*100*													4	*100*
Polygonum convolvulus																				
Sisymbrium loeselii											0.08	*25*								
Sonchus asper																				
Thlaspi arvense											0.08	*25*								
TOTAL IAF	**0.0**	***0***	**2.50**	***50***	**6.3**	***100***	**0.05**	***17***	**0.0**	***0***	**2.48**	***75***	**0.0**	***0***	**0.0**	***0***	**1.0**	***100***	**7.0**	***100***

Table 9
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Eighteen Mesophytic/Hydrophytic Herbaceous Bottom Community Types, Otter Creek Baseline Study Area, 2011-2012.

	DIS STR/ AGR SMI		*DIS STR/ HOR JUB*		*SPO AIR/ AGR SMI*		*SPO AIR/ DIS STR*		*SPA GRA/ DIS STR*		*SPA PEC/ BRO INE*		*SPA PEC/ POA PRA*		*SPA PEC/ HOR JUB*		*SPA PEC/ PUC NUT*		*SPA PEC/ PAN VIR*	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=1		**n=2**		**n=1**		**n=6**		**n=1**		**n=4**		**n=1**		**n=1**		**n=1**		**n=1**	
SHRUBS																				
Artemisia cana																			2	*100*
Artemisia tridentata			0.15	*50*			0.33	*17*												
Chrysothamnus nauseosus							0.05	*17*												
Humulus lupulus											0.25	*25*								
Ribes aureum																				
Rosa arkansana	0.3	*100*																		
Rosa woodsii																			3	*100*
Salix exigua																				
Sarcobatus vermiculatus			1.00	*50*			0.50	*33*												
Symphoricarpos occidentalis											3.50	*25*							3	*100*
TOTAL SHRUBS	**0.3**	***100***	**1.15**	***50***	**0.0**	***0***	**0.88**	***50***	**0.0**	***0***	**3.75**	***50***	**0.0**	***0***	**0.0**	***0***	**0.0**	***0***	**8.0**	***100***
TREES 0.01-acre																				
Acer negundo																				
Juniperus scopulorum	1	*100*																		
Populus deltoides													10	*100*						
Salix amygdaloides																				
TOTAL TREES 0.01-acre	**1.0**	***100***	**0.00**	***0***	**0.0**	***0***	**0.00**	***0***	**0.0**	***0***	**0.00**	***0***	**10.0**	***100***	**0.0**	***0***	**0.0**	***0***	**0.0**	***0***
TREES 0.1-acre																				
Acer negundo											1.50	*50*								
Fraxinus pennsylvanica																				
Juniperus scopulorum	2	*100*																	2	*100*
Populus deltoides													10	*100*						
Salix amygdaloides																				
TOTAL TREES 0.1-acre	**2.0**	***100***	**0.00**	***0***	**0.0**	***0***	**0.00**	***0***	**0.0**	***0***	**1.50**	***50***	**10.0**	***100***	**0.0**	***0***	**0.0**	***0***	**2.0**	***100***
TOTAL VEGETATION (Stratified)	**46.9**	***100***	**60.45**	***100***	**83.9**	***100***	**51.15**	***100***	**74.0**	***100***	**117.18**	***100***	**90.3**	***100***	**138.0**	***100***	**92.6**	***100***	**148.4**	***100***

Table 9
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Eighteen Mesophytic/Hydrophytic Herbaceous Bottom Community Types, Otter Creek Baseline Study Area, 2011-2012.

	SPA PEC/ SCI AME		*SCI MAR/ SPO AIR- DIS STR*		*SCI MAR/ SCI AME- ELE PAL*		*ELE PAL/ SCI AME- JUN TOR*		*TYP LAT/ BRO INE*		*TYP LAT/ SPA PEC*		*SCI ACU- SCI VAL/ SPA PEC*		*SCI ACU- SCI VAL/ TYP LAT*		**Mesophytic/ Hydrophytic Herbaceous Bottom COMPOSITE**	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=7		**n=1**		**n=1**		**n=3**		**n=2**		**n=2**		**n=7**		**n=3**		**n=45**	
GROUND COVER																		
Bare Ground			52	*100*			52.67	*100*	7.65	*100*	10.00	*100*	12.66	*100*	0.20	*67*		
Rock																		
Litter			40	*100*			32.67	*100*	61.50	*100*	65.00	*100*	54.86	*100*	26.33	*100*		
Lichens							0.67	*33*										
Moss			0.3	*100*														
Water			2	*100*			7.33	*67*	25.50	*100*	19.15	*100*	26.43	*100*	67.00	*100*		
Basal Vegetation			6	*100*			6.67	*100*	5.50	*100*	6.00	*100*	6.14	*100*	6.67	*100*		
VEGETATION STRUCTURE (nonstratified cover)																		
Total Vegetation	76.71	*100*	88	*100*	77	*100*	81.33	*100*	68.00	*100*	90.00	*100*	89.29	*100*	74.00	*100*	**74.49**	***100***
Perennial Graminoids	70.86	*100*	85	*100*	75	*100*	66.00	*100*	55.00	*100*	49.50	*100*	80.00	*100*	32.00	*100*	**63.73**	***100***
Annual Graminoids			0.3	*100*			3.33	*67*									**0.28**	***13***
Perennial Forbs and Subshrubs	7.04	*100*	3	*100*	2	*100*	21.67	*100*	19.50	*100*	56.50	*100*	8.90	*71*	54.00	*100*	**14.35**	***93***
Annual/Biennial Forbs	1.57	*43*	5	*100*	1	*100*	6.00	*67*	7.00	*100*	2.00	*100*	9.61	*86*	1.00	*33*	**3.68**	***71***
Shrubs	0.57	*43*	1	*100*			8.33	*67*	1.00	*50*	9.50	*50*	10.29	*43*			**3.41**	***42***
Trees 0.01-acre							0.10	*33*					0.43	*14*			**0.32**	***9***
Trees 0.1-acre	0.71	*14*					0.10	*33*	1.50	*50*	3.00	*50*	2.86	*43*	1.33	*67*	**1.30**	***31***
CLASS\SPECIES NATIVE PERENNIAL GRAMINOIDS (Cool Season)																		
XAgrohordeum macounii							0.10	*33*									**0.03**	***4***
Agropyron smithii			0.3	*100*			1.67	*33*									**3.38**	***24***
Agropyron trachycaulum							1.00	*33*									**0.10**	***7***
Carex lanuginosa											2.50	*50*	1.43	*14*			**0.33**	***4***
Carex nebraskensis																	**0.04**	***2***
Eleocharis palustris	1.00	*43*			1	*100*	36.33	*100*							0.10	*33*	**2.70**	***22***
Hordeum caespitosum							1.00	*33*									**0.07**	***2***
Hordeum jubatum	0.76	*43*	7	*100*	0.3	*100*	4.67	*33*					0.04	*14*			**2.12**	***42***
Juncus torreyi							6.00	*33*									**0.41**	***4***
Phalaris arundinacea									0.15	*50*							**0.01**	***2***
Poa arida			5	*100*													**0.12**	***4***
Poa glaucifolia							0.33	*33*									**0.34**	***16***
Poa juncifolia																	**0.22**	***7***
Puccinellia nuttalliana							0.33	*33*									**1.76**	***7***

Table 9

Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Eighteen Mesophytic/Hydrophytic Herbaceous Bottom Community Types, Otter Creek Baseline Study Area, 2011-2012.

	SPA PEC/ SCI AME		*SCI MAR/ SPO AIR- DIS STR*		*SCI MAR/ SCI AME- ELE PAL*		*ELE PAL/ SCI AME- JUN TOR*		*TYP LAT/ BRO INE*		*TYP LAT/ SPA PEC*		*SCI ACU- SCI VAL/ SPA PEC*		*SCI ACU- SCI VAL/ TYP LAT*		**Mesophytic/ Hydrophytic Herbaceous Bottom COMPOSITE**	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=7		**n=1**		**n=1**		**n=3**		**n=2**		**n=2**		**n=7**		**n=3**		**n=45**	
Scirpus acutus	1.00	*29*											36.00	*71*	22.00	*67*	**7.24**	***22***
Scirpus americanus	26.71	*100*					10.67	*67*	0.15	*50*			12.14	*57*	0.10	*33*	**7.88**	***49***
Scirpus maritimus	1.71	*14*	46	*100*	70	*100*							1.43	*14*			**3.22**	***16***
Scirpus validus	0.14	*14*			1	*100*	0.10	*33*					6.29	*29*	8.67	*33*	**1.61**	***13***
Stipa viridula							0.10	*33*									**0.03**	***4***
TOTAL NPG(C)	**31.33**	***100***	**58.3**	***100***	**72.3**	***100***	**62.30**	***100***	**0.30**	***100***	**2.50**	***50***	**57.33**	***100***	**30.87**	***100***	**31.61**	***98***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																		
Calamovilfa longifolia																	**0.01**	***2***
Distichlis stricta			30	*100*													**4.29**	***29***
Panicum virgatum							9.33	*33*									**1.20**	***4***
Spartina gracilis																	**1.33**	***2***
Spartina pectinata	43.71	*100*			4	*100*			2.50	*50*	33.00	*100*	21.71	*100*	1.33	*67*	**18.78**	***64***
Sporobolus airoides			24	*100*													**3.93**	***18***
TOTAL NPG(W)	**43.71**	***100***	**54.0**	***100***	**4.0**	***100***	**9.33**	***33***	**2.50**	***50***	**33.00**	***100***	**21.71**	***100***	**1.33**	***67***	**29.54**	***91***
INTRODUCED PERENNIAL GRAMINOIDS																		
Agropyron cristatum	0.04	*14*							4.00	*50*	1.00	*50*	3.29	*29*			**1.15**	***20***
Agropyron elongatum									13.00	*50*			4.00	*14*			**1.20**	***4***
Agropyron repens	0.14	*14*									1.00	*50*	0.57	*29*			**0.42**	***16***
Alopecurus pratensis																	**0.13**	***2***
Bromus inermis	2.29	*43*			0.3	*100*			37.00	*100*	15.00	*100*	9.57	*43*	0.10	*33*	**6.70**	***38***
Festuca arundinacea									8.00	*50*							**0.36**	***2***
Phleum pratense							0.33	*33*									**0.02**	***2***
Poa compressa																	**0.24**	***4***
Poa pratensis	0.04	*14*					2.33	*67*	4.00	*50*							**1.96**	***27***
TOTAL IPG	**2.51**	***57***	**0.0**	***0***	**0.3**	***100***	**2.67**	***67***	**66.00**	***100***	**17.00**	***100***	**17.43**	***86***	**0.10**	***33***	**12.19**	***67***
NATIVE ANNUAL GRAMINOIDS																		
Juncus bufonius							0.67	*33*									**0.05**	***4***
TOTAL NAG	**0.00**	***0***	**0.0**	***0***	**0.0**	***0***	**0.67**	***33***	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.05**	***4***
INTRODUCED ANNUAL GRAMINOIDS																		
Bromus japonicus			0.3	*100*			1.67	*33*									**0.16**	***9***
Bromus tectorum							1.33	*33*									**0.09**	***2***
TOTAL IAG	**0.00**	***0***	**0.3**	***100***	**0.0**	***0***	**3.00**	***33***	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.25**	***9***

Table 9

Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Eighteen Mesophytic/Hydrophytic Herbaceous Bottom Community Types, Otter Creek Baseline Study Area, 2011-2012.

	SPA PEC/ SCI AME		*SCI MAR/ SPO AIR- DIS STR*		*SCI MAR/ SCI AME- ELE PAL*		*ELE PAL/ SCI AME- JUN TOR*		*TYP LAT/ BRO INE*		*TYP LAT/ SPA PEC*		*SCI ACU- SCI VAL/ SPA PEC*		*SCI ACU- SCI VAL/ TYP LAT*		**Mesophytic/ Hydrophytic Herbaceous Bottom COMPOSITE**	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=7		**n=1**		**n=1**		**n=3**		**n=2**		**n=2**		**n=7**		**n=3**		**n=45**	
NATIVE PERENNIAL FORBS AND SUBSHRU																		
Achillea millefolium			0.3	*100*									0.04	*14*			**0.02**	***7***
Ambrosia psilostachya							0.20	*67*					0.29	*14*			**0.13**	***11***
Apocynum cannabinum							7.33	*33*	0.15	*50*	4.00	*50*					**0.94**	***9***
Artemisia ludoviciana							0.33	*33*									**0.11**	***7***
Asclepias speciosa	0.09	*29*					0.33	*33*	0.15	*50*	0.15	*50*	0.90	*43*			**0.26**	***20***
Aster hesperius	1.00	*29*			2	*100*	0.67	*33*					0.71	*29*			**0.49**	***18***
Aster pansus	0.14	*14*	1	*100*			2.33	*67*									**0.54**	***18***
Cirsium undulatum																	**0.01**	***2***
Glycyrrhiza lepidota							0.67	*33*									**0.17**	***11***
Gutierrezia sarothrae																	**0.05**	***4***
Helianthus maximilianii	0.86	*14*					8.67	*33*									**0.87**	***16***
Iva axillaris			2	*100*													**0.05**	***4***
Lactuca oblongifolia							0.67	*33*			0.15	*50*					**0.05**	***4***
Mentha arvensis	1.00	*29*									0.50	*50*	0.04	*14*			**0.19**	***11***
Potamogeton foliosus							0.10	*33*									**0.01**	***2***
Potamogeton pectinatus													2.14	*29*			**1.16**	***9***
Ranunculus cymbalaria							0.10	*33*									**0.01**	***2***
Ratibida columnifera																	**0.03**	***4***
Rumex salicifolius											0.15	*50*					**0.54**	***4***
Solidago gigantea	0.04	*14*															**0.01**	***2***
Solidago rigida							1.33	*33*									**0.09**	***2***
Suaeda moquinii																	**0.02**	***2***
Typha latifolia	3.57	*43*					1.00	*33*	15.00	*100*	52.00	*100*	2.86	*43*	54.00	*100*	**7.67**	***33***
TOTAL NPF AND SUBSHRUBS	**6.70**	***86***	**3.3**	***100***	**2.0**	***100***	**23.73**	***100***	**15.30**	***100***	**56.95**	***100***	**6.99**	***71***	**54.00**	***100***	**13.40**	***89***
INTRODUCED PERENNIAL FORBS																		
Calystegia sepium																	**0.18**	***2***
Cirsium arvense									3.50	*100*	0.15	*50*	0.57	*29*			**0.45**	***18***
Medicago sativa							0.67	*33*									**0.05**	***4***
Rumex crispus	0.76	*57*			0.3	*100*	0.10	*33*					0.19	*29*	0.10	*33*	**0.17**	***22***
Rumex patienta											0.50	*50*	1.71	*14*			**0.31**	***7***
Taraxacum laevigatum																	**0.04**	***2***
Taraxacum officinale									0.15	*50*							**0.18**	***7***
TOTAL IPF	**0.76**	***57***	**0.0**	***0***	**0.3**	***100***	**0.77**	***67***	**3.65**	***100***	**0.65**	***50***	**2.47**	***43***	**0.10**	***33***	**1.39**	***44***

Table 9

Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Eighteen Mesophytic/Hydrophytic Herbaceous Bottom Community Types, Otter Creek Baseline Study Area, 2011-2012.

	SPA PEC/ SCI AME		*SCI MAR/ SPO AIR- DIS STR*		*SCI MAR/ SCI AME- ELE PAL*		*ELE PAL/ SCI AME- JUN TOR*		*TYP LAT/ BRO INE*		*TYP LAT/ SPA PEC*		*SCI ACU- SCI VAL/ SPA PEC*		*SCI ACU- SCI VAL/ TYP LAT*		**Mesophytic/ Hydrophytic Herbaceous Bottom COMPOSITE**	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=7		**n=1**		**n=1**		**n=3**		**n=2**		**n=2**		**n=7**		**n=3**		**n=45**	
FERNS AND ALLIES																		
Equisetum laevigatum	0.04	*14*							0.50	*50*	0.15	*50*					**0.04**	***7***
TOTAL F&A	**0.04**	***14***	**0.0**	***0***	**0.0**	***0***	**0.00**	***0***	**0.50**	***50***	**0.15**	***50***	**0.00**	***0***	**0.00**	***0***	**0.04**	***7***
NATIVE ANNUAL/BIENNIAL FORBS																		
Ambrosia trifida	0.04	*14*															**0.01**	***4***
Artemisia biennis											0.15	*50*					**0.01**	***2***
Atriplex suckleyi																	**0.01**	***2***
Chenopodium rubrum	0.14	*14*											2.57	*14*			**0.56**	***7***
Euphorbia spathulata																	**0.01**	***2***
Gaura parviflora	0.04	*14*											0.04	*14*			**0.01**	***4***
Grindelia squarrosa																	**0.11**	***13***
Machaeranthera canescens																	**0.01**	***2***
Orthocarpus luteus																	**0.01**	***2***
Suaeda depressa			3	*100*													**0.07**	***4***
Xanthium strumarium							0.10	*33*									**0.02**	***7***
TOTAL NAF	**0.23**	***14***	**3.0**	***100***	**0.0**	***0***	**0.10**	***33***	**0.00**	***0***	**0.15**	***50***	**2.61**	***29***	**0.00**	***0***	**0.82**	***38***
INTRODUCED ANNUAL/BIENNIAL FORBS																		
Arctium minus											0.15	*50*					**0.01**	***2***
Atriplex heterosperma	0.76	*43*			1	*100*			5.15	*100*	1.50	*50*	7.43	*57*	1.00	*33*	**1.89**	***36***
Camelina microcarpa							0.10	*33*									**0.01**	***2***
Chenopodium album							0.10	*33*									**0.01**	***2***
Lactuca serriola	0.57	*14*	0.3	*100*			0.10	*33*	0.15	*50*					0.10	*33*	**0.15**	***18***
Medicago lupulina							0.67	*33*									**0.11**	***4***
Melilotus alba							0.33	*33*									**0.02**	***2***
Melilotus officinalis			2	*100*			4.77	*67*	0.15	*50*			0.04	*14*			**0.69**	***18***
Polygonum convolvulus									0.15	*50*							**0.01**	***2***
Sisymbrium loeselii							0.10	*33*	1.00	*50*	0.15	*50*	0.61	*43*			**0.16**	***16***
Sonchus asper											0.15	*50*	0.57	*14*			**0.10**	***4***
Thlaspi arvense													0.19	*29*			**0.04**	***7***
TOTAL IAF	**1.33**	***43***	**2.3**	***100***	**1.0**	***100***	**6.17**	***67***	**6.60**	***100***	**1.95**	***100***	**8.84**	***71***	**1.10**	***33***	**3.18**	***56***

Table 9

Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Eighteen Mesophytic/Hydrophytic Herbaceous Bottom Community Types, Otter Creek Baseline Study Area, 2011-2012.

	SPA PEC/ SCI AME		*SCI MAR/ SPO AIR- DIS STR*		*SCI MAR/ SCI AME- ELE PAL*		*ELE PAL/ SCI AME- JUN TOR*		*TYP LAT/ BRO INE*		*TYP LAT/ SPA PEC*		*SCI ACU- SCI VAL/ SPA PEC*		*SCI ACU- SCI VAL/ TYP LAT*		**Mesophytic/ Hydrophytic Herbaceous Bottom COMPOSITE**	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=7		**n=1**		**n=1**		**n=3**		**n=2**		**n=2**		**n=7**		**n=3**		**n=45**	
SHRUBS																		
Artemisia cana							1.67	*33*					0.71	*14*			**0.27**	***7***
Artemisia tridentata			1	*100*													**0.07**	***7***
Chrysothamnus nauseosus																	**0.01**	***2***
Humulus lupulus																	**0.02**	***2***
Ribes aureum	0.14	*14*									0.15	*50*	1.57	*29*			**0.27**	***9***
Rosa arkansana																	**0.01**	***2***
Rosa woodsii							2.00	*67*			2.50	*50*	5.43	*29*			**1.16**	***13***
Salix exigua							1.33	*33*									**0.09**	***2***
Sarcobatus vermiculatus																	**0.11**	***7***
Symphoricarpos occidentalis	0.43	*29*					4.10	*67*	1.00	*50*	7.50	*50*	3.00	*29*			**1.56**	***22***
TOTAL SHRUBS	**0.57**	***43***	**1.0**	***100***	**0.0**	***0***	**9.10**	***67***	**1.00**	***50***	**10.15**	***50***	**10.71**	***43***	**0.00**	***0***	**3.57**	***42***
TREES 0.01-acre																		
Acer negundo													0.43	*14*			**0.07**	***2***
Juniperus scopulorum																	**0.02**	***2***
Populus deltoides																	**0.22**	***2***
Salix amygdaloides							0.10	*33*									**0.01**	***2***
TOTAL TREES 0.01-acre	**0.00**	***0***	**0.0**	***0***	**0.0**	***0***	**0.10**	***33***	**0.00**	***0***	**0.00**	***0***	**0.43**	***14***	**0.00**	***0***	**0.32**	***9***
TREES 0.1-acre																		
Acer negundo	0.71	*14*							1.50	*50*	2.00	*50*	2.86	*43*	1.33	*67*	**0.93**	***22***
Fraxinus pennsylvanica											1.00	*50*					**0.04**	***2***
Juniperus scopulorum																	**0.09**	***4***
Populus deltoides																	**0.22**	***2***
Salix amygdaloides							0.10	*33*									**0.01**	***2***
TOTAL TREES 0.1-acre	**0.71**	***14***	**0.0**	***0***	**0.0**	***0***	**0.10**	***33***	**1.50**	***50***	**3.00**	***50***	**2.86**	***43***	**1.33**	***67***	**1.30**	***31***
TOTAL VEGETATION (Stratified)	**87.19**	***100***	**122.2**	***100***	**79.9**	***100***	**117.93**	***100***	**95.85**	***100***	**122.50**	***100***	**128.53**	***100***	**87.50**	***100***	**96.35**	***100***

Table 10

Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Four **Mesophytic Low Shrub Bottom** Community Types, Otter Creek Baseline Study Area, 2011-2012.

	SYM OCC-ART TRI-SAR VER/ AGR SMI		*ART CAN-ROS WOO/ AGR SMI-POA PRA*		SYM OCC-ART CAN/ AGR SMI-POA PRA		*SYM OCC-ROS WOO/ POA PRA-AGR SMI*		Mesophytic Low Shrub Bottom COMPOSITE	
	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*
	n=2		n=1		n=7		n=17		n=27	
GROUND COVER										
Bare Ground	55.00	*100*	4	*100*	18.29	*100*	17.14	*94*	**19.75**	***96***
Rock	6.15	*100*		*100*	3.61	*29*	0.46	*29*	**1.69**	***37***
Litter	35.00	*100*	89	*100*	71.00	*100*	69.47	*100*	**68.04**	***100***
Lichens					0.51	*43*	0.53	*18*	**0.47**	***22***
Moss					0.61	*29*	0.31	*24*	**0.36**	***22***
Water					0.57	*14*	6.00	*18*	**3.93**	***15***
Basal Vegetation	4.00	*100*	7	*100*	5.57	*100*	6.18	*100*	**5.89**	***100***
VEGETATION STRUCTURE (nonstratified cover)										
Total Vegetation	69.00	*100*	94	*100*	87.29	*100*	89.88	*100*	**87.81**	***100***
Perennial Graminoids	25.50	*100*	84	*100*	52.86	*100*	61.06	*100*	**57.15**	***100***
Annual Graminoids	1.15	*100*	0.3	*100*	3.04	*71*	2.46	*65*	**2.44**	***70***
Perennial Forbs and Subshrubs	0.50	*50*	14	*100*	9.86	*100*	15.24	*100*	**12.70**	***96***
Annual/Biennial Forbs	41.00	*100*	34	*100*	5.29	*86*	5.39	*82*	**9.06**	***85***
Shrubs	24.50	*100*	50	*100*	52.14	*100*	47.12	*100*	**46.85**	***100***
Trees 0.01-acre							1.24	*29*	**0.78**	***19***
Trees 0.1-acre					0.41	*29*	2.61	*76*	**1.75**	***56***
CLASS\SPECIES NATIVE PERENNIAL GRAMINOIDS (Cool Season)										
Agropyron smithii	9.50	*100*	18	*100*	21.29	*100*	20.65	*100*	**19.89**	***100***
Agropyron spicatum	3.50	*50*					0.76	*12*	**0.74**	***11***
Agropyron trachycaulum					0.86	*14*	0.09	*18*	**0.28**	***15***
Agropyron xpseudorepens					0.43	*14*	0.02	*6*	**0.12**	***7***
Carex filifolia							0.24	*6*	**0.15**	***4***
Elymus canadensis					0.14	*14*	0.12	*6*	**0.11**	***7***
Hordeum jubatum					1.00	*14*	0.88	*6*	**0.81**	***7***
Koeleria cristata							0.61	*35*	**0.38**	***22***
Poa glaucifolia					0.29	*14*			**0.07**	***4***
Poa scabrella							0.35	*12*	**0.22**	***7***
Scirpus americanus							0.18	*6*	**0.11**	***4***
Scirpus maritimus							0.29	*6*	**0.19**	***4***
Sitanion hystrix					0.14	*14*			**0.04**	***4***
Stipa comata							0.12	*6*	**0.07**	***4***
Stipa viridula	7.50	*50*	2	*100*	2.71	*57*	4.37	*82*	**4.09**	***74***
TOTAL NPG(C)	**20.50**	***100***	**20.0**	***100***	**26.86**	***100***	**28.68**	***100***	**27.28**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)										
Andropogon gerardii							0.06	*6*	**0.04**	***4***
Andropogon scoparius							0.02	*6*	**0.01**	***4***
Bouteloua curtipendula							0.41	*18*	**0.26**	***11***
Bouteloua gracilis							0.18	*6*	**0.11**	***4***
Calamovilfa longifolia					0.14	*14*	1.31	*29*	**0.86**	***22***
Muhlenbergia asperifolia							0.02	*6*	**0.01**	***4***
Panicum virgatum			22	*100*			0.59	*6*	**1.19**	***7***
Spartina gracilis					0.29	*14*			**0.07**	***4***
Spartina pectinata							0.24	*12*	**0.15**	***7***
Sporobolus airoides					0.29	*14*			**0.07**	***4***
TOTAL NPG(W)	**0.00**	***0***	**22.0**	***100***	**0.71**	***43***	**2.82**	***53***	**2.77**	***48***
INTRODUCED PERENNIAL GRAMINOIDS										
Agropyron cristatum					0.04	*14*	0.29	*6*	**0.20**	***7***
Phleum pratense			0.3	*100*					**0.01**	***4***
Poa pratensis	7.50	*100*	56	*100*	32.43	*100*	37.12	*100*	**34.41**	***100***
TOTAL IPG	**7.50**	***100***	**56.3**	***100***	**32.47**	***100***	**37.41**	***100***	**34.61**	***100***

Table 10

Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Four **Mesophytic Low Shrub Bottom** Community Types, Otter Creek Baseline Study Area, 2011-2012.

	SYM OCC-ART TRI-SAR VER/ AGR SMI		*ART CAN-ROS WOO/ AGR SMI-POA PRA*		SYM OCC-ART CAN/ AGR SMI-POA PRA		*SYM OCC-ROS WOO/ POA PRA-AGR SMI*		Mesophytic Low Shrub Bottom COMPOSITE	
	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*
	n=2		n=1		n=7		n=17		n=27	
NATIVE ANNUAL GRAMINOIDS										
TOTAL NAG	**0.00**	***0***	**0.0**	***0***	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS										
Bromus japonicus	1.15	*100*	0.3	*100*	3.04	*71*	2.46	*65*	**2.44**	***70***
TOTAL IAG	1.15	*100*	0.3	*100*	**3.04**	***71***	**2.46**	***65***	**2.44**	***70***
NATIVE PERENNIAL FORBS AND SUBSHRUBS										
Achillea millefolium					1.94	*86*	0.24	*53*	**0.66**	***56***
Ambrosia psilostachya							0.14	*12*	**0.09**	***7***
Antennaria howellii (neglecta)							0.02	*6*	**0.01**	***4***
Antennaria parvifolia							0.12	*6*	**0.07**	***4***
Apocynum cannabinum							0.18	*6*	**0.11**	***4***
Artemisia frigida							0.08	*12*	**0.05**	***7***
Artemisia ludoviciana			1	*100*	1.33	*57*	4.08	*82*	**2.95**	***70***
Aster falcatus			5	*100*	1.23	*71*	2.23	*47*	**1.91**	***52***
Aster laevis							0.04	*12*	**0.02**	***7***
Aster oblongifolius							0.06	*6*	**0.04**	***4***
Aster pansus							2.19	*29*	**1.38**	***19***
Astragalus agrestis			0.3	*100*			0.37	*29*	**0.24**	***22***
Astragalus crassicarpus							0.02	*6*	**0.01**	***4***
Astragalus missouriensis							0.02	*6*	**0.01**	***4***
Besseya wyomingensis							0.02	*6*	**0.01**	***4***
Cerastium arvense							0.43	*18*	**0.27**	***11***
Chrysopsis villosa							0.02	*6*	**0.01**	***4***
Cirsium undulatum							0.02	*6*	**0.01**	***4***
Crepis occidentalis							0.02	*6*	**0.01**	***4***
Dalea purpurea							0.09	*18*	**0.06**	***11***
Echinacea angustifolia							0.12	*6*	**0.07**	***4***
Epilobium ciliatum							0.02	*6*	**0.01**	***4***
Erigeron pumilus var. pumilus	0.15	*50*							**0.01**	***4***
Gaura coccinea	0.15	*50*	0.3	*100*	0.43	*14*	0.21	*35*	**0.26**	***33***
Geum triflorum							0.02	*6*	**0.01**	***4***
Glycyrrhiza lepidota					2.29	*14*	1.41	*12*	**1.48**	***11***
Gutierrezia sarothrae							0.04	*12*	**0.02**	***7***
Helianthus maximilianii					0.57	*14*	0.25	*12*	**0.31**	***11***
Hymenopappus filifolius							0.02	*6*	**0.01**	***4***
Iva axillaris							0.02	*6*	**0.01**	***4***
Lactuca oblongifolia					1.43	*29*	0.55	*35*	**0.71**	***30***
Linum lewisii					0.04	*14*	0.15	*35*	**0.10**	***26***
Lygodesmia juncea							0.02	*6*	**0.01**	***4***
Mertensia lanceolata							0.02	*6*	**0.01**	***4***
Opuntia polyacantha					0.04	*14*	0.02	*6*	**0.02**	***7***
Oxytropis lambertii							0.24	*6*	**0.15**	***4***
Oxytropis sericea							0.02	*6*	**0.01**	***4***
Phlox hoodii							0.02	*6*	**0.01**	***4***
Polygala alba							0.19	*12*	**0.12**	***7***
Psoralea argophylla			5	*100*			0.19	*12*	**0.31**	***11***
Psoralea esculenta							0.02	*6*	**0.01**	***4***
Ratibida columnifera			0.3	*100*	0.43	*29*	0.42	*41*	**0.39**	***37***
Solidago missouriensis							0.04	*12*	**0.02**	***7***
Solidago rigida					0.04	*14*	0.88	*41*	**0.57**	***30***
Sphaeralcea coccinea							0.05	*18*	**0.03**	***11***
Toxicodendron rydbergii							0.08	*12*	**0.05**	***7***
Vicia americana	0.15	*50*					0.13	*29*	**0.09**	***22***
Zigadenus venenosus					0.04	*14*			**0.01**	***4***
TOTAL NPF AND SUBSHRUBS	**0.45**	***50***	**11.9**	***100***	**9.81**	***100***	**15.48**	***100***	**12.76**	***96***

Table 10

Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Four **Mesophytic Low Shrub Bottom** Community Types, Otter Creek Baseline Study Area, 2011-2012.

	SYM OCC-ART TRI-SAR VER/ AGR SMI		*ART CAN-ROS WOO/ AGR SMI-POA PRA*		SYM OCC-ART CAN/ AGR SMI-POA PRA		*SYM OCC-ROS WOO/ POA PRA-AGR SMI*		Mesophytic Low Shrub Bottom COMPOSITE	
	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*
	n=2		n=1		n=7		n=17		n=27	
INTRODUCED PERENNIAL FORBS										
Cirsium arvense							0.47	*6*	**0.30**	***4***
Medicago sativa			2	*100*			0.15	*24*	**0.17**	***19***
Rumex crispus							0.02	*6*	**0.01**	***4***
Taraxacum laevigatum					0.47	*43*	0.48	*41*	**0.43**	***37***
Taraxacum officinale							0.06	*6*	**0.04**	***4***
TOTAL IPF	**0.00**	***0***	**2.0**	***100***	**0.47**	***43***	**1.18**	***59***	**0.94**	***52***
FERNS AND ALLIES										
TOTAL F&A	**0.00**	***0***	**0.0**	***0***	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS										
Collomia linearis					0.14	*14*			**0.04**	***4***
Conyza canadensis					0.04	*14*			**0.01**	***4***
Descurainia richardsonii					0.14	*14*			**0.04**	***4***
Erysimum asperum							0.02	*6*	**0.01**	***4***
Euphorbia spathulata							0.04	*12*	**0.02**	***7***
Galium aparine					0.04	*14*			**0.01**	***4***
Grindelia squarrosa							0.06	*6*	**0.04**	***4***
Hedeoma hispidum							0.02	*6*	**0.01**	***4***
Helianthus annuus					0.04	*14*			**0.01**	***4***
Helianthus petiolaris							0.04	*12*	**0.02**	***7***
Linum rigidum							0.02	*6*	**0.01**	***4***
Orthocarpus luteus							0.08	*12*	**0.05**	***7***
Plantago patagonica							0.02	*6*	**0.01**	***4***
Silene antirrhina							0.02	*6*	**0.01**	***4***
Xanthium strumarium					0.43	*14*	0.94	*6*	**0.70**	***7***
TOTAL NAF	**0.00**	***0***	**0.0**	***0***	**0.84**	***57***	**1.24**	***35***	**1.00**	***37***
INTRODUCED ANNUAL/BIENNIAL FORBS										
Alyssum alyssoides							0.02	*6*	**0.01**	***4***
Camelina microcarpa					0.04	*14*			**0.01**	***4***
Lactuca serriola					0.66	*57*	0.22	*41*	**0.31**	***41***
Medicago lupulina							0.08	*12*	**0.05**	***7***
Melilotus alba							0.18	*6*	**0.11**	***4***
Melilotus officinalis	41.00	*100*	34	*100*	2.33	*71*	3.82	*65*	**7.31**	***70***
Sisymbrium altissimum							0.02	*6*	**0.01**	***4***
Sisymbrium loeselii					1.47	*43*	0.04	*12*	**0.40**	***19***
Thlaspi arvense					0.29	*14*			**0.07**	***4***
Tragopogon dubius	0.15	*50*	0.3	*100*	0.09	*29*	0.20	*53*	**0.17**	***48***
TOTAL IAF	**41.15**	***100***	**34.3**	***100***	**4.87**	***86***	**4.57**	***82***	**8.46**	***85***
SHRUBS										
Artemisia cana	5.00	*50*	12	*100*	15.57	*100*	2.14	*59*	**6.20**	***70***
Artemisia tridentata	7.50	*100*	0.3	*100*			1.35	*24*	**1.42**	***26***
Chrysothamnus nauseosus					0.29	*14*			**0.07**	***4***
Rhus aromatica							0.41	*12*	**0.26**	***7***
Ribes aureum							0.12	*6*	**0.07**	***4***
Rosa arkansana							0.35	*18*	**0.22**	***11***
Rosa woodsii			40	*100*	0.61	*43*	1.98	*59*	**2.89**	***52***
Sarcobatus vermiculatus	5.00	*100*					0.12	*6*	**0.44**	***11***
Symphoricarpos occidentalis	8.50	*100*	2	*100*	41.29	*100*	43.29	*100*	**38.67**	***100***
TOTAL SHRUBS	**26.00**	***100***	**54.3**	***100***	**57.76**	***100***	**49.76**	***100***	**50.24**	***100***
TREES 0.01-acre										
Juniperus scopulorum							1.06	*24*	**0.67**	***15***
Pinus ponderosa							0.18	*12*	**0.11**	***7***
TOTAL TREES 0.01-acre	**0.00**	***0***	**0.0**	***0***	**0.00**	***0***	**1.24**	***29***	**0.78**	***19***

Table 10

Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Four **Mesophytic Low Shrub Bottom** Community Types, Otter Creek Baseline Study Area, 2011-2012.

	SYM OCC-ART TRI-SAR VER/ AGR SMI		*ART CAN-ROS WOO/ AGR SMI-POA PRA*		SYM OCC-ART CAN/ AGR SMI-POA PRA		*SYM OCC-ROS WOO/ POA PRA-AGR SMI*		Mesophytic Low Shrub Bottom COMPOSITE	
	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*
	n=2		n=1		n=7		n=17		n=27	
TREES 0.1-acre										
Fraxinus pennsylvanica					0.04	*14*			**0.01**	***4***
Juniperus scopulorum					0.33	*29*	1.62	*65*	**1.11**	***48***
Pinus ponderosa					0.04	*14*	0.53	*18*	**0.34**	***15***
Salix amygdaloides							0.47	*6*	**0.30**	***4***
TOTAL TREES 0.1-acre	**0.00**	***0***	**0.0**	***0***	**0.41**	***29***	**2.62**	***76***	**1.76**	***56***
TOTAL VEGETATION (Stratified)	**96.75**	***100***	**201.1**	***100***	**136.84**	***100***	**144.83**	***100***	**141.28**	***100***

Table 11
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Two **Mesophytic Tall Shrub Bottom** Community Types, Otter Creek Baseline Study Area, 2011-2012.

	PRU VIR/ SYM OCC- POA PRA		SAL EXI/ SCI AME- JUN TOR		*Mesophytic Tall Shrub Bottom COMPOSITE*	
	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*
	n=2		n=1		n=3	
GROUND COVER						
Bare Ground	20.00	*50*				
Rock	2.50	*50*				
Litter	71.50	*100*				
Lichens						
Moss	0.50	*50*				
Water						
Basal Vegetation	5.50	*100*				
VEGETATION STRUCTURE (nonstratified cover)						
Total Vegetation	92.50	*100*	90	*100*	**91.67**	***100***
Perennial Graminoids	32.00	*100*	35	*100*	**33.00**	***100***
Annual Graminoids	0.15	*50*			**0.10**	***33***
Perennial Forbs and Subshrubs	11.00	*100*	12	*100*	**11.33**	***100***
Annual/Biennial Forbs	4.00	*100*			**2.67**	***67***
Shrubs	86.50	*100*	77	*100*	**83.33**	***100***
Trees 0.01-acre						
Trees 0.1-acre	1.50	*50*			**1.00**	***33***
CLASS\SPECIES NATIVE PERENNIAL GRAMINOIDS (Cool Season)						
Agropyron smithii	5.15	*100*			**3.43**	***67***
Eleocharis palustris			7	*100*	**2.33**	***33***
Juncus torreyi			10	*100*	**3.33**	***33***
Scirpus americanus			15	*100*	**5.00**	***33***
TOTAL NPG(C)	**5.15**	***100***	**32.0**	***100***	**14.10**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)						
Panicum virgatum			2	*100*	**0.67**	***33***
TOTAL NPG(W)	**0.00**	***0***	**2.0**	***100***	**0.67**	***33***
INTRODUCED PERENNIAL GRAMINOIDS						
Poa pratensis	27.50	*100*	5	*100*	**20.00**	***100***
TOTAL IPG	**27.50**	***100***	**5.0**	***100***	**20.00**	***100***
NATIVE ANNUAL GRAMINOIDS						
TOTAL NAG	**0.00**	***0***	**0.0**	***0***	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS						
Bromus japonicus	0.15	*50*			**0.10**	***33***
TOTAL IAG	**0.15**	***50***	**0.0**	***0***	**0.10**	***33***

Table 11
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Two **Mesophytic Tall Shrub Bottom** Community Types, Otter Creek Baseline Study Area, 2011-2012.

	PRU VIR/ SYM OCC-POA PRA		SAL EXI/ SCI AME-JUN TOR		*Mesophytic Tall Shrub Bottom COMPOSITE*	
	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*	Mean Cover	*Con-stancy*
	n=2		n=1		n=3	
NATIVE PERENNIAL FORBS AND SUBSHRUBS						
Achillea millefolium	0.65	*100*			**0.43**	***67***
Apocynum cannabinum			5	*100*	**1.67**	***33***
Artemisia frigida	0.15	*50*			**0.10**	***33***
Aster hesperius			5	*100*	**1.67**	***33***
Besseya wyomingensis	0.15	*50*			**0.10**	***33***
Helianthus maximilianii			2	*100*	**0.67**	***33***
Lactuca oblongifolia	0.65	*100*			**0.43**	***67***
Toxicodendron rydbergii	10.00	*50*			**6.67**	***33***
TOTAL NPF AND SUBSHRUBS	**11.60**	***100***	**12.0**	***100***	**11.73**	***100***
INTRODUCED PERENNIAL FORBS						
Taraxacum laevigatum	0.15	*50*			**0.10**	***33***
TOTAL IPF	**0.15**	***50***	**0.0**	***0***	**0.10**	***33***
FERNS AND ALLIES						
TOTAL F&A	**0.00**	***0***	**0.0**	***0***	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS						
Erysimum asperum	0.15	*50*			**0.10**	***33***
Hedeoma hispidum	0.15	*50*			**0.10**	***33***
Helianthus annuus	0.15	*50*			**0.10**	***33***
TOTAL NAF	**0.45**	***100***	**0.0**	***0***	**0.30**	***67***
INTRODUCED ANNUAL/BIENNIAL FORBS						
Melilotus alba	0.15	*50*			**0.10**	***33***
Melilotus officinalis	3.50	*100*			**2.33**	***67***
Sisymbrium loeselii	0.30	*100*			**0.20**	***67***
Tragopogon dubius	0.15	*50*			**0.10**	***33***
TOTAL IAF	**4.10**	***100***	**0.0**	***0***	**2.73**	***67***
SHRUBS						
Artemisia cana	13.00	*100*			**8.67**	***67***
Prunus virginiana	35.00	*100*			**23.33**	***67***
Rhus aromatica	0.50	*50*			**0.33**	***33***
Ribes aureum	0.50	*50*	0.3	*100*	**0.43**	***67***
Ribes setosum	3.50	*100*			**2.33**	***67***
Salix exigua			75	*100*	**25.00**	***33***
Symphoricarpos occidentalis	42.50	*100*	2	*100*	**29.00**	***100***
TOTAL SHRUBS	**95.00**	***100***	**77.3**	***100***	**89.10**	***100***
TREES 0.01-acre						
TOTAL TREES 0.01-acre	**0.00**	***0***	**0.0**	***0***	**0.00**	***0***
TREES 0.1-acre						
Juniperus scopulorum	1.50	*50*			**1.00**	***33***
TOTAL TREES 0.1-acre	**1.50**	***50***	**0.0**	***0***	**1.00**	***33***
TOTAL VEGETATION (Stratified)	**144.10**	***100***	**128.3**	***100***	**138.83**	***100***

Table 12
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Thirteen Mesophytic Deciduous Tree Bottom Community Types, Otter Creek Baseline Study Area, 2011-2012.

	POP DEL/ BRO INE		*POP DEL- ACE NEG/ BRO INE*		*POP DEL- FRA PEN- ACE NEG/ POA PRA*		*POP DEL/ SYM OCC- POA PRA*		*POP DEL- FRA PEN- ACE NEG/ SYM OCC*		*POP DEL- SAL AMY/ POA PRA*		*POP DEL- SAL AMY/ SAL EXI*		*POP DEL/ PRU VIR*		*POP DEL- FRA PEN- ACE NEG/ PRU VIR*	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=2		**n=2**		**n=2**		**n=1**		**n=1**		**n=1**		**n=1**		**n=1**		**n=2**	
GROUND COVER																		
Bare Ground	0.30	*100*	14.50	*100*	46.50	*100*	0.3	*100*	1	*100*	30	*100*	80	*100*			40.00	*100*
Rock			0.50	*50*					1	*100*								
Litter	67.50	*100*	80.50	*100*	50.00	*100*	70	*100*	92	*100*	66	*100*	16	*100*	75	*100*	56.50	*100*
Lichens																		
Moss																		
Water	27.50	*100*					25	*100*							18	*100*		
Basal Vegetation	5.00	*100*	4.50	*100*	3.50	*100*	5	*100*	6	*100*	4	*100*	4	*100*	7	*100*	3.50	*100*
VEGETATION STRUCTURE (nonstratified cover)																		
Total Vegetation	95.50	*100*	98.00	*100*	95.50	*100*	96	*100*	95	*100*	96	*100*	76	*100*	100	*100*	92.50	*100*
Perennial Graminoids	68.00	*100*	43.50	*100*	41.00	*100*	42	*100*	84	*100*	67	*100*	40	*100*	72	*100*	57.50	*100*
Annual Graminoids					0.50	*50*					0.3	*100*					0.30	*100*
Perennial Forbs and Subshrubs	5.00	*100*	4.00	*100*	0.50	*50*	37	*100*	5	*100*	4	*100*	20	*100*	12	*100*	2.65	*100*
Annual/Biennial Forbs	2.00	*100*	4.00	*100*	4.00	*100*			1	*100*	7	*100*					2.50	*100*
Shrubs	3.00	*100*	3.50	*100*	0.65	*100*	23	*100*	40	*100*	1	*100*	14	*100*	48	*100*	16.50	*100*
Trees 0.01-acre	77.00	*100*	77.00	*100*	79.00	*100*	44	*100*	35	*100*	80	*100*	40	*100*	95	*100*	46.50	*100*
Trees 0.1-acre	65.00	*100*	65.00	*100*	82.00	*100*	56	*100*	38	*100*	60	*100*	45	*100*	78	*100*	40.00	*100*
CLASS\SPECIES NATIVE PERENNIAL GRAMINOIDS (Cool Season)																		
XAgrohordeum macounii	0.50	*50*											2	*100*				
Agropyron smithii			0.15	*50*			3	*100*	0.3	*100*							0.50	*50*
Agropyron trachycaulum			1.00	*50*					0.3	*100*			3	*100*				
XAgrositanion saundersii													6	*100*				
Eleocharis palustris													6	*100*				
Hordeum jubatum	3.00	*50*			0.15	*50*							22	*100*				
Koeleria cristata																		
Phalaris arundinacea																		
Scirpus acutus																		
Scirpus americanus																		
Scirpus maritimus													0.3	*100*				
Scirpus validus																		
Stipa viridula							3	*100*										
TOTAL NPG(C)	**3.50**	***50***	**1.15**	***50***	**0.15**	***50***	**6.0**	***100***	**0.6**	***100***	**0.0**	***0***	**39.3**	***100***	**0**	***0***	**0.50**	***50***

Table 12
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Thirteen Mesophytic Deciduous Tree Bottom Community Types, Otter Creek Baseline Study Area, 2011-2012.

	POP DEL/ BRO INE		POP DEL- ACE NEG/ BRO INE		POP DEL- FRA PEN- ACE NEG/ POA PRA		POP DEL/ SYM OCC- POA PRA		POP DEL- FRA PEN- ACE NEG/ SYM OCC		POP DEL- SAL AMY/ POA PRA		POP DEL- SAL AMY/ SAL EXI		POP DEL/ PRU VIR		POP DEL- FRA PEN- ACE NEG/ PRU VIR	
	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy	Mean Cover	Con-stancy
	n=2		n=2		n=2		n=1		n=1		n=1		n=1		n=1		n=2	
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																		
Spartina pectinata			1.00	*50*			3	*100*	0.3	*100*								
TOTAL NPG(W)	**0.00**	***0***	**1.00**	***50***	**0.00**	***0***	**3.0**	***100***	**0.3**	***100***	**0.0**	***0***	**0**	***0***	**0**	***0***	**0.00**	***0***
INTRODUCED PERENNIAL GRAMINOIDS																		
Agropyron cristatum	0.15	*50*			10.00	*100*									72	*100*	12.00	*100*
Agropyron elongatum																		
Agropyron repens					1.50	*50*					8	*100*						
Alopecurus pratensis	1.50	*50*																
Bromus inermis	60.00	*100*	38.00	*100*					64	*100*	28	*100*						
Phleum pratense			0.50	*50*					1	*100*			1	*100*				
Poa pratensis	9.15	*100*	5.00	*50*	34.00	*100*	38	*100*	34	*100*	38	*100*	4	*100*			47.00	*100*
TOTAL IPG	**70.80**	***100***	**43.50**	***100***	**45.50**	***100***	**38.0**	***100***	**99.0**	***100***	**74.0**	***100***	**5**	***100***	**72**	***100***	**59.00**	***100***
NATIVE ANNUAL GRAMINOIDS																		
TOTAL NAG	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.0**	***0***	**0.0**	***0***	**0.0**	***0***	**0**	***0***	**0**	***0***	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS																		
Bromus japonicus					0.50	*50*					0.3	*100*					0.30	*100*
Bromus tectorum					0.15	*50*					0.3	*100*						
TOTAL IAG	**0.00**	***0***	**0.00**	***0***	**0.65**	***50***	**0.0**	***0***	**0.0**	***0***	**0.6**	***100***	**0**	***0***	**0**	***0***	**0.30**	***100***
NATIVE PERENNIAL FORBS AND SUBSHRUBS																		
Achillea millefolium									0.3	*100*							0.65	*100*
Apocynum cannabinum							0.3	*100*										
Artemisia frigida							0.3	*100*										
Artemisia ludoviciana	0.15	*50*	1.00	*50*			12	*100*	0.3	*100*							1.00	*50*
Asclepias speciosa																		
Aster falcatus																	1.00	*50*
Aster hesperius	0.15	*50*	0.15	*50*									14	*100*				
Aster laevis			0.50	*50*					0.3	*100*								
Aster pansus	1.00	*50*	0.15	*50*			5	*100*	1	*100*								
Astragalus agrestis							6	*100*										
Astragalus drummondii																		
Cerastium arvense									0.3	*100*								
Glycyrrhiza lepidota							1	*100*										
Helianthus maximilianii							14	*100*										
Lactuca oblongifolia	0.15	*50*	0.50	*50*														
Mentha arvensis																		
Polygala alba																		

Table 12
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Thirteen Mesophytic Deciduous Tree Bottom Community Types, Otter Creek Baseline Study Area, 2011-2012.

	POP DEL/ BRO INE		*POP DEL- ACE NEG/ BRO INE*		*POP DEL- FRA PEN- ACE NEG/ POA PRA*		*POP DEL/ SYM OCC- POA PRA*		*POP DEL- FRA PEN- ACE NEG/ SYM OCC*		*POP DEL- SAL AMY/ POA PRA*		*POP DEL- SAL AMY/ SAL EXI*		*POP DEL/ PRU VIR*		*POP DEL- FRA PEN- ACE NEG/ PRU VIR*	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=2		**n=2**		**n=2**		**n=1**		**n=1**		**n=1**		**n=1**		**n=1**		**n=2**	
Potamogeton pectinatus																		
Potentilla gracilis																		
Psoralea argophylla									1	*100*								
Ratibida columnifera			0.15	*50*	0.15	*50*			1	*100*	0.3	*100*						
Rumex salicifolius	0.50	*50*											2	*100*				
Sisyrinchium angustifolium																		
Solidago gigantea									1	*100*								
Solidago mollis			0.50	*50*														
Solidago rigida			0.15	*50*			0.3	*100*										
Toxicodendron rydbergii															12	*100*		
Typha latifolia																		
Urtica dioica											2	*100*						
Vicia americana	0.15	*50*																
TOTAL NPF AND SUBSHRUBS	**2.10**	***100***	**3.10**	***100***	**0.15**	***50***	**38.9**	***100***	**5.2**	***100***	**2.3**	***100***	**16**	***100***	**12**	***100***	**2.65**	***100***
INTRODUCED PERENNIAL FORBS																		
Cirsium arvense	0.50	*50*																
Medicago sativa	0.65	*100*	0.50	*50*			1	*100*										
Rumex crispus	1.50	*50*	0.15	*50*	0.50	*50*					2	*100*	6	*100*			0.15	*50*
Rumex patienta			0.50	*50*														
Taraxacum laevigatum	0.15	*50*					1	*100*										
Taraxacum officinale	0.50	*50*																
TOTAL IPF	**3.30**	***100***	**1.15**	***100***	**0.50**	***50***	**2.0**	***100***	**0.0**	***0***	**2.0**	***100***	**6**	***100***	**0**	***0***	**0.15**	***50***
FERNS AND ALLIES																		
Equisetum laevigatum																		
TOTAL F&A	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0.0**	***0***	**0.0**	***0***	**0.0**	***0***	**0**	***0***	**0**	***0***	**0.00**	***0***

Table 12
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Thirteen Mesophytic Deciduous Tree Bottom Community Types, Otter Creek Baseline Study Area, 2011-2012.

	POP DEL/ BRO INE		*POP DEL- ACE NEG/ BRO INE*		*POP DEL- FRA PEN- ACE NEG/ POA PRA*		*POP DEL/ SYM OCC- POA PRA*		*POP DEL- FRA PEN- ACE NEG/ SYM OCC*		*POP DEL- SAL AMY/ POA PRA*		*POP DEL- SAL AMY/ SAL EXI*		*POP DEL/ PRU VIR*		*POP DEL- FRA PEN- ACE NEG/ PRU VIR*	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=2		**n=2**		**n=2**		**n=1**		**n=1**		**n=1**		**n=1**		**n=1**		**n=2**	
NATIVE ANNUAL/BIENNIAL FORBS																		
Ambrosia trifida	0.50	*50*																
Chenopodium glaucum																		
Chenopodium rubrum																		
Galium aparine			2.00	*50*														
Gaura parviflora																		
Grindelia squarrosa									0.3	*100*								
Iva xanthifolia																		
Parietaria pensylvanica			0.50	*50*														
Polygonum arenastrum					0.15	*50*											1.00	*50*
TOTAL NAF	**0.50**	***50***	**2.50**	***100***	**0.15**	***50***	**0.0**	***0***	**0.3**	***100***	**0.0**	***0***	**0**	***0***	**0**	***0***	**1.00**	***50***
INTRODUCED ANNUAL/BIENNIAL FORBS																		
Alyssum desertorum																	0.30	*100*
Arctium minus											3	*100*						
Asperugo procumbens					1.50	*50*												
Atriplex heterosperma																		
Camelina microcarpa																		
Descurainia sophia					0.15	*50*												
Lactuca serriola	0.15	*50*																
Medicago lupulina																		
Melilotus officinalis	1.00	*50*	0.15	*50*					1	*100*								
Polygonum convolvulus																		
Sisymbrium loeselii	0.15	*50*	0.15	*50*							1	*100*						
Thlaspi arvense	0.15	*50*	1.15	*100*	2.50	*100*					3	*100*					1.50	*100*
Tragopogon dubius	0.15	*50*																
TOTAL IAF	**1.60**	***100***	**1.45**	***100***	**4.15**	***100***	**0.0**	***0***	**1.0**	***100***	**7.0**	***100***	**0**	***0***	**0**	***0***	**1.80**	***100***

Table 12
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Thirteen Mesophytic Deciduous Tree Bottom Community Types, Otter Creek Baseline Study Area, 2011-2012.

	POP DEL/ BRO INE		*POP DEL- ACE NEG/ BRO INE*		*POP DEL- FRA PEN- ACE NEG/ POA PRA*		*POP DEL/ SYM OCC- POA PRA*		*POP DEL- FRA PEN- ACE NEG/ SYM OCC*		*POP DEL- SAL AMY/ POA PRA*		*POP DEL- SAL AMY/ SAL EXI*		*POP DEL/ PRU VIR*		*POP DEL- FRA PEN- ACE NEG/ PRU VIR*	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=2		**n=2**		**n=2**		**n=1**		**n=1**		**n=1**		**n=1**		**n=1**		**n=2**	
SHRUBS																		
Artemisia cana							0.3	*100*			1	*100*					0.65	*100*
Prunus virginiana									3	*100*					30	*100*	9.50	*100*
Ribes aureum																		
Ribes setosum			0.50	*50*														
Rosa arkansana	0.15	*50*					1	*100*										
Rosa woodsii											0.3	*100*	2	*100*	8	*100*	7.50	*100*
Salix exigua	2.00	*50*	0.50	*50*			8	*100*					12	*100*				
Symphoricarpos occidentalis	1.00	*50*	2.50	*50*	0.65	*100*	14	*100*	38	*100*					18	*100*	1.00	*100*
TOTAL SHRUBS	**3.15**	***100***	**3.50**	***100***	**0.65**	***100***	**23.3**	***100***	**41.0**	***100***	**1.3**	***100***	**14**	***100***	**56**	***100***	**18.65**	***100***
TREES 0.01-acre																		
Acer negundo			37.50	*100*	49.00	*50*											10.00	*50*
Fraxinus pennsylvanica					4.00	*50*			25	*100*							15.00	*50*
Juniperus scopulorum									2	*100*								
Populus deltoides	77.00	*100*	65.50	*100*	27.50	*50*	44	*100*	15	*100*	10	*100*	10	*100*	95	*100*	30.50	*100*
Salix amygdaloides			15.00	*50*							78	*100*	35	*100*				
TOTAL TREES 0.01-acre	**77.00**	***100***	**118.00**	***100***	**80.50**	***100***	**44.0**	***100***	**42.0**	***100***	**88.0**	***100***	**45**	***100***	**95**	***100***	**55.50**	***100***
TREES 0.1-acre																		
Acer negundo			29.00	*100*	42.00	*50*			2	*100*	4	*100*					1.00	*50*
Fraxinus pennsylvanica					15.00	*50*			4	*100*							9.00	*50*
Juniperus scopulorum									0.3	*100*								
Pinus ponderosa																		
Populus deltoides	65.00	*100*	46.50	*100*	32.00	*100*	56	*100*	30	*100*	26	*100*	15	*100*	78	*100*	31.00	*100*
Salix amygdaloides			5.00	*50*					6	*100*	38	*100*	35	*100*				
TOTAL TREES 0.1-acre	**65.00**	***100***	**80.50**	***100***	**89.00**	***100***	**56.0**	***100***	**42.3**	***100***	**68.0**	***100***	**50**	***100***	**78**	***100***	**41.00**	***100***
TOTAL VEGETATION (Stratified)	**161.95**	***100***	**175.35**	***100***	**132.40**	***100***	**155.2**	***100***	**189.4**	***100***	**175.2**	***100***	**125**	***100***	**235**	***100***	**139.55**	***100***

Table 12
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Thirteen Mesophytic Deciduous Tree Bottom Community Types, Otter Creek Baseline Study Area, 2011-2012.

	ACE NEG/ BRO INE		*ACE NEG/ SPA PEC*		*ACE NEG / PRU VIR*		*FRA PEN/ POA PRA*		**Mesophytic Deciduous Tree Bottom COMPOSITE**	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=15		**n=4**		**n=3**		**n=1**		**n=36**	
GROUND COVER										
Bare Ground	7.53	*100*	8.00	*100*	26.10	*100*	5	*100*	**15.06**	***97***
Rock					6.10	*67*			**0.56**	***11***
Litter	67.07	*100*	66.00	*100*	64.00	*100*	86	*100*	**66.00**	***100***
Lichens										
Moss	0.02	*7*	0.08	*25*	0.20	*67*			**0.03**	***11***
Water	20.27	*80*	20.50	*100*					**13.44**	***56***
Basal Vegetation	5.13	*100*	5.50	*100*	3.67	*100*	9	*100*	**4.94**	***100***
VEGETATION STRUCTURE (nonstratified cover)										
Total Vegetation	87.47	*100*	82.75	*100*	93.67	*100*	97	*100*	**90.19**	***100***
Perennial Graminoids	60.47	*100*	74.00	*100*	38.67	*100*	72	*100*	**58.78**	***100***
Annual Graminoids	0.09	*13*			0.67	*33*	0.3	*100*	**0.15**	***22***
Perennial Forbs and Subshrubs	6.69	*87*	2.08	*100*	1.67	*67*	30	*100*	**6.83**	***89***
Annual/Biennial Forbs	5.77	*93*	4.33	*75*	5.67	*100*	14	*100*	**4.66**	***86***
Shrubs	3.82	*47*	7.00	*100*	24.33	*100*			**9.21**	***75***
Trees 0.01-acre	60.27	*100*	27.00	*100*	73.33	*100*	29	*100*	**58.72**	***100***
Trees 0.1-acre	48.33	*100*	18.50	*100*	68.33	*100*	30	*100*	**50.42**	***100***
CLASS\SPECIES NATIVE PERENNIAL GRAMINOIDS (Cool Season)										
XAgrohordeum macounii									**0.08**	***6***
Agropyron smithii							23	*100*	**0.77**	***14***
Agropyron trachycaulum									**0.15**	***8***
XAgrositanion saundersii									**0.17**	***3***
Eleocharis palustris			0.25	*25*					**0.19**	***6***
Hordeum jubatum	0.02	*7*							**0.79**	***11***
Koeleria cristata							1	*100*	**0.03**	***3***
Phalaris arundinacea	0.53	*20*	0.08	*25*					**0.23**	***11***
Scirpus acutus			1.25	*25*					**0.14**	***3***
Scirpus americanus	0.07	*7*	4.75	*75*					**0.56**	***11***
Scirpus maritimus									**0.01**	***3***
Scirpus validus	0.02	*7*							**0.01**	***3***
Stipa viridula							33	*100*	**1.00**	***6***
TOTAL NPG(C)	**0.64**	***33***	**6.33**	***75***	**0.00**	***0***	**57**	***100***	**4.12**	***44***

Table 12
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Thirteen Mesophytic Deciduous Tree Bottom Community Types, Otter Creek Baseline Study Area, 2011-2012.

	ACE NEG/ BRO INE		*ACE NEG/ SPA PEC*		*ACE NEG / PRU VIR*		*FRA PEN/ POA PRA*		**Mesophytic Deciduous Tree Bottom COMPOSITE**	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=15		**n=4**		**n=3**		**n=1**		**n=36**	
NATIVE PERENNIAL GRAMINOIDS										
(Warm Season)										
Spartina pectinata	2.49	*60*	27.50	*100*					**4.24**	***44***
TOTAL NPG(W)	**2.49**	***60***	**27.50**	***100***	**0.00**	***0***	**0**	***0***	**4.24**	***44***
INTRODUCED PERENNIAL GRAMINOIDS										
Agropyron cristatum	0.40	*20*	0.25	*25*	10.00	*33*			**4.26**	***31***
Agropyron elongatum			0.08	*25*					**0.01**	***3***
Agropyron repens	0.60	*13*	3.50	*25*					**0.94**	***14***
Alopecurus pratensis									**0.08**	***3***
Bromus inermis	57.40	*100*	43.50	*100*	24.00	*67*			**38.75**	***75***
Phleum pratense							7	*100*	**0.28**	***11***
Poa pratensis	0.07	*7*			5.33	*33*	25	*100*	**9.62**	***39***
TOTAL IPG	**58.47**	***100***	**47.33**	***100***	**39.33**	***100***	**32**	***100***	**53.94**	***100***
NATIVE ANNUAL GRAMINOIDS										
TOTAL NAG	**0.00**	***0***	**0.00**	***0***	**0.00**	***0***	**0**	***0***	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS										
Bromus japonicus					0.67	*33*	0.3	*100*	**0.12**	***17***
Bromus tectorum	0.09	*13*							**0.05**	***11***
TOTAL IAG	**0.09**	***13***	**0.00**	***0***	**0.67**	***33***	**0.3**	***100***	**0.17**	***22***
NATIVE PERENNIAL FORBS AND SUBSHRUBS										
Achillea millefolium							2	*100*	**0.10**	***11***
Apocynum cannabinum	0.95	*27*							**0.41**	***14***
Artemisia frigida									**0.01**	***3***
Artemisia ludoviciana							20	*100*	**1.02**	***17***
Asclepias speciosa	0.04	*13*	0.08	*25*					**0.03**	***8***
Aster falcatus							3	*100*	**0.14**	***6***
Aster hesperius	0.09	*13*							**0.44**	***14***
Aster laevis									**0.04**	***6***
Aster pansus									**0.23**	***11***
Astragalus agrestis							5	*100*	**0.31**	***6***
Astragalus drummondii							2	*100*	**0.06**	***3***
Cerastium arvense									**0.01**	***3***
Glycyrrhiza lepidota	0.02	*7*							**0.04**	***6***
Helianthus maximilianii									**0.39**	***3***
Lactuca oblongifolia							2	*100*	**0.09**	***8***
Mentha arvensis	0.02	*7*							**0.01**	***3***
Polygala alba							0.3	*100*	**0.01**	***3***

Table 12
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Thirteen Mesophytic Deciduous Tree Bottom Community Types, Otter Creek Baseline Study Area, 2011-2012.

	ACE NEG/ BRO INE		*ACE NEG/ SPA PEC*		*ACE NEG / PRU VIR*		*FRA PEN/ POA PRA*		**Mesophytic Deciduous Tree Bottom COMPOSITE**	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=15		**n=4**		**n=3**		**n=1**		**n=36**	
Potamogeton pectinatus	0.07	*7*	0.50	*25*					**0.08**	***6***
Potentilla gracilis	0.13	*7*							**0.06**	***3***
Psoralea argophylla									**0.03**	***3***
Ratibida columnifera							1	*100*	**0.08**	***14***
Rumex salicifolius			0.08	*25*					**0.09**	***8***
Sisyrinchium angustifolium							0.3	*100*	**0.01**	***3***
Solidago gigantea	0.07	*7*			0.10	*33*			**0.06**	***8***
Solidago mollis									**0.03**	***3***
Solidago rigida									**0.02**	***6***
Toxicodendron rydbergii					0.33	*33*			**0.36**	***6***
Typha latifolia	2.07	*20*	0.50	*25*					**0.92**	***11***
Urtica dioica					0.33	*33*			**0.08**	***6***
Vicia americana									**0.01**	***3***
TOTAL NPF AND SUBSHRUBS	**3.45**	***53***	**1.15**	***75***	**0.77**	***67***	**35.6**	***100***	**5.13**	***72***
INTRODUCED PERENNIAL FORBS										
Cirsium arvense	2.00	*53*	1.00	*25*	1.00	*67*			**1.06**	***33***
Medicago sativa									**0.09**	***11***
Rumex crispus	0.37	*33*			0.10	*33*			**0.51**	***33***
Rumex patienta	0.20	*7*							**0.11**	***6***
Taraxacum laevigatum	0.95	*13*					0.3	*100*	**0.44**	***14***
Taraxacum officinale									**0.03**	***3***
TOTAL IPF	**3.53**	***60***	**1.00**	***25***	**1.10**	***67***	**0.3**	***100***	**2.24**	***61***
FERNS AND ALLIES										
Equisetum laevigatum			0.08	*25*					**0.01**	***3***
TOTAL F&A	**0.00**	***0***	**0.08**	***25***	**0.00**	***0***	**0**	***0***	**0.01**	***3***

Table 12
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Thirteen Mesophytic Deciduous Tree Bottom Community Types, Otter Creek Baseline Study Area, 2011-2012.

	ACE NEG/ BRO INE		*ACE NEG/ SPA PEC*		*ACE NEG / PRU VIR*		*FRA PEN/ POA PRA*		**Mesophytic Deciduous Tree Bottom COMPOSITE**	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=15		**n=4**		**n=3**		**n=1**		**n=36**	
NATIVE ANNUAL/BIENNIAL FORBS										
Ambrosia trifida	0.24	*27*							**0.13**	***14***
Chenopodium glaucum	0.20	*7*							**0.08**	***3***
Chenopodium rubrum			0.50	*25*					**0.06**	***3***
Galium aparine	0.49	*33*							**0.31**	***17***
Gaura parviflora			0.25	*25*					**0.03**	***3***
Grindelia squarrosa									**0.01**	***3***
Iva xanthifolia	0.02	*7*							**0.01**	***3***
Parietaria pensylvanica	0.02	*7*							**0.04**	***6***
Polygonum arenastrum									**0.06**	***6***
TOTAL NAF	**0.97**	***53***	**0.75**	***25***	**0.00**	***0***	**0**	***0***	**0.73**	***42***
INTRODUCED ANNUAL/BIENNIAL FORBS										
Alyssum desertorum					0.10	*33*			**0.03**	***8***
Arctium minus	0.82	*27*			1.00	*33*			**0.51**	***17***
Asperugo procumbens			0.08	*25*					**0.09**	***6***
Atriplex heterosperma	1.99	*67*	3.08	*50*	0.67	*33*			**1.23**	***36***
Camelina microcarpa					0.10	*33*			**0.01**	***3***
Descurainia sophia	0.02	*7*							**0.02**	***6***
Lactuca serriola	0.32	*53*	0.33	*50*			0.3	*100*	**0.19**	***33***
Medicago lupulina	0.02	*7*					10	*100*	**0.29**	***6***
Melilotus officinalis							4	*100*	**0.20**	***11***
Polygonum convolvulus	0.13	*13*							**0.06**	***6***
Sisymbrium loeselii	1.62	*53*	0.33	*50*	3.33	*67*	1	*100*	**1.06**	***44***
Thlaspi arvense	0.11	*20*			0.67	*33*			**0.48**	***33***
Tragopogon dubius							1	*100*	**0.04**	***6***
TOTAL IAF	**5.03**	***93***	**3.80**	***75***	**5.87**	***100***	**16.3**	***100***	**4.18**	***86***

Table 12
Summary of Mean Percent Canopy Cover and Constancy by Class and Species for Thirteen Mesophytic Deciduous Tree Bottom Community Types, Otter Creek Baseline Study Area, 2011-2012.

	ACE NEG/ BRO INE		*ACE NEG/ SPA PEC*		*ACE NEG / PRU VIR*		*FRA PEN/ POA PRA*		**Mesophytic Deciduous Tree Bottom COMPOSITE**	
	Mean Cover	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***	**Mean Cover**	***Con-stancy***
	n=15		**n=4**		**n=3**		**n=1**		**n=36**	
SHRUBS										
Artemisia cana									**0.07**	***11***
Prunus virginiana	0.13	*13*			18.67	*100*			**3.06**	***25***
Ribes aureum	1.02	*27*							**0.43**	***11***
Ribes setosum			0.25	*25*	2.43	*100*			**0.26**	***14***
Rosa arkansana									**0.04**	***6***
Rosa woodsii	1.91	*33*	0.75	*25*	2.00	*67*			**1.75**	***36***
Salix exigua									**0.69**	***11***
Symphoricarpos occidentalis	0.80	*20*	6.00	*75*	3.00	*100*			**3.48**	***50***
TOTAL SHRUBS	**3.86**	***47***	**7.00**	***100***	**26.10**	***100***	**0**	***0***	**9.77**	***75***
TREES 0.01-acre										
Acer negundo	60.20	*100*	27.00	*100*	73.33	*100*			**39.56**	***72***
Fraxinus pennsylvanica	0.33	*7*					24	*100*	**2.56**	***14***
Juniperus scopulorum							6	*100*	**0.22**	***6***
Populus deltoides									**15.97**	***33***
Salix amygdaloides									**3.97**	***8***
TOTAL TREES 0.01-acre	**60.53**	***100***	**27.00**	***100***	**73.33**	***100***	**30**	***100***	**62.28**	***100***
TREES 0.1-acre										
Acer negundo	47.93	*100*	18.50	*100*	65.67	*100*			**31.67**	***78***
Fraxinus pennsylvanica	0.80	*7*			3.00	*67*	17	*100*	**2.50**	***19***
Juniperus scopulorum							9	*100*	**0.26**	***6***
Pinus ponderosa							5	*100*	**0.14**	***3***
Populus deltoides									**15.39**	***36***
Salix amygdaloides									**2.47**	***11***
TOTAL TREES 0.1-acre	**48.73**	***100***	**18.50**	***100***	**68.67**	***100***	**31**	***100***	**52.43**	***100***
TOTAL VEGETATION (Stratified)	**139.05**	***100***	**121.93**	***100***	**147.17**	***100***	**171.5**	***100***	**146.81**	***100***

Table 13

Summary of Shrub Density (Plants per Acre) by Species for Twelve GRASSLAND Community Types, Otter Creek Baseline Study Area, 2011-2012.

SHRUB SPECIES/AGE CLASS	AGR SMI/ BOU GRA n=15	AGR SMI/ STI VIR n=77	STI COM/ AGR SMI n=20	STI COM/ CAR FIL n=12	AGR SPI/ STI COM n=7	AGR SPI/ BOU CUR n=12	AND SCO/ CAR FIL n=2	AND SCO/ AGR SPI n=11	AND SCO/ BOU CUR n=10	AND SCO/ AND GER n=2	AND SCO/ CAL LON n=6	CAL LON/ STI COM n=11	GRASSLAND COMPOSITE n=185
Artemisia cana													
immature/mature	87.7	123.5	65.8	59.0				46.0				174.8	**82.6**
decadent		1.3										9.2	**1.1**
Total live	87.7	124.8	65.8	59.0				46.0				184.0	**83.7**
Artemisia tridentata													
immature/mature	13.5	155.1	156.8	126.5	173.5	497.5		303.5	495.8	202.4	387.9	101.2	**195.3**
decadent		6.6	5.1	16.9	28.9	42.2		9.2			50.6	9.2	**10.9**
Total live	13.5	161.6	161.9	143.3	202.4	539.6		312.7	495.8	202.4	438.4	110.4	**206.2**
Atriplex nuttallii													
immature/mature	6.7	7.9											**3.8**
decadent													
Total live	6.7	7.9											**3.8**
Calylophus serrulatus													
immature/mature								156.4	30.4		33.7		**12.0**
decadent													
Total live								156.4	30.4		33.7		**12.0**
Ceratoides lanata													
immature/mature	54.0	51.2	101.2			16.9			70.8				**41.6**
decadent													
Total live	54.0	51.2	101.2			16.9			70.8				**41.6**
Chrysothamnus nauseosus													
immature/mature								18.4	40.5		50.6		**4.9**
decadent													
Total live								18.4	40.5		50.6		**4.9**
Juniperus horizontalis													
immature/mature										151.8	50.6		**3.3**
decadent													
Total live										151.8	50.6		**3.3**
Rhus aromatica													
immature/mature		2.6		8.4		8.4		36.8				73.6	**8.8**
decadent													
Total live		2.6		8.4		8.4		36.8				73.6	**8.8**

Table 13

Summary of Shrub Density (Plants per Acre) by Species for Twelve GRASSLAND Community Types, Otter Creek Baseline Study Area, 2011-2012.

SHRUB SPECIES/AGE CLASS	*AGR SMI/ BOU GRA* n=15	*AGR SMI/ STI VIR* n=77	*STI COM/ AGR SMI* n=20	*STI COM/ CAR FIL* n=12	*AGR SPI/ STI COM* n=7	*AGR SPI/ BOU CUR* n=12	*AND SCO/ CAR FIL* n=2	*AND SCO/ AGR SPI* n=11	*AND SCO/ BOU CUR* n=10	*AND SCO/ AND GER* n=2	*AND SCO/ CAL LON* n=6	*CAL LON/ STI COM* n=11	GRASSLAND COMPOSITE n=185
Rosa arkansana													
immature/mature		760.8				59.0		285.1	384.5		16.9	9.2	**359.3**
decadent													
Total live		760.8				59.0		285.1	384.5		16.9	9.2	**359.3**
Rosa woodsii													
immature/mature		168.2				84.3				151.8	16.9	18.4	**78.8**
decadent													
Total live		168.2				84.3				151.8	16.9	18.4	**78.8**
Sarcobatus vermiculatus													
immature/mature		2.6											**1.1**
decadent													
Total live		2.6											**1.1**
Symphoricarpos occidentalis													
immature/mature		134.0				59.0		101.2			118.0		**69.5**
decadent													
Total live		134.0				59.0		101.2			118.0		**69.5**
TOTAL SHRUBS													
IMMATURE/MATURE	**161.9**	**1406.0**	**323.8**	**193.9**	**173.5**	**725.1**		**947.4**	**1021.9**	**505.9**	**674.5**	**377.1**	**860.9**
DECADENT		**7.9**	**5.1**	**16.9**	**28.9**	**42.2**		**9.2**			**50.6**	**18.4**	**12.0**
TOTAL LIVE	**161.9**	**1413.9**	**328.8**	**210.8**	**202.4**	**767.3**	**0.0**	**956.6**	**1021.9**	**505.9**	**725.1**	**395.5**	**872.9**

Table 14
Summary of Shrub Density (Plants per Acre) by Species for Two TAME PASTURE Types,
Otter Creek Baseline Study Area, 2011-2012.

SHRUB SPECIES/AGE CLASS	HAY CROPLAND n=66	PASTURELAND n=40	TAME PASTURE COMPOSITE n=106
Artemisia cana			
immature/mature	1.5	829.7	**314.0**
decadent		55.7	**21.0**
Total live	1.5	885.4	**335.1**
Artemisia tridentata			
immature/mature		58.2	**22.0**
decadent		7.6	**2.9**
Total live		65.8	**24.8**
Atriplex nuttallii			
immature/mature	3.0	91.1	**36.3**
decadent			
Total live	3.0	91.1	**36.3**
Ceratoides lanata			
immature/mature		88.6	**33.4**
decadent			
Total live		88.6	**33.4**
Chrysothamnus nauseosus			
immature/mature		7.6	**2.9**
decadent			
Total live		7.6	**2.9**
Rhus aromatica			
immature/mature		10.1	**3.8**
decadent			
Total live		10.1	**3.8**
Rosa woodsii			
immature/mature		32.9	**12.4**
decadent		2.5	**1.0**
Total live		35.4	**13.4**
Symphoricarpos occidentalis			
immature/mature		32.9	**12.4**
decadent			
Total live		32.9	**12.4**
TOTAL SHRUBS			
IMMATURE/MATURE	**4.6**	**1151.0**	**437.2**
DECADENT		**65.8**	**24.8**
TOTAL LIVE	**4.6**	**1216.8**	**462.0**

Table 15
Summary of Shrub Density (Plants per Acre) by Species for Four SHRUB/GRASSLAND Community Types, Otter Creek Baseline Study Area, 2011-2012.

SHRUB SPECIES/AGE CLASS	*ART CAN/ AGR SMI* n=52	*ART TRI/ AGR SMI* n=73	*ART TRI/ AGR SPI* n=36	*ART TRI/ AND SCO* n=11	**SHRUB/ GRASSLAND COMPOSITE n=172**
Artemisia cana					
immature/mature	1951.6	102.6	2.8	46.0	**637.1**
decadent	122.6	1.4			**37.6**
Total live	2074.2	104.0	2.8	46.0	**674.7**
Artemisia tridentata					
immature/mature	179.0	2201.0	2428.3	1545.3	**1595.3**
decadent	9.7	284.1	244.5	340.3	**196.5**
Total live	188.7	2485.1	2672.8	1885.6	**1791.8**
Atriplex nuttallii					
immature/mature		15.2	19.7		**10.6**
decadent					
Total live		15.2	19.7		**10.6**
Ceratoides lanata					
immature/mature	31.1	79.0	109.6		**65.9**
decadent					
Total live	31.1	79.0	109.6		**65.9**
Chrysothamnus nauseosus					
immature/mature	5.8		36.5	18.4	**10.6**
decadent			11.2		**2.4**
Total live	5.8		47.8	18.4	**12.9**
Prunus virginiana					
immature/mature	11.7	1.4			**4.1**
decadent					
Total live	11.7	1.4			**4.1**
Rhus aromatica					
immature/mature	38.9	15.2	2.8		**18.8**
decadent					
Total live	38.9	15.2	2.8		**18.8**
Rosa arkansana					
immature/mature		61.0	30.9	9.2	**32.9**
decadent					
Total live		61.0	30.9	9.2	**32.9**
Rosa woodsii					
immature/mature	66.2	76.2	39.3		**60.6**
decadent	3.9				**1.2**
Total live	70.0	76.2	39.3		**61.8**

Table 15
Summary of Shrub Density (Plants per Acre) by Species for Four SHRUB/GRASSLAND Community Types, Otter Creek Baseline Study Area, 2011-2012.

SHRUB SPECIES/AGE CLASS	*ART CAN/ AGR SMI* n=52	*ART TRI/ AGR SMI* n=73	*ART TRI/ AGR SPI* n=36	*ART TRI/ AND SCO* n=11	**SHRUB/ GRASSLAND COMPOSITE n=172**
Sarcobatus vermiculatus					
immature/mature		6.9	2.8		**3.5**
decadent					
Total live		6.9	2.8		**3.5**
Symphoricarpos occidentalis					
immature/mature	939.8				**284.1**
decadent					
Total live	939.8				**284.1**
TOTAL SHRUBS					
IMMATURE/MATURE	**3224.1**	**2558.6**	**2672.8**	**1618.9**	**2723.6**
DECADENT	**136.2**	**285.5**	**255.8**	**340.3**	**237.7**
TOTAL LIVE	**3360.3**	**2844.1**	**2928.6**	**1959.2**	**2961.3**

Table 16
Summary of Shrub Density (Plants per Acre) by Species for Four GRASS-DOMINATED BREAKS Community Types, Otter Creek Baseline Study Area, 2011-2012.

SHRUB SPECIES/AGE CLASS	*AGR SMI* BREAKS n=10	*AGR SPI* BREAKS n=4	*SPO AIR* BREAKS n=4	*CAL LON* BREAKS n=5	GRASS-DOMINATED BREAKS COMPOSITE n=23
Artemisia cana					
immature/mature				182.1	**39.6**
decadent					
Total live				182.1	**39.6**
Artemisia tridentata					
immature/mature	212.5	328.8	126.5	222.6	**220.0**
decadent	10.1	25.3		80.9	**26.4**
Total live	222.6	354.1	126.5	303.5	**246.4**
Atriplex confertifolia					
immature/mature	20.2	50.6			**17.6**
decadent					
Total live	20.2	50.6			**17.6**
Atriplex nuttallii					
immature/mature	313.7				**136.4**
decadent					
Total live	313.7				**136.4**
Ceratoides lanata					
immature/mature	40.5		25.3		**22.0**
decadent					
Total live	40.5		25.3		**22.0**
Chrysothamnus nauseosus					
immature/mature	91.1	328.8	75.9	242.8	**162.8**
decadent		50.6			**8.8**
Total live	91.1	379.4	75.9	242.8	**171.6**
Rhus aromatica					
immature/mature		50.6		121.4	**35.2**
decadent					
Total live		50.6		121.4	**35.2**
Rosa arkansana					
immature/mature		126.5			**22.0**
decadent					
Total live		126.5			**22.0**
Sarcobatus vermiculatus					
immature/mature	20.2				**8.8**
decadent					
Total live	20.2				**8.8**
TOTAL SHRUBS					
IMMATURE/MATURE	**698.1**	**885.3**	**227.7**	**769.0**	**664.3**
DECADENT	**10.1**	**75.9**		**80.9**	**35.2**
TOTAL LIVE	**708.3**	**961.2**	**227.7**	**849.9**	**699.5**

Table 17
Summary of Shrub Density (Plants per Acre) by Species for Seven SHRUB-DOMINATED BREAKS Community Types, Otter Creek Baseline Study Area, 2011-2012.

SHRUB SPECIES/AGE CLASS	*ART TRI-SAR VER-CHR NAU/ AGR SMI* BREAKS n=26	*ART TRI-SAR VER-CHR NAU/ AGR SPI* BREAKS n=3	*RHU ARO/ AGR SPI-AND SCO* BREAKS n=8	*ART TRI-RHU ARO-CHR NAU/ AGR SPI* BREAKS n=15	*ART TRI-RHU ARO-SAR VER/ AGR SPI* BREAKS n=6	*ART TRI-ATR CON-SAR VER/ AGR SPI* BREAKS n=26	*ART TRI-ATR CON-RHU ARO/ AGR SPI* BREAKS n=13	*SHRUB-DOMINATED BREAKS COMPOSITE* n=97
Artemisia cana								
immature/mature	54.5			60.7				**24.0**
decadent								
Total live	54.5			60.7				**24.0**
Artemisia tridentata								
immature/mature	1167.5	876.9		1086.0	1500.8	1720.1	1089.6	**1207.9**
decadent	50.6	202.4		101.2	84.3	77.8	31.1	**65.7**
Total live	1218.1	1079.3		1187.2	1585.2	1797.9	1120.8	**1273.6**
Atriplex confertifolia								
immature/mature	3.9					416.4	1019.6	**249.3**
decadent						7.8	23.3	**5.2**
Total live	3.9					424.2	1042.9	**254.5**
Atriplex nuttallii								
immature/mature	38.9							**10.4**
decadent								
Total live	38.9							**10.4**
Ceratoides lanata								
immature/mature	15.6					116.7		**35.5**
decadent								
Total live	15.6					116.7		**35.5**
Chrysothamnus nauseosus								
immature/mature	587.6	1247.9		1200.7	134.9	163.4	101.2	**447.5**
decadent	11.7	33.7		13.5				**6.3**
Total live	599.3	1281.6		1214.2	134.9	163.4	101.2	**453.7**

Table 17
Summary of Shrub Density (Plants per Acre) by Species for Seven SHRUB-DOMINATED BREAKS Community Types, Otter Creek Baseline Study Area, 2011-2012.

SHRUB SPECIES/AGE CLASS	*ART TRI-SAR VER-CHR NAU/ AGR SMI* BREAKS n=26	*ART TRI-SAR VER-CHR NAU/ AGR SPI* BREAKS n=3	*RHU ARO/ AGR SPI-AND SCO* BREAKS n=8	*ART TRI-RHU ARO-CHR NAU/ AGR SPI* BREAKS n=15	*ART TRI-RHU ARO-SAR VER/ AGR SPI* BREAKS n=6	*ART TRI-ATR CON-SAR VER/ AGR SPI* BREAKS n=26	*ART TRI-ATR CON-RHU ARO/ AGR SPI* BREAKS n=13	*SHRUB-DOMINATED BREAKS COMPOSITE* n=97
Prunus virginiana								
immature/mature			1163.6					**96.0**
decadent								
Total live			1163.6					**96.0**
Rhus aromatica								
immature/mature	7.8		1745.4	296.8	253.0		101.2	**221.1**
decadent			139.1	6.7				**12.5**
Total live	7.8		1884.5	303.5	253.0		101.2	**233.7**
Ribes cereum								
immature/mature			126.5					**10.4**
decadent								
Total live			126.5					**10.4**
Rosa arkansana								
immature/mature		2563.2		735.2		159.6	116.7	**251.4**
decadent								
Total live		2563.2		735.2		159.6	116.7	**251.4**
Rosa woodsii								
immature/mature			12.6	229.3				**36.5**
decadent								
Total live			12.6	229.3				**36.5**
Sarcobatus vermiculatus								
immature/mature	443.6	708.3		13.5	303.5	249.1		**228.4**
decadent		168.6						**5.2**
Total live	443.6	876.9		13.5	303.5	249.1		**233.7**

Table 17
Summary of Shrub Density (Plants per Acre) by Species for Seven SHRUB-DOMINATED BREAKS Community Types, Otter Creek Baseline Study Area, 2011-2012.

SHRUB SPECIES/AGE CLASS	*ART TRI-SAR VER-CHR NAU/ AGR SMI* BREAKS n=26	*ART TRI-SAR VER-CHR NAU/ AGR SPI* BREAKS n=3	*RHU ARO/ AGR SPI-AND SCO* BREAKS n=8	*ART TRI-RHU ARO-CHR NAU/ AGR SPI* BREAKS n=15	*ART TRI-RHU ARO-SAR VER/ AGR SPI* BREAKS n=6	*ART TRI-ATR CON-SAR VER/ AGR SPI* BREAKS n=26	*ART TRI-ATR CON-RHU ARO/ AGR SPI* BREAKS n=13	*SHRUB-DOMINATED BREAKS COMPOSITE* n=97
TOTAL SHRUBS								
IMMATURE/MATURE	**2319.4**	**5396.3**	**3048.0**	**3622.2**	**2192.2**	**2825.3**	**2428.3**	**2818.4**
DECADENT	**62.3**	**404.7**	**139.1**	**121.4**	**84.3**	**85.6**	**54.5**	**94.9**
TOTAL LIVE	**2381.6**	**5801.0**	**3187.2**	**3743.7**	**2276.6**	**2910.9**	**2482.8**	**2913.4**

Table 18
Summary of Shrub Density (Plants per Acre) by Species for Five CONIFER-DOMINATED BREAKS Community Types, Otter Creek Baseline Study Area, 2011-2012.

SHRUB SPECIES/AGE CLASS	*JUN SCO/ AGR SPI* BREAKS n=11	*PIN PON-JUN SCO/ AGR SPI* BREAKS n=18	*PIN PON-JUN SCO/ AND SCO* BREAKS n=15	*PIN PON-JUN SCO/ ART TRI* BREAKS n=4	*PIN PON-JUN SCO/ ART TRI-ATR CON* BREAKS n=7	CONIFER-DOMINATED BREAKS COMPOSITE n=55
Artemisia cana						
immature/mature		5.6	54.0			**16.6**
decadent						
Total live		5.6	54.0			**16.6**
Artemisia tridentata						
immature/mature	128.8	281.1	276.6	1239.5	1431.0	**465.4**
decadent	46.0	50.6		278.2	28.9	**49.7**
Total live	174.8	331.6	276.6	1517.7	1459.9	**515.1**
Atriplex confertifolia						
immature/mature				101.2	664.9	**92.0**
decadent					14.5	**1.8**
Total live				101.2	679.4	**93.8**
Calylophus serrulatus						
immature/mature	9.2		80.9			**23.9**
decadent						
Total live	9.2		80.9			**23.9**
Ceratoides lanata						
immature/mature			13.5	126.5	144.5	**31.3**
decadent						
Total live			13.5	126.5	144.5	**31.3**
Chrysothamnus nauseosus						
immature/mature	101.2	253.0	155.1	657.7	187.9	**217.1**
decadent	9.2	11.2	6.7	25.3		**9.2**
Total live	110.4	264.2	161.9	683.0	187.9	**226.3**
Juniperus horizontalis						
immature/mature		56.2				**18.4**
decadent						
Total live		56.2				**18.4**
Rhus aromatica						
immature/mature	174.8	213.6	249.6	25.3	216.8	**202.4**
decadent			6.7			**1.8**
Total live	174.8	213.6	256.3	25.3	216.8	**204.2**
Ribes cereum						
immature/mature		22.5				**7.4**
decadent						
Total live		22.5				**7.4**

Table 18
Summary of Shrub Density (Plants per Acre) by Species for Five CONIFER-DOMINATED BREAKS Community Types, Otter Creek Baseline Study Area, 2011-2012.

SHRUB SPECIES/AGE CLASS	*JUN SCO/ AGR SPI* BREAKS n=11	*PIN PON-JUN SCO/ AGR SPI* BREAKS n=18	*PIN PON-JUN SCO/ AND SCO* BREAKS n=15	*PIN PON-JUN SCO/ ART TRI* BREAKS n=4	*PIN PON-JUN SCO/ ART TRI-ATR CON* BREAKS n=7	CONIFER-DOMINATED BREAKS COMPOSITE n=55
Rosa arkansana						
immature/mature	92.0	151.8	33.7	101.2		**84.6**
decadent						
Total live	92.0	151.8	33.7	101.2		**84.6**
Rosa woodsii						
immature/mature					202.4	**25.8**
decadent						
Total live					202.4	**25.8**
Sarcobatus vermiculatus						
immature/mature		5.6			144.5	**20.2**
decadent						
Total live		5.6			144.5	**20.2**
Shepherdia argentea						
immature/mature		11.2				**3.7**
decadent						
Total live		11.2				**3.7**
Symphoricarpos occidentalis						
immature/mature	147.2		80.9		404.7	**103.0**
decadent						
Total live	147.2		80.9		404.7	**103.0**
Symphoricarpos oreophilus						
immature/mature				1214.2		**88.3**
decadent						
Total live				1214.2		**88.3**
TOTAL SHRUBS						
IMMATURE/MATURE	**653.1**	**1000.6**	**944.3**	**3465.4**	**3396.8**	**1400.0**
DECADENT	**55.2**	**61.8**	**13.5**	**303.5**	**43.4**	**62.5**
TOTAL LIVE	**708.3**	**1062.4**	**957.8**	**3769.0**	**3440.1**	**1462.5**

Table 19
Summary of Shrub Density (Plants per Acre) by Species for Six FOREST AND SAVANNAH Community Types, Otter Creek Baseline Study Area, 2011-2012.

SHRUB SPECIES/AGE CLASS	*PIN PON-JUN SCO/ AGR SPI* n=93	*JUN SCO-PIN PON/ ORY MIC* n=2	*PIN PON-JUN SCO/ FES IDA* n=2	*PIN PON-JUN SCO/ AND SCO* n=30	DRAINAGE *JUN SCO-PIN PON/ SYM OCC-AGR SMI* n=11	*PIN PON-JUN SCO/ PRU VIR* n=2	FOREST AND SAVANNAH COMPOSITE n=140
Artemisia cana							
immature/mature	72.9		101.2	54.0	119.6		**70.8**
decadent	1.1		50.6		9.2		**2.2**
Total live	74.0		151.8	54.0	128.8		**73.0**
Artemisia tridentata							
immature/mature	181.7		50.6	161.9			**156.1**
decadent	45.7			40.5			**39.0**
Total live	227.4		50.6	202.4			**195.1**
Ceratoides lanata							
immature/mature	42.4			20.2			**32.5**
decadent							
Total live	42.4			20.2			**32.5**
Chrysothamnus nauseosus							
immature/mature	8.7			3.4			**6.5**
decadent							
Total live	8.7			3.4			**6.5**
Prunus virginiana							
immature/mature	12.0	50.6		13.5	27.6	2074.2	**43.4**
decadent							
Total live	12.0	50.6		13.5	27.6	2074.2	**43.4**
Rhus aromatica							
immature/mature	162.1	50.6	202.4	128.2	395.5	708.3	**180.0**
decadent	2.2			3.4			**2.2**
Total live	164.3	50.6	202.4	131.5	395.5	708.3	**182.1**
Ribes aureum							
immature/mature				3.4		1517.7	**22.4**
decadent							
Total live				3.4		1517.7	**22.4**
Ribes cereum							
immature/mature				3.4			**0.7**
decadent							
Total live				3.4			**0.7**
Ribes setosum							
immature/mature						202.4	**2.9**
decadent							
Total live						202.4	**2.9**

Table 19
Summary of Shrub Density (Plants per Acre) by Species for Six FOREST AND SAVANNAH Community Types, Otter Creek Baseline Study Area, 2011-2012.

SHRUB SPECIES/AGE CLASS	*PIN PON-JUN SCO/ AGR SPI* n=93	*JUN SCO-PIN PON/ ORY MIC* n=2	*PIN PON-JUN SCO/ FES IDA* n=2	*PIN PON-JUN SCO/ AND SCO* n=30	DRAINAGE *JUN SCO-PIN PON/ SYM OCC-AGR SMI* n=11	*PIN PON-JUN SCO/ PRU VIR* n=2	FOREST AND SAVANNAH COMPOSITE n=140
Rosa arkansana							
immature/mature	221.9			67.5	202.4	2327.1	**211.0**
decadent							
Total live	221.9			67.5	202.4	2327.1	**211.0**
Rosa woodsii							
immature/mature	45.7				883.0	961.2	**113.5**
decadent							
Total live	45.7				883.0	961.2	**113.5**
Symphoricarpos occidentalis							
immature/mature	245.9			165.3	9520.1	4047.2	**1004.6**
decadent	2.2						**1.4**
Total live	248.1			165.3	9520.1	4047.2	**1006.0**
Symphoricarpos oreophilus							
immature/mature	15.2	657.7		128.2			**47.0**
decadent							
Total live	15.2	657.7		128.2			**47.0**
TOTAL SHRUBS							
IMMATURE/MATURE	**1008.5**	**758.9**	**354.1**	**748.7**	**11148.2**	**11838.1**	**1891.3**
DECADENT	**51.1**		**50.6**	**43.8**	**9.2**		**44.8**
TOTAL LIVE	**1059.7**	**758.9**	**404.7**	**792.6**	**11157.4**	**11838.1**	**1936.2**

Table 20
Summary of Shrub Density (Plants per Acre) by Species for Twelve MESOPHYTIC/HYDROPHYTIC HERBACEOUS BOTTOM Community Types, Otter Creek Baseline Study Area, 2011-2012.

SHRUB SPECIES/AGE CLASS	*SPO AIR/ AGR SMI* n=1	*SPA PEC/ BRO INE* n=4	*SPA PEC/ HOR JUB* n=1	*SPA PEC/ PUC NUT* n=1	*SPA PEC/ PAN VIR* n=1	*SPA PEC/ SCI AME* n=2	*SCI MAR/ SPO AIR-DIS STR* n=1	*ELE PAL/ SCI AME-JUN TOR* n=3	*TYP LAT/ BRO INE* n=2	*TYP LAT/ SPA PEC* n=2	*SCI ACU-SCI VAL/ SPA PEC* n=7	*SCI ACU-SCI VAL/ TYP LAT* n=3	**MESOPHYTIC/ HYDROPHYTIC HERBACEOUS BOTTOM COMPOSITE n=28**
Artemisia cana													
immature/mature					101.2			202.4			86.7		**47.0**
decadent													
Total live					101.2			202.4			86.7		**47.0**
Artemisia tridentata													
immature/mature	202.4						101.2						**10.8**
decadent													
Total live	202.4						101.2						**10.8**
Humulus lupulus													
immature/mature		1062.4											**151.8**
decadent													
Total live		1062.4											**151.8**
Prunus virginiana													
immature/mature													
decadent											14.5		**3.6**
Total live											14.5		**3.6**
Rhus aromatica													
immature/mature								33.7					**3.6**
decadent													
Total live								33.7					**3.6**
Ribes aureum													
immature/mature										708.3	419.2		**155.4**
decadent										50.6			**3.6**
Total live										758.9	419.2		**159.0**
Rosa woodsii													
immature/mature		126.5			7386.1			67.5	50.6	455.3	1300.9		**650.4**
decadent		151.8								101.2	43.4		**39.7**
Total live		278.2			7386.1			67.5	50.6	556.5	1344.2		**690.2**

Table 20
Summary of Shrub Density (Plants per Acre) by Species for Twelve MESOPHYTIC/HYDROPHYTIC HERBACEOUS BOTTOM Community Types, Otter Creek Baseline Study Area, 2011-2012.

SHRUB SPECIES/AGE CLASS	*SPO AIR/ AGR SMI* n=1	*SPA PEC/ BRO INE* n=4	*SPA PEC/ HOR JUB* n=1	*SPA PEC/ PUC NUT* n=1	*SPA PEC/ PAN VIR* n=1	*SPA PEC/ SCI AME* n=2	*SCI MAR/ SPO AIR-DIS STR* n=1	*ELE PAL/ SCI AME-JUN TOR* n=3	*TYP LAT/ BRO INE* n=2	*TYP LAT/ SPA PEC* n=2	*SCI ACU-SCI VAL/ SPA PEC* n=7	*SCI ACU-SCI VAL/ TYP LAT* n=3	MESOPHYTIC/ HYDROPHYTIC HERBACEOUS BOTTOM COMPOSITE n=28
Salix exigua													
immature/mature								371.0					**39.7**
decadent													
Total live								371.0					**39.7**
Symphoricarpos occidentalis													
immature/mature		5312.0			11838.1			1349.1	910.6	4047.2	3974.9		**2674.0**
decadent		126.5								303.5	173.5		**83.1**
Total live		5438.4			11838.1			1349.1	910.6	4350.7	4148.4		**2757.2**
TOTAL SHRUBS													
IMMATURE/MATURE	**202.4**	**6500.8**			**19325.4**		**101.2**	**2023.6**	**961.2**	**5210.8**	**5781.7**		**3732.8**
DECADENT		**278.2**								**455.3**	**231.3**		**130.1**
TOTAL LIVE	**202.4**	**6779.1**	**0.0**	**0.0**	**19325.4**	**0.0**	**101.2**	**2023.6**	**961.2**	**5666.1**	**6013.0**	**0.0**	**3862.9**

Table 21
Summary of Shrub Density (Plants per Acre) by Species for Four MESOPHYTIC LOW SHRUB BOTTOM Community Types, Otter Creek Baseline Study Area, 2011-2012.

SHRUB SPECIES/AGE CLASS	*SYM OCC-ART TRI-SAR VER/ AGR SMI* n=2	*ART CAN-ROS WOO/ AGR SMI-POA PRA* n=1	*SYM OCC-ART CAN/ AGR SMI-POA PRA* n=7	*SYM OCC-ROS WOO/ POA PRA-AGR SMI* n=17	MESOPHYTIC LOW SHRUB BOTTOM COMPOSITE n=27
Artemisia cana					
immature/mature	253.0	304	1214.2	607.1	**727.0**
decadent		304	14.5	154.7	**112.4**
Total live	253.0	607	1228.6	761.8	**839.4**
Artemisia tridentata					
immature/mature	809.4			23.8	**74.9**
decadent	50.6				**3.7**
Total live	860.0			23.8	**78.7**
Chrysothamnus nauseosus					
immature/mature			28.9		**7.5**
decadent					
Total live			28.9		**7.5**
Rhus aromatica					
immature/mature				11.9	**7.5**
decadent					
Total live				11.9	**7.5**
Ribes aureum					
immature/mature				101.2	**63.7**
decadent					
Total live				101.2	**63.7**
Rosa arkansana					
immature/mature				333.3	**209.9**
decadent					
Total live				333.3	**209.9**
Rosa woodsii					
immature/mature	151.8	32580	274.6	1487.9	**2226.0**
decadent					
Total live	151.8	32580	274.6	1487.9	**2226.0**
Sarcobatus vermiculatus					
immature/mature	404.7			6.0	**33.7**
decadent					
Total live	404.7			6.0	**33.7**
Symphoricarpos occidentalis					
immature/mature	2428.3	2934	42596.8	46269.0	**40464.5**
decadent			375.8	178.6	**209.9**
Total live	2428.3	2934	42972.6	46447.6	**40674.4**
TOTAL SHRUBS					
IMMATURE/MATURE	**4047.2**	**35818**	**44114.5**	**48840.2**	**43814.7**
DECADENT	**50.6**	**304**	**390.3**	**333.3**	**326.0**
TOTAL LIVE	**4097.8**	**36121**	**44504.7**	**49173.5**	**44140.7**

Table 22

Summary of Shrub Density (Plants per Acre) by Species for the MESOPHYTIC TALL SHRUB BOTTOM and Thirteen MESOPHYTIC DECIDUOUS TREE BOTTOM Community Types, Otter Creek Baseline Study Area, 2011-2012.

SHRUB SPECIES/AGE CLASS	MESOPHYTIC TALL SHRUB BOTTOM COMPOSITE n=2	POP DEL/ BRO INE n=2	POP DEL-ACE NEG/ BRO INE n=2	POP DEL-FRA PEN-ACE NEG/ POA PRA n=2	POP DEL/ SYM OCC-POA PRA n=1	POP DEL-FRA PEN-ACE NEG/ SYM OCC n=1	POP DEL-SAL AMY/ POA PRA n=1	POP DEL-SAL AMY/ SAL EXI n=1	POP DEL/ PRU VIR n=1	POP DEL-FRA PEN-ACE NEG/ PRU VIR n=2	ACE NEG/ BRO INE n=15	ACE NEG/ SPA PEC n=4	ACE NEG/ PRU VIR n=3	FRA PEN/ POA PRA n=1	MESOPHYTIC DECIDUOUS TREE BOTTOM COMPOSITE n=36
Artemisia cana															
immature/mature	809.4			50.6	101		404.7			50.6					19.7
decadent				50.6											2.8
Total live	809.4			101.2	101		404.7			50.6					22.5
Artemisia tridentata															
immature/mature														101	2.8
decadent															
Total live														101	2.8
Prunus virginiana															
immature/mature	1062.4		101.2			1821			3238	253.0	20.2		7048.9		756.0
decadent	505.9								1113				168.6		45.0
Total live	1568.3		101.2			1821			4351	253.0	20.2		7217.5		801.0
Rhus aromatica															
immature/mature	354.1													101	2.8
decadent															
Total live	354.1													101	2.8
Ribes aureum															
immature/mature											148.4		269.8		84.3
decadent															
Total live											148.4		269.8		84.3
Ribes setosum															
immature/mature	607.1											75.9	1888.7		165.8
decadent													101.2		8.4
Total live	607.1											75.9	1989.9		174.3
Rosa arkansana															
immature/mature		202.4			911										36.5
decadent															
Total live		202.4			911										36.5
Rosa woodsii															
immature/mature				50.6				405	2226	2377.7	890.4	202.4	438.4		638.0
decadent				101.2						303.5	33.7		33.7		39.3
Total live				151.8				405	2226	2681.3	924.1	202.4	472.2		677.3

Table 22

Summary of Shrub Density (Plants per Acre) by Species for the MESOPHYTIC TALL SHRUB BOTTOM and Thirteen MESOPHYTIC DECIDUOUS TREE BOTTOM Community Types, Otter Creek Baseline Study Area, 2011-2012.

SHRUB SPECIES/AGE CLASS	MESOPHYTIC TALL SHRUB BOTTOM COMPOSITE n=2	*POP DEL/ BRO INE* n=2	*POP DEL-ACE NEG/ BRO INE* n=2	*POP DEL-FRA PEN-ACE NEG/ POA PRA* n=2	*POP DEL/ SYM OCC-POA PRA* n=1	*POP DEL-FRA PEN-ACE NEG/ SYM OCC* n=1	*POP DEL-SAL AMY/ POA PRA* n=1	*POP DEL-SAL AMY/ SAL EXI* n=1	*POP DEL/ PRU VIR* n=1	*POP DEL-FRA PEN-ACE NEG/ PRU VIR* n=2	*ACE NEG/ BRO INE* n=15	*ACE NEG/ SPA PEC* n=4	*ACE NEG/ PRU VIR* n=3	*FRA PEN/ POA PRA* n=1	MESOPHYTIC DECIDUOUS TREE BOTTOM COMPOSITE n=36
Salix exigua															
immature/mature		151.8						304							**16.9**
decadent															
Total live		151.8						304							**16.9**
Symphoricarpos occidentalis															
immature/mature	**6829.7**	2074.2	910.6	860.0	18617	9309		708	22260	3743.7	1969.6	7639.1	1011.8	809	**3611.6**
decadent		50.6		253.0	2226				708	505.9	114.7	278.2	33.7		**208.0**
Total live	**6829.7**	2124.8	910.6	1113.0	20843	9309		708	22968	4249.6	2084.3	7917.3	1045.5	809	**3819.5**
TOTAL SHRUBS															
IMMATURE/MATURE	**9662.7**	**2428.3**	**1011.8**	**961.2**	**19629**	**11130**	**404.7**	**1417**	**27723**	**6424.9**	**3028.7**	**7917.3**	**10657.6**	**1012**	**5334.4**
DECADENT	**505.9**	**50.6**		**404.7**	**2226**				**1821**	**809.4**	**148.4**	**278.2**	**337.3**		**303.5**
TOTAL LIVE	**10168.6**	**2478.9**	**1011.8**	**1365.9**	**21855**	**11130**	**404.7**	**1417**	**29545**	**7234.4**	**3177.1**	**8195.6**	**10994.9**	**1012**	**5638.0**

Table 23

Summary of Tree Density (Live Trees Per Acre) by Species for Twelve **GRASSLAND** and Two **TAME PASTURE**[1] Community Types, Otter Creek Baseline Study Area, 2011-2012.

TREE SPECIES	*AGR SMI/ BOU GRA*	*AGR SMI/ STI VIR*	*STI COM/ AGR SMI*	*STI COM/ CAR FIL*	*AGR SPI/ STI COM*	*AGR SPI/ BOU CUR*	*AND SCO/ CAR FIL*	*AND SCO/ AGR SPI*	*AND SCO/ BOU CUR*	*AND SCO/ AND GER*	*AND SCO/ CAL LON*	*CAL LON/ STI COM*	GRASSLAND COMPOSITE
DBH CLASS - LIVE TREES	**n=15**	**n=77**	**n=20**	**n=12**	**n=7**	**n=12**	**n=2**	**n=11**	**n=10**	**n=2**	**n=6**	**n=11**	**n=185**
Juniperus scopulorum													
<1"						3.3		5.5		40.0	11.7		**1.4**
1-4"		0.3				4.2		7.3	1.0	10.0	13.3		**1.4**
4-8"		0.3											**0.1**
8-12"													
TOTAL LIVE TREES	**0.0**	**0.5**	**0.0**	**0.0**	**0.0**	7.5	**0.0**	**12.7**	**1.0**	**50.0**	**25.0**	**0.0**	**2.9**
Pinus ponderosa													
<1"								10.9			1.7	1.8	**0.8**
1-4"								0.9			1.7	0.9	**0.2**
4-8"													
8-12"								0.9					**0.1**
TOTAL LIVE TREES	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**12.7**	**0.0**	**0.0**	**3.4**	**2.7**	**1.0**
TOTAL TREE SPECIES - LIVE													
<1"						3.3		16.4		40.0	13.3	1.8	**2.2**
1-4"		0.3				4.2		8.2	1.0	10.0	15.0	0.9	**1.6**
4-8"		0.3											**0.1**
8-12"								0.9					**0.1**
TOTAL LIVE TREES	**0.0**	**0.5**	**0.0**	**0.0**	**0.0**	7.5	**0.0**	**25.5**	**1.0**	**50.0**	**28.3**	**2.7**	**3.9**

[1]No trees occurred in the 106 0.1-acre density plots sampled in two Tame Pasture types (Hay Cropland and Pastureland) during the 2011-2012 baseline inventory.

Table 24
Summary of Tree Density (Live Trees Per Acre) by Species for Four
SHRUB/ GRASSLAND Community Types, Otter Creek Baseline Study Area,
2011-2012.

TREE SPECIES DBH CLASS - LIVE TREES	*ART CAN / AGR SMI* n=52	*ART TRI / AGR SMI* n=73	*ART TRI / AGR SPI* n=36	*ART TRI/ AND SCO* n=11	SHRUB/ GRASSLAND COMPOSITE n=172
Acer negundo					
<1"					
1-4"	0.2				**0.06**
4-8"					
8-12"					
12-16"					
16-20"					
20-24"					
24-28"					
TOTAL LIVE TREES	**0.2**	**0.0**	**0.0**	**0.0**	**0.06**
Juniperus scopulorum					
<1"	0.6	0.5	1.1	6.4	**1.05**
1-4"	1.3	0.4	2.5	3.6	**1.34**
4-8"	0.6	0.4	0.3	4.5	**0.70**
8-12"		0.1			**0.06**
12-16"					
16-20"					
20-24"					
24-28"					
TOTAL LIVE TREES	**2.5**	**1.5**	**3.9**	**14.5**	**3.14**
Pinus ponderosa					
<1"	0.2				**0.06**
1-4"	0.2		0.3		**0.12**
4-8"					
8-12"					
12-16"					
16-20"					
20-24"					
24-28"					
TOTAL LIVE TREES	**0.4**	**0.0**	**0.3**	**0.0**	**0.17**
TOTAL TREE SPECIES - LIVE					
<1"	**0.8**	**0.5**	**1.1**	**6.4**	**1.10**
1-4"	**1.7**	**0.4**	**2.8**	**3.6**	**1.51**
4-8"	**0.6**	**0.4**	**0.3**	**4.5**	**0.70**
8-12"		**0.1**			**0.06**
12-16"					
16-20"					
20-24"					
24-28"					
TOTAL LIVE TREES	**3.1**	**1.5**	**4.2**	**14.5**	**3.37**

Table 25
Summary of Tree Density (Live Trees Per Acre) by Species for Four
GRASS-DOMINATED BREAKS Community Types, Otter Creek Baseline
Study Area, 2011-2012.

TREE SPECIES DBH CLASS - LIVE TREES	*AGR SMI* BREAKS n=10	*AGR SPI* BREAKS n=4	*SPO AIR* BREAKS n=4	*CAL LON* BREAKS n=5	GRASS-DOMINATED BREAKS COMPOSITE n=23
Juniperus scopulorum					
<1"	1.0		2.5		**0.9**
1-4"	2.0				**0.9**
TOTAL LIVE TREES	**3.0**	**0.0**	**2.5**	**0.0**	**1.7**
Pinus ponderosa					
<1"					
1-4"					
TOTAL LIVE TREES	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TOTAL TREE SPECIES - LIVE					
<1"	1.0		2.5		**0.9**
1-4"	2.0				**0.9**
TOTAL LIVE TREES	**3.0**	**0.0**	**2.5**	**0.0**	**1.7**

Table 26
Summary of Tree Density (Live Trees Per Acre) by Species for Seven **SHRUB-DOMINATED BREAKS** Community Types, Otter Creek Baseline Study Area, 2011-2012.

TREE SPECIES	*ART TRI-SAR VER-CHR NAU/ AGR SMI*	*ART TRI-SAR VER-CHR NAU/ AGR SPI*	*RHU ARO/ AGR SPI-AND SCO*	*ART TRI-RHU ARO-CHR NAU/ AGR SPI*	*ART TRI-RHU ARO-SAR VER/ AGR SPI*	*ART TRI-ATR CON-SAR VER/ AGR SPI*	*ART TRI-ATR CON-RHU ARO/ AGR SPI*	**SHRUB-DOMINATED BREAKS COMPOSITE**
DBH CLASS - LIVE TREES	**n=26**	**n=3**	**n=8**	**n=15**	**n=6**	**n=26**	**n=13**	**n=97**
Juniperus scopulorum								
<1"	1.2			0.7	1.7	0.4	1.5	**0.84**
1-4"				4.7	1.7	0.8	2.3	**1.34**
4-8"				0.7	1.7		1.5	**0.41**
8-12"								
TOTAL LIVE TREES	**1.2**	**0.0**	**0.0**	**6.0**	**5.0**	**1.2**	**5.4**	**2.59**
Pinus ponderosa								
<1"				2.0	6.7	0.8		**0.93**
1-4"				4.7	1.7	0.4	13.1	**2.68**
4-8"								
8-12"				0.7			1.5	**0.31**
TOTAL LIVE TREES	**0.0**	0.0	0.0	**7.3**	**8.3**	**1.2**	**14.6**	**3.92**
TOTAL TREE SPECIES - LIVE								
<1"	1.2			2.7	8.3	1.2	1.5	**1.76**
1-4"				9.3	3.3	1.2	15.4	**4.02**
4-8"				0.7	1.7		1.5	**0.41**
8-12"				0.7			1.5	**0.31**
TOTAL LIVE TREES	**1.2**	**0.0**	**0.0**	**13.3**	**13.3**	**2.3**	**20.0**	**6.51**

Table 27
Summary of Tree Density (Live Trees Per Acre) by Species for Five **CONIFER-DOMINATED BREAKS** Community Types, Otter Creek Baseline Study Area, 2011-2012.

TREE SPECIES	*JUN SCO/ AGR SPI* BREAKS	*PIN PON - JUN SCO/ AGR SPI* BREAKS	*PIN PON- JUN SCO/ AND SCO* BREAKS	*PIN PON- JUN SCO/ ART TRI* BREAKS	*PIN PON- JUN SCO/ ART TRI- ATR CON* BREAKS	CONIFER-DOMINATED BREAKS COMPOSITE
DBH CLASS - LIVE TREES	**n=11**	**n=18**	**n=15**	**n=4**	**n=7**	**n=55**
Juniperus scopulorum						
<1"	63.6	28.3	32.7	20.0	35.7	**36.9**
1-4"	106.4	50.6	26.7	67.5	25.7	**53.3**
4-8"	90.0	18.9	18.0	30.0	32.9	**35.5**
8-12"	20.0	0.6	1.3		7.1	**5.5**
12-16"			1.3			**0.4**
16-20"						
20-24"						
24-28"						
TOTAL LIVE TREES	**280.0**	**98.3**	**80.0**	**117.5**	**101.4**	**131.5**
Pinus ponderosa						
<1"	19.1	26.1	40.0	62.5	12.9	**29.5**
1-4"	18.2	28.9	47.3	70.0	14.3	**32.9**
4-8"	0.9	9.4	17.3	7.5	4.3	**9.1**
8-12"		7.2	6.7	5.0	4.3	**5.1**
12-16"		6.7	4.7			**3.5**
16-20"			0.7			**0.2**
20-24"						
24-28"						
TOTAL LIVE TREES	**38.2**	**78.3**	**116.7**	**145.0**	**35.7**	**80.2**
TOTAL TREE SPECIES - LIVE						
<1"	**82.7**	**54.4**	**72.7**	**82.5**	**48.6**	**66.4**
1-4"	**124.5**	**79.4**	**74.0**	**137.5**	**40.0**	**86.2**
4-8"	**90.9**	**28.3**	**35.3**	**37.5**	**37.1**	**44.5**
8-12"	**20.0**	**7.8**	**8.0**	**5.0**	**11.4**	**10.5**
12-16"		**6.7**	**6.0**			**3.8**
16-20"						
20-24"						
24-28"						
TOTAL LIVE TREES	**318.2**	**176.7**	**196.7**	**262.5**	**137.1**	**211.6**

Table 28
Summary of Tree Density (Live Trees Per Acre) by Species for Six **PINE-JUNIPER FOREST AND SAVANNAH** Community Types, Otter Creek Baseline Study Area, 2011-2012.

TREE SPECIES	*PIN PON-JUN SCO/ AGR SPI*	*JUN SCO-PIN PON/ ORY MIC*	*PIN PON-JUN SCO/ FES IDA*	*PIN PON-JUN SCO/ AND SCO*	PINE-JUNIPER/ GRASS COMPOSITE	DRAINAGE *JUN SCO-PIN PON/ SYM OCC-AGR SMI*	*PIN PON-JUN SCO/ PRU VIR*	PINE-JUNIPER/ SHRUB COMPOSITE	PINE-JUNIPER FOREST AND SAVANNAH COMPOSITE
DBH CLASS - LIVE TREES	**n=93**	**n=2**	**n=2**	**n=30**	**n=127**	**n=11**	**n=2**	**n=13**	**n=140**
Fraxinus pennsylvanica									
<1"		5.0		1.3	**0.39**	0.9		**0.77**	**0.43**
1-4"				0.7	**0.16**				**0.14**
4-8"									
8-12"									
12-16"									
16-20"									
20-24"									
24-28"									
TOTAL LIVE TREES		**5.0**	**0.0**	**2.0**	**0.55**	**0.9**	**0.0**	**0.77**	**0.57**
Juniperus scopulorum									
<1"	117.0	135.0	80.0	80.7	**108.11**	73.6	20.0	**65.38**	**104.14**
1-4"	146.1	245.0	180.0	76.7	**131.81**	93.6	55.0	**87.69**	**127.71**
4-8"	34.9	70.0	25.0	34.0	**35.12**	57.3	20.0	**51.54**	**36.64**
8-12"	4.9	15.0	5.0	4.3	**4.96**	13.6	5.0	**12.31**	**5.64**
12-16"	0.4	5.0	5.0		**0.47**				**0.43**
16-20"						0.9		**0.77**	**0.07**
20-24"									
24-28"									
TOTAL LIVE TREES	**303.4**	**470.0**	**295.0**	**195.7**	**280.47**	**239.1**	**100.0**	**217.69**	**274.64**
Pinus ponderosa									
<1"	132.4		40.0	146.0	**132.05**	30.0	60.0	**34.62**	**123.00**
1-4"	122.2	20.0	100.0	141.7	**124.80**	83.6	100.0	**86.15**	**121.21**
4-8"	33.3	35.0	70.0	35.3	**34.41**	29.1	15.0	**26.92**	**33.71**
8-12"	20.4	15.0	20.0	10.0	**17.87**	2.7		**2.31**	**16.43**
12-16"	9.6		10.0	7.3	**8.90**				**8.07**
16-20"	2.0		5.0	3.0	**2.28**				**2.07**
20-24"	0.4			1.0	**0.55**				**0.50**
24-28"	0.1				**0.08**				**0.07**
TOTAL LIVE TREES	**320.4**	**70.0**	**245.0**	**344.3**	**320.94**	**145.5**	**175.0**	**150.00**	**305.07**

Table 28

Summary of Tree Density (Live Trees Per Acre) by Species for Six **PINE-JUNIPER FOREST AND SAVANNAH** Community Types, Otter Creek Baseline Study Area, 2011-2012.

TREE SPECIES	*PIN PON-JUN SCO/ AGR SPI*	*JUN SCO-PIN PON/ ORY MIC*	*PIN PON-JUN SCO/ FES IDA*	*PIN PON-JUN SCO/ AND SCO*	PINE-JUNIPER/ GRASS COMPOSITE	DRAINAGE *JUN SCO-PIN PON/ SYM OCC-AGR SMI*	*PIN PON-JUN SCO/ PRU VIR*	PINE-JUNIPER/ SHRUB COMPOSITE	PINE-JUNIPER FOREST AND SAVANNAH COMPOSITE
DBH CLASS - LIVE TREES	**n=93**	**n=2**	**n=2**	**n=30**	**n=127**	**n=11**	**n=2**	**n=13**	**n=140**
TOTAL TREE SPECIES - LIVE									
<1"	249.4	140.0	120.0	228.0	**240.55**	104.5	80.0	**100.77**	**227.57**
1-4"	268.3	265.0	280.0	219.0	**256.77**	177.3	155.0	**173.85**	**249.07**
4-8"	68.3	105.0	95.0	69.3	**69.53**	86.4	35.0	**78.46**	**70.36**
8-12"	25.4	30.0	25.0	14.3	**22.83**	16.4	5.0	**14.62**	**22.07**
12-16"	10.0	5.0	15.0	7.3	**9.37**				**8.50**
16-20"	2.0		5.0	3.0	**2.28**	0.9		**0.77**	**2.14**
20-24"	0.4			1.0	**0.55**				**0.50**
24-28"	0.1				**0.08**				**0.07**
TOTAL LIVE TREES	**623.9**	**545.0**	**540.0**	**542.0**	**601.97**	**385.5**	**275.0**	**368.46**	**580.29**

Table 29
Summary of Tree Density (Live Trees Per Acre) by Species for Twelve **Mesophytic/Hydrophytic Herbaceous Bottom** Community Types, Otter Creek Baseline Study Area, 2011-2012.

TREE SPECIES	SPO AIR/ AGR SMI	SPA PEC/ BRO INE	SPA PEC/ HOR JUB	SPA PEC/ PUC NUT	SPA PEC/ PAN VIR	*SPA PEC/ SCI AME*	SCI MAR/ SPO AIR-DIS STR	ELE PAL/ SCI AME-JUN TOR	TYP LAT/ BRO INE	TYP LAT/ SPA PEC	SCI ACU-SCI VAL/ SPA PEC	SCI ACU-SAL VAL/ TYP LAT	MESO/HYDRO HERBACEOUS BOTTOM COMPOSITE
DBH CLASS - LIVE TREES	**n=1**	**n=4**	**n=1**	**n=1**	**n=1**	**n=2**	**n=1**	**n=3**	**n=2**	**n=2**	**n=7**	**n=3**	**n=28**
Acer negundo													
<1"										20.0	14.3		**5.0**
1-4"		2.5				5			15.0		14.3		**5.4**
4-8"		12.5				25				5.0	1.4	10.0	**5.4**
8-12"		2.5									1.4		**0.7**
12-16"		2.5											**0.4**
16-20"											1.4		**0.4**
TOTAL LIVE TREES	**0.0**	**20.0**	**0.0**	**0.0**	**0.0**	**30.0**	**0.0**	**0.0**	**15.0**	**25.0**	**32.8**	**10.0**	**17.1**
Fraxinus pennsylvanica													
<1"										10.0			**0.7**
1-4"													
4-8"													
8-12"													
12-16"													
16-20"													
TOTAL LIVE TREES	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**10.0**	**0.0**	**0.0**	**0.7**
Juniperus scopulorum													
<1"													
1-4"					10.0								**0.4**
4-8"													
8-12"													
12-16"													
16-20"													
TOTAL LIVE TREES	**0.0**	**0.0**	**0.0**	**0.0**	**10.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.4**
Salix amygdaloides													
<1"								3.3					**0.4**
1-4"													
4-8"													
8-12"													
12-16"													
16-20"													
TOTAL LIVE TREES	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**3.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.4**

Table 29
Summary of Tree Density (Live Trees Per Acre) by Species for Twelve **Mesophytic/Hydrophytic Herbaceous Bottom** Community Types, Otter Creek Baseline Study Area, 2011-2012.

TREE SPECIES	SPO AIR/ AGR SMI	SPA PEC/ BRO INE	SPA PEC/ HOR JUB	SPA PEC/ PUC NUT	SPA PEC/ PAN VIR	*SPA PEC/ SCI AME*	SCI MAR/ SPO AIR- DIS STR	ELE PAL/ SCI AME- JUN TOR	TYP LAT/ BRO INE	TYP LAT/ SPA PEC	SCI ACU- SCI VAL/ SPA PEC	SCI ACU- SAL VAL/ TYP LAT	MESO/HYDRO HERBACEOUS BOTTOM COMPOSITE
DBH CLASS - LIVE TREES	n=1	n=4	n=1	n=1	n=1	n=2	n=1	n=3	n=2	n=2	n=7	n=3	n=28
TOTAL TREE SPECIES - LIVE													
<1"								3.3		30.0	14.3		6.1
1-4"		2.5			10.0	5.0			15.0		14.3		5.7
4-8"		12.5				25.0				5.0	1.4	10.0	5.4
8-12"		2.5									1.4		0.7
12-16"		2.5											0.4
16-20"											1.4		0.4
TOTAL LIVE TREES	0.0	20.0	0.0	0.0	10.0	30.0	0.0	3.3	15.0	35.0	32.8	10.0	18.6

Table 30
Summary of Tree Density (Live Trees Per Acre) by Species for Four **Mesophytic Low Shrub Bottom** Community Types, Otter Creek Baseline Study Area, 2011-2012.

TREE SPECIES	*SYM OCC-ART TRI-SAR VER/ AGR SMI*	*ART CAN-ROS WOO/ AGR SMI-POA PRA*	*SYM OCC-ART CAN/ AGR SMI-POA PRA*	*SYM OCC-ROS WOO/ POA PRA-AGR SMI*	MESOPHYTIC LOW SHRUB BOTTOM COMPOSITE
DBH CLASS - LIVE TREES	**n=2**	**n=1**	**n=7**	**n=17**	**n=27**
Fraxinus pennsylvanica					
<1"			2.9		**0.8**
1-4"			1.4		**0.4**
4-8"					
8-12"					
TOTAL LIVE TREES	**0.0**	**0.0**	**4.3**	**0.0**	**1.1**
Juniperus scopulorum					
<1"			1.4	3.5	**2.6**
1-4"				6.5	**4.1**
4-8"				2.4	**1.5**
8-12"					
TOTAL LIVE TREES	**0.0**	**0.0**	**1.4**	12.4	**8.1**
Pinus ponderosa					
<1"			2.9	2.9	**2.6**
1-4"				2.4	**1.5**
4-8"				0.6	**0.4**
8-12"					
TOTAL LIVE TREES	**0.0**	**0.0**	**2.9**	5.9	**4.5**
Salix amygdaloides					
<1"				0.6	**0.4**
1-4"					
4-8"					
8-12"					
TOTAL LIVE TREES	**0.0**	**0.0**	**0.0**	0.6	**0.4**
TOTAL TREE SPECIES - LIVE					
<1"			7.1	7.1	**6.3**
1-4"			1.4	8.8	**5.9**
4-8"				2.9	**1.9**
8-12"					
TOTAL LIVE TREES	**0.0**	**0.0**	**8.5**	18.8	**14.1**

Table 31

Summary of Tree Density (Live Trees Per Acre) by Species for the **Mesophytic Tall Shrub Bottom** and Thirteen **Mesophytic Deciduous Tree Bottom** Community Types, Otter Creek Baseline Study Area, 2011-2012.

TREE SPECIES	*PRU VIR/ SYM OCC-POA PRA*	*POP DEL/ BRO INE*	*POP DEL-ACE NEG/ BRO INE*	*POP DEL-FRA PEN-ACE NEG/ POA PRA*	*POP DEL/ SYM OCC-POA PRA*	*POP DEL-FRA PEN-ACE NEG/ SYM OCC*	*POP DEL-SAL AMY/ POA PRA*	*POP DEL-SAL AMY/ SAL EXI*	*POP DEL/ PRU VIR*	*POP DEL-FRA PEN-ACE NEG/ PRU VIR*	*ACE NEG/ BRO INE*	*ACE NEG/ SPA PEC*	*ACE NEG/ PRU VIR*	*FRA PEN/ POA PRA*	MESOPHYTIC DECIDUOUS TREE BOTTOM COMPOSITE
DBH CLASS - LIVE TREES	n=2	n=2	n=2	n=2	n=1	n=1	n=1	n=1	n=1	n=2	n=15	n=4	n=3	n=1	n=36
Acer negundo															
<1"			20.0								62.7	37.5	36.7		**34.4**
1-4"			30.0	5.0						5.0	82.0	22.5	63.3		**44.2**
4-8"			30.0	5.0		10.0				5.0	48.7	12.5	30.0		**26.7**
8-12"			15.0	55.0							30.7	12.5	30.0		**20.6**
12-16"				15.0							12.7	2.5	3.3		**6.7**
16-20"											5.3	5.0			**2.8**
20-24"															
24-28"															
28-32"															
32-36"															
40-44"															
TOTAL LIVE TREES	**0.0**	**0.0**	**95.0**	**80.0**	**0.0**	**10.0**	**0.0**	**0.0**	**0.0**	**10.0**	**242.0**	**92.5**	**163.3**	**0.0**	**135.3**
Fraxinus pennsylvanica															
<1"				30.0							3.3		13.3		**4.2**
1-4"				5.0		10.0				5.0	2.7		3.3		**2.2**
4-8"				25.0		10.0				5.0	3.3		10.0		**4.2**
8-12"										5.0				20.0	**0.8**
12-16"														20.0	**0.6**
16-20"															
20-24"															
24-28"															
28-32"															
32-36"															
40-44"															
TOTAL LIVE TREES	**0.0**	**0.0**	**0.0**	**60.0**	**0.0**	**20.0**	**0.0**	**0.0**	**0.0**	**15.0**	**9.3**	**0.0**	**26.7**	**40.0**	**11.9**

Table 31
Summary of Tree Density (Live Trees Per Acre) by Species for the **Mesophytic Tall Shrub Bottom** and Thirteen **Mesophytic Deciduous Tree Bottom** Community Types, Otter Creek Baseline Study Area, 2011-2012.

TREE SPECIES	*PRU VIR/ SYM OCC-POA PRA*	*POP DEL/ BRO INE*	*POP DEL-ACE NEG/ BRO INE*	*POP DEL-FRA PEN-ACE NEG/ POA PRA*	*POP DEL/ SYM OCC-POA PRA*	*POP DEL-FRA PEN-ACE NEG/ SYM OCC*	*POP DEL-SAL AMY/ POA PRA*	*POP DEL-SAL AMY/ SAL EXI*	*POP DEL/ PRU VIR*	*POP DEL-FRA PEN-ACE NEG/ PRU VIR*	*ACE NEG/ BRO INE*	*ACE NEG/ SPA PEC*	*ACE NEG/ PRU VIR*	*FRA PEN/ POA PRA*	MESOPHYTIC DECIDUOUS TREE BOTTOM COMPOSITE
DBH CLASS - LIVE TREES	n=2	n=2	n=2	n=2	n=1	n=1	n=1	n=1	n=1	n=2	n=15	n=4	n=3	n=1	n=36
Juniperus scopulorum															
<1"														40.0	1.1
1-4"	5.0					10.0								20.0	0.8
4-8"	5.0													40.0	1.1
8-12"															
12-16"															
16-20"															
20-24"															
24-28"															
28-32"															
32-36"															
40-44"															
TOTAL LIVE TREES	**10.0**	**0.0**	**0.0**	**0.0**	**0.0**	**10.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**100.0**	**3.1**
Pinus ponderosa															
<1"														10.0	0.3
1-4"														80.0	2.2
4-8"														10.0	0.3
8-12"															
12-16"															
16-20"															
20-24"															
24-28"															
28-32"															
32-36"															
40-44"															
TOTAL LIVE TREES	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**100.0**	**2.8**

Table 31

Summary of Tree Density (Live Trees Per Acre) by Species for the **Mesophytic Tall Shrub Bottom** and Thirteen **Mesophytic Deciduous Tree Bottom** Community Types, Otter Creek Baseline Study Area, 2011-2012.

TREE SPECIES	*PRU VIR/ SYM OCC-POA PRA*	*POP DEL/ BRO INE*	*POP DEL-ACE NEG/ BRO INE*	*POP DEL-FRA PEN-ACE NEG/ POA PRA*	*POP DEL/ SYM OCC-POA PRA*	*POP DEL-FRA PEN-ACE NEG/ SYM OCC*	*POP DEL-SAL AMY/ POA PRA*	*POP DEL-SAL AMY/ SAL EXI*	*POP DEL/ PRU VIR*	*POP DEL-FRA PEN-ACE NEG/ PRU VIR*	*ACE NEG/ BRO INE*	*ACE NEG/ SPA PEC*	*ACE NEG/ PRU VIR*	*FRA PEN/ POA PRA*	MESOPHYTIC DECIDUOUS TREE BOTTOM COMPOSITE
DBH CLASS - LIVE TREES	n=2	n=2	n=2	n=2	n=1	n=1	n=1	n=1	n=1	n=2	n=15	n=4	n=3	n=1	n=36
Populus deltoides															
<1"		5.0													0.3
1-4"				5.0	10.0										0.6
4-8"		10.0		5.0	60.0										2.5
8-12"			5.0	10.0	40.0										1.9
12-16"			15.0		20.0					10.0					1.9
16-20"				10.0				10.0	20.0						1.4
20-24"		10.0	5.0	10.0			10.0			5.0					1.9
24-28"		10.0	5.0												0.8
28-32"		15.0							30.0						1.7
32-36"		5.0	5.0			10.0									0.8
40-44"		5.0				10.0	10.0								0.8
TOTAL LIVE TREES	0.0	**60.0**	**35.0**	40.0	**130.0**	**20.0**	**20.0**	**10.0**	**50.0**	**15.0**	**0.0**	**0.0**	**0.0**	**0.0**	14.7
Salix amygdaloides															
<1"		10.0													0.6
1-4"			35.0				70.0								3.9
4-8"			15.0			10.0	60.0								2.8
8-12"		5.0					10.0	80.0							2.8
12-16"							10.0	20.0							0.8
16-20"															
20-24"															
24-28"															
28-32"						10.0									0.3
32-36"															
40-44"															
TOTAL LIVE TREES	0.0	**15.0**	**50.0**	**0.0**	**0.0**	**20.0**	**150.0**	**100.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	11.1

Table 31

Summary of Tree Density (Live Trees Per Acre) by Species for the **Mesophytic Tall Shrub Bottom** and Thirteen **Mesophytic Deciduous Tree Bottom** Community Types, Otter Creek Baseline Study Area, 2011-2012.

TREE SPECIES	*PRU VIR/ SYM OCC-POA PRA*	*POP DEL/ BRO INE*	*POP DEL-ACE NEG/ BRO INE*	*POP DEL-FRA PEN-ACE NEG/ POA PRA*	*POP DEL/ SYM OCC-POA PRA*	*POP DEL-FRA PEN-ACE NEG/ SYM OCC*	*POP DEL-SAL AMY/ POA PRA*	*POP DEL-SAL AMY/ SAL EXI*	*POP DEL/ PRU VIR*	*POP DEL-FRA PEN-ACE NEG/ PRU VIR*	*ACE NEG/ BRO INE*	*ACE NEG/ SPA PEC*	*ACE NEG/ PRU VIR*	*FRA PEN/ POA PRA*	MESOPHYTIC DECIDUOUS TREE BOTTOM COMPOSITE
DBH CLASS - LIVE TREES	n=2	n=2	n=2	n=2	n=1	n=1	n=1	n=1	n=1	n=2	n=15	n=4	n=3	n=1	n=36
TOTAL TREE SPECIES - LIVE															
<1"		15.0	20.0	30.0							66.0	37.5	50.0	50.0	40.8
1-4"	5.0		65.0	15.0	10.0	20.0	70.0			10.0	84.7	22.5	66.7	100.0	53.9
4-8"	5.0	10.0	45.0	35.0	60.0	30.0	60.0			10.0	52.0	12.5	40.0	50.0	37.5
8-12"		5.0	20.0	65.0	40.0		10.0	80.0		5.0	30.7	12.5	30.0	20.0	26.1
12-16"			15.0	15.0	20.0		10.0	20.0		10.0	12.7	2.5	3.3	20.0	10.0
16-20"				10.0				10.0	20.0		5.3	5.0			4.2
20-24"		10.0	5.0	10.0			10.0			5.0					1.9
24-28"		10.0	5.0												0.8
28-32"		15.0				10.0			30.0						1.9
32-36"		5.0	5.0			10.0									0.8
40-44"		5.0				10.0	10.0								0.8
TOTAL LIVE TREES	10.0	75.0	180.0	180.0	130.0	80.0	170.0	110.0	50.0	40.0	251.3	92.5	190.0	240.0	178.9

Table 32
Correlation of Soils Mapping Units with Ecological Sites, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

Map Symbol[1]	Soil Mapping Unit[1]	Ecological Site[2]	Ecological Site Code	Percent Composition
Av	Arvada clay loam, 0-10%	Dense Clay	DC	
BCC	Blacksheep-Cabba-Cabbart Complex, 15-60%	Shallow	Sw	
BCT	Blacksheep-Cabba-Twilight Complex, 10-30%	Shallow-Sandy Steep	Sw-SyStp	70-30
BL-RO	Badlands-Rock Outcrop, 25-70%	Badlands (Very Shallow)	BL (VSw)	
CC	Cabbart-Cabba shallow loams, 20-70%	Shallow	Sw	
Cu	Cushman silt loam, 0-5%	Silty	Si	
DL	Disturbed Land, 0-5%	NA	-	
Fa	Farland silt loam, 0-10%	Silty (Overflow)	Si (Ov)	
FtD	Fort Collins-Delpoint silt loams, 5-30%	Silty	Si	
FtHp	Fort Collins-Hesper silt loams, 5-15%	Silty-Clayey	Si-Cy	60-40
H	Haverson silty clay, 0-5%	Loamy Terrace (Silty)	LyT (Si)	
H-S	Haverson silty clay - Saline, 0-5%	Saline Lowland	SL	
He	Heldt silty clay loam, 0-5%	Clayey Terrace (Clayey)	CyT (Cy)	
He-S	Heldt silty clay loam - Saline, 0-5%	Saline Lowland	SL	
Hp	Hesper silty clay loam, 5-15%	Clayey (Overflow)	Cy (Ov)	
Hy	Hydro clay loam, 0-10%	Clayey	Cy	
HyHp	Hydro-Hesper silty clay loams, 0-15%	Clayey	Cy	
McR	McRae silt loam, 0-15%	Silty	Si	
McR-S	McRae silt loam - Saline, 0-15%	Saline Lowland	SL	
Md-E	Midway clay loam - Eroded, 10-30%	Shallow Clay	SwC	
MiCa	Midway-Cabbart shallow loams, 5-15%	Shallow Clay-Shallow	SwC-Sw	60-40
MiDe	Midway-Delpoint silty clay loams, 5-15%	Shallow Clay-Silty	SwC-Si	60-40
NiHa	Nihill-Havre outwash areas, 5-15%	Overflow (Silty)	Ov (Si)	
Re	Relan loam, 5-15%	Silty	Si	
Ri	Ringling loam, 0-15%	Very Shallow	VSw	
RmT	Remmit-Twilight sandy loams, 5-20%	Sandy	Sy	
RTB	Ringling-Twilight-Barvon Complex, 5-30%	Very Shallow-Sandy Steep-Silty Steep	VSw-SyStp-SiStp	40-40-20
SO	Saline Overflow	Saline Lowland	SL	
TwB	Twilight-Blacksheep sandy loams, 0-20%	Sandy-Shallow	Sy-Sw	70-30
W	Water/Riparian Fringe	Water/Riparian Wet Meadow/ Subirrigated	Water/RWM/Sb	

NA = Not Applicable

[1]Soils mapping units are identified, classified and delineated in the baseline soils report and map (Baker 2014).

[2]Soils mapping units were correlated with ecological sites using the on-line Powder River County Soil Survey (NRCS 2012), and, as necessary, on-site vegetation composition data. All ecological sites are in MLRA 58AE - Sedimentary Plains East (Northern Rolling High Plains, North Part) in the 10 to 14-inch precipitation zone ("MAP").

Table 33

Correlation of Vegetation Community Types with Soil Mapping Units, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

		Number of Vegetation Sample Plots by Soil Mapping Unit														
COMMUNITY TYPE	**n**	Av	BCC	BCT	BL-RO	CC	Cu	DL	Fa	FtD	FtHp	H	H-S	He	He-S	Hp
GRASSLAND	**185**															
Agropyron smithii / Bouteloua gracilis	15		2							6			1			1
Agropyron smithii / Stipa viridula	77	2								11	4	8				2
Stipa comata / Agropyron smithii	20									4	1					1
Stipa comata / Carex filifolia	12										1					
Agropyron spicatum / Stipa comata	7		1							1		1				
Agropyron spicatum / Bouteloua curtipendula	12		3							1						
Andropogon scoparius / Carex filifolia	2															
Andropogon scoparius / Agropyron spicatum	11			2												
Andropogon scoparius / Bouteloua curtipendula	10		1	1						1						
Andropogon scoparius / Andropogon gerardii	2		1													
Andropogon scoparius / Calamovilfa longifolia	6		1	1							1					
Calamovilfa longifolia / Stipa comata	11			1							1					
TAME PASTURE	**106**															
Hay Cropland - Farmed	66								2	1		1	31	12	8	
Pastureland - Grazed/Go-Back	40		1									5		1		
SHRUB / GRASSLAND	**172**															
Artemisia cana / Agropyron smithii	52		1	1						3	4	7	3	1		
Artemisia tridentata / Agropyron smithii	73		3	6			1			9	10	1				2
Artemisia tridentata / Agropyron spicatum	36		5							3	1					
Artemisia tridentata / Andropogon scoparius	11			2						1	1					
BREAKS	**175**															
Grass-Dominated Breaks	**(23)**															
Agropyron smithii Breaks	10		1							2						
Agropyron spicatum Breaks	4															
Sporobolus airoides Breaks	4		1													
Calamovilfa longifolia Breaks	5			1												

Table 33

Correlation of Vegetation Community Types with Soil Mapping Units, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

		Number of Vegetation Sample Plots by Soil Mapping Unit														
COMMUNITY TYPE	**n**	Av	BCC	BCT	BL-RO	CC	Cu	DL	Fa	FtD	FtHp	H	H-S	He	He-S	Hp
Shrub-Dominated Breaks	**(97)**															
Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron smithii	26	1		2						1	1					
Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron spicatum	3		1													
Rhus aromatica / Agropyron spicatum-Andropogon scoparius	8		2													
Artemisia tridentata-Rhus aromatica-Chrysothamnus nauseosus / Agropyron spicatum	15		1	7						1						
Artemisia tridentata-Rhus aromatica-Sarcobatus vermiculatus / Agropyron spicatum	6		2													
Artemisia tridentata-Atriplex confertifolia-Sarcobatus vermiculatus / Agropyron spicatum	26		6		2											
Artemisia tridentata-Atriplex confertifolia-Rhus aromatica / Agropyron spicatum	13		8			3										
Conifer-Dominated Breaks	**(55)**															
Juniperus scopulorum/Agropyron spicatum Breaks	11		3	1		1				1						
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum Breaks	18		6	3		6										
Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius Breaks	15		11	1												
Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata Breaks	4		3								1					
Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata-Atriplex confertifolia Breaks	7		1			4										
PONDEROSA PINE-JUNIPER FOREST AND SAVANNAH	**140**															
Ponderosa Pine-Juniper / Grass	**(127)**															
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum	93		65	11							1					
Juniperus scopulorum-Pinus ponderosa / Oryzopsis micrantha	2		2													
Pinus ponderosa-Juniperus scopulorum / Festuca idahoensis	2		1													
Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius	30		18	3							1					
Ponderosa Pine-Juniper / Shrub	**(13)**															
Drainage *Juniperus scopulorum-Pinus ponderosa / Symphoricarpos occidentalis-Agropyron smithii*	11		3													
Pinus ponderosa-Juniperus scopulorum / Prunus virginiana	2		2													

Table 33

Correlation of Vegetation Community Types with Soil Mapping Units, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

		Number of Vegetation Sample Plots by Soil Mapping Unit														
COMMUNITY TYPE	**n**	Av	BCC	BCT	BL-RO	CC	Cu	DL	Fa	FtD	FtHp	H	H-S	He	He-S	Hp
DRAINAGE BOTTOM	**113**															
Mesophytic/Hydrophytic Herbaceous Bottom	**(46)**															
Distichlis stricta Series	3															
Sporobolus airoides Series	7		2								1					
Spartina gracilis Series	1															
Spartina pectinata Series	16													2		
Scirpus maritimus Series	2															
Eleocharis palustris Series	3															
Typha latifolia Series	4															
Scirpus acutus-validus Series	10												2			
Mesophytic Low Shrub Bottom	**(27)**															
Symphoricarpos occidentalis Series	27		1													1
Mesophytic Tall Shrub Bottom	**(3)**															
Prunus virginiana / Symphoricarpos occidentalis-Poa pratensis	2															
Salix exigua / Scirpus americanus-Juncus torreyi	1															
Mesophytic Deciduous Tree Bottom	**(37)**															
Populus deltoides Series	14											7		3		
Acer negundo Series	22											1	2			
Fraxinus pennsylvanica Series	1		1													
TOTAL PLOTS	**891**	**3**	**160**	**43**	**2**	**14**	**1**	**0**	**2**	**46**	**29**	**31**	**39**	**19**	**8**	**7**

Map Symbol[1]	**Soil Mapping Unit[1]**		
Av	Arvada clay loam, 0-10%	Hy	Hydro clay loam, 0-10%
BCC	Blacksheep-Cabba-Cabbart Complex, 15-60%	HyHp	Hydro-Hesper silty clay loams, 0-15%
BCT	Blacksheep-Cabba-Twilight Complex, 10-30%	McR	McRae silt loam, 0-15%
BL-RO	Badlands-Rock Outcrop, 25-70%	McR-S	McRae silt loam - Saline, 0-15%
CC	Cabbart-Cabba shallow loams, 20-70%	Md-E	Midway clay loam - Eroded, 10-30%
Cu	Cushman silt loam, 0-5%	MiCa	Midway-Cabbart shallow loams, 5-15%
DL	Disturbed Land, 0-5%	MiDe	Midway-Delpoint silty clay loams, 5-15%
Fa	Farland silt loam, 0-10%	NiHa	Nihill-Havre outwash areas, 5-15%
FtD	Fort Collins-Delpoint silt loams, 5-30%	Re	Relan loam, 5-15%
FtHp	Fort Collins-Hesper silt loams, 5-15%	Ri	Ringling loam, 0-15%
H	Haverson silty clay, 0-5%	RmT	Remmit-Twilight sandy loams, 5-20%
H-S	Haverson silty clay - Saline, 0-5%	RTB	Ringling-Twilight-Barvon Complex, 5-30%
He	Heldt silty clay loam, 0-5%	TwB	Twilight-Blacksheep sandy loams, 0-20%
He-S	Heldt silty clay loam - Saline, 0-5%	W	Water/Riparian Fringe
Hp	Hesper silty clay loam, 5-15%		

[1]Soils mapping units are identified, classified and delineated in the baseline soils report and map (Baker 2014).
n=number of sample sites

Table 33

Correlation of Vegetation Community Types with Soil Mapping Units, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

		Number of Vegetation Sample Plots by Soil Mapping Unit														
COMMUNITY TYPE	**n**	Hy	HyHp	McR	McR-S	Md-E	MiCa	MiDe	NiHa	Re	Ri	RmT	RTB	SO	TwB	W
GRASSLAND	**185**															
Agropyron smithii / Bouteloua gracilis	15	1			2			1			1					
Agropyron smithii / Stipa viridula	77	4	15	6	4		2	13	4		1		1			
Stipa comata / Agropyron smithii	20						1	3			4	1	3		2	
Stipa comata / Carex filifolia	12						1			3	2		5			
Agropyron spicatum / Stipa comata	7							1			2				1	
Agropyron spicatum / Bouteloua curtipendula	12							5		2			1			
Andropogon scoparius / Carex filifolia	2									1			1			
Andropogon scoparius / Agropyron spicatum	11					1	1	1	1	2	1		2			
Andropogon scoparius / Bouteloua curtipendula	10						2	2			2		1			
Andropogon scoparius / Andropogon gerardii	2										1					
Andropogon scoparius / Calamovilfa longifolia	6		1				1						1			
Calamovilfa longifolia / Stipa comata	11			1						1	5	1	1			
TAME PASTURE	**106**															
Hay Cropland - Farmed	66			8							1			2		
Pastureland - Grazed/Go-Back	40			15	5		1		3	4	2		2		1	
SHRUB / GRASSLAND	**172**															
Artemisia cana / Agropyron smithii	52		2	2			3	3	14	5	1	1	1			
Artemisia tridentata / Agropyron smithii	73		4	4	2		6	17	1	1		1	2		3	
Artemisia tridentata / Agropyron spicatum	36		1	3	1		7	13		1			1			
Artemisia tridentata / Andropogon scoparius	11		1				3	1					1		1	
BREAKS	**175**															
Grass-Dominated Breaks	**(23)**															
Agropyron smithii Breaks	10		2				3	1	1							
Agropyron spicatum Breaks	4						3	1								
Sporobolus airoides Breaks	4					2		1								
Calamovilfa longifolia Breaks	5						3	1								

Table 33

Correlation of Vegetation Community Types with Soil Mapping Units, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

		Number of Vegetation Sample Plots by Soil Mapping Unit														
COMMUNITY TYPE	**n**	Hy	HyHp	McR	McR-S	Md-E	MiCa	MiDe	NiHa	Re	Ri	RmT	RTB	SO	TwB	W
Shrub-Dominated Breaks	**(97)**															
Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron smithii	26				1	1	9	9					1			
Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron spicatum	3						2									
Rhus aromatica / Agropyron spicatum-Andropogon scoparius	8										6					
Artemisia tridentata-Rhus aromatica-Chrysothamnus nauseosus / Agropyron spicatum	15						4	2								
Artemisia tridentata-Rhus aromatica-Sarcobatus vermiculatus / Agropyron spicatum	6					1	3									
Artemisia tridentata-Atriplex confertifolia-Sarcobatus vermiculatus / Agropyron spicatum	26					1	9	8								
Artemisia tridentata-Atriplex confertifolia-Rhus aromatica / Agropyron spicatum	13						2									
Conifer-Dominated Breaks	**(55)**															
Juniperus scopulorum/Agropyron spicatum Breaks	11						2	1	2							
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum Breaks	18						3									
Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius Breaks	15							1					2			
Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata Breaks	4															
Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata-Atriplex confertifolia Breaks	7						2									
PONDEROSA PINE-JUNIPER FOREST AND SAVANNAH	**140**															
Ponderosa Pine-Juniper / Grass	**(127)**															
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum	93					2	2		1		1		10			
Juniperus scopulorum-Pinus ponderosa / Oryzopsis micrantha	2															
Pinus ponderosa-Juniperus scopulorum / Festuca idahoensis	2														1	
Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius	30					1	3	1			2		1			
Ponderosa Pine-Juniper / Shrub	**(13)**															
Drainage *Juniperus scopulorum-Pinus ponderosa / Symphoricarpos occidentalis-Agropyron smithii*	11								8							
Pinus ponderosa-Juniperus scopulorum / Prunus virginiana	2															

Table 33

Correlation of Vegetation Community Types with Soil Mapping Units, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

		Number of Vegetation Sample Plots by Soil Mapping Unit														
COMMUNITY TYPE	**n**	Hy	HyHp	McR	McR-S	Md-E	MiCa	MiDe	NiHa	Re	Ri	RmT	RTB	SO	TwB	W
DRAINAGE BOTTOM	**113**															
Mesophytic/Hydrophytic Herbaceous Bottom	**(46)**															
Distichlis stricta Series	3						1		2							
Sporobolus airoides Series	7					2	2									
Spartina gracilis Series	1								1							
Spartina pectinata Series	16								2					1		11
Scirpus maritimus Series	2								1							1
Eleocharis palustris Series	3								2							1
Typha latifolia Series	4															4
Scirpus acutus-validus Series	10															8
Mesophytic Low Shrub Bottom	**(27)**															
Symphoricarpos occidentalis Series	27							5	20							
Mesophytic Tall Shrub Bottom	**(3)**															
Prunus virginiana / Symphoricarpos occidentalis-Poa pratensis	2							1	1							
Salix exigua / Scirpus americanus-Juncus torreyi	1								1							
Mesophytic Deciduous Tree Bottom	**(37)**															
Populus deltoides Series	14								3							1
Acer negundo Series	22			1												18
Fraxinus pennsylvanica Series	1															
TOTAL PLOTS	**891**	**5**	**26**	**40**	**15**	**11**	**81**	**92**	**68**	**20**	**32**	**4**	**37**	**3**	**9**	**44**

Map Symbol[1]	**Soil Mapping Unit[1]**		
Av	Arvada clay loam, 0-10%	Hy	Hydro clay loam, 0-10%
BCC	Blacksheep-Cabba-Cabbart Complex, 15-60%	HyHp	Hydro-Hesper silty clay loams, 0-15%
BCT	Blacksheep-Cabba-Twilight Complex, 10-30%	McR	McRae silt loam, 0-15%
BL-RO	Badlands-Rock Outcrop, 25-70%	McR-S	McRae silt loam - Saline, 0-15%
CC	Cabbart-Cabba shallow loams, 20-70%	Md-E	Midway clay loam - Eroded, 10-30%
Cu	Cushman silt loam, 0-5%	MiCa	Midway-Cabbart shallow loams, 5-15%
DL	Disturbed Land, 0-5%	MiDe	Midway-Delpoint silty clay loams, 5-15%
Fa	Farland silt loam, 0-10%	NiHa	Nihill-Havre outwash areas, 5-15%
FtD	Fort Collins-Delpoint silt loams, 5-30%	Re	Relan loam, 5-15%
FtHp	Fort Collins-Hesper silt loams, 5-15%	Ri	Ringling loam, 0-15%
H	Haverson silty clay, 0-5%	RmT	Remmit-Twilight sandy loams, 5-20%
H-S	Haverson silty clay - Saline, 0-5%	RTB	Ringling-Twilight-Barvon Complex, 5-30%
He	Heldt silty clay loam, 0-5%	TwB	Twilight-Blacksheep sandy loams, 0-20%
He-S	Heldt silty clay loam - Saline, 0-5%	W	Water/Riparian Fringe
Hp	Hesper silty clay loam, 5-15%		

[1]Soils mapping units are identified, classified and delineated in the baseline soils report and map (Baker 2014).
n=number of sample sites

Table 34

Correlation of Vegetation Community Types with Ecological Sites, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

		Number of Vegetation Sample Plots by Ecological Site[1]										
COMMUNITY TYPE	**n**	Cy	Cy (Ov)	CyT (Cy)	DC	LyT (Si)	Ov (Si)	Si	Si (Ov)	Si-Cy (60-40%)	SL	SU
GRASSLAND	**185**											
Agropyron smithii / Bouteloua gracilis	15	1	1					6			3	
Agropyron smithii / Stipa viridula	77	19	2		2	8	4	17		4	4	
Stipa comata / Agropyron smithii	20		1					4		1		
Stipa comata / Carex filifolia	12							3		1		
Agropyron spicatum / Stipa comata	7					1		1				
Agropyron spicatum / Bouteloua curtipendula	12							3				
Andropogon scoparius / Carex filifolia	2							1				
Andropogon scoparius / Agropyron spicatum	11						1	2				
Andropogon scoparius / Bouteloua curtipendula	10							1				
Andropogon scoparius / Andropogon gerardii	2											
Andropogon scoparius / Calamovilfa longifolia	6	1								1		
Calamovilfa longifolia / Stipa comata	11							2		1		
TAME PASTURE	**106**											
Hay Cropland - Farmed	66			12		1		9	2		41	
Pastureland - Grazed/Go-Back	40			1		5	3	19			5	
SHRUB / GRASSLAND	**172**											
Artemisia cana / Agropyron smithii	52	2		1		7	14	10		4	3	
Artemisia tridentata / Agropyron smithii	73	4	2			1	1	15		10	2	
Artemisia tridentata / Agropyron spicatum	36	1						7		1	1	
Artemisia tridentata / Andropogon scoparius	11	1						1		1		
BREAKS	**175**											
Grass-Dominated Breaks	**(23)**											
Agropyron smithii Breaks	10	2					1	2				
Agropyron spicatum Breaks	4											
Sporobolus airoides Breaks	4											4
Calamovilfa longifolia Breaks	5											

Table 34

Correlation of Vegetation Community Types with Ecological Sites, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

		Number of Vegetation Sample Plots by Ecological Site[1]										
COMMUNITY TYPE	**n**	Cy	Cy (Ov)	CyT (Cy)	DC	LyT (Si)	Ov (Si)	Si	Si (Ov)	Si-Cy (60-40%)	SL	SU
Shrub-Dominated Breaks	**(97)**											
Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron smithii	26				1			1		1	1	
Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron spicatum	3											
Rhus aromatica / Agropyron spicatum-Andropogon scoparius	8											
Artemisia tridentata-Rhus aromatica-Chrysothamnus nauseosus / Agropyron spicatum	15							1				
Artemisia tridentata-Rhus aromatica-Sarcobatus vermiculatus / Agropyron spicatum	6											
Artemisia tridentata-Atriplex confertifolia-Sarcobatus vermiculatus / Agropyron spicatum	26											
Artemisia tridentata-Atriplex confertifolia-Rhus aromatica / Agropyron spicatum	13											
Conifer-Dominated Breaks	**(55)**											
Juniperus scopulorum/Agropyron spicatum Breaks	11						2	1				
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum Breaks	18											
Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius Breaks	15											
Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata Breaks	4									1		
Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata-Atriplex confertifolia Breaks	7											
PONDEROSA PINE-JUNIPER FOREST AND SAVANNAH	**140**											
Ponderosa Pine-Juniper / Grass	**(127)**											
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum	93						1			1		
Juniperus scopulorum-Pinus ponderosa / Oryzopsis micrantha	2											
Pinus ponderosa-Juniperus scopulorum / Festuca idahoensis	2											
Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius	30									1		
Ponderosa Pine-Juniper / Shrub	**(13)**											
Drainage *Juniperus scopulorum-Pinus ponderosa / Symphoricarpos occidentalis-Agropyron smithii*	11						8					
Pinus ponderosa-Juniperus scopulorum / Prunus virginiana	2											

Table 34

Correlation of Vegetation Community Types with Ecological Sites, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

		Number of Vegetation Sample Plots by Ecological Site[1]										
COMMUNITY TYPE	**n**	Cy	Cy (Ov)	CyT (Cy)	DC	LyT (Si)	Ov (Si)	Si	Si (Ov)	Si-Cy (60-40%)	SL	SU
DRAINAGE BOTTOM	**113**											
Mesophytic/Hydrophytic Herbaceous Bottom	**(46)**											
Distichlis stricta Series	3										3	
Sporobolus airoides Series	7										4	3
Spartina gracilis Series	1										1	
Spartina pectinata Series	16			2			2				1	
Scirpus maritimus Series	2						1					
Eleocharis palustris Series	3						2					
Typha latifolia Series	4											
Scirpus acutus-validus Series	10										1	
Mesophytic Low Shrub Bottom	**(27)**											
Symphoricarpos occidentalis Series	27		1				20					
Mesophytic Tall Shrub Bottom	**(3)**											
Prunus virginiana / Symphoricarpos occidentalis-Poa pratensis	2						1					
Salix exigua / Scirpus americanus-Juncus torreyi	1						1					
Mesophytic Deciduous Tree Bottom	**(37)**											
Populus deltoides Series	14			3		7	3					
Acer negundo Series	22					1		1			2	
Fraxinus pennsylvanica Series	1											
TOTAL PLOTS	**891**	**31**	**7**	**19**	**3**	**31**	**65**	**107**	**2**	**28**	**72**	**7**

Site Code[1]	**Ecological Site[1]**	**Site Code[1]**	**Ecological Site[1]**
Cy	Clayey	SL	Lowland
CyT	Terrace	SU	Upland
DC	Dense Clay	Sw	Shallow
LyT	Terrace	SwC	Shallow Clay
Ov	Overflow	Sy	Sandy
RWM	Meadow	SyStp	Sandy Steep
Sb	Subirrigated	VSw	Very Shallow
Si	Silty	Water	Water
SiStp	Silty Steep		

[1]Ecological sites were determined using the baseline soils study (Baker 2014), descriptions in the Powder River County Soil Survey (USDA Natural Resources Conservation Service 1971, 2012) and technical guides for evaluating ecological site condition in NRCS (2003, 2006, 2012).

Table 34

Correlation of Vegetation Community Types with Ecological Sites, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

		Number of Vegetation Sample Plots by Ecological Site[1]									
COMMUNITY TYPE	**n**	Sw	SwC	SwC-Si (60-40%)	SwC-Sw (60-40%)	Sw-SyStp (70-30%)	Sy	Sy-Sw (70-30%)	VSw	VSw-SyStp-SiStp (40-20-20%)	Water/ RWM/Sb
GRASSLAND	**185**										
Agropyron smithii / Bouteloua gracilis	15	2		1					1		
Agropyron smithii / Stipa viridula	77			13	2				1	1	
Stipa comata / Agropyron smithii	20			3	1		1	2	4	3	
Stipa comata / Carex filifolia	12				1				2	5	
Agropyron spicatum / Stipa comata	7	1		1				1	2		
Agropyron spicatum / Bouteloua curtipendula	12	3		5						1	
Andropogon scoparius / Carex filifolia	2									1	
Andropogon scoparius / Agropyron spicatum	11		1	1	1	2			1	2	
Andropogon scoparius / Bouteloua curtipendula	10	1		2	2	1			2	1	
Andropogon scoparius / Andropogon gerardii	2	1							1		
Andropogon scoparius / Calamovilfa longifolia	6	1			1	1				1	
Calamovilfa longifolia / Stipa comata	11					1	1		5	1	
TAME PASTURE	**106**										
Hay Cropland - Farmed	66								1		
Pastureland - Grazed/Go-Back	40	1			1			1	2	2	
SHRUB / GRASSLAND	**172**										
Artemisia cana / Agropyron smithii	52	1		3	3	1	1		1	1	
Artemisia tridentata / Agropyron smithii	73	3		17	6	6	1	3		2	
Artemisia tridentata / Agropyron spicatum	36	5		13	7					1	
Artemisia tridentata / Andropogon scoparius	11			1	3	2		1		1	
BREAKS	**175**										
Grass-Dominated Breaks	**(23)**										
Agropyron smithii Breaks	10	1		1	3						
Agropyron spicatum Breaks	4			1	3						
Sporobolus airoides Breaks	4										
Calamovilfa longifolia Breaks	5			1	3	1					

Table 34

Correlation of Vegetation Community Types with Ecological Sites, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

		Number of Vegetation Sample Plots by Ecological Site[1]									
COMMUNITY TYPE	**n**	Sw	SwC	SwC-Si (60-40%)	SwC-Sw (60-40%)	Sw-SyStp (70-30%)	Sy	Sy-Sw (70-30%)	VSw	VSw-SyStp-SiStp (40-20-20%)	Water/ RWM/Sb
Shrub-Dominated Breaks	**(97)**										
Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron smithii	26		1	9	9	2				1	
Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron spicatum	3	1			2						
Rhus aromatica / Agropyron spicatum-Andropogon scoparius	8	2							6		
Artemisia tridentata-Rhus aromatica-Chrysothamnus nauseosus / Agropyron spicatum	15	1		2	4	7					
Artemisia tridentata-Rhus aromatica-Sarcobatus vermiculatus / Agropyron spicatum	6	2	1		3						
Artemisia tridentata-Atriplex confertifolia-Sarcobatus vermiculatus / Agropyron spicatum	26	6	1	8	9				2		
Artemisia tridentata-Atriplex confertifolia-Rhus aromatica / Agropyron spicatum	13	11			2						
Conifer-Dominated Breaks	**(55)**										
Juniperus scopulorum/Agropyron spicatum Breaks	11	4		1	2	1					
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum Breaks	18	12			3	3					
Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius Breaks	15	11		1		1				2	
Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata Breaks	4	3									
Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata-Atriplex confertifolia Breaks	7	5			2						
PONDEROSA PINE-JUNIPER FOREST AND SAVANNAH	**140**										
Ponderosa Pine-Juniper / Grass	**(127)**										
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum	93	65	2		2	11			1	10	
Juniperus scopulorum-Pinus ponderosa / Oryzopsis micrantha	2	2									
Pinus ponderosa-Juniperus scopulorum / Festuca idahoensis	2	1						1			
Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius	30	18	1	1	3	3			2	1	
Ponderosa Pine-Juniper / Shrub	**(13)**										
Drainage *Juniperus scopulorum-Pinus ponderosa / Symphoricarpos occidentalis-Agropyron smithii*	11	3									
Pinus ponderosa-Juniperus scopulorum / Prunus virginiana	2	2									

Table 34

Correlation of Vegetation Community Types with Ecological Sites, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

		Number of Vegetation Sample Plots by Ecological Site[1]									
COMMUNITY TYPE	**n**	Sw	SwC	SwC-Si (60-40%)	SwC-Sw (60-40%)	Sw-SyStp (70-30%)	Sy	Sy-Sw (70-30%)	VSw	VSw-SyStp-SiStp (40-20-20%)	Water/ RWM/Sb
DRAINAGE BOTTOM	**113**										
Mesophytic/Hydrophytic Herbaceous Bottom	**(46)**										
Distichlis stricta Series	3										
Sporobolus airoides Series	7										
Spartina gracilis Series	1										
Spartina pectinata Series	16										11
Scirpus maritimus Series	2										1
Eleocharis palustris Series	3										1
Typha latifolia Series	4										4
Scirpus acutus-validus Series	10										9
Mesophytic Low Shrub Bottom	**(27)**										
Symphoricarpos occidentalis Series	27	1		5							
Mesophytic Tall Shrub Bottom	**(3)**										
Prunus virginiana / Symphoricarpos occidentalis-Poa pratensis	2			1							
Salix exigua / Scirpus americanus-Juncus torreyi	1										
Mesophytic Deciduous Tree Bottom	**(37)**										
Populus deltoides Series	14										1
Acer negundo Series	22										18
Fraxinus pennsylvanica Series	1	1									
TOTAL PLOTS	**891**	**171**	**7**	**91**	**78**	**43**	**4**	**9**	**34**	**37**	**45**

Site Code[1]	**Ecological Site[1]**	**Site Code[1]**	**Ecological Site[1]**
Cy	Clayey	SL	Lowland
CyT	Terrace	SU	Upland
DC	Dense Clay	Sw	Shallow
LyT	Terrace	SwC	Shallow Clay
Ov	Overflow	Sy	Sandy
RWM	Meadow	SyStp	Sandy Steep
Sb	Subirrigated	VSw	Very Shallow
Si	Silty	Water	Water
SiStp	Silty Steep		

[1]Ecological sites were determined using the baseline soils study (Baker 2014), descriptions in the Powder River County Soil Survey (USDA Natural Resources Conservation Service 1971, 2012) and technical guides for evaluating ecological site condition in NRCS (2003, 2006, 2012).

Table 35
Ecological Site Condition (Similarity Index) for Vegetation Community Types in the Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

COMMUNITY TYPE	n	Weighted Abundance[2]	Weighted Mean Condition[3]	Ecological Site[1] Condition (Similarity Index) by Site										
				Clayey	Silty	Shallow	Shallow Clay	Sandy Steep	Very Shallow	Saline Lowland	Saline Upland	Overflow	Sub-irrigated	Wet Meadow
GRASSLAND	**185**	1.000	54.5	61.7	54.1	61.7	60.2	71.3	41.9	32.0				
Agropyron smithii / Bouteloua gracilis	15	.081	34.5		37.6	27.3				32.0				
Agropyron smithii / Stipa viridula	77	.416	61.5	61.7	57.7		69.0							
Stipa comata / Agropyron smithii	20	.108	41.9		62.3		42.3		27.1					
Stipa comata / Carex filifolia	12	.065	33.5		41.3				27.0					
Agropyron spicatum / Stipa comata	7	.038	51.5		60.9	45.5			40.5					
Agropyron spicatum / Bouteloua curtipendula	12	.065	65.0		64.6	70.3	63.1		60.0					
Andropogon scoparius / Carex filifolia	2	.011	40.5		39.8				41.1					
Andropogon scoparius / Agropyron spicatum	11	.059	57.4		57.1		47.6		67.6					
Andropogon scoparius / Bouteloua curtipendula	10	.054	53.8			59.0	51.0		56.8					
Andropogon scoparius / Andropogon gerardii	2	.011	83.6			86.0			81.2					
Andropogon scoparius / Calamovilfa longifolia	6	.032	66.6		50.0	74.4			76.5					
Calamovilfa longifolia / Stipa comata	11	.059	49.5		48.9			71.3	41.2					
TAME PASTURE	**106**	1.000	8.8	6.0	12.6				17.7	5.6				
Hay Cropland – Farmed	66	.623	4.1	4.1	4.1					4.2				
Pastureland – Grazed/Go-Back	40	.377	16.5	17.2	16.2				17.7	16.9				
SHRUB / GRASSLAND	**172**	1.000	55.8	54.7	57.8	51.7	58.9		43.3			44.6		
Artemisia cana / Agropyron smithii	52	.302	48.0		47.5	43.4	59.8		32.2			44.6		
Artemisia tridentata / Agropyron smithii	73	.425	59.1	54.7	64.2	50.3	60.0							
Artemisia tridentata / Agropyron spicatum	36	.209	58.5		63.2	54.8	57.0							
Artemisia tridentata / Andropogon scoparius	11	.064	61.2		63.9	57.6	60.7		65.4					
BREAKS	**175**													
Grass-Dominated Breaks	**(23)**	1.000	60.9	58.4	50.6	66.5	57.8				71.0			
Agropyron smithii Breaks	10	.435	56.8	58.4	50.6		59.8							
Agropyron spicatum Breaks	4	.174	55.2				55.2							
Sporobolus airoides Breaks	4	.174	71.0								71.0			
Calamovilfa longifolia Breaks	5	.217	66.5			66.5								

Table 35
Ecological Site Condition (Similarity Index) for Vegetation Community Types in the Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

COMMUNITY TYPE	n	Weighted Abundance[2]	Weighted Mean Condition[3]	Ecological Site[1] Condition (Similarity Index) by Site										
				Clayey	Silty	Shallow	Shallow Clay	Sandy Steep	Very Shallow	Saline Lowland	Saline Upland	Overflow	Sub-irrigated	Wet Meadow
Shrub-Dominated Breaks	**(97)**	1.000	58.6			58.5	59.4		52.3					
Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron smithii	26	.268	58.4				58.4							
Artemisia tridentata-Sarcobatus vermiculatus - Chrysothamnus nauseosus / Agropyron spicatum	3	.031	60.9			62.2	60.3							
Rhus aromatica / Agropyron spicatum-Andropogon scoparius	8	.082	50.8			41.8			52.3					
Artemisia tridentata-Rhus aromatica-Chrysothamnus nauseosus / Agropyron spicatum	15	.155	59.1			58.8	59.5							
Artemisia tridentata-Rhus aromatica-Sarcobatus vermiculatus / Agropyron spicatum	6	.062	60.7			61.1	60.2							
Artemisia tridentata-Atriplex confertifolia-Sarcobatus vermiculatus / Agropyron spicatum	26	.268	60.0			57.9	61.1							
Artemisia tridentata-Atriplex confertifolia-Rhus aromatica / Agropyron spicatum	13	.134	58.5			59.3	54.1							
Conifer-Dominated Breaks	**(55)**	1.000	54.5		42.6	55.8	43.9							
Juniperus scopulorum/Agropyron spicatum Breaks	11	.200	41.5		42.6	40.8								
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum Breaks	18	.327	51.7			52.2	43.9							
Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius Breaks	15	.273	63.0			63.0								
Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata Breaks	4	.073	62.3			62.3								
Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata-Atriplex confertifolia Breaks	7	.127	64.8			64.8								
PONDEROSA PINE-JUNIPER FOREST AND SAVANNAH	**140**													
Ponderosa Pine-Juniper / Grass	**(127)**	1.000	43.3			42.8	53.1	41.3	44.5					
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum	93	.732	39.5			38.7		41.3	44.3					
Juniperus scopulorum-Pinus ponderosa / Oryzopsis micrantha	2	.016	22.9			22.9								
Pinus ponderosa-Juniperus scopulorum / Festuca idahoensis	2	.016	50.2			50.2								
Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius	30	.236	55.7			57.1	53.1		45.3					

Table 35
Ecological Site Condition (Similarity Index) for Vegetation Community Types in the Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

COMMUNITY TYPE	n	Weighted Abundance[2]	Weighted Mean Condition[3]	Ecological Site[1] Condition (Similarity Index) by Site										
				Clayey	Silty	Shallow	Shallow Clay	Sandy Steep	Very Shallow	Saline Lowland	Saline Upland	Overflow	Sub-irrigated	Wet Meadow
Ponderosa Pine-Juniper / Shrub	**(13)**	1.000	48.8			51.2						47.2		
Drainage *Juniperus scopulorum-Pinus ponderosa / Symphoricarpos occidentalis-Agropyron smithii*	11	.846	47.2			47.2						47.2		
Pinus ponderosa-Juniperus scopulorum / Prunus virginiana	2	.154	57.3			57.3								
DRAINAGE BOTTOM	**111**													
Mesophytic/Hydrophytic Herbaceous Bottom	**(45)**	1.000	40.7							50.2	86.0		35.2	33.8
Distichlis stricta Series	3	.067	35.7							35.7				
Sporobolus airoides Series	7	.156	72.7							62.7	86.0			
Spartina gracilis Series	1	.022	43.9							43.9				
Spartina pectinata Series	15	.333	43.6										42.6	44.5
Scirpus maritimus Series	2	.044	10.2										10.1	10.3
Eleocharis palustris Series	3	.067	30.9										33.9	27.9
Typha latifolia Series	4	.089	22.9										24.6	21.2
Scirpus validus Series	10	.222	31.5										33.8	29.3
Mesophytic Low Shrub Bottom	**(27)**	1.000	42.7									42.7		
Symphoricarpos occidentalis Series	27	1.000	42.7									42.7		
Mesophytic Tall Shrub Bottom	**(3)**	1.000	26.7									26.7	28.8	24.3
Prunus virginiana/Symphoricarpos occidentalis-Poa pratensis	2	.667	26.7									26.7		
Salix exigua/Scirpus americanus-Juncus torreyi	1	.333	26.6										28.8	24.3
Mesophytic Deciduous Tree Bottom	**(36)**	1.000	14.3							15.6		16.6	12.2	
Populus deltoides Series	13	.361	15.0									15.0		
Acer negundo Series	22	.611	12.6							15.6		13.7	12.2	
Fraxinus pennsylvanica Series	1	.028	42.5									42.5		

[1]**Ecological sites** were determined using the baseline soils study (Baker 2014) and descriptions in USDA Natural Resources Conservation Service (1971, 2012). Ecological site condition (similarity index or range condition) was calculated using NRCS (2003) technical grazing guides, after determining the predominant ecological site(s) for each vegetation community type (see Appendices E and K, and Summary Table 34). Relative cover values used for these calculations are given in Appendices F and L. Range condition of physiognomic types is the weighted mean (weighted by sample size) of conditions calculated for the component community types.

[2]**Weighted Abundance** is a numerical expression of the relative abundance (sample size) of each community type in a physiognomic type, e.g. Grassland.

[3]**Weighted Mean Condition** is determined recognizing the relative abundance of each (dominant) ecological site in a community type.

Table 36
Rangeland Productivity and Forage for Vegetation Community Types in the Otter Creek Baseline Study Area,
Powder River County, Montana, 2011-2012.

				Rangeland Productivity[1] Pounds per Acre (and Percent Forage) by Ecological Site										
COMMUNITY TYPE	**n**	**Weighted Abundance[2]**	**Weighted Mean Productivity (Forage)[3]**	**Clayey**	**Silty**	**Shallow**	**Shallow Clay**	**Sandy Steep**	**Very Shallow**	**Saline Lowland**	**Saline Upland**	**Overflow**	**Sub-irrigated**	**Wet Meadow**
GRASSLAND	**185**	1.000	1179 (77)	1555 (72)	1501 (76)	1000 (75)	928 (83)	1465 (80)	489 (77)	1250 (66)				
Agropyron smithii / Bouteloua gracilis	15	.081	874 (61)		805 (58)	550 (62)				1250 (66)				
Agropyron smithii/Stipa viridula	77	.416	1465 (78)	1555 (72)	1623 (79)		1000 (86)							
Stipa comata / Agropyron smithii	20	.108	922 (79)		1700 (79)		810 (78)		430 (80)					
Stipa comata / Carex filifolia	12	.065	817 (65)		1281 (69)				430 (62)					
Agropyron spicatum / Stipa comata	7	.038	1162 (78)		1675 (79)	985 (73)			480 (80)					
Agropyron spicatum / Bouteloua curtipendula	12	.065	1137 (78)		1735 (79)	1100 (73)	915 (81)		560 (80)					
Andropogon scoparius / Carex filifolia	2	.011	850 (75)		1215 (69)				485 (80)					
Andropogon scoparius / Agropyron spicatum	11	.059	1016 (79)		1615 (79)		840 (78)		590 (80)					
Andropogon scoparius / Bouteloua curtipendula	10	.054	791 (80)			1020 (73)	855 (81)		550(80)					
Andropogon scoparius / Andropogon gerardii	2	.011	930 (85)			1205 (85)			655 (85)					
Andropogon scoparius / Calamovilfa longifolia	6	.032	1171 (83)		1500 (79)	1128 (85)			640 (85)					
Calamovilfa longifolia / Stipa comata	11	.059	977 (79)		1472 (76)			1465 (80)	485 (80)					
TAME PASTURE	**106**	1.000												
Hay Cropland – Farmed	66	.623		NA	NA					NA				
Pastureland – Grazed/Go-Back	40	.377			NA				NA	NA				
SHRUB / GRASSLAND	**172**	1.000	1303 (77)	1430 (72)	1660 (75)	982 (73)	895 (81)		493 (68)			1775 (80)		
Artemisia cana / Agropyron smithii	52	.302	1422 (74)		1543 (69)	975 (73)	900 (81)		450 (62)			1775 (80)		
Artemisia tridentata / Agropyron smithii	73	.425	1322 (77)	1430 (72)	1738 (78)	965 (73)	900 (81)							
Artemisia tridentata / Agropyron spicatum	36	.209	1154 (79)		1710 (79)	1010 (73)	885 (81)							
Artemisia tridentata / Andropogon scoparius	11	.064	1126 (78)		1720 (79)	1010 (73)	905 (81)		580 (80)					
BREAKS	**175**													
Grass-Dominated Breaks	**(23)**	1.000	1033 (78)	1495 (72)	1510 (79)	1075 (73)	888 (81)				730 (79)			
Agropyron smithii Breaks	10	.435	1202 (79)	1495 (72)	1510 (79)		899 (81)							
Agropyron spicatum Breaks	4	.174	875 (81)				875 (81)							
Sporobolus airoides Breaks	4	.174	730 (79)								730 (79)			
Calamovilfa longifolia Breaks	5	.217	1075 (73)			1075 (73)								

Table 36
Rangeland Productivity and Forage for Vegetation Community Types in the Otter Creek Baseline Study Area,
Powder River County, Montana, 2011-2012.

				Rangeland Productivity[1] Pounds per Acre (and Percent Forage) by Ecological Site										
COMMUNITY TYPE	**n**	**Weighted Abundance[2]**	**Weighted Mean Productivity (Forage)[3]**	**Clayey**	**Silty**	**Shallow**	**Shallow Clay**	**Sandy Steep**	**Very Shallow**	**Saline Lowland**	**Saline Upland**	**Overflow**	**Sub-irrigated**	**Wet Meadow**
Shrub-Dominated Breaks	**(97)**	1.000	915 (78)			1017 (72)	894 (81)		530 (80)					
Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron smithii	26	.268	883 (81)				883 (81)							
Artemisia tridentata-Sarcobatus vermiculatus - Chrysothamnus nauseosus / Agropyron spicatum	3	.031	947 (70)			1040 (62)	900 (74)							
Rhus aromatica / Agropyron spicatum-Andropogon scoparius	8	.082	592 (77)			965 (62)			530 (80)					
Artemisia tridentata-Rhus aromatica-Chrysothamnus nauseosus / Agropyron spicatum	15	.155	971 (76)			1015 (73)	900 (81)							
Artemisia tridentata-Rhus aromatica-Sarcobatus vermiculatus / Agropyron spicatum	6	.062	968 (77)			1035 (73)	900 (81)							
Artemisia tridentata-Atriplex confertifolia-Sarcobatus vermiculatus / Agropyron spicatum	26	.268	940 (78)			1010 (73)	905 (81)							
Artemisia tridentata-Atriplex confertifolia-Rhus aromatica / Agropyron spicatum	13	.134	997 (74)			1020 (73)	870 (81)							
Conifer-Dominated Breaks	**(55)**	1.000	986(71)		1335 (69)	956 (71)	870 (74)							
Juniperus scopulorum/Agropyron spicatum Breaks	11	.200	899 (65)		1335 (69)	650 (62)								
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum Breaks	18	.327	959 (73)			965 (73)	870 (74)							
Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius Breaks	15	.273	1050 (73)			1050 (73)								
Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata Breaks	4	.073	1040 (73)			1040 (73)								
Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata-Atriplex confertifolia Breaks	7	.127	1060 (73)			1060 (73)								
PONDEROSA PINE-JUNIPER FOREST AND SAVANNAH	**140**													
Ponderosa Pine-Juniper / Grass	**(127)**	1.000	683 (67)			684 (65)	865 (81)	1040 (72)	497 (80)					
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum	93	.732	597 (65)			587 (62)		1040 (72)	496 (80)					
Juniperus scopulorum-Pinus ponderosa / Oryzopsis micrantha	2	.016	315 (59)			315 (59)								
Pinus ponderosa-Juniperus scopulorum / Festuca idahoensis	2	.016	950 (73)			950 (73)								
Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius	30	.236	951 (75)			1005 (73)	865 (81)		500 (80)					

Table 36
Rangeland Productivity and Forage for Vegetation Community Types in the Otter Creek Baseline Study Area,
Powder River County, Montana, 2011-2012.

				Rangeland Productivity[1] Pounds per Acre (and Percent Forage) by Ecological Site										
COMMUNITY TYPE	**n**	**Weighted Abundance[2]**	**Weighted Mean Productivity (Forage)[3]**	**Clayey**	**Silty**	**Shallow**	**Shallow Clay**	**Sandy Steep**	**Very Shallow**	**Saline Lowland**	**Saline Upland**	**Overflow**	**Sub-irrigated**	**Wet Meadow**
Ponderosa Pine-Juniper / Shrub	**(13)**	1.000	1533 (75)			897 (66)						1930 (80)		
Drainage *Juniperus scopulorum-Pinus ponderosa / Symphoricarpos occidentalis-Agropyron smithii*	11	.846	1629 (75)			825 (62)						1930 (80)		
Pinus ponderosa-Juniperus scopulorum / Prunus virginiana	2	.154	1005 (73)			1005 (73)								
DRAINAGE BOTTOM	**111**													
Mesophytic/Hydrophytic Herbaceous Bottom	**(45)**	1.000	3071 (77)							2252 (71)	765 (79)		2937 (77)	3998 (80)
Distichlis stricta Series	3	.067	1530 (66)							1530 (66)				
Sporobolus airoides Series	7	.156	1938 (77)							2820 (75)	765 (79)			
Spartina gracilis Series	1	.022	2145 (66)							2145 (66)				
Spartina pectinata Series	15	.333	4018 (80)										3393 (80)	4642 (80)
Scirpus maritimus Series	2	.044	2412 (70)										1905 (60)	2920 (80)
Eleocharis palustris Series	3	.067	2970 (80)										2725 (80)	3215 (80)
Typha latifolia Series	4	.089	2902 (72)										2459 (65)	3344 (80)
Scirpus validus Series	10	.222	3230 (80)										2715 (80)	3745 (80)
Mesophytic Low Shrub Bottom	**(27)**	1.000	1658 (80)									1658 (80)		
Symphoricarpos occidentalis Series	27	1.000	1658 (80)									1658 (80)		
Mesophytic Tall Shrub Bottom	**(3)**	1.000	2043 (73)									1685 (70)	2365 (80)	3155 (80)
Prunus virginiana/Symphoricarpos occidentalis-Poa pratensis	2	.667	1685 (70)									1685 (70)		
Salix exigua/Scirpus americanus-Juncus torreyi	1	.333	2760 (80)										2365 (80)	3155 (80)
Mesophytic Deciduous Tree Bottom	**(36)**	1.000	1612 (63)							1100 (66)		1204 (65)	2032 (60)	
Populus deltoides Series	13	.361	1193 (65)									1193 (65)		
Acer negundo Series	22	.611	1858 (60)							1100 (66)		1050 (58)	2032 (60)	
Fraxinus pennsylvanica Series	1	.028	1650 (80)									1650 (80)		

[1]**Rangeland Productivity (pounds per acre) and available cattle Forage (percent)** were determined using the stocking rate guides in USDA Natural Resources Conservation Service (2003). Productivity and Forage values were calculated by interpolation of the guide values for stock rates in each ecological site; interpolation was based on the similarity index values determined in Table 35 for the current study area condition of each ecological site and community type.

[2]**Weighted Abundance** is a numerical expression of the relative abundance (sample size) of each community type in a physiognomic type, e.g. Grassland.

[3]**Weighted Mean Productivity and Forage** are determined recognizing the relative abundance of each (dominant) ecological site in a community type.

NA = Not Applicable; landowner interviews indicate that irrigated (subirrigated and flood-irrigated) Special Use Pasture hay production in Tract 2 averages approximately 2.5 tons per acre long-term. Also, see Table 38 for estimates of farmed hay yield using NRCS methodology.

Table 37

Rangeland Grazing Capacity of the Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

Ecological Site[1]	Weighted Mean Condition[2] (percent)	Recommended Stocking Rate for Cattle (AUM/acre)[3]	Acreage[1]	Estimated Grazing Capacity (AUM)[4]
Clayey	59.8 (G)	.35	628.6	220.0
Silty	55.5 (G-)	.37	2219.3	821.1
Silty Steep	55.5 (G-)	.29	141.6	41.1
Shallow	50.4 (G-)	.20	1797.3	359.5
Shallow Clay	58.9 (G)	.23	1370.1	315.1
Dense Clay	58.9 (G)	.15	46.8	7.0
Sandy	51.0 (G-)	.41	112.4	46.1
Sandy Steep	51.0 (G-)	.28	281.5	78.8
Very Shallow	44.0 (F+)	.12	442.6	53.1
Saline Lowland	40.6 (F)	.40	216.5	86.6
Saline Upland	77.4 (E-)	.18	26.9	4.8
Overflow	37.0 (F)	.33	250.9	82.8
Subirrigated	23.3 (P+)	.51	25.3	12.9
Wet Meadow	33.7 (F)	1.04	25.3	26.3
TOTAL		**.28**	**7585**	**2155**

[1]See Plate 2 (total acreage excludes Tame Pasture and miscellaneous disturbance).

[2]Derived from Table 35 (excluding Tame Pasture).

[3]Interpolated from NRCS technical guides for "Initial Stocking Rates" (NRCS 2003), using current condition values for the baseline study area.

[4]Following NRCS (2003): "AUM calculations are based on 790 pounds per animal unit month (AUM) for a 1,000 pound cow with calf up to four months. No adjustments have been made for site grazability factors, such as steep slopes, site inaccessibility, or distance to water."

Table 38

Predicted Average Yields of Principal Crops, Otter Creek Baseline Study Area, 2011-2012.

	Land Capability[1]		Tame Pasture Acreage by Soil Series		Tame Pasture Expected Yield[2] (Tons per Acre)			
					Grass Hay		Alfalfa Hay	
Soil Name (Baker 2012)	**Non-Irrigated**	**Irrigated**	**Hay Cropland (Acres)**	**Pastureland (Acres)**	**Non-Irrigated**	**Irrigated**	**Non-Irrigated**	**Irrigated**
Blacksheep-Cabba-Cabbart	7e	-	-	15.28	-	-	-	-
Farland	3e	3e	4.04	9.78	1.8	5	2	5.5
Fort Collins	3e	3e	5.60	55.98	1	(2.8)	(2)	(5.5)
Haverson	3e	3e	22.51	65.28	1.5	3	1.8	7
Haverson-Saline	4e	4e	300.14	26.80	(1)	(2.5)	(1.2)	(4)
Havre	4e	4e	-	-	1	(2.5)	(1.2)	(4)
Heldt	3e	3e	156.94	56.60	1.2	3	1	5
Heldt-Saline	4e	4e	131.62	47.59	(1)	(2.5)	(1)	(4)
Hydro	3e	3e	3.78	13.61	0.8	(3)	0.8	4
McRae	3e	2e	101.18	206.53	(1.2)	(3)	1.5	5.5
McRae-Saline	4e	4e	-	87.26	(1)	(2.5)	(1)	(4)
Midway-Cabbart	4e	4e	0.10	26.48	(0.8)	(3)	(0.8)	(4)
Midway-Delpoint	4e	4e	-	7.72	(0.8)	(3)	(0.8)	(4)
Nihill-Havre	6e	6e	3.65	23.32	-	-	-	-
Relan	4e	4e	2.31	69.86	(1)	(2.5)	(1.2)	(4)
Ringling	7e	-	5.74	61.81	-	-	-	-
Ringling-Twilight	4e	4e	-	-	(1)	(2.5)	(1.2)	(4)
Ringling-Twilight-Barvon	7e	-	-	29.08	-	-	-	-
Saline Overflow	-	-	17.89	11.20	-	-	-	-
Twilight-Blacksheep	4e	4e	0.06	15.64	(1)	(2.5)	(1.2)	(4)
Total Acres			755.56	829.82				

[1]**Land capability** classification (NRCS 2012a,b) shows, in a general way, the suitability of soils for most kinds of field crops. Soils are generally grouped at three levels - capability class, subclass, and unit.
Capability classes, the broadest groups, are designated by the numbers 1 through 8, indicating progressively greater limitations and narrower choices for practical use. If properly managed, soils in classes 1, 2, 3 and 4 are suitable for the mechanized production of commonly grown field crops and for pasture.
Capability subclasses indicate the dominant limitations in the class by adding a letter, e, w, s, or c, to the class numeral. The letter *e* shows that the main hazard is the risk of erosion; *w* shows that water in or on the soil interferes with plant growth; *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c* shows that the chief limitation is climate that is very cold or very dry.
[2]**Source**: Powder River County Soil Survey (NRCS 2012a,b), where "absence of a yield figure indicates that the soil is not suitable for the crop or the crop is not generally grown on the soil".

Definitions specific to the Otter Creek baseline study area:

Tame Pasture categories (generally patterned after ARM 17.24.301)

Hay Cropland – (farmed tame pasture, managed and regularly mowed)

Pastureland – (primarily "go-back" tame pasture, not managed and seldom mowed, but grazed)

Table 39
Montana Natural Heritage Program Records[1] of Plant Species of Concern, Powder River and Rosebud Counties, Montana, 2012.

Plant Species	County	Global Rank	State Rank	USFWS	USFS	BLM	Habitat
Amorpha canescens Lead plant	Rosebud	G5	SH				Prairie
Asclepias stenophylla Narrowleaf milkweed	Rosebud	G4G5	S2			Sensitive	Sandy sites
Astragalus barrii Barr's milkvetch	Powder River, Rosebud	G3	S3		Sensitive	Sensitive	Sparsely vegetated knobs and buttes
Carex gravida Pregnant sedge	Powder River, Rosebud	G5	S3				Wetland/Riparian
Ceanothus herbaceus New Jersey tea	Powder River	G5	SH				Forests (Dry, Open)
Chenopodium subglabrum Smooth goosefoot	Powder River	G3G4	S2				Sandy sites
Cirsium pulcherrimum Wyoming thistle	Powder River	G5	S1				Sparsely-vegetated soils
Cyperus schweinitzii Schweinitz' flatsedge	Powder River	G5	S2			Sensitive	Sandy sites
Dichanthelium oligosanthes var. *scribnerianum* Scribner's panic grass	Powder River	G5T5	S1S2			Sensitive	Mesic, sandy woodlands (low-elevation)
Ipomoea leptophylla Bush morning-glory	Rosebud	G3G5	S1S2				Prairie
Lomatium nuttallii Nutall desert-parsley	Rosebud	G3	S1S2			Sensitive	Rocky, pine woodlands
Mentzelia nuda Bractless blazingstar	Powder River, Rosebud	G5	S1S2			Sensitive	Open areas (sandy or gravelly soils)
Phlox andicola Plains phlox	Powder River, Rosebud	G4	S3			Sensitive	Open sites (Sand to clay soils)
Physaria brassicoides Double bladderpod	Powder River	G5	S3			Sensitive	Breaklands/Badlands
Physaria didymocarpa var. *lanata* Woolly twinpod	Rosebud	G5T2	S1S2			Sensitive	Grasslands/Shrublands (Open, plains)
Psoralea hypogaea (Pediomelum hypogaeum) Little Indian breadroot	Powder River, Rosebud	G5	S2S3			Sensitive	Grasslands/Woodlands (Open, sandy soil)
Rorippa calycina Persistent-sepal yellow-cress	Rosebud	G3	S1			Sensitive	Wetland/Riparian

[1]Explanation of ranking categories follows the MTNHP website at: http://fieldguide.mt.gov/statusCodes.aspx

SPECIES STATUS CODES: Definitions for species conservation status ranks, categories and other codes designated by MTNHP, Federal and State Agencies:

Species of Concern: Species of Concern are native taxa that are at-risk due to declining population trends, threats to their habitats, restricted distribution, and/or other factors. Designation as a Montana Species of Concern or Potential Species of Concern is based on the Montana Status Rank, and is not a statutory or regulatory classification. Montana employs a standardized ranking system to denote **global** (range-wide) and **state** status (NatureServe 2006). Species are assigned numeric ranks ranging from 1 (highest risk, greatest concern) to 5 (demonstrably secure), reflecting the relative degree of risk to the species' viability, based upon available information.

Table 39
Montana Natural Heritage Program Records[1] of Plant Species of Concern, Powder River and Rosebud Counties, Montana, 2012.

Rank		Definition
G1	**S1**	At high risk because of extremely limited and/or rapidly declining population numbers, range and/or habitat, making it highly vulnerable to global extinction or extirpation in the state.
G2	**S2**	At risk because of very limited and/or potentially declining population numbers, range and/or habitat, making it vulnerable to global extinction or extirpation in the state.
G3	**S3**	Potentially at risk because of limited and/or declining numbers, range and/or habitat, even though it may be abundant in some areas.
G4	**S4**	Apparently secure, though it may be quite rare in parts of its range, and/or suspected to be declining.
G5	**S5**	Common, widespread, and abundant (although it may be rare in parts of its range). Not vulnerable in most of its range.
GH	**SH**	Historical, known only from records usually 40 or more years old; may be rediscovered.
T#		Rank of a subspecies or variety. Appended to the global rank of the full species, *e.g.* G4T3

U.S. Fish and Wildlife Service (Endangered Species Act): Status of a taxon under the federal Endangered Species Act of 1973 (16 U.S.C.A. § 1531-1543 (Supp. 1996))

Designation Descriptions

LT	Listed threatened: Any species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range (16 U.S.C. 1532(20)).
C	Candidate: Those taxa for which sufficient information on biological status and threats exists to propose to list them as threatened or endangered. We encourage their consideration in environmental planning and partnerships; however, none of the substantive or procedural provisions of the Act apply to candidate species.

Bureau of Land Management: BLM Sensitive Species are defined by the BLM 6840 Manual as those that normally occur on Bureau administered lands for which BLM has the capability to significantly affect the conservation status of the species through management. The sensitive species designation, for species other than federally listed, proposed, or candidate species, may include such native species as those that could become endangered in or extirpated from a state, are under status review by FWS, or are undergoing significant current or predicted downward trends in habitat capability, etc.

Designation Descriptions

Sensitive	Denotes species listed as sensitive on BLM lands
Special Status	Denotes species that are listed as Endangered or Threatened under the Endangered Species Act

U.S. Forest Service: U.S. Forest Service Manual (2670.22) defines Sensitive Species on Forest Service lands as those for which population viability is a concern as evidenced by a significant downward trend in population or a significant downward trend in habitat capacity.

Designation Descriptions

Endangered	Listed as Endangered (LE) under the U.S. Endangered Species Act.
Threatened	Listed as Threatened (LT) under the U.S. Endangered Species Act.
Sensitive	Listed as a Sensitive Species by USFS Northern Region (R1).

Table 40
Average Number of Vascular Plant Species per Plot for Eleven Physiognomic Types, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

	AVERAGE NUMBER OF SPECIES PER PLOT[1]										
CLASS	GRASSLAND n=185	TAME PASTURE n=106	SHRUB/ GRASSLAND n=172	GRASS-DOMINATED BREAKS n=23	SHRUB-DOMINATED BREAKS n=97	CONIFER-DOMINATED BREAKS n=55	PINE FOREST AND SAVANNAH n=140	HERBACEOUS BOTTOM n=45	LOW SHRUB BOTTOM n=27	TALL SHRUB BOTTOM n=3	DECIDUOUS TREE BOTTOM n=36
NATIVE PERENNIAL GRAMINOIDS (Cool)	4.16	0.75	4.72	3.95	3.48	3.13	3.76	2.53	2.74	1.67	0.86
NATIVE PERENNIAL GRAMINOIDS (Warm)	1.64	0.21	1.26	2.09	1.18	1.89	1.82	1.20	0.70	0.33	0.45
INTRODUCED PERENNIAL GRAMINOIDS	0.57	2.15	0.65	0.09	0.06	0.07	0.25	1.15	1.12	1.00	1.75
NATIVE ANNUAL GRAMINOIDS	0.15	-	0.16	0.26	0.07	0.04	-	0.02	-	-	-
INTRODUCED ANNUAL GRAMINOIDS	1.14	0.38	1.04	0.61	1.00	0.73	0.54	0.11	0.71	0.33	0.27
NATIVE PERENNIAL FORBS AND SUBSHRUBS	10.88	1.13	11.34	11.95	9.71	14.93	16.98	2.04	6.07	3.33	2.00
INTRODUCED PERENNIAL FORBS	0.81	1.02	0.98	0.43	0.28	0.55	0.83	0.62	0.67	0.33	1.00
FERNS AND ALLIES	-	-	-	-	0.06	0.02	-	0.07	-	-	0.03
NATIVE ANNUAL/BIENNIAL FORBS	1.92	0.45	1.98	1.78	1.61	1.13	0.67	0.51	0.70	1.00	0.56
INTRODUCED ANNUAL/BIENNIAL FORBS	2.88	1.88	2.90	1.13	1.90	2.05	1.61	1.13	2.04	2.00	2.14
SHRUBS	0.91	0.30	1.46	1.39	2.80	2.11	1.79	0.73	2.85	4.33	1.64
TREES	0.04	-	0.03	0.05	0.09	1.34	1.81	0.09	0.22	-	1.33
TOTAL	25.12	8.28	26.54	23.74	22.24	27.99	30.07	10.22	17.81	14.33	12.03

[1]n = number of 0.01-acre plots (11.8 feet radius) sampled in each physiognomic type.

Table 41
Vegetation Acreage of the Otter Creek Coal Project Baseline Study Area, Powder River County, Montana, 2011-2012 .

MAP UNIT	COMMUNITY TYPE	Acres	Percent of Acreage
	GRASSLAND	**2745.26**	**29.61**
1	*Agropyron smithii / Bouteloua gracilis*	260.20	2.81
2	*Agropyron smithii / Stipa viridula*	1194.06	12.88
3	*Stipa comata / Agropyron smithii*	429.83	4.64
4	*Stipa comata / Carex filifolia*	145.79	1.57
5	*Agropyron spicatum / Stipa comata*	94.89	1.02
6	*Agropyron spicatum / Bouteloua curtipendula*	149.49	1.61
7A	*Andropogon scoparius / Carex filifolia*	10.78	0.12
7	*Andropogon scoparius / Agropyron spicatum*	172.66	1.86
8	*Andropogon scoparius / Bouteloua curtipendula*	155.77	1.68
8A	*Andropogon scoparius / Andropogon gerardii*	1.52	0.02
9	*Andropogon scoparius / Calamovilfa longifolia*	82.06	0.89
10	*Calamovilfa longifolia / Stipa comata*	48.22	0.52
	TAME PASTURE	**1585.38**	**17.10**
11F	Hay Cropland - Farmed	755.56	8.15
11G	Pastureland - Grazed/Go-Back	829.82	8.95
	SHRUB / GRASSLAND	**2655.25**	**28.64**
12	*Artemisia cana / Agropyron smithii*	308.00	3.32
13	*Artemisia tridentata / Agropyron smithii*	1332.11	14.37
14	*Artemisia tridentata / Agropyron spicatum*	602.01	6.49
15	*Artemisia tridentata / Andropogon scoparius*	413.12	4.46
	BREAKS COMPLEX	**1244.41**	**13.42**
	Grass-Dominated Breaks	**127.85**	**1.38**
16	*Agropyron smithii* Breaks	61.35	0.66
17	*Agropyron spicatum* Breaks	15.00	0.16
18	*Sporobolus airoides* Breaks	19.33	0.21
19	*Calamovilfa longifolia* Breaks	32.17	0.35
	Shrub-Dominated Breaks	**900.36**	**9.71**
20	*Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron*	386.18	4.17
20A	*Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron spicatum*	5.04	0.05
21	*Rhus aromatica / Agropyron spicatum-Andropogon scoparius*	32.39	0.35
22	*Artemisia tridentata-Rhus aromatica-Chrysothamnus nauseosus / Agropyron spicatum*	82.51	0.89
23	*Artemisia tridentata-Rhus aromatica-Sarcobatus vermiculatus / Agropyron spicatum*	92.25	1.00
24	*Artemisia tridentata-Atriplex confertifolia-Sarcobatus vermiculatus / Agropyron spicatum*	210.91	2.28
25	*Artemisia tridentata-Atriplex confertifolia-Rhus aromatica / Agropyron spicatum*	91.08	0.98
	Conifer-Dominated Breaks	**216.20**	**2.33**
26	*Juniperus scopulorum/Agropyron spicatum* Breaks	61.51	0.66
27	*Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum* Breaks	53.72	0.58
28	*Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius* Breaks	61.67	0.67
29	*Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata* Breaks	14.43	0.16
30	*Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata-Atriplex confertifolia*	24.88	0.27

Table 41
Vegetation Acreage of the Otter Creek Coal Project Baseline Study Area, Powder River County, Montana, 2011-2012 .

MAP UNIT	COMMUNITY TYPE	Acres	Percent of Acreage
	PONDEROSA PINE-JUNIPER FOREST AND SAVANNAH	**740.10**	**7.98**
	Ponderosa Pine-Juniper / Grass	**685.85**	**7.40**
31	*Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum*	428.61	4.62
32	*Juniperus scopulorum-Pinus ponderosa / Oryzopsis micrantha*	3.04	0.03
33	*Pinus ponderosa-Juniperus scopulorum / Festuca idahoensis*	13.16	0.14
34	*Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius*	241.04	2.60
	Ponderosa Pine-Juniper / Shrub	**54.25**	**0.59**
35	*Drainage Juniperus scopulorum-Pinus ponderosa / Symphoricarpos occidentalis-Agropyron smithii*	47.85	0.52
36	*Pinus ponderosa-Juniperus scopulorum / Prunus virginiana*	6.40	0.07
	DRAINAGE BOTTOM	**214.82**	**2.32**
	Mesophytic/Hydrophytic Herbaceous Bottom	**62.02**	**0.67**
37	*Distichlis stricta* Bottom Series	7.73	0.08
38	*Sporobolus airoides* Bottom Series	5.10	0.06
39	*Spartina gracilis* Bottom Series	*	*
40	*Spartina pectinata* Bottom Series	33.60	0.36
41	*Scirpus maritimus* Bottom Series	1.36	0.01
42	*Eleocharis palustris* Bottom Series	1.32	0.01
43	*Typha latifolia* Bottom Series	1.43	0.02
44	*Scirpus validus* Bottom Series	11.49	0.12
	Mesophytic Low Shrub Bottom	**90.39**	**0.98**
45	*Symphoricarpos occidentalis* Bottom Series	90.39	0.98
	Mesophytic Tall Shrub Bottom	**2.28**	**0.02**
46	*Prunus virginiana* Bottom Series	2.28	0.02
47	*Salix exigua* Bottom Series	*	*
	Mesophytic Deciduous Tree Bottom	**60.13**	**0.65**
48	*Populus deltoides* Bottom Series	28.38	0.31
49	*Acer negundo* Bottom Series	29.80	0.32
50	*Fraxinus pennsylvanica* Bottom Series	1.94	0.02
	MISCELLANEOUS	**84.88**	**0.92**
Pond	Ponds	4.80	0.05
RO	Rock Outcrops	4.70	0.05
Road	Roads	31.22	0.34
RSF	Residential/Support Facilities	15.17	0.16
Water	Open Surface Water	28.99	0.31
	TOTAL	**9270.08**	**100.00**

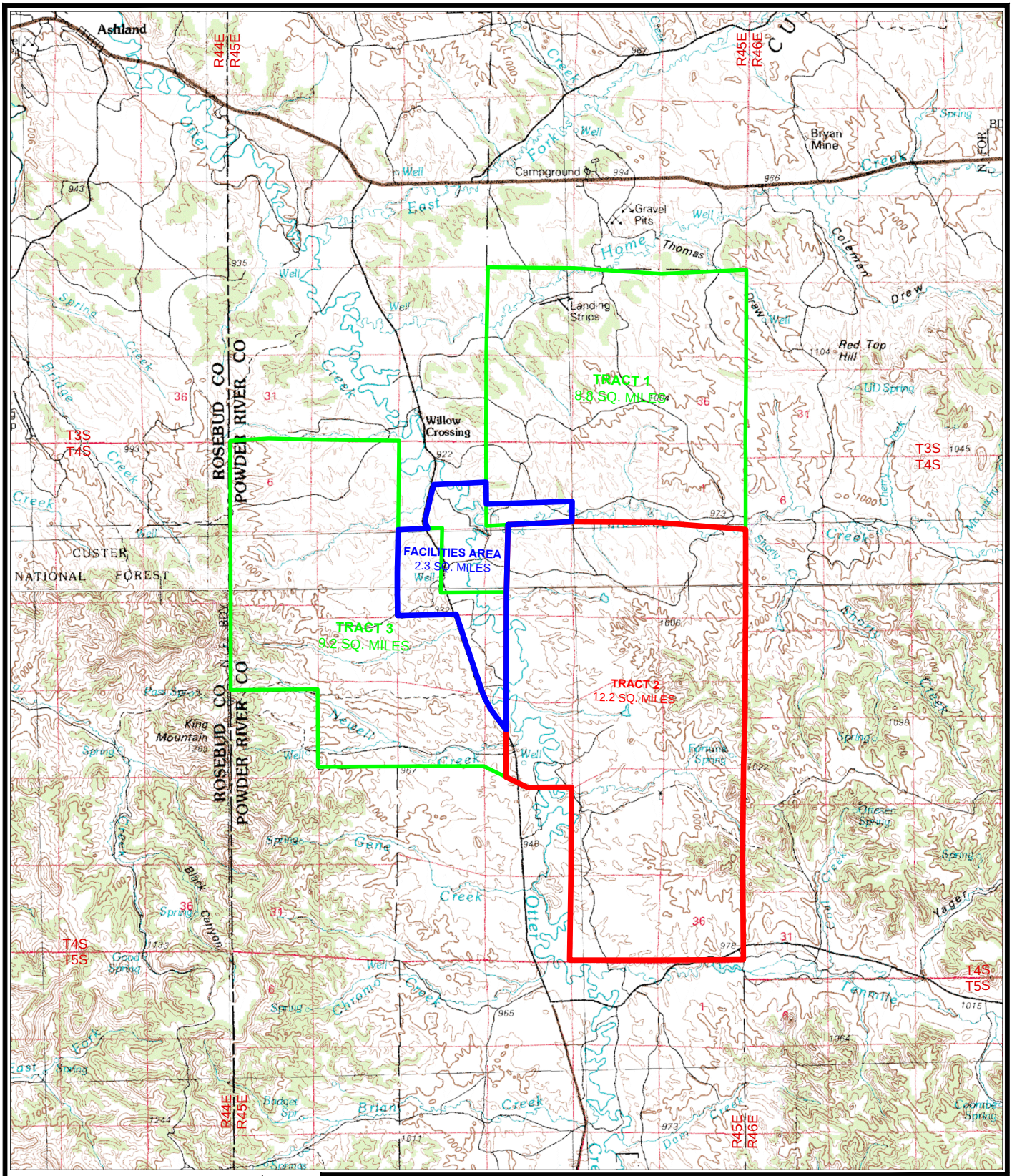
*The very minor acreages of the *Spartina gracilis* and *Salix exigua* Bottom Series are subsumed under other Drainage Bottom community types.

6.0

FIGURE

OTTER CREEK VEGETATION BASELINE

STUDY AREA LOCATION FIGURE



Tract 2 Boundary

Facilities Study Area

USGS 100k: Birney & Lame Deer

OTTER CREEK COAL, LLC
P.O. BOX 7152 Billings, Mt. 59103

Vegetation Study Area

WESTECH
Environmental Services, Inc.
P.O. Box 6045
Helena, Montana 59604

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APPENDICES

OTTER CREEK VEGETATION BASELINE

(Data by Sample Site)

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APPENDIX A

List of Vascular Plant Species Identified in the Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

Appendix A
Vascular Plant Species, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

BINOMIAL	COMMON NAME
NATIVE PERENNIAL GRAMINOIDS (Cool Season)	
XAgrohordeum macounii	Macoun wildrye
Agropyron albicans var. griffithsii	Griffiths wheatgrass
Agropyron dasystachyum var. dasystachyum	Thickspike wheatgrass
Agropyron dasystachyum var. riparium	Streambank wheatgrass
Agropyron smithii	Western wheatgrass
Agropyron spicatum	Bluebunch wheatgrass
Agropyron trachycaulum	Slender wheatgrass
Agropyron xpseudorepens	False quackgrass
XAgrositanion saundersii	Saunders wildrye
Aristida longiseta	Red threeawn
Calamagrostis montanensis	Plains reedgrass
Carex filifolia	Threadleaf sedge
Carex heliophila	Sun sedge
Carex lanuginosa	Woolly sedge
Carex nebrascensis	Nebraska sedge
Carex rossii	Ross sedge
Carex stenophylla	Needleleaf sedge
Eleocharis palustris	Common spikesedge
Elymus canadensis	Canada wildrye
Elymus cinereus	Basin wildrye
Festuca idahoensis	Idaho fescue
Hordeum caespitosum	Foxtail X Meadow barley
Hordeum jubatum	Foxtail barley
Juncus balticus	Baltic rush
Juncus torreyi	Torrey's rush
Koeleria cristata	Prairie junegrass
Oryzopsis hymenoides	Indian ricegrass
Oryzopsis micrantha	Littleseed ricegrass
Phalaris arundinacea	Reed canarygrass
Poa arida	Plains bluegrass
Poa glaucifolia	Pale-leaf bluegrass
Poa juncifolia	Alkali bluegrass
Poa sandbergii	Sandberg's bluegrass
Poa scabrella	Pine bluegrass
Puccinellia nuttalliana	Nuttall's alkaligrass
Scirpus acutus	Hardstem bulrush
Scirpus americanus*	American bulrush
Scirpus maritimus	Alkali bulrush
Scirpus pungens*	Common three-square bulrush
Scirpus validus	Softstem bulrush
Sitanion hystrix	Bottlebrush squirreltail
Stipa comata	Needle-and-thread
Stipa occidentalis	Western needlegrass
Stipa viridula	Green needlegrass

*Given the recent treatment by Lesica (2012), all references to *Scirpus americanus* in this report should be considered to represent *Scirpus pungens* .

Appendix A
Vascular Plant Species, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

BINOMIAL	COMMON NAME
NATIVE PERENNIAL GRAMINOIDS (Warm Season)	
Andropogon gerardii	Big bluestem
Andropogon scoparius	Little bluestem
Bouteloua curtipendula	Sideoat grama
Bouteloua gracilis	Blue grama
Buchloe dactyloides	Buffalograss
Calamovilfa longifolia	Prairie sandreed
Distichlis stricta	Alkali saltgrass
Muhlenbergia asperifolia	Alkali muhly
Muhlenbergia cuspidata	Plains muhly
Panicum virgatum	Switchgrass
Schedonnardus paniculatus	Tumblegrass
Spartina gracilis	Alkali cordgrass
Spartina pectinata	Prairie cordgrass
Sporobolus airoides	Alkali sacaton
Sporobolus cryptandrus	Sand dropseed
INTRODUCED PERENNIAL GRAMINOIDS	
Agropyron cristatum	Crested wheatgrass
Agropyron elongatum	Tall wheatgrass
Agropyron intermedium	Intermediate wheatgrass
Agropyron repens	Quackgrass
Alopecurus pratensis	Meadow foxtail
Bromus inermis	Smooth brome
Elymus junceus	Russian wildrye
Festuca arundinacea	Reed fescue
Phleum pratense	Common timothy
Poa bulbosa	Bulbous bluegrass
Poa compressa	Canada bluegrass
Poa pratensis	Kentucky bluegrass
NATIVE ANNUAL GRAMINOIDS	
Festuca octoflora	Six-weeks fescue
Hordeum pusillum	Little barley
Juncus bufonius	Toad rush
INTRODUCED ANNUAL GRAMINOIDS	
Avena fatua	Wild oat
Bromus japonicus	Japanese brome
Bromus tectorum	Cheatgrass brome
Echinochloa muricata	Barnyard-grass
Eragrostis cilianensis	Stink grass
Eragrostis minor	Little lovegrass
Polypogon monspeliensis	Rabbitfoot polypogon
Setaria viridis	Green bristlegrass

Appendix A
Vascular Plant Species, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

BINOMIAL	COMMON NAME
NATIVE PERENNIAL FORBS AND SUBSHRUBS	
Achillea millefolium	Common yarrow
Agoseris glauca	Pale agoseris
Allium textile	Textile onion
Ambrosia psilostachya	Western ragweed
Anemone multifida	Ball anemone
Anemone patens	Pasqueflower
Antennaria dimorpha	Low pussytoes
Antennaria howellii (neglecta)	Howell's pussytoes
Antennaria microphylla	Rosy pussytoes
Antennaria parvifolia	Littleleaf pussytoes
Apocynum androsaemifolium	Spreading dogbane
Apocynum cannabinum	Hemp dogbane
Arnica fulgens	Orange arnica
Arnica sororia	Twin arnica
Artemisia campestris	Field sagewort
Artemisia dracunculus	False-tarragon sagewort
Artemisia frigida	Fringed sagewort
Artemisia ludoviciana	Cudweed sagewort
Asclepias speciosa	Showy milkweed
Asclepias verticillata	Whorled milkweed
Asclepias viridiflora	Green milkweed
Aster falcatus	Creeping white prairie aster
Aster hesperius	Siskiyou aster
Aster laevis	Smooth aster
Aster oblongifolius	Aromatic aster
Aster pansus	Heath-leaved aster
Astragalus adsurgens	Prairie milkvetch
Astragalus agrestis	Field milkvetch
Astragalus bisulcatus	Two-grooved milkvetch
Astragalus crassicarpus	Groundplum milkvetch
Astragalus drummondii	Drummond's milkvetch
Astragalus flexuosus	Wiry milkvetch
Astragalus gilviflorus	Threeleaved milkvetch
Astragalus gracilis	Slender milkvetch
Astragalus hyalinus	Summer milkvetch
Astragalus lotiflorus	Lotus milkvetch
Astragalus missouriensis	Missouri milkvetch
Astragalus plattensis	Platte River milkvetch
Astragalus purshii	Pursh's milkvetch
Astragalus spatulatus	Tufted milkvetch
Astragalus tenellus	Loose flower milkvetch
Balsamorhiza sagittata	Arrowleaf balsamroot
Berberis repens	Creeping Oregon-grape
Besseya wyomingensis	Wyoming kittentail
Calochortus nuttallii	Nuttall's sego-lily
Campanula rotundifolia	Roundleaf harebell
Castilleja sessiliflora	Downy paintbrush

Appendix A
Vascular Plant Species, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

BINOMIAL	COMMON NAME
Cerastium arvense	Field chickweed
Chrysopsis villosa	Hairy goldenaster
Cirsium undulatum	Wavyleaf thistle
Comandra umbellata	Pale bastard toadflax
Coryphantha missouriensis	Nipple coryphantha
Crepis acuminata	Tapertip hawksbeard
Crepis intermedia	Gray hawksbeard
Crepis occidentalis	Western hawksbeard
Cryptantha spiculifera (interrupta)	Pointed cryptantha
Cymopterus acaulis	Plains cymopterus
Dalea candida	White prairie-clover
Dalea purpurea	Purple prairie-clover
Delphinium bicolor	Low larkspur
Dodecatheon conjugens	Slimpod shooting star
Echinacea angustifolia	Purple coneflower
Epilobium ciliatum	Common willow-herb
Erigeron ochroleucus	Buff fleabane
Erigeron pumilus var. concinnus	Hairy fleabane
Erigeron pumilus var. pumilus	Shaggy fleabane
Eriogonum flavum	Yellow buckwheat
Eriogonum pauciflorum	Few-flowered buckwheat
Erysimum inconspicuum	Smallflowered rocket
Euphorbia robusta	Robust spurge
Evolvulus nuttallianus	Nuttall evolvulus
Fragaria virginiana	Virginia strawberry
Fritillaria atropurpurea	Checker lily
Gaillardia aristata	Blanket-flower
Gaura coccinea	Scarlet gaura
Geum triflorum	Prairiesmoke
Gilia congesta var. pseudotypica	Bullhead gilia
Glycyrrhiza lepidota	American licorice
Gutierrezia sarothrae	Broom snakeweed
Haplopappus armerioides	Thrifty goldenweed
Haplopappus spinulosus	Spiny goldenweed
Hedeoma drummondii	Drummond's pennyroyal
Hedysarum boreale	Northern sweetvetch
Helianthus maximilianii	Maximilian's sunflower
Helianthus rigidus	Stiff sunflower
Heuchera richardsonii	Richardson's alumroot
Hymenopappus filifolius	Narrowleaf hymenopappus
Iva axillaris	Poverty weed
Kuhnia eupatorioides	False-boneset
Lactuca oblongifolia	Chicory lettuce
Lesquerella alpina	Alpine bladderpod
Leucocrinum montanum	Sand lily
Liatris punctata	Dotted blazingstar
Linum lewisii	Blue flax
Lithospermum incisum	Yellow gromwell

Appendix A
Vascular Plant Species, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

BINOMIAL	COMMON NAME
Lomatium foeniculaceum	Fennel-leaved desertparsley
Lomatium orientale	Oriental lomatium
Lupinus argenteus	Silvery lupine
Lychnis drummondii	Drummond campion
Lygodesmia juncea	Rush-like skeleton-weed
Machaeranthera grindelioides	Nuttall's goldenweed
Mentha arvensis	Field mint
Mentzelia decapetala	Evening star
Mertensia lanceolata	Lanceleaf bluebells
Microseris cuspidata	Toothed microseris
Microseris nutans	Nodding microseris
Mirabilis linearis	Narrowleaf four-o'clock
Monarda fistulosa	Horsemint
Musineon divaricatum	Leafy musineon
Oenothera caespitosa	Tufted evening-primrose
Oenothera nuttallii	Nuttall's evening-primrose
Opuntia fragilis	Brittle pricklypear
Opuntia polyacantha	Plains pricklypear
Orobanche fasciculata	Clustered broomrape
Oxytropis besseyi	Bessey's locoweed
Oxytropis lambertii	Purple locoweed
Oxytropis sericea	Silky locoweed
Penstemon albidus	White penstemon
Penstemon eriantherus	Fuzzytongue penstemon
Penstemon nitidus	Waxleaf penstemon
Phacelia hastata	Silverleaf phacelia
Phlox alyssifolia	Alyssum-leaved phlox
Phlox hoodii	Hood's phlox
Physalis longifolia	Long-leaved ground-cherry
Physaria didymocarpa	Common twinpod
Picradeniopsis oppositifolia	Plains bahia
Polygala alba	White milkwort
Polygonum amphibium	Water ladysthumb
Potamogeton foliosus	Leafy pondweed
Potamogeton pectinatus	Fennel-leaf pondweed
Potentilla arguta	Tall cinquefoil
Potentilla gracilis	Slender cinquefoil
Potentilla pensylvanica	Prairie cinquefoil
Psoralea argophylla	Silverleaf scurfpea
Psoralea esculenta	Indian breadroot
Psoralea hypogaea	Little breadroot
Psoralea tenuiflora	Slender-flowered scurfpea
Ranunculus cymbalaria	Rocky Mountain buttercup
Ratibida columnifera	Prairie coneflower
Rumex salicifolius	Willow dock
Senecio canus	Woolly groundsel
Senecio plattensis	Prairie groundsel
Sisyrinchium angustifolium	Common blue-eyed grass

Appendix A
Vascular Plant Species, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

BINOMIAL	COMMON NAME
Smilacina stellata	Starry false solomon's seal
Solidago gigantea	Giant goldenrod
Solidago missouriensis	Missouri goldenrod
Solidago mollis	Velvety goldenrod
Solidago nemoralis	Field goldenrod
Solidago rigida	Stiff goldenrod
Sphaeralcea coccinea	Scarlet globemallow
Stephanomeria runcinata	Desert wirelettuce
Suaeda moquinii	Bush seablite
Thermopsis rhombifolia	Round-leaved thermopsis
Townsendia hookeri	Hooker's townsendia
Toxicodendron rydbergii	Poison ivy
Tradescantia occidentalis	Prairie spiderwort
Typha latifolia	Common cattail
Urtica dioica	Stinging nettle
Verbena bracteata	Bracted verbena
Vicia americana	American vetch
Viola nuttallii	Yellow prairie violet
Yucca glauca	Soapwell yucca
Zigadenus venenosus	Meadow death-camas
INTRODUCED PERENNIAL FORBS	
Asparagus officinalis	Asparagus
Calystegia sepium	Lady's nightcap
Cirsium arvense	Canada thistle
Convolvulus arvensis	Field morning-glory
Cuscuta approximata	Clustered dodder
Medicago sativa	Alfalfa
Plantago major	Common plantain
Rumex crispus	Curl dock
Rumex patienta	Patience dock
Taraxacum laevigatum	Smooth dandelion
Taraxacum officinale	Common dandelion
FERNS AND ALLIES	
Cystopteris fragilis	Brittle bladder-fern
Equisetum laevigatum	Smooth horsetail
Woodsia oregana	Oregon woodsia
NATIVE ANNUAL/BIENNIAL FORBS	
Ambrosia trifida	Giant ragweed
Androsace occidentalis	Western rockjasmine
Arabis hirsuta	Hairy rockcress
Arabis holboellii	Holboell's rockcress
Artemisia biennis	Biennial wormwood

Appendix A
Vascular Plant Species, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

BINOMIAL	COMMON NAME
Aster brachyactis	Rayless alkali aster
Atriplex argentea	Silverscale
Atriplex suckleyi	Rillscale
Chenopodium fremontii	Fremont's goosefoot
Chenopodium glaucum	Oak-leaved goosefoot
Chenopodium leptophyllum	Slimleaf goosefoot
Chenopodium rubrum	Red goosefoot
Cleome serrulata	Rocky Mountain bee-plant
Collinsia parviflora	Blue-eyed Mary
Collomia linearis	Narrow-leaf collomia
Conyza canadensis	Canada horseweed
Cryptantha celosioides	Northern cryptantha
Cryptantha torreyana	Torrey's cryptantha
Descurainia pinnata	Pinnate tansymustard
Descurainia richardsonii	Richardson's tansymustard
Draba reptans	Carolina draba
Dyssodia papposa	Fetid marigold
Epilobium paniculatum	Autumn willow-herb
Erigeron divergens	Spreading fleabane
Erigeron strigosus	Branching fleabane
Eriogonum annuum	Annual buckwheat
Eriogonum cernuum	Nodding buckwheat
Erysimum asperum	Plains wallflower
Euphorbia glyptosperma	Corrugate-seeded spurge
Euphorbia marginata	Snow-on-the-mountain
Euphorbia spathulata	Spatulate-leaved spurge
Evax prolifera	Big-head evax
Galium aparine	Cleavers
Gaura parviflora	Small-flowered gaura
Grindelia squarrosa	Curlycup gumweed
Hackelia deflexa	Nodding stickseed
Hedeoma hispidum	Rough false pennyroyal
Helianthus annuus	Common sunflower
Helianthus petiolaris	Prairie sunflower
Iva xanthifolia	Tall marsh-elder
Lappula redowskii	Western stickseed
Lepidium densiflorum	Prairie pepperweed
Linanthus septentrionalis	Northern linanthus
Linum rigidum	Yellow flax
Lupinus pusillus	Rusty lupine
Machaeranthera canescens	Hoary aster
Machaeranthera tanacetifolia	Tansyleaf aster
Mentzelia dispersa	Bushy mentzelia
Microsteris gracilis	Pink microsteris
Mimulus suksdorfii	Suksdorf's monkey-flower
Oenothera albicaulis	Prairie evening-primrose
Oenothera strigosa (villosa)	Common evening-primrose
Orthocarpus luteus	Yellow owl clover

Appendix A
Vascular Plant Species, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

BINOMIAL	COMMON NAME
Parietaria pensylvanica	Pellitory
Phacelia linearis	Threadleaf phacelia
Plantago elongata	Slender plantain
Plantago patagonica	Woolly plantain
Polanisia trachysperma	Clammy weed
Polygonum arenastrum	Common knotweed
Polygonum douglasii	Douglas knotweed
Polygonum ramosissimum	Bush smartweed
Polygonum sawatchense	Sawatch knotweed
Rumex maritimus	Seaside dock
Silene antirrhina	Sleepy cat
Solanum rostratum	Buffalo bur
Solanum triflorum	Cut-leaved nightshade
Suaeda depressa	Pahute weed
Triodanis leptocarpa	Western Venus'-looking-glass
Xanthium strumarium	Common cocklebur
INTRODUCED ANNUAL/BIENNIAL FORBS	
Alyssum alyssoides	Pale alyssum
Alyssum desertorum	Desert alyssum
Arctium minus	Common burdock
Asperugo procumbens	Madwort
Atriplex heterosperma	Two-seed orache
Camelina microcarpa	Littlepod falseflax
Capsella bursa-pastoris	Shepherd's-purse
Chenopodium album	Lambsquarter
Chorispora tenella	Blue mustard
Conium maculatum	Poison hemlock
Descurainia sophia	Flixweed tansymustard
Draba nemorosa	Woods draba
Filago arvensis	Field filago
Kochia scoparia	Belevedere summercypress
Lactuca serriola	Prickly lettuce
Lepidium perfoliatum	Clasping pepperweed
Malva parviflora	Cheeseweed
Malva rotundifolia	Running mallow
Medicago lupulina	Black medic
Melilotus alba	White sweetclover
Melilotus officinalis	Yellow sweetclover
Polygonum convolvulus	Ivy bindweed
Scorzonera laciniata	False salsify
Sisymbrium altissimum	Tumblemustard
Sisymbrium loeselii	Loesel tumblemustard
Sonchus asper	Prickly sowthistle
Thlaspi arvense	Fanweed
Tragopogon dubius	Common salsify
Veronica arvensis	Common speedwell

Appendix A
Vascular Plant Species, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

BINOMIAL	COMMON NAME
SHRUBS AND VINES	
Artemisia cana	Silver sagebrush
Artemisia tridentata	Big sagebrush
Atriplex confertifolia	Shadscale saltbush
Atriplex nuttallii	Nuttall saltbush
Calylophus serrulatus	Shrubby evening-primrose
Ceratoides lanata	Winterfat
Chrysothamnus nauseosus	Rubber rabbitbrush
Humulus lupulus	Common hop
Juniperus horizontalis	Creeping juniper
Prunus virginiana	Common chokecherry
Rhus aromatica	Skunkbush sumac
Ribes aureum	Golden currant
Ribes cereum	Wax currant
Ribes setosum	Bristly gooseberry
Rosa arkansana	Prairie rose
Rosa woodsii	Wood's rose
Salix eriocephala var. famelica	Plains willow
Salix exigua	Sandbar willow
Sarcobatus vermiculatus	Black greasewood
Shepherdia argentea	Silver buffaloberry
Symphoricarpos occidentalis	Western snowberry
Symphoricarpos oreophilus	Mountain snowberry
TREES	
Acer negundo	Boxelder
Elaeagnus angustifolia	Russian olive
Fraxinus pennsylvanica	Green ash
Juniperus scopulorum	Rocky Mountain juniper
Pinus ponderosa	Ponderosa pine
Populus deltoides	Plains cottonwood
Salix amygdaloides	Peachleaf willow

Nomenclature follows USDA Forest Service (1987). Some common names were taken from Beetle (1970).

APPENDIX B

Percent Canopy Cover and Constancy by Plot for Community Types Identified in the Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

TABLE	COMMUNITY TYPE[1]	PAGE
	GRASSLAND	
B1	*Agropyron smithii / Bouteloua gracilis*	B-1
B2	*Agropyron smithii / Stipa viridula*	B-5
B3	*Stipa comata / Agropyron smithii*	B-40
B4	*Stipa comata / Carex filifolia*	B-50
	Agropyron spicatum / Stipa comata	
B5	*Agropyron spicatum / Bouteloua curtipendula*	B-55
B6	*Andropogon scoparius / Agropyron spicatum*	B-60
B7	*Andropogon scoparius / Bouteloua curtipendula*	B-66
B8	*Andropogon scoparius / Calamovilfa longifolia*	B-71
	Calamovilfa longifolia / Stipa comata	
	TAME PASTURE	
B9-H	Hay Cropland – Farmed	B-76
B9-P	Pastureland – Grazed/Go-Back	B-84
	SHRUB / GRASSLAND	
B10	*Artemisia cana / Agropyron smithii*	B-91
B11	*Artemisia tridentata / Agropyron smithii*	B-109
B12	*Artemisia tridentata / Agropyron spicatum*	B-144
B13	*Artemisia tridentata / Andropogon scoparius*	B-156
	BREAKS	
B14	**Grass-Dominated Breaks**	
	Agropyron smithii Breaks	B-162
B15	*Agropyron spicatum* Breaks	B-167
	Sporobolus airoides Breaks	
B16	*Calamovilfa longifolia* Breaks	B-171
B17	**Shrub-Dominated Breaks**	
	Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron smithii	B-176
B18	*Rhus aromatica / Agropyron spicatum-Andropogon scoparius*	B-188
B19	*Artemisia tridentata-Rhus aromatica-Chrysothamnus nauseosus / Agropyron spicatum*	B-192
B20	*Artemisia tridentata-Rhus aromatica-Sarcobatus vermiculatus / Agropyron spicatum*	B-204
B21	*Artemisia tridentata-Atriplex confertifolia-Sarcobatus vermiculatus / Agropyron spicatum*	B-208
B22	*Artemisia tridentata-Atriplex confertifolia-Rhus aromatica / Agropyron spicatum*	B-218
B23	**Conifer-Dominated Breaks**	
	Juniperus scopulorum/Agropyron spicatum Breaks	B-222
B24	*Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum* Breaks	B-228
B25	*Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius* Breaks	B-240
B26	*Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata* Breaks	B-246
B27	*Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata-Atriplex confertifolia* Breaks	B-249
	PONDEROSA PINE-JUNIPER FOREST AND SAVANNAH	
B28	**Ponderosa Pine-Juniper / Grass**	
	Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum	B-252
B29	*Juniper scopulorum-Pinus ponderosa / Oryzopsis micrantha*	B-292
	Pinus ponderosa-Juniper scopulorum / Festuca idahoensis	
B30	*Pinus ponderosa-Juniper scopulorum / Andropogon scoparius*	B-295
B31	**Ponderosa Pine-Juniper / Shrub**	
	Drainage *Juniperus scopulorum-Pinus ponderosa / Symphoricarpos occidentalis-Agropyron smithii*	B-309
B32	*Pinus ponderosa-Juniper scopulorum / Prunus virginiana*	B-315

APPENDIX B

Percent Canopy Cover and Constancy by Plot for Community Types Identified in the Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

TABLE	COMMUNITY TYPE[1]	PAGE
	DRAINAGE BOTTOM	
B33	**Mesophytic/Hydrophytic Herbaceous Bottom**	B-318
	Sporobolus airoides / Agropyron smithii	
	Spartina pectinata / Bromus inermis	
	Spartina pectinata / Hordeum jubatum	
	Spartina pectinata / Panicum virgatum	
	Scirpus maritimus / Sporobolus airoides-Distichlis stricta	
	Eleocharis palustris / Scirpus americanus-Juncus torreyi	
B34	*Typha latifolia / Bromus inermis*	B-323
	Typha latifolia / Spartina pectinata	
	Scirpus acutus-Scirpus validus / Spartina pectinata	
	Scirpus acutus-Scirpus validus / Typha latifolia	
B35	**Mesophytic Low Shrub Bottom**	B-327
	Symphoricarpos occidentalis-Artemisia tridentata-Sarcobatus vermiculatus / Agropyron smithii	
	Artemisia cana-Rosa woodsii / Agropyron smithii-Poa pratensis	
	Symphoricarpos occidentalis-Artemisia cana / Agropyron smithii-Poa pratensis	
B36	*Symphoricarpos occidentalis-Rosa woodsii / Poa pratensis-Agropyron smithii*	B-331
B37	**Mesophytic Tall Shrub Bottom**	B-336
	Prunus virginiana / Symphoricarpos occidentalis-Poa pratensis	
B38	**Mesophytic Deciduous Tree Bottom**	B-338
	Populus deltoides / Bromus inermis	
	Populus deltoides-Acer negundo / Bromus inermis	
	Populus deltoides / Symphoricarpos occidentalis-Poa pratensis	
	Populus deltoides-Fraxinus pennsylvanica-Acer negundo / Symphoricarpos occidentalis	
	Populus deltoides-Salix amygdaloides / Salix exigua	
	Populus deltoides / Prunus virginiana	
B39	*Acer negundo / Bromus inermis*	B-343
	Acer negundo / Spartina pectinata	
	Fraxinus pennsylvanica / Poa pratensis	

[1]In this classification, community types are named according to the following convention:

A slash (/) indicates a separation of species dominating different strata, namely the herbaceous, shrub and/or tree layers.

A hyphen (-) indicates species dominating the same stratum (understory, middle story or overstory) either or both of which may be dominant or codominant at a given sample site.

All plot locations are shown on the vegetation community type map (Plate 1). Plot numbers with an asterisk indicate sites associated with current and recent prairie dog colonies; prairie dogs conspicuously impact vegetation ecology in substantial portions of the study area, significantly affecting plant composition and diversity in the vicinity of their colonies.

Footnotes for the tables in Appendix B:

Trace cover values were assigned 0.3 percent for each 0.01-acre canopy cover estimation plot.
Constancy values apply only to species recorded in the 0.01-acre plots; constancy is not given where n=1.
Binomials primarily follow USDA Forest Service (1987).

APPENDIX B

Percent Canopy Cover and Constancy by Plot for Community Types Identified in the Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

Footnotes (continued)

***Site Parameters:**

Topography codes:

Ben = Bench	Low, Lower = Lower slope	Swa = Swale
Bnk = Bank	Mid = Mid slope	Ter = Terrace
Bot = Bottom	Plat = Plateau	Toe = Toeslope
Brk = Breaks	Rid = Ridge	Upper = Upper slope
Flo = Floodplain	Sho = Shoulder	

Configuration codes:

S = Straight	V = Concave
U = Undulating	X = Convex

Table B1. Percent Canopy Cover by Class and Species for 13 *AGROPYRON SMITHII / BOUTELOUA GRACILIS* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / BOUTELOUA GRACILIS														
	PLOT NUMBER													**Mean**	***Con-***
	039*	041*	069*	071*	080*	106*	110	188	192	193	209*	210*	645*	**Cover**	***stancy***
														n=13	
SITE PARAMETERS*															
Slope (percent)	3-4	2-3	2-3	2-3	7	1	4	2-4	3	1-3	5-8	5	2		
Aspect (degrees)	345	030	200	245	264	300	268	130	210	120	222	230	022		
Topography	Low-Ben	Low-Ben	Swa-Low	Low	Low-Mid	Low	Low-Ben	Toe	Mid	Mid	Mid	Mid	Swa-Low		
Configuration	S	S	V	S	S	S	S	S(V)	S	V(S)	S	S	S(V)		
Photo # (Digital)	188/189	190/191	146/147	135/136	285	044	981/982	188	192	193	049	266	121/122		
Investigator	SC	SC	SC	SC	KS/ED	PL	DB/KL	JE	JE	JE	ED	KS	SC		
Date	07/10/11	07/10/11	07/08/11	07/08/11	06/29/11	06/29/11	06/28/11	06/27/11	06/25/11	06/24/11	06/27/11	06/27/11	07/07/11		
GROUND COVER															
Bare Ground	2	20	96	95	44	5	28		1	1	24	36	85	**33.62**	***92***
Rock				0.3	0.3		1		0.3					**0.15**	***31***
Litter	85	74	2	3	50	91	62	95	54	93	61	60	10	**56.92**	***100***
Lichens	10	3			2	2	4		40		10		0.3	**5.48**	***62***
Moss							1		0.3		0.3			**0.12**	***23***
Basal Vegetation	3	3	2	2	4	2	4	5	5	6	5	4	5	**3.85**	***100***
VEGETATION STRUCTURE (nonstratified cover)															
Total Vegetation	87	90	40	57	72	78	69	78	78	80	82	84	82	**75.15**	***100***
Perennial Graminoids	82	85	36	55	64	40	60	50	58	75	70	40	72	**60.54**	***100***
Annual Graminoids	4	18	1		2	16	7	8	1	0.3	14	48	0.3	**9.20**	***92***
Perennial Forbs and Subshrubs	1	2	18	0.3	20	5	2	7	15	9	18	22	6	**9.64**	***100***
Annual/Biennial Forbs	9	2	2	4	7	20	7	16	2	4	10	24	10	**9.00**	***100***
Shrubs							1		6		0.3		0.3	**0.58**	***31***
Trees 0.01-acre														**0.00**	***0***
Trees 0.1-acre														**0.00**	***0***

Table B1. Percent Canopy Cover by Class and Species for 13 *AGROPYRON SMITHII / BOUTELOUA GRACILIS* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / BOUTELOUA GRACILIS														
	PLOT NUMBER													**Mean**	***Con-***
	039*	041*	069*	071*	080*	106*	110	188	192	193	209*	210*	645*	**Cover**	***stancy***
														n=13	
CLASS\SPECIES															
NATIVE PERENNIAL GRAMINOIDS (Cool Season)															
Agropyron smithii	82	85	36	55	36	28	50	20	10	56	56	40	70	**48.00**	***100***
Aristida longiseta									0.3					**0.02**	***8***
Carex filifolia					1				3					**0.31**	***15***
Koeleria cristata					4		3		3			1		**0.85**	***31***
Poa sandbergii						3			1					**0.31**	***15***
Poa scabrella							2			2	3			**0.54**	***23***
Stipa comata					0.3				2				0.3	**0.20**	***23***
Stipa viridula										2			0.3	**0.18**	***15***
TOTAL NPG(C)	**82.0**	**85.0**	**36.0**	**55.0**	**41.3**	**31.0**	**55.0**	**20.0**	**19.3**	**60.0**	**59.0**	**41.0**	**70.6**	**50.40**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)															
Bouteloua curtipendula								2						**0.15**	***8***
Bouteloua gracilis	1	0.3	0.3		28	14	3	7	45	20	24		9	**11.66**	***85***
Sporobolus cryptandrus													0.3	**0.02**	***8***
TOTAL NPG(W)	**1.0**	**0.3**	**0.3**	**0.0**	**28.0**	**14.0**	**3.0**	**9.0**	**45.0**	**20.0**	**24.0**	**0.0**	**9.3**	**11.84**	***85***
INTRODUCED PERENNIAL GRAMINOIDS															
Agropyron cristatum		1						5	0.3				5	**0.87**	***31***
Bromus inermis								3						**0.23**	***8***
Poa bulbosa								15						**1.15**	***8***
Poa pratensis							5	5						**0.77**	***15***
TOTAL IPG	**0.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**5.0**	**28.0**	**0.3**	**0.0**	**0.0**	**0.0**	**5.0**	**3.02**	***38***
NATIVE ANNUAL GRAMINOIDS															
Festuca octoflora					1						0.3			**0.10**	***15***
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.10**	***15***
INTRODUCED ANNUAL GRAMINOIDS															
Bromus japonicus	1	3	1		1	5	7	8	1	0.3	14	5	0.3	**3.58**	***92***
Bromus tectorum	3	15	0.3			12						46		**5.87**	***38***
TOTAL IAG	**4.0**	**18.0**	**1.3**	**0.0**	**1.0**	**17.0**	**7.0**	**8.0**	**1.0**	**0.3**	**14.0**	**51.0**	**0.3**	**9.45**	***92***
NATIVE PERENNIAL FORBS AND SUBSHRUBS															
Achillea millefolium					1								1	**0.15**	***15***
Allium textile			0.3						0.3	0.3				**0.07**	***23***
Antennaria howellii (neglecta)					1									**0.08**	***8***
Artemisia frigida					1	0.3			0.3			0.3	0.3	**0.17**	***38***

Table B1. Percent Canopy Cover by Class and Species for 13 *AGROPYRON SMITHII / BOUTELOUA GRACILIS* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / BOUTELOUA GRACILIS														
	PLOT NUMBER													**Mean**	***Con-***
	039*	041*	069*	071*	080*	106*	110	188	192	193	209*	210*	645*	**Cover**	***stancy***
														n=13	
Aster falcatus											0.3			**0.02**	***8***
Astragalus agrestis												4		**0.31**	***8***
Astragalus crassicarpus		0.3												**0.02**	***8***
Astragalus plattensis					1						0.3	0.3		**0.12**	***23***
Calochortus nuttallii										0.3	0.3			**0.05**	***15***
Erigeron pumilus var. pumilus									0.3	0.3			0.3	**0.07**	***23***
Euphorbia robusta										0.3				**0.02**	***8***
Gaura coccinea		0.3				0.3						3		**0.28**	***23***
Gutierrezia sarothrae				0.3					2	4				**0.48**	***23***
Hedeoma drummondii		0.3												**0.02**	***8***
Leucocrinum montanum												2		**0.15**	***8***
Lomatium orientale					0.3				0.3	0.3	0.3			**0.09**	***31***
Microseris nutans										0.3				**0.02**	***8***
Musineon divaricatum										0.3				**0.02**	***8***
Opuntia polyacantha			0.3			1	0.3		3		2			**0.51**	***38***
Penstemon albidus					0.3							0.3		**0.05**	***15***
Phlox hoodii					0.3				3					**0.25**	***15***
Picradeniopsis oppositifolia	0.3	0.3	18											**1.43**	***23***
Polygala alba									0.3					**0.02**	***8***
Psoralea argophylla											0.3			**0.02**	***8***
Psoralea esculenta									1					**0.08**	***8***
Ratibida columnifera									0.3				0.3	**0.05**	***15***
Sphaeralcea coccinea		0.3	0.3		4	0.3	1		0.3	3	8			**1.32**	***62***
Vicia americana											3			**0.23**	***8***
Zigadenus venenosus										0.3				**0.02**	***8***
TOTAL NPF AND SUBSHRUBS	**0.3**	**1.5**	**18.9**	**0.3**	**8.9**	**1.9**	**1.3**	**0.0**	**11.1**	**9.4**	**14.5**	**9.9**	**1.9**	**6.15**	***92***
INTRODUCED PERENNIAL FORBS															
Cirsium arvense													1	**0.08**	***8***
Medicago sativa								1						**0.08**	***8***
Taraxacum laevigatum	1	1		0.3	14	4	0.3	6	5	1	4	14	3	**4.12**	***92***
TOTAL IPF	**1.0**	**1.0**	**0.0**	**0.3**	**14.0**	**4.0**	**0.3**	**7.0**	**5.0**	**1.0**	**4.0**	**14.0**	**4.0**	**4.28**	***92***
FERNS AND ALLIES															
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS															
Conyza canadensis											0.3	10		**0.79**	***15***
Descurainia pinnata								0.3						**0.02**	***8***
Draba reptans						0.3			0.3					**0.05**	***15***
Dyssodia papposa	1	0.3												**0.10**	***15***

Table B1. Percent Canopy Cover by Class and Species for 13 *AGROPYRON SMITHII / BOUTELOUA GRACILIS* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / BOUTELOUA GRACILIS														
	PLOT NUMBER													**Mean**	***Con-***
	039*	041*	069*	071*	080*	106*	110	188	192	193	209*	210*	645*	**Cover**	***stancy***
														n=13	
Euphorbia glyptosperma	0.3			1										**0.10**	***15***
Euphorbia spathulata											0.3			**0.02**	***8***
Hedeoma hispidum	1	1	0.3	0.3	1	0.3	0.3				0.3	2		**0.50**	***69***
Helianthus annuus													0.3	**0.02**	***8***
Lepidium densiflorum							0.3	0.3	0.3	0.3				**0.09**	***31***
Linum rigidum					0.3				0.3					**0.05**	***15***
Oenothera strigosa (villosa)				0.3										**0.02**	***8***
Orthocarpus luteus		0.3												**0.02**	***8***
Plantago patagonica	2				0.3	0.3			0.3		0.3	1		**0.32**	***46***
TOTAL NAF	**4.3**	**1.6**	**0.3**	**1.6**	**1.6**	**0.9**	**0.6**	**0.6**	**1.2**	**0.3**	**1.2**	**13.0**	**0.3**	**2.12**	***100***
INTRODUCED ANNUAL/BIENNIAL FORBS															
Alyssum desertorum			1	1	0.3	1		0.3	0.3	0.3	1	2		**0.55**	***69***
Camelina microcarpa								0.3						**0.02**	***8***
Filago arvensis	4	0.3	0.3	0.3	4	18	3	5	0.3	0.3	4	12		**3.96**	***92***
Lactuca serriola	0.3		0.3		0.3		3	2			1	0.3		**0.55**	***54***
Medicago lupulina										0.3			7	**0.56**	***15***
Melilotus officinalis	1			1	0.3		0.3	5	0.3	2	1	0.3	3	**1.09**	***77***
Sisymbrium altissimum					0.3									**0.02**	***8***
Thlaspi arvense								0.3						**0.02**	***8***
Tragopogon dubius	0.3	0.3	0.3		0.3	0.3	1	3	0.3	0.3	2	0.3		**0.65**	***85***
TOTAL IAF	**5.6**	**0.6**	**1.9**	**2.3**	**5.5**	**19.3**	**7.3**	**15.9**	**1.2**	**3.2**	**9.0**	**14.9**	**10.0**	**7.44**	***100***
SHRUBS															
Artemisia cana													0.3	**0.02**	***8***
Artemisia tridentata							1		2					**0.23**	***15***
Atriplex nuttallii									1		0.3			**0.10**	***15***
Ceratoides lanata									3					**0.23**	***8***
TOTAL SHRUBS	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**0.0**	**6.0**	**0.0**	**0.3**	**0.0**	**0.3**	**0.58**	***31***
TREES 0.01-acre															
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TREES 0.1-acre															
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TOTAL VEGETATION (Stratified)	**98.2**	**109.0**	**58.7**	**59.5**	**101.3**	**88.1**	**80.5**	**88.5**	**90.1**	**94.2**	**126.3**	**143.8**	**101.7**	**95.38**	***100***

Footnotes are presented on cover page B-ii.

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	002	005	013	017	027	028	030	034	053	057	058	059*	061	065*	066	068*
SITE PARAMETERS*																
Slope (percent)	12	12	11	9	10-12	8	14	9	8-10	3	7	3	3	8-10	12	5
Aspect (degrees)	356	018	268	070	028	345	052	340	340	345	345	260	260	170	030	280
Topography	Swa	Swa-Toe	Low-Toe	Low	Upper	Swa-Mid	Upper	Mid	Mid	Swa-Mid	Mid	Mid	Low-Toe	Mid	Upper	Mid
Configuration	V	V	V	V	S	V	V	S	V	V	S	S	S	S	X	S
Photo # (Digital)	172	210	176	216	362	139	142	221	074/075	178/179	175	167/168	162/163	065	123/124	131/132
Investigator	DB/KL	DB/KL	DB	DB/KL	KS/ED	DB/KL	DB/KL	SC/JE	ED	SC	SC	SC	SC	ED	SC	SC
Date	07/11/11	07/14/11	07/12/11	07/14/11	07/10/11	07/11/11	07/11/11	07/12/11	07/12/11	07/10/11	07/10/11	07/09/11	07/09/11	06/30/11	07/07/11	07/07/11
GROUND COVER																
Bare Ground	21	5	24	30	40	35	36	4	40	2	18	35	30	36	17	95
Rock			1			0.3	0.3							1	0.3	
Litter	70	84	67	58	50	56	52	92	53	94	60	46	56	55	19	3
Lichens	2	4	3	6	5	3	5	0.3	2	1	18	15	10	3	60	0.3
Moss	1			1			2								0.3	
Water																
Basal Vegetation	6	7	5	5	5	6	5	4	5	3	4	4	4	5	3	2
VEGETATION STRUCTURE (nonstratified cover)																
Total Vegetation	84	90	78	81	78	75	69	82	92	96	75	82	92	70	70	70
Perennial Graminoids	72	88	55	55	68	60	53	58	68	70	68	78	90	64	56	67
Annual Graminoids	6	0.3	14	11	0.3	10	7		5	4	2	2	5	2	1	0.3
Perennial Forbs and Subshrubs	10	4	11	19	18	7	17	29	52	11	15	6	2	6	20	26
Annual/Biennial Forbs	3	2	3	6	6	4	4	1	4	42	5	4	0.3	10	1	1
Shrubs			1	10	1	4		0.3	2		1		0.3			
Trees 0.01-acre																
Trees 0.1-acre																

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	002	005	013	017	027	028	030	034	053	057	058	059*	061	065*	066	068*
CLASS\SPECIES																
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																
XAgrohordeum macounii																
Agropyron dasystachyum var. dasy.					5											
Agropyron smithii	40	18	21	26	22	38	21	25	6	68	48	77	56	50	22	64
Agropyron spicatum					4		2								2	
Agropyron trachycaulum																
Aristida longiseta			6	1	8				4		1					
Carex filifolia				1			4		2		4			3	0.3	
Carex heliophila				15					14							
Hordeum jubatum																
Koeleria cristata			2		2		2	0.3	4						1	
Poa arida																
Poa juncifolia													2			
Poa sandbergii			3		2	4					1				0.3	
Poa scabrella									1							
Scirpus maritimus																
Stipa comata				6			1	2	20		2	0.3	10	5	2	3
Stipa viridula	16	16	17	5	16	12	9	14	16	15	8	2	20	3	3	3
TOTAL NPG(C)	**56.0**	**34.0**	**49.0**	**54.0**	**59.0**	**54.0**	**39.0**	**41.3**	**67.0**	**83.0**	**64.0**	**79.3**	**88.0**	**61.0**	**30.6**	**70.0**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																
Andropogon scoparius																
Bouteloua curtipendula							12									
Bouteloua gracilis	10		10	10	24	14	3	20	10		12		4	12	36	
Calamovilfa longifolia																
Distichlis stricta																
Muhlenbergia cuspidata							3									
Schedonnardus paniculatus	3						0.3									
Sporobolus cryptandrus									0.3							
TOTAL NPG(W)	**13.0**	**0.0**	**10.0**	**10.0**	**24.0**	**14.0**	**18.3**	**20.0**	**10.3**	**0.0**	**12.0**	**0.0**	**4.0**	**12.0**	**36.0**	**0.0**

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	002	005	013	017	027	028	030	034	053	057	058	059*	061	065*	066	068*
INTRODUCED PERENNIAL GRAMINOIDS																
Agropyron cristatum		12											30	1		
Agropyron elongatum																
Bromus inermis																
Phleum pratense																
Poa bulbosa														0.3		
Poa compressa				7												
Poa pratensis	8	48					2			10		1	3			
TOTAL IPG	**8.0**	**60.0**	**0.0**	**7.0**	**0.0**	**0.0**	**2.0**	**0.0**	**0.0**	**10.0**	**0.0**	**1.0**	**33.0**	**1.3**	**0.0**	**0.0**
NATIVE ANNUAL GRAMINOIDS																
Festuca octoflora														0.3		
Hordeum pusillum																
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**
INTRODUCED ANNUAL GRAMINOIDS																
Bromus japonicus	6	0.3	14	8	0.3	10	7		5	4	2	2	5	2	1	0.3
Bromus tectorum				4						0.3		0.3				
TOTAL IAG	**6.0**	**0.3**	**14.0**	**12.0**	**0.3**	**10.0**	**7.0**	**0.0**	**5.0**	**4.3**	**2.0**	**2.3**	**5.0**	**2.0**	**1.0**	**0.3**
NATIVE PERENNIAL FORBS AND SUBSHRUBS																
Achillea millefolium	5	1	0.3	0.3		2	1	2	1	0.3			1		1	
Agoseris glauca	0.3															
Allium textile								0.3	0.3		0.3				1	
Ambrosia psilostachya									0.3		0.3			0.3		
Antennaria dimorpha					0.3											
Antennaria microphylla									1						0.3	
Antennaria parvifolia				1			0.3	0.3							0.3	
Arnica sororia				0.3												
Artemisia dracunculus									1							
Artemisia frigida		1				0.3	0.3	0.3						1	2	
Artemisia ludoviciana																
Asclepias verticillata				0.3												
Aster falcatus	0.3			10			3		4	6	3	1		0.3	0.3	
Aster oblongifolius			1													
Aster pansus																
Astragalus adsurgens																
Astragalus agrestis						1									0.3	
Astragalus crassicarpus											0.3					
Astragalus drummondii							0.3	0.3			1					
Astragalus gracilis															0.3	
Astragalus missouriensis							0.3		0.3		0.3				0.3	

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	002	005	013	017	027	028	030	034	053	057	058	059*	061	065*	066	068*
Astragalus plattensis									0.3		0.3					
Astragalus purshii								0.3								
Besseya wyomingensis							0.3									
Calochortus nuttallii																
Campanula rotundifolia																
Cerastium arvense																
Chrysopsis villosa									0.3							
Cirsium undulatum		0.3														
Comandra umbellata						0.3									0.3	
Coryphantha missouriensis																
Crepis occidentalis									0.3							
Dalea candida																
Dalea purpurea							1	0.3								
Echinacea angustifolia			0.3					0.3	2							
Erigeron pumilus var. pumilus	0.3				2	0.3			0.3		0.3	0.3		0.3	1	1
Euphorbia robusta																
Gaura coccinea			3				0.3	0.3	0.3	1	0.3	2		1		
Geum triflorum																
Glycyrrhiza lepidota																
Gutierrezia sarothrae	3		2		7		5	12	0.3		5				10	5
Haplopappus spinulosus									0.3							
Hedeoma drummondii															0.3	
Iva axillaris																
Lactuca oblongifolia																
Leucocrinum montanum														1		
Linum lewisii		0.3						0.3			0.3					
Lithospermum incisum																
Lomatium foeniculaceum	0.3				0.3											
Lomatium orientale																
Lygodesmia juncea									0.3							
Microseris nutans																
Musineon divaricatum					0.3											
Opuntia polyacantha	0.3	0.3	2	0.3		1	0.3	1	0.3	0.3	0.3		0.3	1	0.3	3
Oxytropis lambertii																
Penstemon albidus														0.3		
Phlox hoodii							3	0.3			0.3			0.3	2	
Picradeniopsis oppositifolia											0.3					18
Polygala alba		0.3	0.3		8		0.3	3	0.3		0.3				0.3	
Psoralea argophylla					0.3		1		42		2			0.3	1	
Psoralea esculenta			0.3	0.3			0.3				0.3					
Ratibida columnifera	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1	2	0.3	0.3				0.3	
Sisyrinchium angustifolium																

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	002	005	013	017	027	028	030	034	053	057	058	059*	061	065*	066	068*
Solidago missouriensis																
Solidago mollis																
Solidago rigida											0.3					
Sphaeralcea coccinea	1	0.3	1	3	0.3	2	0.3	2	0.3	0.3	1	0.3				0.3
Thermopsis rhombifolia								0.3								
Vicia americana	0.3		0.3	4		0.3	0.3	8				1				
Zigadenus venenosus		0.3	0.3		0.3		0.3	0.3	0.3						0.3	0.3
TOTAL NPF AND SUBSHRUBS	**11.1**	**4.1**	**11.1**	**19.8**	**19.1**	**7.5**	**17.9**	**32.6**	**57.5**	**8.2**	**16.5**	**4.6**	**1.3**	**5.8**	**21.6**	**27.6**
INTRODUCED PERENNIAL FORBS																
Cirsium arvense																
Medicago sativa			1	1						1	1	1	1			
Rumex crispus																
Taraxacum laevigatum	0.3	0.3		0.3	0.3	1			1	2	0.3	1	0.3		0.3	0.3
Taraxacum officinale																
TOTAL IPF	**0.3**	**0.3**	**1.0**	**1.3**	**0.3**	**1.0**	**0.0**	**0.0**	**1.0**	**3.0**	**1.3**	**2.0**	**1.3**	**0.0**	**0.3**	**0.3**
FERNS AND ALLIES																
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS																
Androsace occidentalis																
Arabis hirsuta				0.3												
Arabis holboellii																
Atriplex argentea																
Conyza canadensis				0.3												
Draba reptans				0.3												
Erigeron strigosus									0.3							
Euphorbia spathulata	0.3		0.3	0.3		0.3	0.3									
Gaura parviflora																
Grindelia squarrosa																
Hedeoma hispidum	0.3		0.3	0.3		0.3	0.3		0.3				0.3	0.3		
Helianthus petiolaris																
Lappula redowskii																
Lepidium densiflorum														0.3		
Linum rigidum			0.3		0.3	0.3		0.3	0.3		0.3			0.3		
Microsteris gracilis																
Orthocarpus luteus	0.3		0.3	0.3	5		1	0.3	0.3		0.3					
Phacelia linearis																
Plantago elongata																

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	002	005	013	017	027	028	030	034	053	057	058	059*	061	065*	066	068*
Plantago patagonica	0.3		0.3	0.3	0.3	0.3	0.3	0.3	0.3		0.3				1	0.3
Polygonum douglasii																
Polygonum sawatchense																
Silene antirrhina						0.3										
Solanum triflorum																0.3
Triodanis leptocarpa	0.3		0.3													
Xanthium strumarium																
TOTAL NAF	**1.5**	**0.0**	**1.8**	**2.1**	**5.6**	**1.5**	**1.9**	**0.9**	**1.5**	**0.0**	**0.9**	**0.0**	**0.3**	**0.9**	**1.0**	**0.6**
INTRODUCED ANNUAL/BIENNIAL FORBS																
Alyssum alyssoides	0.3				0.3	0.3							0.3			
Alyssum desertorum			0.3				0.3		0.3			0.3		1	0.3	0.3
Atriplex heterosperma																
Camelina microcarpa									0.3			0.3	0.3		0.3	
Chenopodium album																
Draba nemorosa																
Filago arvensis	0.3			3		1	0.3	0.3	1					8	0.3	0.3
Lactuca serriola	0.3		1	0.3			0.3					0.3				
Lepidium perfoliatum																
Medicago lupulina														0.3		
Melilotus alba																
Melilotus officinalis	1	1	1	1		1	2		0.3	42	4	3		0.3		0.3
Scorzonera laciniata																
Sisymbrium altissimum																
Sisymbrium loeselii																
Thlaspi arvense																
Tragopogon dubius	0.3	1	0.3	1	0.3	1	0.3		0.3	0.3	0.3	0.3	0.3			
Veronica arvensis																
TOTAL IAF	**2.2**	**2.0**	**2.6**	**5.3**	**0.6**	**3.3**	**3.2**	**0.3**	**2.2**	**42.3**	**4.3**	**4.2**	**0.9**	**9.6**	**0.9**	**0.9**
SHRUBS																
Artemisia cana						4			2				0.3			
Artemisia tridentata				10	1				0.3							
Ceratoides lanata			1		0.3			0.3			1					
Ribes aureum																
Rosa arkansana																
Rosa woodsii																
Symphoricarpos occidentalis																
TOTAL SHRUBS	**0.0**	**0.0**	**1.0**	**10.0**	**1.3**	**4.0**	**0.0**	**0.3**	**2.3**	**0.0**	**1.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	002	005	013	017	027	028	030	034	053	057	058	059*	061	065*	066	068*
TREES 0.01-acre																
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TREES 0.1-acre																
Juniperus scopulorum																
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TOTAL VEGETATION (Stratified)	**98.1**	**100.7**	**90.5**	**121.5**	**110.2**	**95.3**	**89.3**	**95.4**	**146.8**	**150.8**	**102.0**	**93.4**	**134.1**	**92.9**	**91.4**	**99.7**

Footnotes are presented on cover page B-ii.

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	075	087	091	101	113	124	127	128	130	137	139	140	141	143	152	153
SITE PARAMETERS*																
Slope (percent)	0-2	8	6	11	4	8	4-7	8	5	10	8-10	8-10	4	7	2	8
Aspect (degrees)	210	310	210	214	330	307	305	314	176	260	059	268	250	260	320	280
Topography	Mid	Swa-Up	Mid	Toe	Low-Ben	Mid	Low	Low	Low	Low-Mid	Mid	Upper	Mid	Low-Mid	Mid	Mid
Configuration	S	V	S	V	S	V	S	U	V	S	S	S	S	S	S	S
Photo # (Digital)		251/253	180/181	131	239/240	978	242	962/963	966	137	041	047	033	065	069	093/094
Investigator	JE	SC	SC	DB/KL	KS	DB/KL	KS	DB/KL	DB/KL	JE	ED	ED	PL	SC	SC	PL/SC
Date	06/27/11	07/15/11	07/10/11	07/10/11	06/23/11	06/28/11	06/23/11	06/28/11	06/28/11	06/29/11	06/24/11	06/25/11	06/28/11	06/28/11	06/28/11	06/29/11
GROUND COVER																
Bare Ground	24		30	20	12	26	27	35	16	25	25	20	10	5	0.3	76
Rock				3		1		0.3			0.3					
Litter	62	96	62	71	83	65	66	60	78	31	69	75	84	87	96	20
Lichens	10		5			3	3			20	1	0.3	0.3	3		0.3
Moss	0.3									20				0.3		
Water																
Basal Vegetation	4	4	3	6	5	5	4	5	6	4	5	5	6	4	4	4
VEGETATION STRUCTURE (nonstratified cover)																
Total Vegetation	67	99	72	86	82	70	66	74	80	70	73	76	96	93	98	82
Perennial Graminoids	38	98	64	78	68	50	54	54	52	50	62	67	90	88	95	80
Annual Graminoids	3	8	20	18	13	20	8	17	14	8	0.3	2	2	1	12	2
Perennial Forbs and Subshrubs	3	30	17	2	26	5	10	6	21	14	14	25	9	7	2	4
Annual/Biennial Forbs	30	4	5	2	6	5	9	5	5	4	2	2	2	1	3	1
Shrubs	3	3		0.3						6	9	4		2		0.3
Trees 0.01-acre																
Trees 0.1-acre		0.3														

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	075	087	091	101	113	124	127	128	130	137	139	140	141	143	152	153
CLASS\SPECIES																
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																
XAgrohordeum macounii																
Agropyron dasystachyum var. dasy.																
Agropyron smithii	20	76	40	50	34	44	50	35	15	20	17	32	42	65	78	38
Agropyron spicatum											3					
Agropyron trachycaulum																
Aristida longiseta								1		3		1				
Carex filifolia			0.3							2	4					
Carex heliophila																
Hordeum jubatum																
Koeleria cristata					1	4	0.3	3	3	8	4			0.3		
Poa arida																
Poa juncifolia																
Poa sandbergii	1						4			2		2		0.3		
Poa scabrella				1	2		0.3									
Scirpus maritimus																
Stipa comata				3				5	12		14	16		4		0.3
Stipa viridula	4	36	32	18	30	6	2	4	18	2	16	22	55	35	26	52
TOTAL NPG(C)	**25.0**	**112.0**	**72.3**	**72.0**	**67.0**	**54.0**	**56.6**	**48.0**	**48.0**	**37.0**	**58.0**	**73.0**	**97.0**	**104.6**	**104.0**	**90.3**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																
Andropogon scoparius																
Bouteloua curtipendula	0.3															
Bouteloua gracilis	16		6		15					5	11	7	3			2
Calamovilfa longifolia											2	1				
Distichlis stricta										0.3						
Muhlenbergia cuspidata										4						
Schedonnardus paniculatus							6	0.3								
Sporobolus cryptandrus																
TOTAL NPG(W)	**16.3**	**0.0**	**6.0**	**0.0**	**15.0**	**0.0**	**6.0**	**0.3**	**0.0**	**9.3**	**13.0**	**8.0**	**3.0**	**0.0**	**0.0**	**2.0**

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	075	087	091	101	113	124	127	128	130	137	139	140	141	143	152	153
INTRODUCED PERENNIAL GRAMINOIDS																
Agropyron cristatum																
Agropyron elongatum																
Bromus inermis																
Phleum pratense																
Poa bulbosa																
Poa compressa																2
Poa pratensis		5		20				9	8	10						3
TOTAL IPG	**0.0**	**5.0**	**0.0**	**20.0**	**0.0**	**0.0**	**0.0**	**9.0**	**8.0**	**10.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**5.0**
NATIVE ANNUAL GRAMINOIDS																
Festuca octoflora	0.3					0.3	0.3	1	0.3							
Hordeum pusillum	0.3															
TOTAL NAG	**0.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.3**	**1.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
INTRODUCED ANNUAL GRAMINOIDS																
Bromus japonicus	3	8	20	16	12	20	8	16	14	8	0.3	2	2	1	12	3
Bromus tectorum	0.3			3	1											
TOTAL IAG	**3.3**	**8.0**	**20.0**	**19.0**	**13.0**	**20.0**	**8.0**	**16.0**	**14.0**	**8.0**	**0.3**	**2.0**	**2.0**	**1.0**	**12.0**	**3.0**
NATIVE PERENNIAL FORBS AND SUBSHRUBS																
Achillea millefolium		20	6					0.3		2	0.3					
Agoseris glauca																
Allium textile																
Ambrosia psilostachya					0.3											
Antennaria dimorpha																
Antennaria microphylla																
Antennaria parvifolia								1		1						
Arnica sororia																
Artemisia dracunculus																
Artemisia frigida													0.3			
Artemisia ludoviciana																
Asclepias verticillata																
Aster falcatus	0.3	8	2					0.3		0.3				1		
Aster oblongifolius																
Aster pansus																
Astragalus adsurgens																
Astragalus agrestis																
Astragalus crassicarpus																
Astragalus drummondii			0.3													
Astragalus gracilis																
Astragalus missouriensis											1					

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	075	087	091	101	113	124	127	128	130	137	139	140	141	143	152	153
Astragalus plattensis			0.3													
Astragalus purshii																
Besseya wyomingensis											0.3					
Calochortus nuttallii						0.3						0.3				0.3
Campanula rotundifolia																
Cerastium arvense										0.3						
Chrysopsis villosa																
Cirsium undulatum																
Comandra umbellata																
Coryphantha missouriensis																
Crepis occidentalis																
Dalea candida																
Dalea purpurea																
Echinacea angustifolia											0.3					
Erigeron pumilus var. pumilus											0.3	3		0.3		0.3
Euphorbia robusta																
Gaura coccinea		1		2		0.3				0.3				0.3		0.3
Geum triflorum																
Glycyrrhiza lepidota																
Gutierrezia sarothrae							0.3			3	5	1		1		
Haplopappus spinulosus																
Hedeoma drummondii																
Iva axillaris																
Lactuca oblongifolia																
Leucocrinum montanum					1						0.3					
Linum lewisii										0.3						
Lithospermum incisum																
Lomatium foeniculaceum																
Lomatium orientale												0.3				
Lygodesmia juncea																
Microseris nutans																
Musineon divaricatum																
Opuntia polyacantha	2		0.3			0.3	0.3	0.3	1	1	0.3	5	1	0.3		
Oxytropis lambertii										0.3						
Penstemon albidus																
Phlox hoodii										0.3	0.3	4	2			
Picradeniopsis oppositifolia												0.3	1			
Polygala alba										0.3	2			0.3	0.3	0.3
Psoralea argophylla			0.3			3		0.3	20	2						
Psoralea esculenta											0.3			0.3		
Ratibida columnifera		2	0.3							1	1	1	0.3	0.3		0.3
Sisyrinchium angustifolium										0.3						

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	075	087	091	101	113	124	127	128	130	137	139	140	141	143	152	153
Solidago missouriensis																
Solidago mollis																
Solidago rigida										0.3						
Sphaeralcea coccinea		0.3	1		1			0.3		0.3	1	3	1	1		
Thermopsis rhombifolia																
Vicia americana	0.3		7			0.3		1	0.3	1		2				0.3
Zigadenus venenosus										0.3	0.3	1		0.3		
TOTAL NPF AND SUBSHRUBS	**2.6**	**31.3**	**17.5**	**2.0**	**2.3**	**4.2**	**0.6**	**3.5**	**21.3**	**14.3**	**12.7**	**20.9**	**5.6**	**5.1**	**0.3**	**1.8**
INTRODUCED PERENNIAL FORBS																
Cirsium arvense																
Medicago sativa								0.3								
Rumex crispus																
Taraxacum laevigatum	0.3	2			24	1	10	3	1	0.3	3	6	3	2	2	3
Taraxacum officinale																
TOTAL IPF	**0.3**	**2.0**	**0.0**	**0.0**	**24.0**	**1.0**	**10.0**	**3.3**	**1.0**	**0.3**	**3.0**	**6.0**	**3.0**	**2.0**	**2.0**	**3.0**
FERNS AND ALLIES																
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS																
Androsace occidentalis						0.3		0.3								
Arabis hirsuta																
Arabis holboellii									0.3							
Atriplex argentea	0.3					0.3										
Conyza canadensis																
Draba reptans																
Erigeron strigosus																
Euphorbia spathulata				0.3						0.3			0.3			0.3
Gaura parviflora																
Grindelia squarrosa																
Hedeoma hispidum		0.3	0.3	0.3	0.3	2	2	0.3	0.3	0.3		0.3	0.3		0.3	0.3
Helianthus petiolaris																
Lappula redowskii																
Lepidium densiflorum						0.3	0.3		0.3							
Linum rigidum																
Microsteris gracilis						0.3	0.3									
Orthocarpus luteus		0.3	1							1						
Phacelia linearis					0.3			0.3								
Plantago elongata	7															

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	075	087	091	101	113	124	127	128	130	137	139	140	141	143	152	153
Plantago patagonica	0.3				0.3	0.3	0.3	0.3	0.3	0.3			0.3			
Polygonum douglasii	0.3															
Polygonum sawatchense																
Silene antirrhina																
Solanum triflorum																
Triodanis leptocarpa																
Xanthium strumarium																
TOTAL NAF	**7.9**	**0.6**	**1.3**	**0.6**	**0.9**	**3.5**	**2.9**	**1.2**	**1.2**	**1.9**	**0.0**	**0.3**	**0.9**	**0.0**	**0.3**	**0.6**
INTRODUCED ANNUAL/BIENNIAL FORBS																
Alyssum alyssoides				0.3					0.3		2	1		0.3		
Alyssum desertorum	0.3		0.3		0.3	0.3	0.3	0.3		0.3			0.3			
Atriplex heterosperma																
Camelina microcarpa					0.3	0.3										
Chenopodium album																
Draba nemorosa																
Filago arvensis	6				1	1	2	3	3						0.3	
Lactuca serriola	0.3	1	2	1	0.3	0.3	3	0.3	0.3	2		0.3	0.3		3	0.3
Lepidium perfoliatum	0.3						0.3	0.3								
Medicago lupulina																0.3
Melilotus alba																
Melilotus officinalis	18	2	1	0.3				0.3					0.3			0.3
Scorzonera laciniata					0.3											
Sisymbrium altissimum																
Sisymbrium loeselii																
Thlaspi arvense																
Tragopogon dubius		0.3	1	0.3	3	0.3	0.3	0.3	0.3	0.3	0.3	1	1	1	0.3	0.3
Veronica arvensis						1										
TOTAL IAF	**24.9**	**3.3**	**4.3**	**1.9**	**5.2**	**3.2**	**5.9**	**4.5**	**3.9**	**2.6**	**2.3**	**2.3**	**1.9**	**1.3**	**3.6**	**1.2**
SHRUBS																
Artemisia cana		0.3		0.3												
Artemisia tridentata	3	2								6	3			1		
Ceratoides lanata		1									6	4		1		0.3
Ribes aureum																
Rosa arkansana																
Rosa woodsii																
Symphoricarpos occidentalis																
TOTAL SHRUBS	**3.0**	**3.3**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**6.0**	**9.0**	**4.0**	**0.0**	**2.0**	**0.0**	**0.3**

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	075	087	091	101	113	124	127	128	130	137	139	140	141	143	152	153
TREES 0.01-acre																
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TREES 0.1-acre																
Juniperus scopulorum		0.3														
TOTAL TREES 0.1-acre	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TOTAL VEGETATION (Stratified)	**83.9**	**165.5**	**121.4**	**115.8**	**127.4**	**86.2**	**90.3**	**86.8**	**97.7**	**89.4**	**98.3**	**116.5**	**113.4**	**116.0**	**122.2**	**107.2**

Footnotes are presented on cover page B-ii.

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	154	155	157	158	159	160	165	171	175	184	185*	190	194	202	203	207
SITE PARAMETERS*																
Slope (percent)	3	8	8-10	8-10	4-8	8-10	8-20	3	3	1	1	3	6	4	6	6-8
Aspect (degrees)	340	058	022	260	310	196	236	145	210	254	264	150	050	242	228	324
Topography	Low-Mid	Upper	Mid	Mid	Toe-Swa	Toe-Mid	Swa-Mid	Mid-Swa	Low-Mid	Mid	Mid	Toe-Mid	Upper	Mid	Mid	Mid
Configuration	S(X)	S	S	S	V(U)	V	V	S(V)	S(X)	S	S	V	U	V	V	S
Photo # (Digital)	074	272	280	056	053	054/055	718/719	020/021	039/040	019	020	009		865	891	052
Investigator	SC	KS	KS/ED	ED	ED	ED	DB/KL	SC	SC	PL	PL	JE	JE	DB/KL	DB/KL	ED
Date	06/28/11	06/28/11	06/28/11	06/28/11	06/28/11	06/28/11	06/23/11	06/24/11	06/25/11	06/25/11	06/25/11	06/23/11	06/25/11	06/25/11	06/26/11	06/28/11
GROUND COVER																
Bare Ground	15	0.3	4	28	20	16	30	12	4	15	20	0.3	4	15	15	10
Rock				0.3		0.3	1	0.3	0.3				0.3			
Litter	80	93	80	53	74	73	59	44	51	68	52	94	90	80	80	84
Lichens	0.3	0.3	8	14		6	3	40	40	15	25		0.3			
Moss		1	3		0.3		1	0.3	1	0.3			0.3			1
Water																
Basal Vegetation	5	5	5	5	6	5	6	4	4	2	3	6	5	5	5	5
VEGETATION STRUCTURE (nonstratified cover)																
Total Vegetation	95	82	84	72	88	80	80	56	83	87	62	87	80	86	80	78
Perennial Graminoids	85	74	76	64	65	74	62	51	80	80	56	47	42	42	38	68
Annual Graminoids	22	14	0.3	10	14	4	7	2	5	4	3	3	1	45	48	14
Perennial Forbs and Subshrubs	2	7	11	11	18	12	10	11	8	14	3	18	32	4	10	16
Annual/Biennial Forbs	5	5	1	7	6	3	3	0.3	0.3	0.3	1	35	12	6	4	5
Shrubs			0.3	1	25	2	8	4	1			1	1	10		
Trees 0.01-acre																
Trees 0.1-acre																

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	154	155	157	158	159	160	165	171	175	184	185*	190	194	202	203	207
CLASS\SPECIES																
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																
XAgrohordeum macounii																
Agropyron dasystachyum var. dasy.				2		2										
Agropyron smithii	46	58	48	40	32	52	28	5	14	38	17	18	18	20	20	40
Agropyron spicatum													2			
Agropyron trachycaulum																
Aristida longiseta		1									33					
Carex filifolia			0.3		0.3			0.3								
Carex heliophila																
Hordeum jubatum																
Koeleria cristata		4	4	8	2		3	3	3	1	6	0.3	3			2
Poa arida																
Poa juncifolia																
Poa sandbergii			3					4	0.3	1	1		0.3			
Poa scabrella		0.3		2	0.3	1	2									
Scirpus maritimus																
Stipa comata	1	10	14		15		7	10			1					10
Stipa viridula	52	14	10	12	10	12	10	33	70	48	1	7	5	8	5	24
TOTAL NPG(C)	**99.0**	**87.3**	**79.3**	**64.0**	**59.6**	**67.0**	**50.0**	**55.3**	**87.3**	**88.0**	**59.0**	**25.3**	**28.3**	**28.0**	**25.0**	**76.0**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																
Andropogon scoparius				0.3												
Bouteloua curtipendula																
Bouteloua gracilis	4		16	10	3	22	20	0.3				30	20	4	14	4
Calamovilfa longifolia																
Distichlis stricta				0.3												
Muhlenbergia cuspidata																
Schedonnardus paniculatus				1												
Sporobolus cryptandrus				1												
TOTAL NPG(W)	**4.0**	**0.0**	**16.0**	**12.6**	**3.0**	**22.0**	**20.0**	**0.3**	**0.0**	**0.0**	**0.0**	**30.0**	**20.0**	**4.0**	**14.0**	**4.0**

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	154	155	157	158	159	160	165	171	175	184	185*	190	194	202	203	207
INTRODUCED PERENNIAL GRAMINOIDS																
Agropyron cristatum								2	5					6	2	
Agropyron elongatum																
Bromus inermis															2	
Phleum pratense																
Poa bulbosa														5		
Poa compressa					0.3									2		
Poa pratensis	2				16				1							
TOTAL IPG	**2.0**	**0.0**	**0.0**	**0.0**	**16.3**	**0.0**	**0.0**	**2.0**	**6.0**	**0.0**	**0.0**	**0.0**	**0.0**	**13.0**	**4.0**	**0.0**
NATIVE ANNUAL GRAMINOIDS																
Festuca octoflora	0.3							0.3								0.3
Hordeum pusillum																
TOTAL NAG	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**
INTRODUCED ANNUAL GRAMINOIDS																
Bromus japonicus	22	14	0.3	10	14	4	7	2	5	4	3	3	1	35	45	12
Bromus tectorum														15	5	2
TOTAL IAG	**22.0**	**14.0**	**0.3**	**10.0**	**14.0**	**4.0**	**7.0**	**2.0**	**5.0**	**4.0**	**3.0**	**3.0**	**1.0**	**50.0**	**50.0**	**14.0**
NATIVE PERENNIAL FORBS AND SUBSHRUBS																
Achillea millefolium					0.3			0.3	0.3	0.3	0.3		0.3	0.3		
Agoseris glauca																
Allium textile																
Ambrosia psilostachya					1											
Antennaria dimorpha																
Antennaria microphylla																
Antennaria parvifolia																
Arnica sororia																
Artemisia dracunculus						0.3										
Artemisia frigida				0.3			1	0.3	0.3				0.3			
Artemisia ludoviciana																
Asclepias verticillata																
Aster falcatus			0.3	0.3	0.3								0.3			
Aster oblongifolius																
Aster pansus																
Astragalus adsurgens													0.3			
Astragalus agrestis																
Astragalus crassicarpus																
Astragalus drummondii																
Astragalus gracilis								0.3								
Astragalus missouriensis												0.3				

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	154	155	157	158	159	160	165	171	175	184	185*	190	194	202	203	207
Astragalus plattensis															0.3	
Astragalus purshii													0.3			
Besseya wyomingensis																
Calochortus nuttallii							0.3								0.3	
Campanula rotundifolia																
Cerastium arvense								0.3								
Chrysopsis villosa																
Cirsium undulatum					0.3											
Comandra umbellata																
Coryphantha missouriensis			0.3													
Crepis occidentalis																
Dalea candida																
Dalea purpurea																
Echinacea angustifolia									1							
Erigeron pumilus var. pumilus				0.3		0.3		0.3					0.3			
Euphorbia robusta																
Gaura coccinea					8	1		0.3				0.3	0.3			
Geum triflorum																
Glycyrrhiza lepidota																
Gutierrezia sarothrae						1		2					12			
Haplopappus spinulosus																
Hedeoma drummondii																
Iva axillaris																
Lactuca oblongifolia																
Leucocrinum montanum																
Linum lewisii						0.3		1					0.3			
Lithospermum incisum																
Lomatium foeniculaceum																
Lomatium orientale			0.3				0.3						0.3			
Lygodesmia juncea																
Microseris nutans													0.3			
Musineon divaricatum																
Opuntia polyacantha	0.3	3	2	1		1	2	0.3	0.3	0.3	0.3		0.3			4
Oxytropis lambertii											0.3					
Penstemon albidus																
Phlox hoodii				3		2		1					0.3			
Picradeniopsis oppositifolia																
Polygala alba			0.3		0.3			0.3	0.3				0.3			
Psoralea argophylla				3				5	6				14			
Psoralea esculenta			0.3													
Ratibida columnifera			1	0.3	1		0.3					0.3	0.3			
Sisyrinchium angustifolium																

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	154	155	157	158	159	160	165	171	175	184	185*	190	194	202	203	207
Solidago missouriensis																
Solidago mollis																
Solidago rigida				0.3					0.3							
Sphaeralcea coccinea		0.3	4		0.3	2		0.3	0.3	6		0.3	0.3	1	0.3	0.3
Thermopsis rhombifolia																
Vicia americana	1			0.3	1	0.3			0.3	1			3		0.3	0.3
Zigadenus venenosus			0.3		0.3	0.3							0.3			
TOTAL NPF AND SUBSHRUBS	**1.3**	**3.3**	**8.8**	**8.8**	**12.8**	**8.5**	**3.9**	**11.7**	**9.1**	**7.6**	**0.9**	**1.2**	**33.8**	**1.3**	**1.2**	**4.6**
INTRODUCED PERENNIAL FORBS																
Cirsium arvense																
Medicago sativa															2	
Rumex crispus																
Taraxacum laevigatum	0.3	4	3	3	6	4	7	0.3	0.3	8	3	18	2	3	8	12
Taraxacum officinale																
TOTAL IPF	**0.3**	**4.0**	**3.0**	**3.0**	**6.0**	**4.0**	**7.0**	**0.3**	**0.3**	**8.0**	**3.0**	**18.0**	**2.0**	**3.0**	**10.0**	**12.0**
FERNS AND ALLIES																
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS																
Androsace occidentalis							0.3									
Arabis hirsuta																
Arabis holboellii			0.3	0.3									0.3			
Atriplex argentea																
Conyza canadensis																
Draba reptans																
Erigeron strigosus																
Euphorbia spathulata						0.3	0.3									
Gaura parviflora																
Grindelia squarrosa																
Hedeoma hispidum	0.3	3	0.3	2			0.3	0.3								0.3
Helianthus petiolaris					0.3											
Lappula redowskii							0.3									0.3
Lepidium densiflorum		0.3														
Linum rigidum			0.3													
Microsteris gracilis																
Orthocarpus luteus			0.3	4	1		0.3									
Phacelia linearis		0.3												0.3	0.3	0.3
Plantago elongata				0.3												

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	154	155	157	158	159	160	165	171	175	184	185*	190	194	202	203	207
Plantago patagonica		0.3	0.3			0.3	0.3		0.3		0.3	0.3		0.3		0.3
Polygonum douglasii																
Polygonum sawatchense																
Silene antirrhina																0.3
Solanum triflorum																
Triodanis leptocarpa																
Xanthium strumarium																
TOTAL NAF	**0.3**	**3.9**	**1.5**	**6.6**	**1.3**	**0.6**	**1.8**	**0.3**	**0.3**	**0.0**	**0.3**	**0.3**	**0.3**	**0.6**	**0.3**	**1.5**
INTRODUCED ANNUAL/BIENNIAL FORBS																
Alyssum alyssoides							0.3									
Alyssum desertorum			0.3	0.3					0.3		0.3		0.3	0.3	0.3	0.3
Atriplex heterosperma															0.3	
Camelina microcarpa					0.3		0.3	0.3						0.3	0.3	
Chenopodium album															0.3	
Draba nemorosa														0.3	0.3	
Filago arvensis		2							0.3	0.3	1			1		1
Lactuca serriola	0.3		0.3		2		0.3							0.3	0.3	0.3
Lepidium perfoliatum																
Medicago lupulina																
Melilotus alba																
Melilotus officinalis				0.3	2	2					0.3	35	12	0.3		
Scorzonera laciniata																
Sisymbrium altissimum														0.3		
Sisymbrium loeselii					0.3									0.3	0.3	
Thlaspi arvense															2	
Tragopogon dubius	5	0.3		1	0.3	1	1	0.3	0.3	0.3	0.3		0.3	3	1	3
Veronica arvensis																
TOTAL IAF	**5.3**	**2.3**	**0.6**	**1.6**	**4.9**	**3.0**	**1.9**	**0.6**	**0.9**	**0.6**	**1.9**	**35.0**	**12.6**	**6.1**	**5.1**	**4.6**
SHRUBS																
Artemisia cana					22									10		
Artemisia tridentata				0.3		0.3	6	4	1			1	1	0.3		
Ceratoides lanata			0.3	0.3		2	2									
Ribes aureum																
Rosa arkansana																
Rosa woodsii					5											
Symphoricarpos occidentalis																
TOTAL SHRUBS	**0.0**	**0.0**	**0.3**	**0.6**	**27.0**	**2.3**	**8.0**	**4.0**	**1.0**	**0.0**	**0.0**	**1.0**	**1.0**	**10.3**	**0.0**	**0.0**

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	154	155	157	158	159	160	165	171	175	184	185*	190	194	202	203	207
TREES 0.01-acre																
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TREES 0.1-acre																
Juniperus scopulorum																
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TOTAL VEGETATION (Stratified)	**134.5**	**114.8**	**109.8**	**107.2**	**144.9**	**111.4**	**99.6**	**76.8**	**109.9**	**108.2**	**68.1**	**113.8**	**99.0**	**116.3**	**109.6**	**117.0**

Footnotes are presented on cover page B-ii.

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	208	262	570	575	586	592	593	594	595	596	597	598	599	612	613	627
SITE PARAMETERS*																
Slope (percent)	8	15	2	1	2	3	3	2-3	2-3	2	3	2	2	2	2-3	10
Aspect (degrees)	256	200	352	206	130	100	200	272	254	210	270	280	265	280	285	280
Topography	Low-Mid	Mid	Swa	Swa-Bot	Swa	Toe	Bot-Swa	Swa-Bot	Swa-Bot	Swa-Bot	Swa-Bot	Swa	Swa	Swa	Swa	Bot-Swa
Configuration	U	X	S(V)	V(S)	V	V(U)	V	V	V	V	V(U)	S(V)	S(V)	S(V)	S(V)	V
Photo # (Digital)	961		039	011			028	016	017	012	013	033/034	029	169	170/171	071
Investigator	DB/KL	JE	PL	PL	JE	JE	PL	PL	PL	JE	PL	SC	SC	SC	SC	SC
Date	06/27/11	07/13/11	06/29/11	06/24/11	06/25/11	06/27/11	06/27/11	06/25/11	06/25/11	06/23/11	06/25/11	06/25/11	06/25/11	07/09/11	07/09/11	06/28/11
GROUND COVER																
Bare Ground	12	40	0.3	4	1	10	4	16	5	0.3	78	0.3	15	0.3	1	35
Rock	3	0.3														
Litter	80	57	96	90	93	85	94	82	92	94	20	97	80	96	96	62
Lichens			0.3		0.3	0.3	0.3	0.3					1		0.3	0.3
Moss					0.3	0.3			0.3				0.3			0.3
Water																
Basal Vegetation	5	3	3	6	6	5	2	2	2	6	2	3	4	4	3	3
VEGETATION STRUCTURE (nonstratified cover)																
Total Vegetation	80	69	97	96	86	80	82	80	87	87	85	90	75	98	98	76
Perennial Graminoids	22	35	90	92	40	62	62	33	65	65	55	84	62	95	80	65
Annual Graminoids	60		4	1	4	0.3	0.3		0.3	0.3			1	1	20	
Perennial Forbs and Subshrubs	3	7	7	22	10	5	30	17	10	6	43	9	17	34	30	18
Annual/Biennial Forbs	9	31		7	45	16	15	40	19	32	23	0.3	3	8	20	2
Shrubs		5		0.3	1	4	4	0.3	1		2	3		12	12	6
Trees 0.01-acre																
Trees 0.1-acre																

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	208	262	570	575	586	592	593	594	595	596	597	598	599	612	613	627
CLASS\SPECIES																
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																
XAgrohordeum macounii																
Agropyron dasystachyum var. dasy.		8														
Agropyron smithii	14	8	75	12	8	30	23	30	18	45	20	66	36	75	65	54
Agropyron spicatum						1										1
Agropyron trachycaulum																
Aristida longiseta		7			0.3				0.3							
Carex filifolia					3											
Carex heliophila																
Hordeum jubatum																
Koeleria cristata		0.3			3				0.3	0.3	0.3		0.3			
Poa arida																
Poa juncifolia																
Poa sandbergii						1							0.3			0.3
Poa scabrella										2						
Scirpus maritimus																
Stipa comata													0.3			
Stipa viridula	4	12	22	15	3	30	7	12	5	26	8	18	12	3	6	8
TOTAL NPG(C)	**18.0**	**35.3**	**97.0**	**27.0**	**17.3**	**62.0**	**30.0**	**42.0**	**23.6**	**73.3**	**28.3**	**84.0**	**48.9**	**78.0**	**71.0**	**63.3**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																
Andropogon scoparius																
Bouteloua curtipendula					2											
Bouteloua gracilis		2	3		25	8										
Calamovilfa longifolia																
Distichlis stricta																
Muhlenbergia cuspidata		0.3			1											
Schedonnardus paniculatus																
Sporobolus cryptandrus																
TOTAL NPG(W)	**0.0**	**2.3**	**3.0**	**0.0**	**28.0**	**8.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	208	262	570	575	586	592	593	594	595	596	597	598	599	612	613	627
INTRODUCED PERENNIAL GRAMINOIDS																
Agropyron cristatum	6						0.3							1		
Agropyron elongatum																
Bromus inermis																
Phleum pratense							1									
Poa bulbosa																
Poa compressa			2													
Poa pratensis			0.3	85	8		37	5	55		35	12	30	30	25	12
TOTAL IPG	**6.0**	**0.0**	**2.3**	**85.0**	**8.0**	**0.0**	**38.3**	**5.0**	**55.0**	**0.0**	**35.0**	**12.0**	**30.0**	**31.0**	**25.0**	**12.0**
NATIVE ANNUAL GRAMINOIDS																
Festuca octoflora													0.3			
Hordeum pusillum																
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**
INTRODUCED ANNUAL GRAMINOIDS																
Bromus japonicus	50		4	1	4	0.3	0.3		0.3	0.3			1	1	20	
Bromus tectorum	14															
TOTAL IAG	**64.0**	**0.0**	**4.0**	**1.0**	**4.0**	**0.3**	**0.3**	**0.0**	**0.3**	**0.3**	**0.0**	**0.0**	**1.0**	**1.0**	**20.0**	**0.0**
NATIVE PERENNIAL FORBS AND SUBSHRUBS																
Achillea millefolium					0.3						0.3			0.3	1	
Agoseris glauca																
Allium textile																
Ambrosia psilostachya																
Antennaria dimorpha																
Antennaria microphylla																
Antennaria parvifolia					0.3											
Arnica sororia																
Artemisia dracunculus																
Artemisia frigida		0.3											0.3			
Artemisia ludoviciana				8	2		0.3		4					2	4	
Asclepias verticillata																
Aster falcatus		1		0.3			1	2	0.3		1	1	2	16	10	8
Aster oblongifolius																2
Aster pansus																
Astragalus adsurgens	1									0.3						
Astragalus agrestis				0.3			1				0.3	3	1			
Astragalus crassicarpus																
Astragalus drummondii		1														
Astragalus gracilis									2							
Astragalus missouriensis		0.3														

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	208	262	570	575	586	592	593	594	595	596	597	598	599	612	613	627
Astragalus plattensis	0.3															
Astragalus purshii																
Besseya wyomingensis																
Calochortus nuttallii													0.3			
Campanula rotundifolia																
Cerastium arvense									0.3							
Chrysopsis villosa																
Cirsium undulatum																
Comandra umbellata																
Coryphantha missouriensis																
Crepis occidentalis																
Dalea candida																
Dalea purpurea											0.3					
Echinacea angustifolia				0.3	0.3				0.3							
Erigeron pumilus var. pumilus						0.3										
Euphorbia robusta						0.3										
Gaura coccinea	0.3	0.3		0.3	0.3			0.3				0.3			1	1
Geum triflorum													0.3			
Glycyrrhiza lepidota																
Gutierrezia sarothrae													0.3			3
Haplopappus spinulosus																
Hedeoma drummondii																
Iva axillaris																0.3
Lactuca oblongifolia				0.3												
Leucocrinum montanum												0.3	0.3			
Linum lewisii						0.3			0.3	0.3			0.3			
Lithospermum incisum																
Lomatium foeniculaceum											0.3					
Lomatium orientale					0.3					0.3		0.3				
Lygodesmia juncea																
Microseris nutans																
Musineon divaricatum																
Opuntia polyacantha			2			0.3						0.3				0.3
Oxytropis lambertii																
Penstemon albidus																
Phlox hoodii	0.3	1			0.3	2										0.3
Picradeniopsis oppositifolia		2				0.3										
Polygala alba					0.3				0.3							0.3
Psoralea argophylla		1			4				1				1	0.3	2	0.3
Psoralea esculenta																
Ratibida columnifera			0.3	0.3							1					
Sisyrinchium angustifolium					0.3											

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	208	262	570	575	586	592	593	594	595	596	597	598	599	612	613	627
Solidago missouriensis																
Solidago mollis				1	0.3						0.3			12	6	
Solidago rigida													0.3	2	1	
Sphaeralcea coccinea		0.3	1		1	1		0.3	0.3	0.3	0.3	1	1	1	2	1
Thermopsis rhombifolia																
Vicia americana	0.3	0.3		1	1			0.3	0.3	0.3	0.3	1	8			1
Zigadenus venenosus									0.3			0.3				
TOTAL NPF AND SUBSHRUBS	**2.2**	**7.5**	**3.3**	**11.8**	**10.7**	**4.5**	**2.3**	**2.9**	**9.4**	**1.5**	**4.1**	**7.5**	**15.1**	**33.6**	**27.0**	**17.5**
INTRODUCED PERENNIAL FORBS																
Cirsium arvense											2					
Medicago sativa	0.3				1		3							2	3	
Rumex crispus																
Taraxacum laevigatum	1		4	10	0.3	1	27	15	2	5	38	2	2		2	1
Taraxacum officinale														2		
TOTAL IPF	**1.3**	**0.0**	**4.0**	**10.0**	**1.3**	**1.0**	**30.0**	**15.0**	**2.0**	**5.0**	**40.0**	**2.0**	**2.0**	**4.0**	**5.0**	**1.0**
FERNS AND ALLIES																
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS																
Androsace occidentalis																
Arabis hirsuta																
Arabis holboellii																
Atriplex argentea																
Conyza canadensis																
Draba reptans																
Erigeron strigosus																
Euphorbia spathulata				0.3												
Gaura parviflora											0.3					
Grindelia squarrosa																
Hedeoma hispidum	0.3					0.3							0.3			
Helianthus petiolaris																
Lappula redowskii	0.3															
Lepidium densiflorum					0.3	0.3										
Linum rigidum																
Microsteris gracilis																
Orthocarpus luteus	0.3				0.3											0.3
Phacelia linearis																
Plantago elongata																

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	208	262	570	575	586	592	593	594	595	596	597	598	599	612	613	627
Plantago patagonica		0.3				0.3										
Polygonum douglasii		0.3														
Polygonum sawatchense																
Silene antirrhina																
Solanum triflorum																
Triodanis leptocarpa																
Xanthium strumarium																
TOTAL NAF	**0.9**	**0.6**	**0.0**	**0.3**	**0.6**	**0.9**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.3**	**0.0**	**0.0**	**0.3**
INTRODUCED ANNUAL/BIENNIAL FORBS																
Alyssum alyssoides																
Alyssum desertorum	0.3	1			0.3	0.3										
Atriplex heterosperma																
Camelina microcarpa	0.3					0.3	0.3									
Chenopodium album																
Draba nemorosa																
Filago arvensis																
Lactuca serriola	0.3															
Lepidium perfoliatum																
Medicago lupulina				7					8		23	0.3	2			
Melilotus alba																
Melilotus officinalis	7	30			45	14	14	40	12	32			1	8	20	2
Scorzonera laciniata																
Sisymbrium altissimum															0.3	
Sisymbrium loeselii	0.3															
Thlaspi arvense																
Tragopogon dubius	1	0.3		0.3	0.3	0.3	0.3	0.3	0.3	0.3		0.3	0.3	0.3	0.3	0.3
Veronica arvensis																
TOTAL IAF	**9.2**	**31.3**	**0.0**	**7.3**	**45.6**	**14.9**	**14.6**	**40.3**	**20.3**	**32.3**	**23.0**	**0.6**	**3.3**	**8.3**	**20.6**	**2.3**
SHRUBS																
Artemisia cana									1			2			1	
Artemisia tridentata		5			1	4	0.3	0.3			2					2
Ceratoides lanata																
Ribes aureum				0.3												
Rosa arkansana														12	11	4
Rosa woodsii							1					1				
Symphoricarpos occidentalis							3									
TOTAL SHRUBS	**0.0**	**5.0**	**0.0**	**0.3**	**1.0**	**4.0**	**4.3**	**0.3**	**1.0**	**0.0**	**2.0**	**3.0**	**0.0**	**12.0**	**12.0**	**6.0**

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA															
	PLOT NUMBER															
	208	262	570	575	586	592	593	594	595	596	597	598	599	612	613	627
TREES 0.01-acre																
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TREES 0.1-acre																
Juniperus scopulorum																
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TOTAL VEGETATION (Stratified)	**101.6**	**82.0**	**113.6**	**142.7**	**116.5**	**95.6**	**119.8**	**105.5**	**111.6**	**112.4**	**132.7**	**109.1**	**100.9**	**167.9**	**180.6**	**102.4**

Footnotes are presented on cover page B-ii.

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA														
	PLOT NUMBER														
	628	635	636	643*	644*	656*	683	684	689	691	695	697	700	**Mean Cover**	***Con-stancy***
														n=77	
SITE PARAMETERS*															
Slope (percent)	6	5	5	3-5	1-20	3	8	4	18-28	3-5	1	5-6	5-8		
Aspect (degrees)	300	214	058	270	284	275	270	300	070	280	270	320	302		
Topography	Swa-U	Swa-Bot	Bot	Bot-Swa	Bot	Low-Swa	Swa	Bot	Bot-Toe	Bot	Bot	Bot-Swa	Bot-Swa		
Configuration	S(V)	V	V	V	V	S(V)	V	V	V	V	V(S)	V	V		
Photo # (Digital)	072/073	979	194	287/288	289/290	164/165	215	208	229/230	380/381	218	497/498	372		
Investigator	SC	DB/KL	DB	KS	KS	SC	DB/KL	DB/KL	SC	KS/ED	JE/SC	KS	KS/ED		
Date	06/28/11	06/28/11	07/13/11	06/30/11	06/30/11	07/09/11	07/14/11	07/14/11	07/13/11	07/12/11	07/12/11	08/20/11	07/11/11		
GROUND COVER															
Bare Ground	15	10	12	18	28	1	33	13	42	60	77	1	12	**20.42**	***99***
Rock					0.3		1			0.3			3	**0.23**	***27***
Litter	78	83	80	74	65	95	50	80	53	35	20	94	80	**69.82**	***100***
Lichens	4			2	0.3		10		2				0.3	**4.64**	***66***
Moss							1		0.3				0.3	**0.47**	***31***
Water															
Basal Vegetation	3	7	8	6	7	4	5	7	3	5	3	5	5	**4.55**	***100***
VEGETATION STRUCTURE (nonstratified cover)															
Total Vegetation	72	88	86	90	88	98	77	90	73	82	95	90	84	**82.17**	***100***
Perennial Graminoids	65	70	75	68	74	80	61	65	52	66	42	88	72	**65.55**	***100***
Annual Graminoids	2	0.3			0.3		4	0.3	3	0.3	0.3	2	6	**6.82**	***88***
Perennial Forbs and Subshrubs	16	20	14	5	22	8	24	25	22	26	21	4	32	**14.83**	***100***
Annual/Biennial Forbs	0.3	10	1	52	28	70	5	12	23	38	55	7	12	**11.17**	***99***
Shrubs	1	9	4		9	0.3	3	3	7	6		0.3	0.3	**2.52**	***61***
Trees 0.01-acre														**0.00**	***0***
Trees 0.1-acre			1							3				**0.06**	***4***

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA														
	PLOT NUMBER														
	628	635	636	643*	644*	656*	683	684	689	691	695	697	700	**Mean Cover**	***Con-stancy***
														n=77	
CLASS\SPECIES															
NATIVE PERENNIAL GRAMINOIDS (Cool Season)															
XAgrohordeum macounii										3				**0.04**	***1***
Agropyron dasystachyum var. dasy.														**0.22**	***5***
Agropyron smithii	20	15	45	58	38	78	5	50	26	44	38	42	18	**36.47**	***100***
Agropyron spicatum	1						2		1				3	**0.29**	***14***
Agropyron trachycaulum										1				**0.01**	***1***
Aristida longiseta	0.3						4							**0.92**	***19***
Carex filifolia	0.3						1						2	**0.36**	***21***
Carex heliophila													5	**0.44**	***4***
Hordeum jubatum										12				**0.16**	***1***
Koeleria cristata			4			0.3	2		0.3	0.3			2	**1.14**	***49***
Poa arida										5				**0.06**	***1***
Poa juncifolia														**0.03**	***1***
Poa sandbergii	0.3								1					**0.42**	***27***
Poa scabrella														**0.15**	***13***
Scirpus maritimus										1				**0.01**	***1***
Stipa comata	3					0.3	7		3				9	**2.55**	***40***
Stipa viridula	16	3	8	0.3	8	5	4	0.3	28	8	2	26	28	**15.35**	***100***
TOTAL NPG(C)	**40.9**	**18.0**	**57.0**	**58.3**	**46.0**	**83.6**	**25.0**	**50.3**	**59.3**	**74.3**	**40.0**	**68.0**	**67.0**	**58.61**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)															
Andropogon scoparius							2							**0.03**	***3***
Bouteloua curtipendula							1			1			6	**0.29**	***8***
Bouteloua gracilis	31						16		0.3					**6.01**	***51***
Calamovilfa longifolia										2			1	**0.08**	***5***
Distichlis stricta														**0.01**	***3***
Muhlenbergia cuspidata													1	**0.12**	***6***
Schedonnardus paniculatus														**0.14**	***6***
Sporobolus cryptandrus														**0.02**	***3***
TOTAL NPG(W)	**31.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**19.0**	**0.0**	**0.3**	**3.0**	**0.0**	**0.0**	**8.0**	**6.69**	***56***

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA														
	PLOT NUMBER														
	628	635	636	643*	644*	656*	683	684	689	691	695	697	700	**Mean Cover**	***Con-stancy***
														n=77	
INTRODUCED PERENNIAL GRAMINOIDS															
Agropyron cristatum					5	0.3				0.3		0.3	2	**0.95**	***19***
Agropyron elongatum					3									**0.04**	***1***
Bromus inermis					1									**0.04**	***3***
Phleum pratense														**0.01**	***1***
Poa bulbosa														**0.07**	***3***
Poa compressa		20												**0.43**	***8***
Poa pratensis	8	40	25	16	34	5	25	22	1	8	7	46	16	**9.52**	***52***
TOTAL IPG	**8.0**	**60.0**	**25.0**	**16.0**	**43.0**	**5.3**	**25.0**	**22.0**	**1.0**	**8.3**	**7.0**	**46.3**	**18.0**	**11.07**	***60***
NATIVE ANNUAL GRAMINOIDS															
Festuca octoflora														**0.05**	***13***
Hordeum pusillum														**0.004**	***1***
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.05**	***13***
INTRODUCED ANNUAL GRAMINOIDS															
Bromus japonicus	2	0.3			0.3		4	0.3	3	0.3	0.3	2	4	**6.39**	***88***
Bromus tectorum													2	**0.61**	***14***
TOTAL IAG	**2.0**	**0.3**	**0.0**	**0.0**	**0.3**	**0.0**	**4.0**	**0.3**	**3.0**	**0.3**	**0.3**	**2.0**	**6.0**	**7.00**	***88***
NATIVE PERENNIAL FORBS AND SUBSHRUBS															
Achillea millefolium			2	1	3	0.3	0.3		1	0.3	0.3	1	0.3	**0.74**	***48***
Agoseris glauca														**0.004**	***1***
Allium textile							0.3							**0.03**	***6***
Ambrosia psilostachya													5	**0.09**	***8***
Antennaria dimorpha							1							**0.02**	***3***
Antennaria microphylla														**0.02**	***3***
Antennaria parvifolia	0.3													**0.06**	***10***
Arnica sororia							0.3							**0.01**	***3***
Artemisia dracunculus														**0.02**	***3***
Artemisia frigida	0.3				0.3		1					0.3		**0.13**	***23***
Artemisia ludoviciana		10			2		0.3	18		3			5	**0.76**	***16***
Asclepias verticillata							0.3							**0.01**	***3***
Aster falcatus	2	2			0.3	1	0.3		2		1		4	**1.25**	***49***
Aster oblongifolius													3	**0.08**	***4***
Aster pansus			6					4		4				**0.18**	***4***
Astragalus adsurgens														**0.02**	***4***
Astragalus agrestis			0.3				0.3	3						**0.14**	***13***
Astragalus crassicarpus														**0.004**	***1***
Astragalus drummondii									2					**0.06**	***8***
Astragalus gracilis														**0.03**	***4***
Astragalus missouriensis									0.3					**0.04**	***10***

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA														
	PLOT NUMBER														
	628	635	636	643*	644*	656*	683	684	689	691	695	697	700	**Mean Cover**	***Con-stancy***
														n=77	
Astragalus plattensis			1											**0.03**	***8***
Astragalus purshii														**0.01**	***3***
Besseya wyomingensis														**0.01**	***3***
Calochortus nuttallii														**0.02**	***8***
Campanula rotundifolia													2	**0.03**	***1***
Cerastium arvense													3	**0.05**	***5***
Chrysopsis villosa														**0.004**	***1***
Cirsium undulatum	0.3												0.3	**0.02**	***5***
Comandra umbellata									1					**0.02**	***4***
Coryphantha missouriensis														**0.004**	***1***
Crepis occidentalis														**0.004**	***1***
Dalea candida									0.3					**0.004**	***1***
Dalea purpurea							0.3		0.3				0.3	**0.03**	***8***
Echinacea angustifolia	3						2						0.3	**0.13**	***14***
Erigeron pumilus var. pumilus	0.3				0.3									**0.15**	***26***
Euphorbia robusta														**0.004**	***1***
Gaura coccinea					0.3	1	0.3		0.3	0.3			0.3	**0.37**	***43***
Geum triflorum														**0.004**	***1***
Glycyrrhiza lepidota							1			16				**0.22**	***3***
Gutierrezia sarothrae	2			0.3	3		6		10					**1.29**	***31***
Haplopappus spinulosus														**0.004**	***1***
Hedeoma drummondii														**0.004**	***1***
Iva axillaris														**0.004**	***1***
Lactuca oblongifolia					0.3								1	**0.02**	***4***
Leucocrinum montanum														**0.04**	***6***
Linum lewisii							0.3		0.3					**0.06**	***17***
Lithospermum incisum	0.3												0.3	**0.01**	***3***
Lomatium foeniculaceum														**0.01**	***4***
Lomatium orientale														**0.03**	***9***
Lygodesmia juncea	0.3													**0.01**	***3***
Microseris nutans														**0.004**	***1***
Musineon divaricatum							0.3							**0.01**	***3***
Opuntia polyacantha	0.3						0.3		0.3					**0.53**	***57***
Oxytropis lambertii	0.3													**0.01**	***4***
Penstemon albidus														**0.004**	***1***
Phlox hoodii	2						2		1			0.3		**0.36**	***29***
Picradeniopsis oppositifolia														**0.28**	***8***
Polygala alba	1						0.3		0.3					**0.26**	***31***
Psoralea argophylla	4						4		2	1			6	**1.65**	***35***
Psoralea esculenta	0.3								0.3					**0.04**	***12***
Ratibida columnifera	0.3		3		1		3	0.3	0.3	1	1	0.3	1	**0.37**	***51***
Sisyrinchium angustifolium							0.3							**0.01**	***4***

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA														
	PLOT NUMBER														
	628	635	636	643*	644*	656*	683	684	689	691	695	697	700	**Mean Cover**	***Con-stancy***
														n=77	
Solidago missouriensis													1	**0.01**	***1***
Solidago mollis		8						2						**0.38**	***9***
Solidago rigida									0.3				0.3	**0.07**	***12***
Sphaeralcea coccinea	1		2			2	1		0.3			1		**0.70**	***69***
Thermopsis rhombifolia	0.3													**0.01**	***3***
Vicia americana					0.3		0.3							**0.63**	***48***
Zigadenus venenosus							0.3		0.3					**0.09**	***26***
TOTAL NPF AND SUBSHRUBS	**18.3**	**20.0**	**14.3**	**1.3**	**10.8**	**4.3**	**25.8**	**27.3**	**22.6**	**25.6**	**2.3**	**2.9**	**33.1**	**11.70**	***100***
INTRODUCED PERENNIAL FORBS															
Cirsium arvense				1	9									**0.16**	***4***
Medicago sativa		0.3			0.3	2	0.3			1		1	2	**0.32**	***26***
Rumex crispus				0.3	0.3									**0.01**	***3***
Taraxacum laevigatum		1		3	4	2	0.3		1	2	20			**3.81**	***83***
Taraxacum officinale														**0.03**	***1***
TOTAL IPF	**0.0**	**1.3**	**0.0**	**4.3**	**13.6**	**4.0**	**0.6**	**0.0**	**1.0**	**3.0**	**20.0**	**1.0**	**2.0**	**4.32**	***88***
FERNS AND ALLIES															
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS															
Androsace occidentalis														**0.01**	***4***
Arabis hirsuta														**0.004**	***1***
Arabis holboellii														**0.02**	***5***
Atriplex argentea														**0.01**	***3***
Conyza canadensis														**0.004**	***1***
Draba reptans														**0.004**	***1***
Erigeron strigosus														**0.004**	***1***
Euphorbia spathulata														**0.05**	***16***
Gaura parviflora					0.3									**0.01**	***3***
Grindelia squarrosa										0.3				**0.004**	***1***
Hedeoma hispidum	0.3			0.3			0.3		0.3					**0.24**	***45***
Helianthus petiolaris				0.3										**0.01**	***3***
Lappula redowskii														**0.01**	***4***
Lepidium densiflorum														**0.03**	***9***
Linum rigidum							0.3							**0.04**	***12***
Microsteris gracilis														**0.01**	***3***
Orthocarpus luteus	0.3		0.3				0.3		1					**0.24**	***29***
Phacelia linearis														**0.02**	***8***
Plantago elongata														**0.09**	***3***

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA														
	PLOT NUMBER														
	628	635	636	643*	644*	656*	683	684	689	691	695	697	700	**Mean Cover**	***Con-stancy***
														n=77	
Plantago patagonica				0.3			0.3		0.3				0.3	**0.14**	***44***
Polygonum douglasii														**0.01**	***3***
Polygonum sawatchense										0.3				**0.004**	***1***
Silene antirrhina														**0.01**	***3***
Solanum triflorum														**0.004**	***1***
Triodanis leptocarpa														**0.01**	***3***
Xanthium strumarium										2				**0.03**	***1***
TOTAL NAF	**0.6**	**0.0**	**0.3**	**0.9**	**0.3**	**0.0**	**1.2**	**0.0**	**1.6**	**2.6**	**0.0**	**0.0**	**0.3**	**0.99**	***75***
INTRODUCED ANNUAL/BIENNIAL FORBS															
Alyssum alyssoides			0.3	0.3			0.3							**0.08**	***17***
Alyssum desertorum				1										**0.14**	***36***
Atriplex heterosperma														**0.004**	***1***
Camelina microcarpa													0.3	**0.06**	***19***
Chenopodium album														**0.004**	***1***
Draba nemorosa			0.3											**0.01**	***4***
Filago arvensis				0.3		0.3								**0.48**	***31***
Lactuca serriola					1				0.3	0.3			0.3	**0.29**	***40***
Lepidium perfoliatum														**0.01**	***4***
Medicago lupulina				46	16					1	50	2	1	**2.04**	***17***
Melilotus alba								6		1				**0.09**	***3***
Melilotus officinalis		10	0.3	8	14	70	4	7	21	35	9	5	10	**7.13**	***65***
Scorzonera laciniata														**0.004**	***1***
Sisymbrium altissimum														**0.01**	***3***
Sisymbrium loeselii				0.3										**0.02**	***6***
Thlaspi arvense		0.3												**0.03**	***3***
Tragopogon dubius			0.3		0.3	0.3	0.3			0.3	1		1	**0.54**	***81***
Veronica arvensis														**0.01**	***1***
TOTAL IAF	**0.0**	**10.3**	**1.2**	**55.9**	**31.3**	**70.6**	**4.6**	**13.0**	**21.3**	**37.6**	**60.0**	**7.0**	**12.6**	**10.95**	***97***
SHRUBS															
Artemisia cana		0.3	4		7	0.3		2		2				**0.76**	***21***
Artemisia tridentata	1					0.3	0.3		7					**0.82**	***34***
Ceratoides lanata												0.3		**0.26**	***18***
Ribes aureum														**0.004**	***1***
Rosa arkansana		9			2		3			0.3			0.3	**0.54**	***10***
Rosa woodsii								1						**0.10**	***4***
Symphoricarpos occidentalis										4				**0.09**	***1***
TOTAL SHRUBS	**1.0**	**9.3**	**4.0**	**0.0**	**9.0**	**0.6**	**3.3**	**3.0**	**7.0**	**6.3**	**0.0**	**0.3**	**0.3**	**2.58**	***64***

Table B2. Percent Canopy Cover by Class and Species for 77 *AGROPYRON SMITHII / STIPA VIRIDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA														
	PLOT NUMBER														
	628	635	636	643*	644*	656*	683	684	689	691	695	697	700	**Mean Cover**	***Con-stancy***
														n=77	
TREES 0.01-acre															
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TREES 0.1-acre															
Juniperus scopulorum			1							3				**0.06**	***4***
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**3.0**	**0.0**	**0.0**	**0.0**	**0.06**	***4***
TOTAL VEGETATION (Stratified)	**101.8**	**119.2**	**101.8**	**136.7**	**154.3**	**168.4**	**108.5**	**115.9**	**117.1**	**161.0**	**129.6**	**127.5**	**147.3**	**113.96**	***100***

Footnotes are presented on cover page B-ii.

Table B3. Percent Canopy Cover by Class and Species for 20 *STIPA COMATA / AGROPYRON SMITHII* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	STIPA COMATA / AGROPYRON SMITHII														
	PLOT NUMBER														
	020	038	042	050	051	054*	055*	063	072*	076	093	095	109	115	125
SITE PARAMETERS*															
Slope (percent)	9	0	1-2	10-12	6	8	8	15-20	7	3-4	6	12	2	10-12	3-4
Aspect (degrees)	270	-	316	220	228	250	250	216	220	160	248	200	255	245	190
Topography	Upper	Ben-Rid	Ben-Rid	Upper	Sho	Upper	Sho	Mid	Mid	Mid	Mid	Mid-Ben	Mid-Ben	Upper	Mid-Ben
Configuration	S(V)	S	S(X)	X	X	V	S(V)	X	S	X	S	X	S	U	S
Photo # (Digital)	214	208/209	374	388	378	140/141	142/143	067	137/138	076	977	360	157	027	046
Investigator	DB/KL	JE/SC	KS/ED	KS/ED	KS	SC	SC	ED	SC	JE	DB/KL	JE/SC	SC	ED	ED
Date	07/14/11	07/12/11	07/11/11	07/12/11	07/12/11	07/08/11	07/08/11	06/30/11	07/08/11	06/27/11	06/28/11	07/11/11	07/09/11	06/23/11	06/25/11
GROUND COVER															
Bare Ground	38	30	25	26	40	65	85	30	55	10	35	0.3	40	30	10
Rock	1		0.3	0.3	5			3	0.3					0.3	
Litter	52	65	56	68	50	32	12	62	42	86	59	93	37	55	82
Lichens	4	2	15	0.3	1	0.3		0.3	0.3				20	10	4
Moss	1												0.3		
Water															
Basal Vegetation	4	3	4	5	4	3	3	5	3	4	6	7	3	5	4
VEGETATION STRUCTURE (nonstratified cover)															
Total Vegetation	72	83	86	86	78	72	82	94	65	68	70	87	74	64	74
Perennial Graminoids	40	34	55	44	58	68	78	34	64	42	56	30	38	56	52
Annual Graminoids	6	18	16	50	27	3	11	5	5	8	12	30	35	1	22
Perennial Forbs and Subshrubs	39	56	30	40	38	3	14	13	8	3	7	50	13	19	10
Annual/Biennial Forbs	2	3	17	6	2	6	4	86	5	20	3	1	9	1	11
Shrubs	0.3		3				1	4	1		0.3	0.3	2	0.3	
Trees 0.01-acre															
Trees 0.1-acre															

Table B3. Percent Canopy Cover by Class and Species for 20 *STIPA COMATA / AGROPYRON SMITHII* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	STIPA COMATA / AGROPYRON SMITHII														
	PLOT NUMBER														
	020	038	042	050	051	054*	055*	063	072*	076	093	095	109	115	125
CLASS\SPECIES															
NATIVE PERENNIAL GRAMINOIDS (Cool Season)															
Agropyron dasystachyum var. riparium								4							
Agropyron smithii	9	3	5	2	20	60	52	3	58	28	22	1	24	12	14
Agropyron spicatum								1							
Aristida longiseta	4		2				2		3						11
Carex filifolia	9			2	8	6	2		3				1	4	
Carex heliophila							20								
Koeleria cristata	2	0.3	1		2	0.3	0.3		0.3		3			1	4
Poa sandbergii	1	12	3			2	0.3							1	
Poa scabrella								2							
Stipa comata	12	20	28	28	28	4	4	16	8	5	27	30	20	26	24
Stipa viridula						1	2				6				
TOTAL NPG(C)	**37.0**	**35.3**	**39.0**	**32.0**	**58.0**	**73.3**	**82.6**	**26.0**	**72.3**	**33.0**	**58.0**	**31.0**	**45.0**	**44.0**	**53.0**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)															
Bouteloua curtipendula			1				0.3			0.3					
Bouteloua gracilis	5	1	22	16	12	0.3	12		2	12		0.3	2	18	6
Muhlenbergia cuspidata															
TOTAL NPG(W)	**5.0**	**1.0**	**23.0**	**16.0**	**12.0**	**0.3**	**12.3**	**0.0**	**2.0**	**12.3**	**0.0**	**0.3**	**2.0**	**18.0**	**6.0**
INTRODUCED PERENNIAL GRAMINOIDS															
Agropyron cristatum	2			0.3				12	0.3						
Poa pratensis											2				
TOTAL IPG	**2.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**12.0**	**0.3**	**0.0**	**2.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL GRAMINOIDS															
Festuca octoflora	0.3		0.3	0.3	0.3		0.3			2				0.3	
TOTAL NAG	**0.3**	**0.0**	**0.3**	**0.3**	**0.3**	**0.0**	**0.3**	**0.0**	**0.0**	**2.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**
INTRODUCED ANNUAL GRAMINOIDS															
Bromus japonicus	4	6	12	6	6	3	5	5	3	6	10	15	1	1	18
Bromus tectorum	3	12	5	46	22	0.3	6		2	0.3	3	15	35		5
TOTAL IAG	**7.0**	**18.0**	**17.0**	**52.0**	**28.0**	**3.3**	**11.0**	**5.0**	**5.0**	**6.3**	**13.0**	**30.0**	**36.0**	**1.0**	**23.0**

Table B3. Percent Canopy Cover by Class and Species for 20 *STIPA COMATA / AGROPYRON SMITHII* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	STIPA COMATA / AGROPYRON SMITHII														
	PLOT NUMBER														
	020	038	042	050	051	054*	055*	063	072*	076	093	095	109	115	125
NATIVE PERENNIAL FORBS AND SUBSHRUBS															
Allium textile	0.3							0.3							
Ambrosia psilostachya		22	0.3		2		2								
Antennaria howellii (neglecta)			0.3		1										
Antennaria parvifolia		1					0.3								
Artemisia dracunculus		25	14	9	4		0.3					2			
Artemisia frigida	2	0.3	0.3		1		0.3	1	0.3	0.3				0.3	
Artemisia ludoviciana												50			
Asclepias viridiflora			0.3												
Aster falcatus			7	16	4		3				0.3	2			
Astragalus crassicarpus										1					
Astragalus gilviflorus															
Astragalus gracilis															
Astragalus lotiflorus					0.3		0.3		0.3						
Astragalus missouriensis										0.3			0.3		
Astragalus plattensis			0.3	0.3	0.3								2		
Calochortus nuttallii														0.3	
Castilleja sessiliflora															
Chrysopsis villosa									0.3						
Cirsium undulatum							1						2		
Comandra umbellata															
Dalea purpurea	0.3			9	14		2								
Delphinium bicolor														0.3	
Echinacea angustifolia			0.3		1										
Erigeron ochroleucus														0.3	
Erigeron pumilus var. pumilus		0.3			0.3	0.3			0.3					0.3	
Evolvulus nuttallianus	2		0.3			0.3			4			0.3			
Gaura coccinea	2	1	0.3	2	3	0.3		0.3	0.3		0.3	0.3	5	2	3
Gutierrezia sarothrae	0.3		0.3		0.3	0.3		0.3	1					0.3	
Haplopappus spinulosus			0.3												
Kuhnia eupatorioides			2												
Liatris punctata		0.3													
Lithospermum incisum		0.3		0.3											
Lomatium foeniculaceum															
Lygodesmia juncea		0.3										0.3	0.3		
Mirabilis linearis									0.3						
Musineon divaricatum															
Opuntia polyacantha	0.3		0.3		0.3	0.3			1		0.3			0.3	0.3
Oxytropis lambertii															
Oxytropis sericea															

Table B3. Percent Canopy Cover by Class and Species for 20 *STIPA COMATA / AGROPYRON SMITHII* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	STIPA COMATA / AGROPYRON SMITHII														
	PLOT NUMBER														
	020	038	042	050	051	054*	055*	063	072*	076	093	095	109	115	125
Penstemon albidus	0.3				0.3	0.3	0.3		0.3					0.3	
Phlox hoodii			0.3		2	0.3	1	0.3			1				
Picradeniopsis oppositifolia						0.3	0.3								
Polygala alba	0.3					0.3	0.3								
Psoralea argophylla	35	4	5	2	8	0.3	2		0.3			0.3			
Psoralea esculenta															0.3
Ratibida columnifera			0.3				0.3		0.3			0.3			
Solidago mollis				1											
Sphaeralcea coccinea	1	3	0.3	5	0.3	0.3	0.3			1	5	0.3	2		1
Tradescantia occidentalis												0.3			
Yucca glauca															
Zigadenus venenosus					0.3	0.3									
TOTAL NPF AND SUBSHRUBS	**43.8**	**57.5**	**32.2**	**44.6**	**42.4**	**3.6**	**13.7**	**2.2**	**8.7**	**2.6**	**6.9**	**56.1**	**11.6**	**4.4**	**4.6**
INTRODUCED PERENNIAL FORBS															
Medicago sativa								12							
Taraxacum laevigatum		1	0.3	1	0.3	0.3	1			0.3	1	0.3	2	16	5
TOTAL IPF	**0.0**	**1.0**	**0.3**	**1.0**	**0.3**	**0.3**	**1.0**	**12.0**	**0.0**	**0.3**	**1.0**	**0.3**	**2.0**	**16.0**	**5.0**
FERNS AND ALLIES															
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS															
Arabis holboellii							0.3					0.3	0.3		
Erysimum asperum							0.3								
Hedeoma hispidum	0.3	0.3	0.3	0.3		0.3	0.3		0.3				1	0.3	0.3
Helianthus annuus						0.3									
Lappula redowskii															
Lepidium densiflorum				0.3											0.3
Linum rigidum	0.3		0.3			0.3	0.3		0.3		0.3			0.3	
Oenothera albicaulis										0.3					
Oenothera strigosa (villosa)									0.3						
Phacelia linearis													0.3		
Plantago patagonica	0.3	1	0.3	1	0.3	1	1	0.3		0.3	0.3		1	0.3	1
Silene antirrhina					0.3										
TOTAL NAF	**0.9**	**1.3**	**0.9**	**1.6**	**0.6**	**1.9**	**2.2**	**0.3**	**0.9**	**0.6**	**0.6**	**0.3**	**2.6**	**0.9**	**1.6**

Table B3. Percent Canopy Cover by Class and Species for 20 *STIPA COMATA / AGROPYRON SMITHII* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	STIPA COMATA / AGROPYRON SMITHII														
	PLOT NUMBER														
	020	038	042	050	051	054*	055*	063	072*	076	093	095	109	115	125
INTRODUCED ANNUAL/BIENNIAL FORBS															
Alyssum alyssoides	0.3					0.3		0.3		0.3	0.3				
Alyssum desertorum			0.3	0.3	0.3	0.3	0.3	0.3	0.3			0.3		0.3	0.3
Camelina microcarpa				0.3	0.3			0.3		0.3	0.3		0.3		
Draba nemorosa														0.3	
Filago arvensis	0.3	0.3	16	0.3	0.3	3	1		4	18			3		5
Lactuca serriola		0.3				0.3	0.3				0.3	0.3	1		0.3
Lepidium perfoliatum										1					
Melilotus officinalis	1	1			0.3	1	0.3	86		0.3	0.3		2		
Sisymbrium altissimum											0.3		0.3		
Tragopogon dubius	0.3	0.3	0.3	4	1	0.3	0.3	2		0.3	2	0.3	1	0.3	5
TOTAL IAF	**1.9**	**1.9**	**16.6**	**4.9**	**2.2**	**5.2**	**2.2**	**88.9**	**4.3**	**20.2**	**3.5**	**0.9**	**7.6**	**0.9**	**10.6**
SHRUBS															
Artemisia cana			0.3						1						
Artemisia tridentata			3				1	1					2		
Ceratoides lanata	0.3							3			0.3	0.3		0.3	
TOTAL SHRUBS	**0.3**	**0.0**	**3.3**	**0.0**	**0.0**	**0.0**	**1.0**	**4.0**	**1.0**	**0.0**	**0.3**	**0.3**	**2.0**	**0.3**	**0.0**
TREES 0.01-acre															
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TREES 0.1-acre															
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TOTAL VEGETATION (Stratified)	**98.2**	**116.0**	**132.6**	**152.7**	**143.8**	**87.9**	**126.3**	**150.4**	**94.5**	**77.3**	**85.3**	**119.2**	**108.8**	**85.8**	**103.8**

Footnotes are presented on cover page B-ii.

Table B3. Percent Canopy Cover by Class and Species for 20 *STIPA COMATA / AGROPYRON SMITHII* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	STIPA COMATA / AGROPYRON SMITHII						
	PLOT NUMBER					**Mean**	***Con-***
	166	191	211	234	340	**Cover**	***stancy***
						n=20	
SITE PARAMETERS*							
Slope (percent)	3-4	8	2-3	24	8		
Aspect (degrees)	190	172	236	180	270		
Topography	Low	Low-Mid	Rid-Sho	Sho	Mid		
Configuration	S(V)	U	X	S(U)	U		
Photo # (Digital)	166	792	068/368	139	340		
Investigator	JE	DB/KL	KS/ED	SC	JE		
Date	06/24/11	06/25/11	07/11/11	07/08/11	06/24/11		
GROUND COVER							
Bare Ground	30	41	36	80	53	**37.97**	***100***
Rock	0.3		0.3	14	2	**1.34**	***55***
Litter	64	52	56	3	40	**53.30**	***100***
Lichens	0.3	2	3	0.3	1	**3.19**	***80***
Moss		1				**0.12**	***15***
Water							
Basal Vegetation	5	4	5	3	4	**4.20**	***100***
VEGETATION STRUCTURE (nonstratified cover)							
Total Vegetation	76	66	76	75	56	**75.20**	***100***
Perennial Graminoids	72	46	58	54	52	**51.55**	***100***
Annual Graminoids	1	9	54	2	0.3	**15.77**	***100***
Perennial Forbs and Subshrubs	3	9	21	13	6	**19.75**	***100***
Annual/Biennial Forbs	1	9	3	40	5	**11.70**	***100***
Shrubs	3	0.3			1	**0.83**	***60***
Trees 0.01-acre							
Trees 0.1-acre							

Table B3. Percent Canopy Cover by Class and Species for 20 *STIPA COMATA / AGROPYRON SMITHII* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	STIPA COMATA / AGROPYRON SMITHII						
	PLOT NUMBER					**Mean**	***Con-***
	166	191	211	234	340	**Cover**	***stancy***
						n=20	
CLASS\SPECIES							
NATIVE PERENNIAL GRAMINOIDS (Cool Season)							
Agropyron dasystachyum var. riparium						**0.20**	***5***
Agropyron smithii	32	25	8	38	10	**21.30**	***100***
Agropyron spicatum					2	**0.15**	***10***
Aristida longiseta			4			**1.30**	***30***
Carex filifolia			0.3	22	0.3	**2.88**	***55***
Carex heliophila						**1.00**	***5***
Koeleria cristata	2			0.3	4	**1.03**	***65***
Poa sandbergii	0.3			0.3		**1.00**	***40***
Poa scabrella			3			**0.25**	***10***
Stipa comata	35	16	12	3	5	**17.55**	***100***
Stipa viridula				3	3	**0.75**	***25***
TOTAL NPG(C)	**69.3**	**41.0**	**27.3**	**66.6**	**24.3**	**47.40**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)							
Bouteloua curtipendula					4	**0.28**	***20***
Bouteloua gracilis	6	10	40	4	18	**9.33**	***90***
Muhlenbergia cuspidata					10	**0.50**	***5***
TOTAL NPG(W)	**6.0**	**10.0**	**40.0**	**4.0**	**32.0**	**10.11**	***90***
INTRODUCED PERENNIAL GRAMINOIDS							
Agropyron cristatum						**0.73**	***20***
Poa pratensis	0.3					**0.12**	***10***
TOTAL IPG	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.85**	***30***
NATIVE ANNUAL GRAMINOIDS							
Festuca octoflora		0.3	0.3			**0.22**	***45***
TOTAL NAG	**0.0**	**0.3**	**0.3**	**0.0**	**0.0**	**0.22**	***45***
INTRODUCED ANNUAL GRAMINOIDS							
Bromus japonicus	1	8	36	2	0.3	**7.42**	***100***
Bromus tectorum		1	28			**9.18**	***75***
TOTAL IAG	**1.0**	**9.0**	**64.0**	**2.0**	**0.3**	**16.60**	***100***

Table B3. Percent Canopy Cover by Class and Species for 20 *STIPA COMATA / AGROPYRON SMITHII* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	STIPA COMATA / AGROPYRON SMITHII						
	PLOT NUMBER					**Mean**	***Con-***
	166	191	211	234	340	**Cover**	***stancy***
						n=20	
NATIVE PERENNIAL FORBS AND SUBSHRUBS							
Allium textile						**0.03**	***10***
Ambrosia psilostachya						**1.32**	***20***
Antennaria howellii (neglecta)			0.3			**0.08**	***15***
Antennaria parvifolia						**0.07**	***10***
Artemisia dracunculus			13			**3.37**	***35***
Artemisia frigida	0.3		0.3	1		**0.37**	***60***
Artemisia ludoviciana				3		**2.65**	***10***
Asclepias viridiflora						**0.02**	***5***
Aster falcatus	0.3	0.3	3		0.3	**1.81**	***50***
Astragalus crassicarpus						**0.05**	***5***
Astragalus gilviflorus	0.3					**0.02**	***5***
Astragalus gracilis			0.3			**0.02**	***5***
Astragalus lotiflorus						**0.05**	***15***
Astragalus missouriensis				0.3	0.3	**0.06**	***20***
Astragalus plattensis			1			**0.20**	***25***
Calochortus nuttallii		0.3				**0.03**	***10***
Castilleja sessiliflora				0.3		**0.02**	***5***
Chrysopsis villosa				0.3		**0.03**	***10***
Cirsium undulatum				0.3		**0.17**	***15***
Comandra umbellata					0.3	**0.02**	***5***
Dalea purpurea			1			**1.32**	***25***
Delphinium bicolor						**0.02**	***5***
Echinacea angustifolia				3		**0.22**	***15***
Erigeron ochroleucus						**0.02**	***5***
Erigeron pumilus var. pumilus			0.3	0.3	0.3	**0.12**	***40***
Evolvulus nuttallianus			0.3			**0.36**	***30***
Gaura coccinea		1	0.3			**1.06**	***75***
Gutierrezia sarothrae		0.3		2	0.3	**0.27**	***50***
Haplopappus spinulosus			0.3			**0.03**	***10***
Kuhnia eupatorioides						**0.10**	***5***
Liatris punctata						**0.02**	***5***
Lithospermum incisum			1			**0.08**	***15***
Lomatium foeniculaceum					0.3	**0.02**	***5***
Lygodesmia juncea						**0.05**	***15***
Mirabilis linearis						**0.02**	***5***
Musineon divaricatum					0.3	**0.02**	***5***
Opuntia polyacantha					1	**0.21**	***45***
Oxytropis lambertii					0.3	**0.02**	***5***
Oxytropis sericea					1	**0.05**	***5***

Table B3. Percent Canopy Cover by Class and Species for 20 *STIPA COMATA / AGROPYRON SMITHII* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	STIPA COMATA / AGROPYRON SMITHII						
	PLOT NUMBER					**Mean**	***Con-***
	166	191	211	234	340	**Cover**	***stancy***
						n=20	
Penstemon albidus						**0.09**	***30***
Phlox hoodii				1	0.3	**0.31**	***40***
Picradeniopsis oppositifolia				0.3		**0.05**	***15***
Polygala alba				0.3	1	**0.11**	***25***
Psoralea argophylla		1	2	1	0.3	**3.06**	***65***
Psoralea esculenta					0.3	**0.03**	***10***
Ratibida columnifera			0.3	1	0.3	**0.14**	***35***
Solidago mollis						**0.05**	***5***
Sphaeralcea coccinea			0.3		0.3	**1.01**	***70***
Tradescantia occidentalis						**0.02**	***5***
Yucca glauca					0.3	**0.02**	***5***
Zigadenus venenosus						**0.03**	***10***
TOTAL NPF AND SUBSHRUBS	**0.9**	**2.9**	**23.7**	**14.1**	**7.2**	**19.19**	***100***
INTRODUCED PERENNIAL FORBS							
Medicago sativa						**0.60**	***5***
Taraxacum laevigatum	2	7	1		0.3	**1.94**	***80***
TOTAL IPF	**2.0**	**7.0**	**1.0**	**0.0**	**0.3**	**2.54**	***85***
FERNS AND ALLIES							
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS							
Arabis holboellii			0.3			**0.06**	***20***
Erysimum asperum						**0.02**	***5***
Hedeoma hispidum		0.3	0.3			**0.22**	***60***
Helianthus annuus						**0.02**	***5***
Lappula redowskii	0.3	0.3				**0.03**	***10***
Lepidium densiflorum					0.3	**0.05**	***15***
Linum rigidum			0.3			**0.12**	***40***
Oenothera albicaulis						**0.02**	***5***
Oenothera strigosa (villosa)						**0.02**	***5***
Phacelia linearis						**0.02**	***5***
Plantago patagonica	0.3	0.3	1			**0.49**	***80***
Silene antirrhina		0.3				**0.03**	***10***
TOTAL NAF	**0.6**	**1.2**	**1.9**	**0.0**	**0.3**	**1.06**	***95***

Table B3. Percent Canopy Cover by Class and Species for 20 *STIPA COMATA / AGROPYRON SMITHII* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	STIPA COMATA / AGROPYRON SMITHII						
	PLOT NUMBER					**Mean**	***Con-***
	166	191	211	234	340	**Cover**	***stancy***
						n=20	
INTRODUCED ANNUAL/BIENNIAL FORBS							
Alyssum alyssoides				0.3		**0.09**	***30***
Alyssum desertorum	0.3		0.3		0.3	**0.20**	***65***
Camelina microcarpa		1			0.3	**0.16**	***40***
Draba nemorosa		0.3				**0.03**	***10***
Filago arvensis			0.3	0.3		**2.59**	***65***
Lactuca serriola		2	0.3			**0.26**	***45***
Lepidium perfoliatum						**0.05**	***5***
Melilotus officinalis			0.3	40	4	**6.83**	***60***
Sisymbrium altissimum						**0.03**	***10***
Tragopogon dubius	0.3	5	0.3		0.3	**1.17**	***90***
TOTAL IAF	**0.6**	**8.3**	**1.5**	**40.6**	**4.9**	**11.39**	***100***
SHRUBS							
Artemisia cana						**0.07**	***10***
Artemisia tridentata	3				1	**0.55**	***30***
Ceratoides lanata		0.3				**0.23**	***30***
TOTAL SHRUBS	**3.0**	**0.3**	**0.0**	**0.0**	**1.0**	**0.84**	***60***
TREES 0.01-acre							
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TREES 0.1-acre							
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TOTAL VEGETATION (Stratified)	**83.7**	**80.0**	**159.7**	**127.3**	**70.3**	**110.18**	***100***

Footnotes are presented on cover page B-ii.

Table B4. Percent Canopy Cover by Class and Species for Three *STIPA COMATA / CAREX FILIFOLIA* and Four *AGROPYRON SPICATUM / STIPA COMATA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	STIPA COMATA / CAREX FILIFOLIA					***AGROPYRON SPICATUM / STIPA COMATA***					
	PLOT NUMBER			**Mean**	***Con-***	**PLOT NUMBER**				**Mean**	***Con-***
	142	168	226	**Cover**	***stancy***	015	084	189	248	**Cover**	***stancy***
				n=3						**n=4**	
SITE PARAMETERS*											
Slope (percent)	9	5-10	6-16			7	8-12	5	20-40		
Aspect (degrees)	240	340	200			340	325	230	208		
Topography	Mid	Sho	Rid-Sho			Upper	Sho	Upper-Mid	Upper-Mid		
Configuration	S	U	X(U)			X(S)	V	S	U		
Photo # (Digital)	107	009	505			247	443/444	053/054	291		
Investigator	JE/SC	PL	KS			JE/SC	KS/KL	SC	KS		
Date	06/30/11	06/24/11	08/20/11			07/14/11	07/15/11	06/27/11	06/30/11		
GROUND COVER											
Bare Ground	8	15	56	**26.33**	***100***	20	20	77	40	**39.25**	***100***
Rock		10	20	**10.00**	***67***		0.3		8	**2.08**	***50***
Litter	85	71	20	**58.67**	***100***	37	44	20	48	**37.25**	***100***
Lichens	0.3	0.3	0.3	**0.30**	***100***	40	30	0.3	0.3	**17.65**	***100***
Moss	1			**0.33**	***33***	0.3	1			**0.33**	***50***
Basal Vegetation	6	4	4	**4.67**	***100***	3	5	3	4	**3.75**	***100***
VEGETATION STRUCTURE (nonstratified cover)											
Total Vegetation	85	80	82	**82.33**	***100***	64	68	62	80	**68.50**	***100***
Perennial Graminoids	82	70	29	**60.33**	***100***	48	50	37	30	**41.25**	***100***
Annual Graminoids	12	1	14	**9.00**	***100***	2	0.3	0.3	16	**4.65**	***100***
Perennial Forbs and Subshrubs	3	40	15	**19.33**	***100***	15	28	30	16	**22.25**	***100***
Annual/Biennial Forbs	5	2	58	**21.67**	***100***	4	5	2	58	**17.25**	***100***
Shrubs	3			**1.00**	***33***			4	2	**1.50**	***50***
Trees 0.01-acre											
Trees 0.1-acre											

Table B4. Percent Canopy Cover by Class and Species for Three *STIPA COMATA / CAREX FILIFOLIA* and Four *AGROPYRON SPICATUM / STIPA COMATA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	STIPA COMATA / CAREX FILIFOLIA					***AGROPYRON SPICATUM / STIPA COMATA***					
	PLOT NUMBER			**Mean**	***Con-***	**PLOT NUMBER**				**Mean**	***Con-***
	142	168	226	**Cover**	***stancy***	015	084	189	248	**Cover**	***stancy***
				n=3						**n=4**	
CLASS\SPECIES											
NATIVE PERENNIAL GRAMINOIDS (Cool Season)											
Agropyron dasystachyum var. dasy.									2	**0.50**	***25***
Agropyron smithii	16	1		**5.67**	***67***	0.3		5	8	**3.33**	***75***
Agropyron spicatum	0.3	4	1	**1.77**	***100***	15	10	6	8	**9.75**	***100***
Aristida longiseta			3	**1.00**	***33***	1		0.3		**0.33**	***50***
Carex filifolia	55	35	7	**32.33**	***100***	5	8	13	6	**8.00**	***100***
Carex stenophylla			0.3	**0.10**	***33***						
Koeleria cristata		15		**5.00**	***33***	1	10	2		**3.25**	***75***
Poa sandbergii			5	**1.67**	***33***	1		0.3		**0.33**	***50***
Stipa comata	30	25	12	**22.33**	***100***	25	18	3	5	**12.75**	***100***
Stipa viridula	0.3			**0.10**	***33***			8	3	**2.75**	***50***
TOTAL NPG(C)	**101.6**	**80.0**	**28.3**	**69.97**	***100***	**48.3**	**46.0**	**37.6**	**32.0**	**40.98**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)											
Andropogon scoparius						2	2			**1.00**	***50***
Bouteloua curtipendula		0.3	1	**0.43**	***67***						
Bouteloua gracilis	2		3	**1.67**	***67***	0.3	5	4		**2.33**	***75***
Calamovilfa longifolia									0.3	**0.08**	***25***
Muhlenbergia cuspidata							5			**1.25**	***25***
TOTAL NPG(W)	**2.0**	**0.3**	**4.0**	**2.10**	***100***	**2.3**	**12.0**	**4.0**	**0.3**	**4.65**	***100***
INTRODUCED PERENNIAL GRAMINOIDS											
Agropyron cristatum		1		**0.33**	***33***				2	**0.50**	***25***
TOTAL IPG	**0.0**	**1.0**	**0.0**	**0.33**	***33***	**0.0**	**0.0**	**0.0**	**2.0**	**0.50**	***25***
NATIVE ANNUAL GRAMINOIDS											
Festuca octoflora	0.3			**0.10**	***33***			0.3		**0.08**	***25***
TOTAL NAG	**0.3**	**0.0**	**0.0**	**0.10**	***33***	**0.0**	**0.0**	**0.3**	**0.0**	**0.08**	***25***
INTRODUCED ANNUAL GRAMINOIDS											
Bromus japonicus	12	1	6	**6.33**	***100***	2	0.3	0.3	14	**4.15**	***100***
Bromus tectorum			9	**3.00**	***33***				4	**1.00**	***25***
TOTAL IAG	**12.0**	**1.0**	**15.0**	**9.33**	***100***	**2.0**	**0.3**	**0.3**	**18.0**	**5.15**	***100***

Table B4. Percent Canopy Cover by Class and Species for Three *STIPA COMATA / CAREX FILIFOLIA* and Four *AGROPYRON SPICATUM / STIPA COMATA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	STIPA COMATA / CAREX FILIFOLIA					***AGROPYRON SPICATUM / STIPA COMATA***					
	PLOT NUMBER			**Mean**	***Con-***	**PLOT NUMBER**				**Mean**	***Con-***
	142	168	226	**Cover**	***stancy***	015	084	189	248	**Cover**	***stancy***
				n=3						**n=4**	
NATIVE PERENNIAL FORBS AND SUBSHRUBS											
Achillea millefolium						0.3				**0.08**	***25***
Allium textile		0.3		**0.10**	***33***		0.3	0.3		**0.15**	***50***
Ambrosia psilostachya			0.3	**0.10**	***33***						
Antennaria dimorpha							0.3	0.3		**0.15**	***50***
Antennaria parvifolia						0.3	1			**0.33**	***50***
Artemisia campestris		0.3		**0.10**	***33***						
Artemisia frigida	1	1	1	**1.00**	***100***	1	3	2	0.3	**1.58**	***100***
Artemisia ludoviciana									0.3	**0.08**	***25***
Aster falcatus		1	0.3	**0.43**	***67***		1	0.3	0.3	**0.40**	***75***
Aster oblongifolius		0.3		**0.10**	***33***						
Astragalus crassicarpus								0.3		**0.08**	***25***
Astragalus gilviflorus			0.3	**0.10**	***33***			0.3	0.3	**0.15**	***50***
Astragalus gracilis		25		**8.33**	***33***						
Astragalus lotiflorus	0.3			**0.10**	***33***						
Astragalus missouriensis		0.3		**0.10**	***33***			0.3		**0.08**	***25***
Astragalus spatulatus						1	5	0.3		**1.58**	***75***
Calochortus nuttallii	0.3			**0.10**	***33***						
Castilleja sessiliflora						0.3	1	0.3		**0.40**	***75***
Cerastium arvense			0.3	**0.10**	***33***	0.3				**0.08**	***25***
Cirsium undulatum							0.3			**0.08**	***25***
Comandra umbellata						0.3			1	**0.33**	***50***
Dalea candida							2		3	**1.25**	***50***
Dalea purpurea		0.3	1	**0.43**	***67***	0.3				**0.08**	***25***
Echinacea angustifolia			2	**0.67**	***33***	0.3	0.3			**0.15**	***50***
Erigeron pumilus var. pumilus							0.3	1		**0.33**	***50***
Eriogonum pauciflorum									1	**0.25**	***25***
Gaura coccinea			0.3	**0.10**	***33***			0.3	0.3	**0.15**	***50***
Gutierrezia sarothrae		0.3	1	**0.43**	***67***	5	10	1	0.3	**4.08**	***100***
Haplopappus spinulosus		0.3		**0.10**	***33***	0.3		0.3		**0.15**	***50***
Kuhnia eupatorioides			1	**0.33**	***33***						
Leucocrinum montanum		0.3		**0.10**	***33***						
Liatris punctata							0.3			**0.08**	***25***
Linum lewisii			0.3	**0.10**	***33***		0.3			**0.08**	***25***
Lithospermum incisum								0.3		**0.08**	***25***
Lomatium orientale		0.3		**0.10**	***33***						
Lygodesmia juncea							1			**0.25**	***25***
Machaeranthera grindelioides									1	**0.25**	***25***
Mentzelia decapetala			1	**0.33**	***33***						
Opuntia polyacantha	0.3		0.3	**0.20**	***67***	0.3		0.3	0.3	**0.23**	***75***

Table B4. Percent Canopy Cover by Class and Species for Three *STIPA COMATA / CAREX FILIFOLIA* and Four *AGROPYRON SPICATUM / STIPA COMATA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	STIPA COMATA / CAREX FILIFOLIA					***AGROPYRON SPICATUM / STIPA COMATA***					
	PLOT NUMBER			**Mean**	***Con-***	**PLOT NUMBER**				**Mean**	***Con-***
	142	168	226	**Cover**	***stancy***	015	084	189	248	**Cover**	***stancy***
				n=3						**n=4**	
Oxytropis sericea		0.3	0.3	**0.20**	***67***						
Penstemon albidus							0.3	1		**0.33**	***50***
Penstemon eriantherus						0.3				**0.08**	***25***
Phlox hoodii		1	1	**0.67**	***67***		0.3	1	0.3	**0.40**	***75***
Polygala alba		0.3		**0.10**	***33***	5	3	1		**2.25**	***75***
Psoralea argophylla		14	4	**6.00**	***67***	0.3	1	22	2	**6.33**	***100***
Psoralea esculenta		0.3	0.3	**0.20**	***67***	0.3		0.3		**0.15**	***50***
Psoralea tenuiflora								0.3		**0.08**	***25***
Ratibida columnifera		0.3		**0.10**	***33***	1		0.3		**0.33**	***50***
Sphaeralcea coccinea		0.3	0.3	**0.20**	***67***	0.3		0.3	2	**0.65**	***75***
Zigadenus venenosus	0.3			**0.10**	***33***		1			**0.25**	***25***
TOTAL NPF AND SUBSHRUBS	**2.2**	**46.2**	**15.0**	**21.13**	***100***	**16.9**	**31.7**	**33.8**	**12.4**	**23.70**	***100***
INTRODUCED PERENNIAL FORBS											
Medicago sativa									4	**1.00**	***25***
Taraxacum laevigatum	1	0.3		**0.43**	***67***	0.3		0.3	0.3	**0.23**	***75***
TOTAL IPF	**1.0**	**0.3**	**0.0**	**0.43**	***67***	**0.3**	**0.0**	**0.3**	**4.3**	**1.23**	***75***
FERNS AND ALLIES											
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS											
Arabis holboellii		0.3		**0.10**	***33***	0.3		0.3		**0.15**	***50***
Cryptantha celosioides		0.3		**0.10**	***33***						
Descurainia pinnata								0.3		**0.08**	***25***
Erysimum asperum		0.3		**0.10**	***33***						
Hedeoma hispidum	0.3			**0.10**	***33***	0.3				**0.08**	***25***
Linum rigidum						0.3	0.3			**0.15**	***50***
Orthocarpus luteus						2	4	1		**1.75**	***75***
Plantago elongata	0.3			**0.10**	***33***						
Plantago patagonica	1	0.3		**0.43**	***67***	1	0.3	0.3		**0.40**	***75***
Polygonum douglasii								0.3		**0.08**	***25***
TOTAL NAF	**1.6**	**1.2**	**0.0**	**0.93**	***67***	**3.9**	**4.6**	**2.2**	**0.0**	**2.68**	***75***

Table B4. Percent Canopy Cover by Class and Species for Three *STIPA COMATA / CAREX FILIFOLIA* and Four *AGROPYRON SPICATUM / STIPA COMATA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	STIPA COMATA / CAREX FILIFOLIA					***AGROPYRON SPICATUM / STIPA COMATA***					
	PLOT NUMBER			**Mean**	***Con-***	**PLOT NUMBER**				**Mean**	***Con-***
	142	168	226	**Cover**	***stancy***	015	084	189	248	**Cover**	***stancy***
				n=3						**n=4**	
INTRODUCED ANNUAL/BIENNIAL FORBS											
Alyssum alyssoides	0.3			**0.10**	***33***				1	**0.25**	***25***
Alyssum desertorum	0.3	0.3	0.3	**0.30**	***100***	0.3	0.3	0.3		**0.23**	***75***
Camelina microcarpa		0.3		**0.10**	***33***						
Filago arvensis	0.3			**0.10**	***33***						
Lactuca serriola	2	0.3		**0.77**	***67***						
Melilotus officinalis		0.3	58	**19.43**	***67***	0.3			58	**14.58**	***50***
Tragopogon dubius	0.3	0.3		**0.20**	***67***	0.3	0.3	0.3	2	**0.73**	***100***
Veronica arvensis	0.3			**0.10**	***33***						
TOTAL IAF	**3.5**	**1.5**	**58.3**	**21.10**	***100***	**0.9**	**0.6**	**0.6**	**61.0**	**15.78**	***100***
SHRUBS											
Artemisia tridentata	3			**1.00**	***33***			4	1	**1.25**	***50***
Rosa arkansana									1	**0.25**	***25***
TOTAL SHRUBS	**3.0**	**0.0**	**0.0**	**1.00**	***33***	**0.0**	**0.0**	**4.0**	**2.0**	**1.50**	***50***
TREES 0.01-acre											
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TREES 0.1-acre											
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TOTAL VEGETATION (Stratified)	**127.2**	**131.5**	**120.6**	**126.43**	***100***	**74.6**	**95.2**	**83.1**	**132.0**	**96.23**	***100***

Footnotes are presented on cover page B-ii.

Table B5. Percent Canopy Cover by Class and Species for Eight *AGROPYRON SPICATUM / BOUTELOUA CURTIPENDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SPICATUM / BOUTELOUA CURTIPENDULA									
	PLOT NUMBER								**Mean**	***Con-***
	024	074	098	163	266	320	321	332	**Cover**	***stancy***
									n=8	
SITE PARAMETERS*										
Slope (percent)	8	18	8	9	45	29	10-15	3-5		
Aspect (degrees)	030	020	100	200	210	185	084	270		
Topography	Mid-Sho	Upper-Mid	Mid	Low-Mid	Sho-Kno	Sho-Kno	Sho-Kno	Mid		
Configuration	U	X	U	V(S)	U	X	X	S		
Photo # (Digital)	233/234	074	098	724	266	037/038	024	332		
Investigator	SC	JE	JE	DB/KL	JE	SC	PL	JE		
Date	07/13/11	07/13/11	06/29/11	06/23/11	07/15/11	06/25/11	06/26/11	06/24/11		
GROUND COVER										
Bare Ground	66	30	20	41	30	1	10	20	**27.25**	***100***
Rock	0.3	10	10	2	45	95	80	5	**30.91**	***100***
Litter	25	57	67	50	23	2	5	70	**37.38**	***100***
Lichens	5			3			0.3	2	**1.29**	***50***
Moss	0.3						0.3	0.3	**0.11**	***38***
Basal Vegetation	3	3	3	4	2	2	5	3	**3.13**	***100***
VEGETATION STRUCTURE (nonstratified cover)										
Total Vegetation	52	73	59	55	30	29	40	52	**48.75**	***100***
Perennial Graminoids	44	25	45	38	18	16	20	40	**30.75**	***100***
Annual Graminoids	1	1	0.3	0.3		1	3	0.3	**0.86**	***88***
Perennial Forbs and Subshrubs	11	23	8	10	6	13	13	16	**12.50**	***100***
Annual/Biennial Forbs	1	35	1	11	0.3	0.3	0.3	1	**6.24**	***100***
Shrubs	3	6	10	4	0.3		5	1	**3.66**	***88***
Trees 0.01-acre					10				**1.25**	***13***
Trees 0.1-acre	2				5				**0.88**	***25***

Table B5. Percent Canopy Cover by Class and Species for Eight *AGROPYRON SPICATUM / BOUTELOUA CURTIPENDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SPICATUM / BOUTELOUA CURTIPENDULA									
	PLOT NUMBER								**Mean**	***Con-***
	024	074	098	163	266	320	321	332	**Cover**	***stancy***
									n=8	
CLASS\SPECIES										
NATIVE PERENNIAL GRAMINOIDS (Cool Season)										
Agropyron dasystachyum var. dasy.		2	2					6	**1.25**	***38***
Agropyron smithii	2	0.3	8	2				6	**2.29**	***63***
Agropyron spicatum	7	12	8	10	8	14	8	9	**9.50**	***100***
Aristida longiseta	1		2	1			0.3	2	**0.79**	***63***
Calamagrostis montanensis				0.3					**0.04**	***13***
Carex filifolia	12								**1.50**	***13***
Carex heliophila							9		**1.13**	***13***
Koeleria cristata	0.3		6	5			1	4	**2.04**	***63***
Oryzopsis hymenoides					0.3				**0.04**	***13***
Poa sandbergii		0.3	1	5					**0.79**	***38***
Poa scabrella								1	**0.13**	***13***
Stipa comata	1		1				1	0.3	**0.41**	***50***
Stipa viridula	1	8	2	3			0.3		**1.79**	***63***
TOTAL NPG(C)	**24.3**	**22.6**	**30.0**	**26.3**	**8.3**	**14.0**	**19.6**	**28.3**	**21.68**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)										
Andropogon scoparius					2				**0.25**	***13***
Bouteloua curtipendula	21	2	7	2	7	2	1	2	**5.50**	***100***
Bouteloua gracilis	1	2	5		1			8	**2.13**	***63***
Calamovilfa longifolia				2					**0.25**	***13***
Muhlenbergia cuspidata		0.3		12	1			2	**1.91**	***50***
TOTAL NPG(W)	**22.0**	**4.3**	**12.0**	**16.0**	**11.0**	**2.0**	**1.0**	**12.0**	**10.04**	***100***
INTRODUCED PERENNIAL GRAMINOIDS										
Agropyron cristatum						0.3			**0.04**	***13***
Poa pratensis			8						**1.00**	***13***
TOTAL IPG	**0.0**	**0.0**	**8.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**1.04**	***25***
NATIVE ANNUAL GRAMINOIDS										
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS										
Bromus japonicus	1	1	0.3	0.3		1	2	0.3	**0.74**	***88***
Bromus tectorum							1		**0.13**	***13***
TOTAL IAG	**1.0**	**1.0**	**0.3**	**0.3**	**0.0**	**1.0**	**3.0**	**0.3**	**0.86**	***88***

Table B5. Percent Canopy Cover by Class and Species for Eight *AGROPYRON SPICATUM / BOUTELOUA CURTIPENDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SPICATUM / BOUTELOUA CURTIPENDULA									
	PLOT NUMBER								**Mean**	***Con-***
	024	074	098	163	266	320	321	332	**Cover**	***stancy***
									n=8	
NATIVE PERENNIAL FORBS AND SUBSHRUBS										
Achillea millefolium		0.3					0.3		**0.08**	***25***
Allium textile								0.3	**0.04**	***13***
Ambrosia psilostachya						3	2		**0.63**	***25***
Antennaria howellii (neglecta)								1	**0.13**	***13***
Antennaria microphylla			0.3					0.3	**0.08**	***25***
Antennaria parvifolia	1								**0.13**	***13***
Artemisia frigida		2				1	0.3	0.3	**0.45**	***50***
Artemisia ludoviciana							1		**0.13**	***13***
Asclepias viridiflora					0.3				**0.04**	***13***
Aster falcatus	0.3	1	0.3	0.3		0.3	0.3		**0.31**	***75***
Aster oblongifolius	0.3		0.3						**0.08**	***25***
Astragalus adsurgens					0.3				**0.04**	***13***
Astragalus agrestis							0.3		**0.04**	***13***
Astragalus drummondii	1	2	1						**0.50**	***38***
Astragalus gilviflorus					0.3			0.3	**0.08**	***25***
Astragalus missouriensis	0.3		0.3	0.3					**0.11**	***38***
Astragalus spatulatus	0.3							0.3	**0.08**	***25***
Besseya wyomingensis		1							**0.13**	***13***
Calochortus nuttallii						0.3			**0.04**	***13***
Castilleja sessiliflora								0.3	**0.04**	***13***
Cerastium arvense							1		**0.13**	***13***
Chrysopsis villosa						0.3	1		**0.16**	***25***
Cirsium undulatum						1	0.3		**0.16**	***25***
Comandra umbellata			2	0.3				0.3	**0.33**	***38***
Cryptantha spiculifera (interrupta)					0.3				**0.04**	***13***
Dalea candida				0.3	0.3				**0.08**	***25***
Dalea purpurea		1			0.3	0.3	0.3	0.3	**0.28**	***63***
Echinacea angustifolia	0.3		0.3	0.3	0.3	1		0.3	**0.31**	***75***
Erigeron pumilus var. pumilus			0.3						**0.04**	***13***
Eriogonum pauciflorum					0.3	1	0.3	0.3	**0.24**	***50***
Evolvulus nuttallianus					0.3				**0.04**	***13***
Gaura coccinea	0.3			0.3	0.3	0.3	0.3	0.3	**0.23**	***75***
Gutierrezia sarothrae	1	5	1	4	1	0.3	0.3	3	**1.95**	***100***
Hymenopappus filifolius								0.3	**0.04**	***13***
Iva axillaris								5	**0.63**	***13***
Kuhnia eupatorioides						0.3	0.3		**0.08**	***25***
Lesquerella alpina						0.3			**0.04**	***13***
Leucocrinum montanum							0.3		**0.04**	***13***
Liatris punctata					0.3	0.3	0.3		**0.11**	***38***

Table B5. Percent Canopy Cover by Class and Species for Eight *AGROPYRON SPICATUM / BOUTELOUA CURTIPENDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SPICATUM / BOUTELOUA CURTIPENDULA									
	PLOT NUMBER								**Mean**	***Con-***
	024	074	098	163	266	320	321	332	**Cover**	***stancy***
									n=8	
Linum lewisii		0.3					0.3		**0.08**	***25***
Lithospermum incisum	0.3	0.3							**0.08**	***25***
Machaeranthera grindelioides				0.3	0.3				**0.08**	***25***
Musineon divaricatum			0.3	0.3				0.3	**0.11**	***38***
Opuntia polyacantha	0.3	1	0.3			0.3	0.3	1	**0.40**	***75***
Oxytropis lambertii								0.3	**0.04**	***13***
Oxytropis sericea	0.3	2							**0.29**	***25***
Penstemon albidus						0.3			**0.04**	***13***
Penstemon eriantherus					0.3				**0.04**	***13***
Phlox hoodii	1	1	1	2	0.3	2	2		**1.16**	***88***
Polygala alba	3		0.3					0.3	**0.45**	***38***
Psoralea argophylla	0.3	5	1	0.3			1	0.3	**0.99**	***75***
Psoralea esculenta	1	0.3			1	0.3		0.3	**0.36**	***63***
Ratibida columnifera	0.3		0.3	0.3	0.3		0.3	0.3	**0.23**	***75***
Senecio canus	0.3					0.3			**0.08**	***25***
Solidago rigida					0.3				**0.04**	***13***
Sphaeralcea coccinea		1	0.3	0.3			0.3		**0.24**	***50***
Vicia americana		0.3		1			0.3		**0.20**	***38***
Viola nuttallii				0.3					**0.04**	***13***
Yucca glauca	1	1					0.3		**0.29**	***38***
Zigadenus venenosus	0.3				0.3	0.3		0.3	**0.15**	***50***
TOTAL NPF AND SUBSHRUBS	**12.9**	**24.5**	**9.3**	**10.6**	**7.1**	**13.2**	**13.4**	**15.7**	**13.34**	***100***
INTRODUCED PERENNIAL FORBS										
Medicago sativa		0.3							**0.04**	***13***
Taraxacum laevigatum				0.3			0.3		**0.08**	***25***
TOTAL IPF	**0.0**	**0.3**	**0.0**	**0.3**	**0.0**	**0.0**	**0.3**	**0.0**	**0.11**	***38***
FERNS AND ALLIES										
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS										
Cryptantha celosioides						0.3			**0.04**	***13***
Draba reptans				0.3				0.3	**0.08**	***25***
Grindelia squarrosa				0.3					**0.04**	***13***
Mentzelia dispersa					0.3				**0.04**	***13***
Orthocarpus luteus	1		0.3						**0.16**	***25***
Phacelia linearis							0.3		**0.04**	***13***
TOTAL NAF	**1.0**	**0.0**	**0.3**	**0.6**	**0.3**	**0.3**	**0.3**	**0.3**	**0.39**	***88***

Table B5. Percent Canopy Cover by Class and Species for Eight *AGROPYRON SPICATUM / BOUTELOUA CURTIPENDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SPICATUM / BOUTELOUA CURTIPENDULA									
	PLOT NUMBER								**Mean**	***Con-***
	024	074	098	163	266	320	321	332	**Cover**	***stancy***
									n=8	
INTRODUCED ANNUAL/BIENNIAL FORBS										
Alyssum alyssoides				0.3		0.3			**0.08**	***25***
Alyssum desertorum	0.3	2					0.3		**0.33**	***38***
Camelina microcarpa				0.3					**0.04**	***13***
Lepidium perfoliatum			0.3						**0.04**	***13***
Melilotus officinalis		35		10	0.3			0.3	**5.70**	***50***
Sisymbrium altissimum							0.3		**0.04**	***13***
Tragopogon dubius		0.3	0.3	0.3		0.3		0.3	**0.19**	***63***
TOTAL IAF	**0.3**	**37.3**	**0.6**	**10.9**	**0.3**	**0.6**	**0.6**	**0.6**	**6.40**	***100***
SHRUBS										
Artemisia tridentata	3	5	8	4				1	**2.63**	***63***
Ceratoides lanata			2						**0.25**	***13***
Chrysothamnus nauseosus								0.3	**0.04**	***13***
Rhus aromatica					0.3		5		**0.66**	***25***
Rosa arkansana		1					0.3		**0.16**	***25***
TOTAL SHRUBS	**3.0**	**6.0**	**10.0**	**4.0**	**0.3**	**0.0**	**5.3**	**1.3**	**3.74**	***88***
TREES 0.01-acre										
Juniperus scopulorum					10				**1.25**	***13***
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**10.0**	**0.0**	**0.0**	**0.0**	**1.25**	***13***
TREES 0.1-acre										
Juniperus scopulorum	2				5				**0.88**	***25***
TOTAL TREES 0.1-acre	**2.0**	**0.0**	**0.0**	**0.0**	**5.0**	**0.0**	**0.0**	**0.0**	**0.88**	***25***
TOTAL VEGETATION (Stratified)	**64.50**	**96.00**	**70.50**	**69.00**	**37.30**	**31.40**	**43.50**	**58.50**	**58.84**	***100***

Footnotes are presented on cover page B-ii.

Table B6. Percent Canopy Cover by Class and Species for 11 *ANDROPOGON SCOPARIUS / AGROPYRON SPICATUM* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ANDROPOGON SCOPARIUS / AGROPYRON SPICATUM												
	PLOT NUMBER											**Mean**	***Con-***
	178	227	232	247*	264	322	338	339	343	408	611	**Cover**	***stancy***
												n=11	
SITE PARAMETERS*													
Slope (percent)	5	10	10	9	10-15	15-20	25	36	48	2-25	32		
Aspect (degrees)	160	010	280	270	040	290	240	045	180	020	350		
Topography	Sad	Mid	Sho	Upper-Mid	Upper-Mid	Mid	Upper-Sho	Sho	Upper-Mid	Ben	Toe-Bot		
Configuration	X	V	X	S	U	V	V	S(X)	X	X	S(V)		
Photo # (Digital)	178	375	222	184	943/944	010	047	046	343	688/689	101		
Investigator	JE	KS	SC	SC	DB/KL	PL	SC	SC	JE	DB/KL	SC		
Date	06/27/11	07/11/11	07/13/11	07/10/11	06/27/11	06/24/11	06/25/11	06/26/11	06/26/11	06/22/11	06/29/11		
GROUND COVER													
Bare Ground	15	65	59	80	5	24	38	40	10	33	20	**35.36**	***100***
Rock	15	6	28	15	65	68	39	26	35	1		**27.09**	***91***
Litter	66	25	3	3	25	5	20	28	50	42	60	**29.73**	***100***
Lichens	0.3		7	0.3	2	0.3	0.3	1	2	15	0.3	**2.59**	***91***
Moss	0.3							0.3	0.3	4		**0.45**	***36***
Basal Vegetation	3	4	3	2	3	3	3	5	3	5	20	**4.91**	***100***
VEGETATION STRUCTURE (nonstratified cover)													
Total Vegetation	65	66	58	40	47	35	40	68	64	66	80	**57.18**	***100***
Perennial Graminoids	32	54	27	13	34	20	30	55	26	58	69	**38.00**	***100***
Annual Graminoids	4	2	1	0.3					0.3	5		**1.15**	***55***
Perennial Forbs and Subshrubs	32	26	17	36	16	12	12	18	21	12	17	**19.91**	***100***
Annual/Biennial Forbs	2	1	19	1	0.3	1	0.3	0.3	26	1	2	**4.90**	***100***
Shrubs			2	1	4	1	2	4	2		7	**2.09**	***73***
Trees 0.01-acre		2				5						**0.64**	***18***
Trees 0.1-acre		2				3				6		**1.00**	***27***

Table B6. Percent Canopy Cover by Class and Species for 11 *ANDROPOGON SCOPARIUS / AGROPYRON SPICATUM* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ANDROPOGON SCOPARIUS / AGROPYRON SPICATUM												
	PLOT NUMBER											**Mean**	***Con-***
	178	227	232	247*	264	322	338	339	343	408	611	**Cover**	***stancy***
												n=11	
CLASS\SPECIES													
NATIVE PERENNIAL GRAMINOIDS (Cool Season)													
Agropyron smithii	3	2	3	0.3	2					0.3		**0.96**	***55***
Agropyron spicatum	10	18	12	0.3	21	4	1	1	7	5	1	**7.30**	***100***
Aristida longiseta		2		8		0.3						**0.94**	***27***
Carex filifolia	1	1	1	4		0.3	2		6	14	3	**2.94**	***82***
Koeleria cristata		4	1		7		0.3					**1.12**	***36***
Poa glaucifolia		0.3										**0.03**	***9***
Poa sandbergii											0.3	**0.03**	***9***
Poa scabrella										2		**0.18**	***9***
Stipa comata	4	10							6	15	0.3	**3.21**	***45***
TOTAL NPG(C)	**18.0**	**37.3**	**17.0**	**12.6**	**30.0**	**4.6**	**3.3**	**1.0**	**19.0**	**36.3**	**4.6**	**16.70**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)													
Andropogon scoparius	15	15	2	1	6	15	28	55	8	20	65	**20.91**	***100***
Bouteloua curtipendula	1	8	1			1			0.3		1	**1.12**	***55***
Bouteloua gracilis	1	1	8			1	1			7	1	**1.82**	***64***
Calamovilfa longifolia									1	1	0.3	**0.21**	***27***
Muhlenbergia cuspidata	1								0.3	0.3		**0.15**	***27***
Spartina gracilis											0.3	**0.03**	***9***
TOTAL NPG(W)	**18.0**	**24.0**	**11.0**	**1.0**	**6.0**	**17.0**	**29.0**	**55.0**	**9.6**	**28.3**	**67.6**	**24.23**	***100***
INTRODUCED PERENNIAL GRAMINOIDS													
Agropyron cristatum									0.3			**0.03**	***9***
Poa pratensis											0.3	**0.03**	***9***
TOTAL IPG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.3**	**0.05**	***18***
NATIVE ANNUAL GRAMINOIDS													
Festuca octoflora										0.3		**0.03**	***9***
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.03**	***9***
INTRODUCED ANNUAL GRAMINOIDS													
Bromus japonicus	2	2	1	0.3					0.3	5		**0.96**	***55***
Bromus tectorum	2			0.3								**0.21**	***18***
TOTAL IAG	**4.0**	**2.0**	**1.0**	**0.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**5.0**	**0.0**	**1.17**	***55***

Table B6. Percent Canopy Cover by Class and Species for 11 *ANDROPOGON SCOPARIUS / AGROPYRON SPICATUM* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ANDROPOGON SCOPARIUS / AGROPYRON SPICATUM												
	PLOT NUMBER											**Mean**	***Con-***
	178	227	232	247*	264	322	338	339	343	408	611	**Cover**	***stancy***
												n=11	
NATIVE PERENNIAL FORBS AND SUBSHRUBS													
Achillea millefolium		0.3			0.3			0.3			0.3	**0.11**	***36***
Allium textile						0.3				0.3		**0.05**	***18***
Ambrosia psilostachya	3	1		0.3		0.3	1		0.3		0.3	**0.56**	***64***
Antennaria dimorpha										0.3		**0.03**	***9***
Antennaria howellii (neglecta)		0.3										**0.03**	***9***
Antennaria microphylla				4							0.3	**0.39**	***18***
Antennaria parvifolia		0.3		0.3				1				**0.15**	***27***
Artemisia campestris									0.3			**0.03**	***9***
Artemisia frigida	0.3		0.3	1	0.3	0.3	1	0.3	1	2	0.3	**0.62**	***91***
Artemisia ludoviciana	0.3	1						0.3			0.3	**0.17**	***36***
Aster falcatus	2	2		10	1					0.3		**1.39**	***45***
Aster laevis		1										**0.09**	***9***
Aster oblongifolius		4			0.3	3			0.3		0.3	**0.72**	***45***
Astragalus adsurgens									3	0.3		**0.30**	***18***
Astragalus agrestis			3		0.3							**0.30**	***18***
Astragalus drummondii			0.3									**0.03**	***9***
Astragalus gilviflorus		0.3			0.3	0.3						**0.08**	***27***
Astragalus gracilis							0.3	0.3		0.3	0.3	**0.11**	***36***
Astragalus missouriensis	0.3		0.3								0.3	**0.08**	***27***
Astragalus plattensis		0.3										**0.03**	***9***
Astragalus purshii					0.3							**0.03**	***9***
Astragalus spatulatus					0.3							**0.03**	***9***
Besseya wyomingensis		0.3			0.3		0.3	0.3				**0.11**	***36***
Calochortus nuttallii					0.3						0.3	**0.05**	***18***
Campanula rotundifolia						0.3		0.3			0.3	**0.08**	***27***
Castilleja sessiliflora		0.3					0.3					**0.05**	***18***
Cerastium arvense		8		1								**0.82**	***18***
Chrysopsis villosa	0.3	0.3				0.3	0.3		1			**0.20**	***45***
Cirsium undulatum	3	0.3		0.3				0.3				**0.35**	***36***
Comandra umbellata					1			0.3				**0.12**	***18***
Crepis occidentalis					0.3							**0.03**	***9***
Dalea candida			4									**0.36**	***9***
Dalea purpurea		0.3	0.3	2	0.3		0.3		0.3		0.3	**0.35**	***64***
Delphinium bicolor										0.3		**0.03**	***9***
Echinacea angustifolia	1	2	0.3	3	0.3	4	2	0.3			1	**1.26**	***82***
Eriogonum flavum									0.3			**0.03**	***9***
Eriogonum pauciflorum										0.3		**0.03**	***9***
Evolvulus nuttallianus	0.3					0.3						**0.05**	***18***
Gaura coccinea	0.3	0.3	0.3		0.3		0.3		0.3		0.3	**0.19**	***64***
Gilia congesta var. pseudotypica					0.3							**0.03**	***9***

Table B6. Percent Canopy Cover by Class and Species for 11 *ANDROPOGON SCOPARIUS / AGROPYRON SPICATUM* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ANDROPOGON SCOPARIUS / AGROPYRON SPICATUM												
	PLOT NUMBER											**Mean**	***Con-***
	178	227	232	247*	264	322	338	339	343	408	611	**Cover**	***stancy***
												n=11	
Gutierrezia sarothrae	0.3	0.3	2	3	4	0.3		2	0.3			**1.11**	***73***
Hedeoma drummondii				0.3								**0.03**	***9***
Hymenopappus filifolius					0.3							**0.03**	***9***
Iva axillaris					0.3							**0.03**	***9***
Kuhnia eupatorioides	0.3	0.3				1						**0.15**	***27***
Liatris punctata	0.3					0.3						**0.05**	***18***
Linum lewisii		0.3		0.3	0.3	0.3	0.3	0.3		0.3	0.3	**0.22**	***73***
Lithospermum incisum				0.3						0.3		**0.05**	***18***
Lygodesmia juncea											0.3	**0.03**	***9***
Machaeranthera grindelioides			0.3		0.3							**0.05**	***18***
Mirabilis linearis									0.3			**0.03**	***9***
Musineon divaricatum					0.3	0.3				0.3		**0.08**	***27***
Opuntia polyacantha			0.3	0.3					0.3			**0.08**	***27***
Oxytropis lambertii	0.3	2					3	5	1		3	**1.30**	***55***
Oxytropis sericea		0.3			1						0.3	**0.15**	***27***
Penstemon albidus				0.3								**0.03**	***9***
Phlox hoodii	1				1					0.3		**0.21**	***27***
Polygala alba	0.3		0.3	7	0.3					0.3	0.3	**0.77**	***55***
Psoralea argophylla	20	2	5	5			2	1	2	4	1	**3.82**	***82***
Psoralea esculenta	0.3		0.3	0.3	1	0.3				0.3	0.3	**0.25**	***64***
Ratibida columnifera		2		0.3	0.3			0.3			1	**0.35**	***45***
Senecio canus					0.3					0.3		**0.05**	***18***
Sisyrinchium angustifolium		0.3						0.3			1	**0.15**	***27***
Solidago missouriensis						0.3				0.3	0.3	**0.08**	***27***
Solidago mollis											0.3	**0.03**	***9***
Solidago rigida		0.3									5	**0.48**	***18***
Sphaeralcea coccinea	3		0.3									**0.30**	***18***
Thermopsis rhombifolia								0.3				**0.03**	***9***
Townsendia hookeri			0.3		0.3							**0.05**	***18***
Vicia americana					0.3						0.3	**0.05**	***18***
Viola nuttallii										0.3		**0.03**	***9***
Yucca glauca							1	7	12			**1.82**	***27***
Zigadenus venenosus		0.3		0.3	0.3	0.3		0.3		0.3	0.3	**0.19**	***64***
TOTAL NPF AND SUBSHRUBS	**36.6**	**30.4**	**17.6**	**39.3**	**16.5**	**12.2**	**12.1**	**20.2**	**22.7**	**11.1**	**18.3**	**21.55**	***100***
INTRODUCED PERENNIAL FORBS													
Taraxacum laevigatum	0.3									1		**0.12**	***18***
TOTAL IPF	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**0.0**	**0.12**	***18***

Table B6. Percent Canopy Cover by Class and Species for 11 *ANDROPOGON SCOPARIUS / AGROPYRON SPICATUM* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ANDROPOGON SCOPARIUS / AGROPYRON SPICATUM												
	PLOT NUMBER											**Mean**	***Con-***
	178	227	232	247*	264	322	338	339	343	408	611	**Cover**	***stancy***
												n=11	
FERNS AND ALLIES													
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS													
Arabis holboellii										0.3		**0.03**	***9***
Cryptantha celosioides			0.3		0.3							**0.05**	***18***
Descurainia pinnata	0.3											**0.03**	***9***
Erysimum asperum							0.3					**0.03**	***9***
Hedeoma hispidum											0.3	**0.03**	***9***
Lappula redowskii	0.3											**0.03**	***9***
Linum rigidum	0.3									0.3		**0.05**	***18***
Orthocarpus luteus		0.3										**0.03**	***9***
Phacelia linearis	0.3											**0.03**	***9***
Plantago patagonica		0.3										**0.03**	***9***
TOTAL NAF	**1.2**	**0.6**	**0.3**	**0.0**	**0.3**	**0.0**	**0.3**	**0.0**	**0.0**	**0.6**	**0.3**	**0.33**	***64***
INTRODUCED ANNUAL/BIENNIAL FORBS													
Alyssum alyssoides										0.3		**0.03**	***9***
Alyssum desertorum	0.3	0.3	0.3			0.3		0.3	0.3			**0.16**	***55***
Camelina microcarpa	0.3											**0.03**	***9***
Filago arvensis				0.3								**0.03**	***9***
Lactuca serriola										0.3		**0.03**	***9***
Medicago lupulina				0.3								**0.03**	***9***
Melilotus alba			2									**0.18**	***9***
Melilotus officinalis	1	1	18	0.3		1			26		2	**4.48**	***64***
Sisymbrium loeselii									0.3			**0.03**	***9***
Tragopogon dubius	0.3				0.3				0.3			**0.08**	***27***
TOTAL IAF	**1.9**	**1.3**	**20.3**	**0.9**	**0.3**	**1.3**	**0.0**	**0.3**	**26.9**	**0.6**	**2.0**	**5.07**	***91***
SHRUBS													
Artemisia cana											3	**0.27**	***9***
Artemisia tridentata			2	1	4		1	2			0.3	**0.94**	***55***
Calylophus serrulatus						0.3	0.3	0.3				**0.08**	***27***
Rhus aromatica							0.3		2			**0.21**	***18***
Rosa arkansana							0.3	2	0.3		1	**0.33**	***36***
Symphoricarpos occidentalis						0.3					4	**0.39**	***18***
TOTAL SHRUBS	**0.0**	**0.0**	**2.0**	**1.0**	**4.0**	**0.6**	**1.9**	**4.3**	**2.3**	**0.0**	**8.3**	**2.22**	***73***

Table B6. Percent Canopy Cover by Class and Species for 11 *ANDROPOGON SCOPARIUS / AGROPYRON SPICATUM* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ANDROPOGON SCOPARIUS / AGROPYRON SPICATUM												
	PLOT NUMBER											**Mean**	***Con-***
	178	227	232	247*	264	322	338	339	343	408	611	**Cover**	***stancy***
												n=11	
TREES 0.01-acre													
Juniperus scopulorum		2				2						**0.36**	***18***
Pinus ponderosa						3						**0.27**	***9***
TOTAL TREES 0.01-acre	**0.0**	**2.0**	**0.0**	**0.0**	**0.0**	**5.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.64**	***18***
TREES 0.1-acre													
Juniperus scopulorum		2				1				3		**0.55**	***27***
Pinus ponderosa						2				3		**0.45**	***18***
TOTAL TREES 0.1-acre	**0.0**	**2.0**	**0.0**	**0.0**	**0.0**	**3.0**	**0.0**	**0.0**	**0.0**	**6.0**	**0.0**	**1.00**	***27***
TOTAL VEGETATION (Stratified)	**80.0**	**97.6**	**69.2**	**55.4**	**57.1**	**40.7**	**46.6**	**80.8**	**81.1**	**83.2**	**101.4**	**72.10**	***100***

Footnotes are presented on cover page B-ii.

Table B7. Percent Canopy Cover by Class and Species for Seven *ANDROPOGON SCOPARIUS / BOUTELOUA CURTIPENDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ANDROPOGON SCOPARIUS / BOUTELOUA CURTIPENDULA								
	PLOT NUMBER							**Mean Cover**	***Con-stancy***
	007	011	016	036	060	221	299		
								n=7	
SITE PARAMETERS*									
Slope (percent)	12	22	16	16	6	18	3-7		
Aspect (degrees)	238	216	152	310	030	358	130		
Topography	Mid	Upper-Sho	Mid	Low	Mid	Mid	Low		
Configuration	S	X	V	X	S	U	V(U)		
Photo # (Digital)	425/426	184/185	173	182/183	059/062	206	299		
Investigator	KS/ED	DB	DB	SC	SC	DB/KL	JE		
Date	07/14/11	07/12/11	07/12/11	07/10/11	06/27/11	07/14/11	06/28/11		
GROUND COVER									
Bare Ground	30	36	34	25	55	40	30	**35.71**	***100***
Rock	1	2	1	35	2	18	0.3	**8.47**	***100***
Litter	40	55	58	20	23	35	66	**42.43**	***100***
Lichens	24	1	2	15	17	2	0.3	**8.76**	***100***
Moss		2	0.3		0.3	2	0.3	**0.70**	***71***
Basal Vegetation	5	4	5	5	3	3	3	**4.00**	***100***
VEGETATION STRUCTURE (nonstratified cover)									
Total Vegetation	64	61	67	44	59	56	62	**59.00**	***100***
Perennial Graminoids	50	43	52	34	48	41	38	**43.71**	***100***
Annual Graminoids	3	15	3	2	0.3	0.3	1	**3.51**	***100***
Perennial Forbs and Subshrubs	25	10	13	14	26	14	16	**16.86**	***100***
Annual/Biennial Forbs	4	6	5	2	0.3	4	7	**4.04**	***100***
Shrubs		4	1	1	0.3	5	6	**2.47**	***86***
Trees 0.01-acre								**0.00**	***0***
Trees 0.1-acre							1	**0.14**	***14***

Table B7. Percent Canopy Cover by Class and Species for Seven *ANDROPOGON SCOPARIUS / BOUTELOUA CURTIPENDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ANDROPOGON SCOPARIUS / BOUTELOUA CURTIPENDULA								
	PLOT NUMBER							**Mean Cover**	***Con-stancy***
	007	011	016	036	060	221	299		
								n=7	
CLASS\SPECIES									
NATIVE PERENNIAL GRAMINOIDS (Cool Season)									
Agropyron smithii		4		3	1	0.3	16	**3.47**	***71***
Agropyron spicatum				2	4	6		**1.71**	***43***
Aristida longiseta	0.3	3	2			2		**1.04**	***57***
Carex filifolia	8	6	2	0.3	2	2		**2.90**	***86***
Carex heliophila			2					**0.29**	***14***
Koeleria cristata	3			0.3	0.3	2	2	**1.09**	***71***
Poa sandbergii				0.3	0.3			**0.09**	***29***
Stipa comata	14	7	5	1	3			**4.29**	***71***
Stipa viridula	3						8	**1.57**	***29***
TOTAL NPG(C)	**28.3**	**20.0**	**11.0**	**6.9**	**10.6**	**12.3**	**26.0**	**16.44**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)									
Andropogon gerardii	4							**0.57**	***14***
Andropogon scoparius	1	5	2	22	36	4	7	**11.00**	***100***
Bouteloua curtipendula	12	3	28	4	5	22	4	**11.14**	***100***
Bouteloua gracilis	5	16	10	6		7	2	**6.57**	***86***
Calamovilfa longifolia							2	**0.29**	***14***
Muhlenbergia cuspidata	8	3	5					**2.29**	***43***
TOTAL NPG(W)	**30.0**	**27.0**	**45.0**	**32.0**	**41.0**	**33.0**	**15.0**	**31.86**	***100***
INTRODUCED PERENNIAL GRAMINOIDS									
Poa pratensis					1			**0.14**	***14***
TOTAL IPG	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**0.0**	**0.0**	**0.14**	***14***
NATIVE ANNUAL GRAMINOIDS									
Festuca octoflora		1	0.3					**0.19**	***29***
TOTAL NAG	**0.0**	**1.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.19**	***29***
INTRODUCED ANNUAL GRAMINOIDS									
Bromus japonicus	3	14	3	2	0.3	0.3	1	**3.37**	***100***
Bromus tectorum		1						**0.14**	***14***
TOTAL IAG	**3.0**	**15.0**	**3.0**	**2.0**	**0.3**	**0.3**	**1.0**	**3.51**	***100***

Table B7. Percent Canopy Cover by Class and Species for Seven *ANDROPOGON SCOPARIUS / BOUTELOUA CURTIPENDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ANDROPOGON SCOPARIUS / BOUTELOUA CURTIPENDULA								
	PLOT NUMBER							**Mean**	***Con-***
	007	011	016	036	060	221	299	**Cover**	***stancy***
								n=7	
NATIVE PERENNIAL FORBS AND SUBSHRUBS									
Achillea millefolium				0.3		0.3		**0.09**	***29***
Allium textile					0.3	0.3		**0.09**	***29***
Antennaria dimorpha	0.3							**0.04**	***14***
Antennaria microphylla				0.3	0.3			**0.09**	***29***
Antennaria parvifolia				0.3	0.3			**0.09**	***29***
Artemisia frigida	3	1	1	0.3	1	0.3		**0.94**	***86***
Asclepias viridiflora	0.3							**0.04**	***14***
Aster falcatus	3			2	4	0.3	0.3	**1.37**	***71***
Aster oblongifolius					1	0.3		**0.19**	***29***
Astragalus flexuosus	0.3							**0.04**	***14***
Astragalus gilviflorus						0.3		**0.04**	***14***
Astragalus gracilis			0.3		0.3			**0.09**	***29***
Astragalus lotiflorus		0.3						**0.04**	***14***
Astragalus missouriensis	0.3			0.3		0.3		**0.13**	***43***
Astragalus purshii						0.3		**0.04**	***14***
Calochortus nuttallii	0.3							**0.04**	***14***
Campanula rotundifolia				0.3				**0.04**	***14***
Castilleja sessiliflora				0.3	0.3			**0.09**	***29***
Cerastium arvense				3	5			**1.14**	***29***
Chrysopsis villosa				0.3				**0.04**	***14***
Cirsium undulatum					6	0.3		**0.90**	***29***
Comandra umbellata				0.3			0.3	**0.09**	***29***
Dalea candida	0.3							**0.04**	***14***
Dalea purpurea	0.3				0.3	1		**0.23**	***43***
Echinacea angustifolia	2		2	5	3	1	0.3	**1.90**	***86***
Erigeron pumilus var. pumilus		0.3						**0.04**	***14***
Eriogonum pauciflorum					0.3	0.3		**0.09**	***29***
Erysimum inconspicuum						0.3		**0.04**	***14***
Gaura coccinea	0.3	0.3	0.3		0.3	0.3	0.3	**0.26**	***86***
Gilia congesta var. pseudotypica						0.3		**0.04**	***14***
Gutierrezia sarothrae	3		1	0.3	1	3	12	**2.90**	***86***
Haplopappus spinulosus			0.3					**0.04**	***14***
Hedeoma drummondii						0.3		**0.04**	***14***
Lesquerella alpina					0.3			**0.04**	***14***
Liatris punctata						0.3	0.3	**0.09**	***29***
Linum lewisii					0.3	0.3	0.3	**0.13**	***43***
Lithospermum incisum		1						**0.14**	***14***
Lygodesmia juncea			0.3					**0.04**	***14***
Machaeranthera grindelioides						0.3		**0.04**	***14***

Table B7. Percent Canopy Cover by Class and Species for Seven *ANDROPOGON SCOPARIUS / BOUTELOUA CURTIPENDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ANDROPOGON SCOPARIUS / BOUTELOUA CURTIPENDULA								
	PLOT NUMBER							**Mean Cover**	***Con-stancy***
	007	011	016	036	060	221	299		
								n=7	
Microseris nutans							0.3	**0.04**	***14***
Opuntia polyacantha	0.3	1	0.3	0.3	0.3	0.3	1	**0.50**	***100***
Oxytropis lambertii		0.3		1				**0.19**	***29***
Oxytropis sericea						0.3		**0.04**	***14***
Penstemon albidus	0.3	0.3						**0.09**	***29***
Phlox hoodii			3	0.3		2	0.3	**0.80**	***57***
Polygala alba	2	0.3	0.3		1	1		**0.66**	***71***
Psoralea argophylla	9	6	2	0.3	0.3	1	1	**2.80**	***100***
Psoralea esculenta	0.3			0.3	0.3	0.3		**0.17**	***57***
Ratibida columnifera	0.3	0.3	0.3	0.3	0.3		0.3	**0.26**	***86***
Senecio canus					0.3	0.3		**0.09**	***29***
Solidago missouriensis				0.3		0.3		**0.09**	***29***
Sphaeralcea coccinea	2	0.3	0.3			0.3	0.3	**0.46**	***71***
Zigadenus venenosus					0.3		0.3	**0.09**	***29***
TOTAL NPF AND SUBSHRUBS	**27.6**	**11.4**	**11.4**	**15.8**	**26.8**	**15.9**	**17.3**	**18.03**	***100***
INTRODUCED PERENNIAL FORBS									
Medicago sativa			3					**0.43**	***14***
Taraxacum laevigatum		0.3	0.3		0.3		0.3	**0.17**	***57***
TOTAL IPF	**0.0**	**0.3**	**3.3**	**0.0**	**0.3**	**0.0**	**0.3**	**0.60**	***57***
FERNS AND ALLIES									
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS									
Conyza canadensis		0.3						**0.04**	***14***
Cryptantha celosioides						0.3		**0.04**	***14***
Draba reptans		0.3	0.3					**0.09**	***29***
Erysimum asperum	0.3							**0.04**	***14***
Euphorbia spathulata							0.3	**0.04**	***14***
Grindelia squarrosa							1	**0.14**	***14***
Hedeoma hispidum		1	0.3		0.3		4	**0.80**	***57***
Helianthus annuus				0.3				**0.04**	***14***
Lepidium densiflorum		0.3						**0.04**	***14***
Linum rigidum	0.3	0.3	0.3	0.3				**0.17**	***57***
Oenothera albicaulis		0.3	0.3					**0.09**	***29***
Orthocarpus luteus	0.3	0.3					0.3	**0.13**	***43***
Plantago elongata							0.3	**0.04**	***14***
Plantago patagonica	0.3	2	1	0.3			0.3	**0.56**	***71***
TOTAL NAF	**1.2**	**4.8**	**2.2**	**0.9**	**0.3**	**0.3**	**6.2**	**2.27**	***100***

Table B7. Percent Canopy Cover by Class and Species for Seven *ANDROPOGON SCOPARIUS / BOUTELOUA CURTIPENDULA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ANDROPOGON SCOPARIUS / BOUTELOUA CURTIPENDULA								
	PLOT NUMBER							**Mean Cover**	***Con-stancy***
	007	011	016	036	060	221	299		
								n=7	
INTRODUCED ANNUAL/BIENNIAL FORBS									
Alyssum alyssoides	2	0.3	0.3			0.3		**0.41**	***57***
Alyssum desertorum				0.3	0.3		0.3	**0.13**	***43***
Camelina microcarpa						0.3		**0.04**	***14***
Filago arvensis	0.3	0.3	0.3					**0.13**	***43***
Lactuca serriola		0.3	0.3				0.3	**0.13**	***43***
Melilotus alba			1					**0.14**	***14***
Melilotus officinalis			1	1		3	0.3	**0.76**	***57***
Tragopogon dubius	0.3	0.3	0.3			0.3	0.3	**0.21**	***71***
TOTAL IAF	**2.6**	**1.2**	**3.2**	**1.3**	**0.3**	**3.9**	**1.2**	**1.96**	***100***
SHRUBS									
Artemisia tridentata		3	0.3			0.3	4	**1.09**	***57***
Calylophus serrulatus					0.3			**0.04**	***14***
Ceratoides lanata		1				0.3	2	**0.47**	***43***
Chrysothamnus nauseosus						4		**0.57**	***14***
Rosa arkansana				1		0.3		**0.19**	***29***
Rosa woodsii			0.3					**0.04**	***14***
TOTAL SHRUBS	**0.0**	**4.0**	**0.6**	**1.0**	**0.3**	**4.9**	**6.0**	**2.40**	***86***
TREES 0.01-acre									
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TREES 0.1-acre									
Juniperus scopulorum							1	**0.14**	***14***
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**0.14**	***14***
TOTAL VEGETATION (Stratified)	**92.7**	**84.7**	**80.0**	**59.9**	**80.9**	**70.6**	**73.0**	**77.40**	***100***

Footnotes are presented on cover page B-ii.

Table B8. Percent Canopy Cover by Class and Species for Four *ANDROPOGON SCOPARIUS / CALAMOVILFA LONGIFOLIA* and Five *CALAMOVILFA LONGIFOLIA / STIPA COMATA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ANDROPOGON SCOPARIUS / CALAMOVILFA LONGIFOLIA						***CALAMOVILFA LONGIFOLIA / STIPA COMATA***						
	PLOT NUMBER				**Mean**	***Con-***	**PLOT NUMBER**					**Mean**	***Con-***
	129	145	290	311	**Cover**	***stancy***	116	121	126	180	197	**Cover**	***stancy***
					n=4							**n=5**	
SITE PARAMETERS*													
Slope (percent)	5	15	6	10-20			12-15	13	6-8	9	15		
Aspect (degrees)	300	050	302	224			064	220	016	215	108		
Topography	Low	Mid	Low	Upper-Mid			Upper	Mid	Toe	Sho	Low		
Configuration	U	S(V)	U	U			S	V(S)	U	S	U		
Photo # (Digital)		110	247/248	696/697			235	006/007	032	030/031	932/933		
Investigator	JE	JE/SC	KS	DB/KL			KS	SC	KS/ED	SC	DB/KL		
Date	06/28/11	06/30/11	06/25/11	06/22/11			06/23/11	06/23/11	06/23/11	06/25/11	06/27/11		
GROUND COVER													
Bare Ground		20	20	50	**22.50**	***75***	35	70	10	20	40	**35.00**	***100***
Rock			0.3	1	**0.33**	***50***	0.3				12	**2.46**	***40***
Litter	94	65	54	42	**63.75**	***100***	58	24	83	57	44	**53.20**	***100***
Lichens	0.3		20	4	**6.08**	***75***	2	0.3	3	20		**5.06**	***80***
Moss	0.3	10	1	0.3	**2.90**	***100***		1	0.3	0.3		**0.32**	***60***
Basal Vegetation	6	5	5	3	**4.75**	***100***	5	5	4	3	4	**4.20**	***100***
VEGETATION STRUCTURE (nonstratified cover)													
Total Vegetation	72	82	66	48	**67.00**	***100***	68	60	70	68	65	**66.20**	***100***
Perennial Graminoids	42	68	52	38	**50.00**	***100***	58	50	60	58	53	**55.80**	***100***
Annual Graminoids	0.3		0.3		**0.15**	***50***	0.3	5	2	3	0.3	**2.12**	***100***
Perennial Forbs and Subshrubs	7	19	29	14	**17.25**	***100***	25	16	21	11	13	**17.20**	***100***
Annual/Biennial Forbs	7	0.3	1	1	**2.33**	***100***	1	1	2	1	5	**2.00**	***100***
Shrubs		2	0.3	3	**1.33**	***75***		0.3	5	3	3	**2.26**	***80***
Trees 0.01-acre	23	8			**7.75**	***50***						**0.00**	***0***
Trees 0.1-acre	8	6		0.3	**3.58**	***75***	1					**0.20**	***20***

Table B8. Percent Canopy Cover by Class and Species for Four *ANDROPOGON SCOPARIUS / CALAMOVILFA LONGIFOLIA* and Five *CALAMOVILFA LONGIFOLIA / STIPA COMATA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ANDROPOGON SCOPARIUS / CALAMOVILFA LONGIFOLIA						***CALAMOVILFA LONGIFOLIA / STIPA COMATA***						
	PLOT NUMBER				**Mean**	***Con-***	**PLOT NUMBER**					**Mean**	***Con-***
	129	145	290	311	**Cover**	***stancy***	116	121	126	180	197	**Cover**	***stancy***
					n=4							**n=5**	
CLASS\SPECIES													
NATIVE PERENNIAL GRAMINOIDS (Cool Season)													
Agropyron smithii	0.3				**0.08**	***25***		0.3	8	5	2	**3.06**	***80***
Agropyron spicatum	1		0.3	4	**1.33**	***75***				3	2	**1.00**	***40***
Aristida longiseta			0.3	3	**0.83**	***50***		0.3			2	**0.46**	***40***
Carex filifolia	1	18	8	5	**8.00**	***100***	22	1	12	12	10	**11.40**	***100***
Carex heliophila											2	**0.40**	***20***
Koeleria cristata	3	2	6	4	**3.75**	***100***	3		8	0.3	2	**2.66**	***80***
Poa sandbergii	1	0.3			**0.33**	***50***			3	0.3		**0.66**	***40***
Poa scabrella				2	**0.50**	***25***	0.3					**0.06**	***20***
Stipa comata	4	1	1	2	**2.00**	***100***	16	30	22	42	16	**25.20**	***100***
Stipa viridula	0.3			5	**1.33**	***50***					6	**1.20**	***20***
TOTAL NPG(C)	**10.6**	**21.3**	**15.6**	**25.0**	**18.13**	***100***	**41.3**	**31.6**	**53.0**	**62.6**	**42.0**	**46.10**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)													
Andropogon scoparius	22	45	38	3	**27.00**	***100***	5		2		1	**1.60**	***60***
Bouteloua curtipendula	3	5			**2.00**	***50***					2	**0.40**	***20***
Bouteloua gracilis		0.3			**0.08**	***25***	9	1	4	0.3	2	**3.26**	***100***
Calamovilfa longifolia	6	3	3	8	**5.00**	***100***	14	25	7	5	7	**11.60**	***100***
Muhlenbergia cuspidata	1		3	4	**2.00**	***75***					4	**0.80**	***20***
TOTAL NPG(W)	**32.0**	**53.3**	**44.0**	**15.0**	**36.08**	***100***	**28.0**	**26.0**	**13.0**	**5.3**	**16.0**	**17.66**	***100***
INTRODUCED PERENNIAL GRAMINOIDS													
Poa pratensis	5				**1.25**	***25***	0.3		4			**0.86**	***40***
TOTAL IPG	**5.0**	**0.0**	**0.0**	**0.0**	**1.25**	***25***	**0.3**	**0.0**	**4.0**	**0.0**	**0.0**	**0.86**	***40***
NATIVE ANNUAL GRAMINOIDS													
Festuca octoflora								0.3				**0.06**	***20***
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.06**	***20***
INTRODUCED ANNUAL GRAMINOIDS													
Bromus japonicus	0.3		0.3		**0.15**	***50***	0.3	5	2	3	0.3	**2.12**	***100***
TOTAL IAG	**0.3**	**0.0**	**0.3**	**0.0**	**0.15**	***50***	**0.3**	**5.0**	**2.0**	**3.0**	**0.3**	**2.12**	***100***

Table B8. Percent Canopy Cover by Class and Species for Four *ANDROPOGON SCOPARIUS / CALAMOVILFA LONGIFOLIA* and Five *CALAMOVILFA LONGIFOLIA / STIPA COMATA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ANDROPOGON SCOPARIUS / CALAMOVILFA LONGIFOLIA						***CALAMOVILFA LONGIFOLIA / STIPA COMATA***						
	PLOT NUMBER				**Mean**	***Con-***	**PLOT NUMBER**					**Mean**	***Con-***
	129	145	290	311	**Cover**	***stancy***	116	121	126	180	197	**Cover**	***stancy***
					n=4							**n=5**	
NATIVE PERENNIAL FORBS AND SUBSHRUBS													
Allium textile		0.3		0.3	**0.15**	***50***	0.3		0.3	0.3		**0.18**	***60***
Ambrosia psilostachya	0.3				**0.08**	***25***	1	2	0.3			**0.66**	***60***
Antennaria microphylla				0.3	**0.08**	***25***							
Antennaria parvifolia	0.3	1	1		**0.58**	***75***							
Artemisia campestris		0.3			**0.08**	***25***							
Artemisia dracunculus								7				**1.40**	***20***
Artemisia frigida	0.3	0.3	1		**0.40**	***75***		0.3	0.3	0.3	0.3	**0.24**	***80***
Artemisia ludoviciana	1	0.3			**0.33**	***50***							
Asclepias verticillata							0.3		0.3			**0.12**	***40***
Asclepias viridiflora			0.3		**0.08**	***25***							
Aster falcatus			0.3	0.3	**0.15**	***50***			1	1	1	**0.60**	***60***
Aster oblongifolius		0.3			**0.08**	***25***							
Astragalus adsurgens				0.3	**0.08**	***25***	0.3		0.3			**0.12**	***40***
Astragalus gilviflorus				0.3	**0.08**	***25***							
Astragalus gracilis			0.3		**0.08**	***25***				0.3		**0.06**	***20***
Astragalus lotiflorus							0.3					**0.06**	***20***
Astragalus missouriensis				0.3	**0.08**	***25***			0.3			**0.06**	***20***
Astragalus plattensis							0.3					**0.06**	***20***
Astragalus spatulatus			3	0.3	**0.83**	***50***							
Calochortus nuttallii							0.3	0.3		0.3	0.3	**0.24**	***80***
Campanula rotundifolia	0.3				**0.08**	***25***							
Castilleja sessiliflora		0.3	1		**0.33**	***50***							
Cerastium arvense		0.3			**0.08**	***25***							
Chrysopsis villosa		0.3	1		**0.33**	***50***		1	0.3			**0.26**	***40***
Cirsium undulatum			0.3		**0.08**	***25***	0.3		0.3			**0.12**	***40***
Comandra umbellata				0.3	**0.08**	***25***							
Dalea candida			0.3	1	**0.33**	***50***							
Dalea purpurea	0.3		0.3	0.3	**0.23**	***75***	0.3				0.3	**0.12**	***40***
Echinacea angustifolia	0.3	0.3	0.3		**0.23**	***75***			2		2	**0.80**	***40***
Erigeron pumilus var. pumilus			0.3		**0.08**	***25***							
Evolvulus nuttallianus									0.3	0.3	0.3	**0.18**	***60***
Fritillaria atropurpurea		0.3			**0.08**	***25***							
Gaillardia aristata									2			**0.40**	***20***
Gaura coccinea	1		0.3	0.3	**0.40**	***75***		0.3		2		**0.46**	***40***
Geum triflorum		0.3			**0.08**	***25***							
Gutierrezia sarothrae			2	4	**1.50**	***50***		0.3		0.3	0.3	**0.18**	***60***
Haplopappus spinulosus									0.3			**0.06**	***20***
Hymenopappus filifolius				0.3	**0.08**	***25***							
Lactuca oblongifolia	2				**0.50**	***25***							
Lesquerella alpina		0.3			**0.08**	***25***							

Table B8. Percent Canopy Cover by Class and Species for Four *ANDROPOGON SCOPARIUS / CALAMOVILFA LONGIFOLIA* and Five *CALAMOVILFA LONGIFOLIA / STIPA COMATA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ANDROPOGON SCOPARIUS / CALAMOVILFA LONGIFOLIA						***CALAMOVILFA LONGIFOLIA / STIPA COMATA***						
	PLOT NUMBER				**Mean**	***Con-***	**PLOT NUMBER**					**Mean**	***Con-***
	129	145	290	311	**Cover**	***stancy***	116	121	126	180	197	**Cover**	***stancy***
	n=4						**n=5**						
Liatris punctata							1		2			**0.60**	***40***
Linum lewisii			0.3	0.3	**0.15**	***50***		0.3			0.3	**0.12**	***40***
Lithospermum incisum							3	2	0.3			**1.06**	***60***
Lygodesmia juncea			0.3		**0.08**	***25***			0.3			**0.06**	***20***
Machaeranthera grindelioides				1	**0.25**	***25***							
Mirabilis linearis									0.3			**0.06**	***20***
Musineon divaricatum			0.3	0.3	**0.15**	***50***	0.3					**0.06**	***20***
Opuntia polyacantha		0.3		0.3	**0.15**	***50***	0.3	0.3	0.3			**0.18**	***60***
Oxytropis lambertii	0.3	8	9	0.3	**4.40**	***100***		0.3	2			**0.46**	***40***
Oxytropis sericea				1	**0.25**	***25***							
Penstemon eriantherus				0.3	**0.08**	***25***				0.3		**0.06**	***20***
Phlox hoodii		0.3		0.3	**0.15**	***50***			0.3	1		**0.26**	***40***
Picradeniopsis oppositifolia				0.3	**0.08**	***25***							
Polygala alba	0.3	0.3	3	1	**1.15**	***100***	2		0.3		0.3	**0.52**	***60***
Psoralea argophylla	0.3	3		1	**1.08**	***75***	1	2	5	4	7	**3.80**	***100***
Psoralea esculenta			0.3		**0.08**	***25***							
Ratibida columnifera	0.3				**0.08**	***25***					0.3	**0.06**	***20***
Senecio canus			2		**0.50**	***25***							
Solidago missouriensis								0.3				**0.06**	***20***
Solidago nemoralis			4		**1.00**	***25***							
Solidago rigida		3	1	0.3	**1.08**	***75***							
Sphaeralcea coccinea	0.3				**0.08**	***25***		0.3		0.3	0.3	**0.18**	***60***
Thermopsis rhombifolia				0.3	**0.08**	***25***							
Tradescantia occidentalis							0.3	0.3				**0.12**	***40***
Vicia americana									0.3			**0.06**	***20***
Viola nuttallii							0.3					**0.06**	***20***
Yucca glauca	1				**0.25**	***25***	15					**3.00**	***20***
Zigadenus venenosus			0.3		**0.08**	***25***	0.3			0.3		**0.12**	***40***
TOTAL NPF AND SUBSHRUBS	**8.3**	**19.5**	**32.2**	**15.0**	**18.75**	***100***	**26.9**	**17.0**	**19.1**	**10.7**	**12.7**	**17.28**	***100***
INTRODUCED PERENNIAL FORBS													
Medicago sativa			0.3		**0.08**	***25***							
Taraxacum laevigatum	0.3		0.3		**0.15**	***50***	0.3	0.3	4	1	1	**1.32**	***100***
TOTAL IPF	**0.3**	**0.0**	**0.6**	**0.0**	**0.23**	***50***	**0.3**	**0.3**	**4.0**	**1.0**	**1.0**	**1.32**	***100***
FERNS AND ALLIES													
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***

Table B8. Percent Canopy Cover by Class and Species for Four *ANDROPOGON SCOPARIUS / CALAMOVILFA LONGIFOLIA* and Five *CALAMOVILFA LONGIFOLIA / STIPA COMATA* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ANDROPOGON SCOPARIUS / CALAMOVILFA LONGIFOLIA						***CALAMOVILFA LONGIFOLIA / STIPA COMATA***						
	PLOT NUMBER				**Mean**	***Con-***	**PLOT NUMBER**					**Mean**	***Con-***
	129	145	290	311	**Cover**	***stancy***	116	121	126	180	197	**Cover**	***stancy***
					n=4							**n=5**	
NATIVE ANNUAL/BIENNIAL FORBS													
Androsace occidentalis							0.3					**0.06**	***20***
Arabis hirsuta	0.3				**0.08**	***25***							
Arabis holboellii									0.3			**0.06**	***20***
Collomia linearis										0.3		**0.06**	***20***
Erysimum asperum											0.3	**0.06**	***20***
Hedeoma hispidum								0.3				**0.06**	***20***
Linum rigidum	0.3		0.3		**0.15**	***50***			0.3		0.3	**0.12**	***40***
Orthocarpus luteus											0.3	**0.06**	***20***
Plantago patagonica			0.3		**0.08**	***25***	0.3	0.3	0.3	0.3	0.3	**0.30**	***100***
TOTAL NAF	**0.6**	**0.0**	**0.6**	**0.0**	**0.30**	***50***	**0.6**	**0.6**	**0.9**	**0.6**	**1.2**	**0.78**	***100***
INTRODUCED ANNUAL/BIENNIAL FORBS													
Alyssum alyssoides										0.3		**0.06**	***20***
Alyssum desertorum		0.3		0.3	**0.15**	***50***	0.3	0.3	0.3		0.3	**0.24**	***80***
Camelina microcarpa								0.3		0.3		**0.12**	***40***
Filago arvensis									1			**0.20**	***20***
Melilotus officinalis	7		1	0.3	**2.08**	***75***		0.3			4	**0.86**	***40***
Sisymbrium altissimum							0.3					**0.06**	***20***
Tragopogon dubius	0.3		0.3	0.3	**0.23**	***75***		0.3	0.3	0.3	0.3	**0.24**	***80***
TOTAL IAF	**7.3**	**0.3**	**1.3**	**0.9**	**2.45**	***100***	**0.6**	**1.2**	**1.6**	**0.9**	**4.6**	**1.78**	***100***
SHRUBS													
Artemisia cana								0.3	5			**1.06**	***40***
Artemisia tridentata		2	0.3	3	**1.33**	***75***				3	3	**1.20**	***40***
Calylophus serrulatus			0.3		**0.08**	***25***							
Ceratoides lanata			0.3		**0.08**	***25***							
Rosa arkansana				0.3	**0.08**	***25***							
TOTAL SHRUBS	**0.0**	**2.0**	**0.9**	**3.3**	**1.55**	***75***	**0.0**	**0.3**	**5.0**	**3.0**	**3.0**	**2.26**	***80***
TREES 0.01-acre													
Juniperus scopulorum	23	8			**7.75**	***50***							
TOTAL TREES 0.01-acre	**23.0**	**8.0**	**0.0**	**0.0**	**7.75**	***50***	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TREES 0.1-acre													
Juniperus scopulorum	8	6			**3.50**	***50***							
Pinus ponderosa				0.3	**0.08**	***25***	1					**0.20**	***20***
TOTAL TREES 0.1-acre	**8.0**	**6.0**	**0.0**	**0.3**	**3.58**	***75***	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.20**	***20***
TOTAL VEGETATION (Stratified)	**87.4**	**104.4**	**95.5**	**59.2**	**86.63**	***100***	**98.3**	**82.3**	**102.6**	**87.1**	**80.8**	**90.22**	***100***

Footnotes are presented on cover page B-ii.

Table B9-H. Percent Canopy Cover by Class and Species for 25 HAY CROPLAND (TAME PASTURE) Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	HAY CROPLAND (TAME PASTURE)															
	PLOT NUMBER															
	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560
SITE PARAMETERS*																
Slope (percent)	0-2	0-1	2-3	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1
Aspect (degrees)	000	000	002	000	000	000	000	000	000	000	000	000	000	000	000	000
Topography	High Ter	Low Ter	High Ter	High Ter	Low Ter	Low Ter	Low Ter	Low Ter	Low Ter	Low Ter	Low Ter	Low Ter	Low Ter	Low Ter	Low Ter	Low Ter
Configuration	S	S	S	S	S	S	S(U)	S	S	S	S	S	S	S	S	S
Photo # (Digital)	393	392	389	390	304	301	300	298	296	293	314	315	313	324	334	329
Investigator	KS/ED	KS/ED	KS/ED	KS/ED	KS/ED	KS/ED	KS/ED	KS/ED	KS/ED	KS/ED	KS/ED	KS/ED	KS/ED	KS/ED	KS/ED	KS/ED
Date	07/13/11	07/13/11	07/12/11	07/12/11	07/07/11	07/07/11	07/07/11	07/07/11	06/30/11	06/30/11	07/08/11	07/08/11	07/08/11	07/08/11	07/09/11	07/08/11
GROUND COVER																
Bare Ground	80	30	73	78	44	14	70		54	1	5	13	18	0.3	40	50
Rock																
Litter	14	63	20	16	50	80	24	93	40	94	88	80	75	92	53	43
Lichens																
Moss																
Basal Vegetation	6	7	7	6	6	6	6	7	6	5	7	7	7	8	7	7
VEGETATION STRUCTURE (nonstratified cover)																
Total Vegetation	92	99	96	96	81	92	86	93	92	96	98	99	97	98	96	96
Perennial Graminoids	78	98	92	90	80	88	86	92	88	90	91	92	95	98	95	86
Annual Graminoids	0.3		0.3	1												
Perennial Forbs and Subshrubs	56	31	33	33		14			7	25	48	66	28		0.3	70
Annual/Biennial Forbs	0.3	1	6	8	4		0.3	0.3	2	0.3	0.3	1	5	0.3	8	1
Shrubs														0.3		
Trees 0.01-acre																
Trees 0.1-acre																
CLASS\SPECIES NATIVE PERENNIAL GRAMINOIDS (Cool Season)																
Agropyron dasystachyum var. dasy.					1											
Agropyron smithii					20											
Hordeum jubatum							6								16	
Poa glaucifolia					4											
Poa sandbergii																
Stipa viridula	0.3		0.3	14												
TOTAL NPG(C)	**0.3**	**0.0**	**0.3**	**14.0**	**25.0**	**0.0**	**6.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**16.0**	**0.0**

Table B9-H. Percent Canopy Cover by Class and Species for 25 HAY CROPLAND (TAME PASTURE) Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	HAY CROPLAND (TAME PASTURE)															
	PLOT NUMBER															
	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																
Bouteloua gracilis																
Distichlis stricta																
Spartina pectinata							4									
TOTAL NPG(W)	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**4.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
INTRODUCED PERENNIAL GRAMINOIDS																
Agropyron cristatum	76	12	56	72	70	6		64	34	4	2		3	74	22	4
Agropyron elongatum	5	92	46	26			14	28								
Agropyron intermedium									2				4			65
Agropyron repens							74								64	
Bromus inermis		22	8	0.3	1	78	2		40	88	90	92	92	84	8	24
Elymus junceus					3			6	48		1					
Festuca arundinacea						16										
Phleum pratense						2										
Poa bulbosa																
Poa pratensis	1	1	8	5		8			3					6	18	10
TOTAL IPG	**82.0**	**127.0**	**118.0**	**103.3**	**74.0**	**110.0**	**90.0**	**98.0**	**127.0**	**92.0**	**93.0**	**92.0**	**99.0**	**164.0**	**112.0**	**103.0**
NATIVE ANNUAL GRAMINOIDS																
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
INTRODUCED ANNUAL GRAMINOIDS																
Bromus japonicus	0.3		0.3	0.3												
Bromus tectorum				1												
Setaria viridis				0.3												
TOTAL IAG	**0.3**	**0.0**	**0.3**	**1.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE PERENNIAL FORBS AND SUBSHRUBS																
Aster pansus						2										
Gaura coccinea									0.3							
Sphaeralcea coccinea																
Verbena bracteata			0.3													
Vicia americana	0.3															
TOTAL NPF AND SUBSHRUBS	**0.3**	**0.0**	**0.3**	**0.0**	**0.0**	**2.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Table B9-H. Percent Canopy Cover by Class and Species for 25 HAY CROPLAND (TAME PASTURE) Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	HAY CROPLAND (TAME PASTURE)															
	PLOT NUMBER															
	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560
INTRODUCED PERENNIAL FORBS																
Cirsium arvense		15				8							0.3			0.3
Medicago sativa	55	16	32	34		0.3			5	24	48	66	26			58
Rumex crispus																
Rumex patienta															0.3	
Taraxacum laevigatum	1	1	2	2					2			2	4		0.3	22
Taraxacum officinale						4				1						
TOTAL IPF	**56.0**	**32.0**	**34.0**	**36.0**	**0.0**	**12.3**	**0.0**	**0.0**	**7.0**	**25.0**	**48.0**	**68.0**	**30.3**	**0.0**	**0.6**	**80.3**
FERNS AND ALLIES																
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS																
Ambrosia trifida																
Chenopodium rubrum																
Descurainia pinnata													0.3			
Helianthus annuus				0.3												
Iva xanthifolia																
Lappula redowskii									0.3							
Plantago patagonica																
Polygonum ramosissimum																
Polygonum sawatchense															4	
TOTAL NAF	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**4.0**	**0.0**
INTRODUCED ANNUAL/BIENNIAL FORBS																
Alyssum alyssoides												0.3	4			
Alyssum desertorum									0.3	0.3	0.3					0.3
Atriplex heterosperma					4		0.3								3	
Camelina microcarpa			0.3	1					0.3	0.3		0.3	0.3			
Capsella bursa-pastoris																
Chenopodium album							0.3									
Descurainia sophia																
Filago arvensis								0.3			0.3					
Kochia scoparia															0.3	
Lactuca serriola		0.3			0.3			0.3	0.3			0.3	0.3			
Lepidium perfoliatum																
Medicago lupulina																

Table B9-H. Percent Canopy Cover by Class and Species for 25 HAY CROPLAND (TAME PASTURE) Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	HAY CROPLAND (TAME PASTURE)															
	PLOT NUMBER															
	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560
Melilotus officinalis	0.3	0.3	1	4				0.3	0.3	0.3						
Polygonum convolvulus			1	0.3										0.3		
Sisymbrium loeselii		0.3	1	0.3												
Sonchus asper															0.3	
Thlaspi arvense			3	0.3					0.3			0.3		0.3	0.3	1
Tragopogon dubius	0.3		0.3	2					1		0.3	0.3	0.3			
TOTAL IAF	**0.6**	**0.9**	**6.6**	**7.9**	**4.3**	**0.0**	**0.6**	**0.9**	**2.5**	**0.9**	**0.9**	**1.5**	**4.9**	**0.6**	**3.9**	**1.3**
SHRUBS																
Artemisia cana														0.3		
Atriplex nuttallii																
TOTAL SHRUBS	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**
TREES 0.01-acre																
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TREES 0.1-acre																
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TOTAL VEGETATION (Stratified)	**139.5**	**159.9**	**159.5**	**163.1**	**103.3**	**124.3**	**100.6**	**98.9**	**137.1**	**117.9**	**141.9**	**161.5**	**134.5**	**164.9**	**136.5**	**184.6**

Footnotes are presented on cover page B-ii.

Table B9-H. Percent Canopy Cover by Class and Species for 25 HAY CROPLAND (TAME PASTURE) Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	HAY CROPLAND (TAME PASTURE)										
	PLOT NUMBER										
	561	562	564	565	566	567	568	660	661	Mean Cover	*Con-stancy*
										n=25	
SITE PARAMETERS*											
Slope (percent)	0-1	0-1	6-7	0-1	6	0-1	2-3	2-3	0-1		
Aspect (degrees)	000	000	234	000	292	000	160	060	000		
Topography	Low Ter	Low Ter	Low	Low Ter	Toe	Low Ter	Low-Toe	Bot-Swa	Low Ter		
Configuration	S	S	V/S	S	U	S	S-V	V(S)	S		
Photo # (Digital)	336	337	341	343	344	342	260	327	326		
Investigator	KS/ED	KS/ED	KS/ED	KS/ED	KS/ED	KS/ED	KS/ED	KS/ED	KS/ED		
Date	07/09/11	07/09/11	07/09/11	07/09/11	07/09/11	07/09/11	06/27/11	07/08/11	07/08/11		
GROUND COVER											
Bare Ground	60	63	36	34	50	44		4	70	**37.25**	***92***
Rock			0.3		0.3					**0.02**	***8***
Litter	34	30	50	60	40	50	93	88	25	**55.80**	***100***
Lichens			8		5					**0.52**	***8***
Moss			0.3							**0.01**	***4***
Basal Vegetation	6	7	6	6	5	6	7	8	5	**6.44**	***100***
VEGETATION STRUCTURE (nonstratified cover)											
Total Vegetation	92	96	92	100	84	99	85	99	96	**94.00**	***100***
Perennial Graminoids	88	82	84	18	74	32	68	97	8	**79.60**	***100***
Annual Graminoids							3			**0.18**	***16***
Perennial Forbs and Subshrubs	14	78	12	98	22	95	45	26	91	**35.69**	***84***
Annual/Biennial Forbs	15	0.3	64	1	28	2	12	2	20	**7.28**	***96***
Shrubs					0.3					**0.02**	***8***
Trees 0.01-acre											
Trees 0.1-acre											
CLASS\SPECIES											
NATIVE PERENNIAL GRAMINOIDS (Cool Season)											
Agropyron dasystachyum var. dasy.										**0.04**	***4***
Agropyron smithii		0.3					30			**2.01**	***12***
Hordeum jubatum	14									**1.44**	***12***
Poa glaucifolia										**0.16**	***4***
Poa sandbergii			0.3							**0.01**	***4***
Stipa viridula		1								**0.62**	***16***
TOTAL NPG(C)	**14.0**	**1.3**	**0.3**	**0.0**	**0.0**	**0.0**	**30.0**	**0.0**	**0.0**	**4.29**	***40***

Table B9-H. Percent Canopy Cover by Class and Species for 25 HAY CROPLAND (TAME PASTURE) Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	HAY CROPLAND (TAME PASTURE)										
	PLOT NUMBER										
	561	562	564	565	566	567	568	660	661	Mean Cover	*Con-stancy*
										n=25	
NATIVE PERENNIAL GRAMINOIDS (Warm Season)											
Bouteloua gracilis			0.3							0.01	*4*
Distichlis stricta			16		4					0.80	*8*
Spartina pectinata										0.16	*4*
TOTAL NPG(W)	**0.0**	**0.0**	**16.3**	**0.0**	**4.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.97**	***12***
INTRODUCED PERENNIAL GRAMINOIDS											
Agropyron cristatum	68	5	72	14	72	20	38			31.52	*84*
Agropyron elongatum										8.44	*24*
Agropyron intermedium										2.84	*12*
Agropyron repens										5.52	*8*
Bromus inermis		58					0.3	97	8	31.70	*72*
Elymus junceus										2.32	*16*
Festuca arundinacea										0.64	*4*
Phleum pratense							0.3			0.09	*8*
Poa bulbosa							1			0.04	*4*
Poa pratensis	28	42		4		14	5			6.12	*56*
TOTAL IPG	**96.0**	**105.0**	**72.0**	**18.0**	**72.0**	**34.0**	**44.6**	**97.0**	**8.0**	**89.24**	***100***
NATIVE ANNUAL GRAMINOIDS											
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS											
Bromus japonicus										0.04	*12*
Bromus tectorum							3			0.16	*8*
Setaria viridis										0.01	*4*
TOTAL IAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**3.0**	**0.0**	**0.0**	**0.21**	***16***
NATIVE PERENNIAL FORBS AND SUBSHRUBS											
Aster pansus										0.08	*4*
Gaura coccinea										0.01	*4*
Sphaeralcea coccinea					0.3					0.01	*4*
Verbena bracteata										0.01	*4*
Vicia americana							0.3			0.02	*8*
TOTAL NPF AND SUBSHRUBS	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.3**	**0.0**	**0.0**	**0.14**	***24***

Table B9-H. Percent Canopy Cover by Class and Species for 25 HAY CROPLAND (TAME PASTURE) Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	HAY CROPLAND (TAME PASTURE)										
	PLOT NUMBER										
	561	562	564	565	566	567	568	660	661	Mean Cover	*Con-stancy*
										n=25	
INTRODUCED PERENNIAL FORBS											
Cirsium arvense		28								2.06	*20*
Medicago sativa	6	54	10	98	22	94	32	24	88	31.69	*80*
Rumex crispus						1				0.04	*4*
Rumex patienta	0.3								6	0.26	*12*
Taraxacum laevigatum	8		2	2	0.3	4	16	3		2.86	*64*
Taraxacum officinale		8		2			2			0.68	*20*
TOTAL IPF	**14.3**	**90.0**	**12.0**	**102.0**	**22.3**	**99.0**	**50.0**	**27.0**	**94.0**	37.60	*84*
FERNS AND ALLIES											
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	0.00	*0*
NATIVE ANNUAL/BIENNIAL FORBS											
Ambrosia trifida								0.3		0.01	*4*
Chenopodium rubrum							2			0.08	*4*
Descurainia pinnata										0.01	*4*
Helianthus annuus										0.01	*4*
Iva xanthifolia							1			0.04	*4*
Lappula redowskii										0.01	*4*
Plantago patagonica			0.3							0.01	*4*
Polygonum ramosissimum	0.3									0.01	*4*
Polygonum sawatchense				0.3		0.3	0.3			0.20	*16*
TOTAL NAF	**0.3**	**0.0**	**0.3**	**0.3**	**0.0**	**0.3**	**3.3**	**0.3**	**0.0**	0.39	*40*
INTRODUCED ANNUAL/BIENNIAL FORBS											
Alyssum alyssoides						0.3				0.18	*12*
Alyssum desertorum			0.3		0.3					0.07	*24*
Atriplex heterosperma	12			0.3	1					0.82	*24*
Camelina microcarpa								0.3		0.11	*28*
Capsella bursa-pastoris							1			0.04	*4*
Chenopodium album							0.3			0.02	*8*
Descurainia sophia							0.3			0.01	*4*
Filago arvensis			2		0.3					0.12	*16*
Kochia scoparia	4						0.3			0.18	*12*
Lactuca serriola	0.3		0.3	0.3			1			0.15	*40*
Lepidium perfoliatum					0.3		0.3			0.02	*8*
Medicago lupulina								0.3		0.01	*4*

Table B9-H. Percent Canopy Cover by Class and Species for 25 HAY CROPLAND (TAME PASTURE) Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	HAY CROPLAND (TAME PASTURE)										
	PLOT NUMBER										
	561	562	564	565	566	567	568	660	661	Mean Cover	*Con-stancy*
										n=25	
Melilotus officinalis		0.3	65		26	0.3		0.3		3.94	*48*
Polygonum convolvulus										0.06	*12*
Sisymbrium loeselii							1		14	0.66	*20*
Sonchus asper										0.01	*4*
Thlaspi arvense				1	0.3	1	4	0.3	6	0.72	*52*
Tragopogon dubius			3		0.3	1	1	0.3	0.3	0.42	*52*
TOTAL IAF	**16.3**	**0.3**	**70.6**	**1.6**	**28.5**	**2.6**	**9.2**	**1.5**	**20.3**	7.57	*96*
SHRUBS											
Artemisia cana										0.01	*4*
Atriplex nuttallii					0.3					0.01	*4*
TOTAL SHRUBS	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	0.02	*8*
TREES 0.01-acre											
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	0.00	*0*
TREES 0.1-acre											
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	0.00	*0*
TOTAL VEGETATION (Stratified)	**140.9**	**196.6**	**171.5**	**121.9**	**127.4**	**135.9**	**140.4**	**125.8**	**122.3**	140.43	*100*

Footnotes are presented on cover page B-ii.

Table B9-P. Percent Canopy Cover by Class and Species for 18 PASTURELAND (TAME PASTURE) Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PASTURELAND (TAME PASTURE)										
	PLOT NUMBER										
	006	022	023	033*	035*	040*	056*	169	174	176	204
SITE PARAMETERS*											
Slope (percent)	12-15	6-10	3-8	2-3	1	3-4	4	11	5	4	1
Aspect (degrees)	344	328	090	040	020	345	260	350	210	274	000
Topography	Mid-Fan	Mid-Fan	Toe	Low-Ben	Low-Ben	Low-Ben	Low	Low	Mid	Low	Ben
Configuration	S(V)	S(V)	S	S	S(V)	S	V	S	V	S	X
Photo # (Digital)	398	407	402	217	220	186/187	144/145	002	021	022	261/262
Investigator	KS/ED	KS/ED	KS/ED	JE/SC	JE/SC	SC	SC	KS/PL	PL	PL	KS
Date	07/13/11	07/13/11	07/13/11	07/12/11	07/12/11	07/10/11	07/08/11	06/22/11	06/25/11	06/26/11	06/27/11
GROUND COVER											
Bare Ground	18	2	2	60	50	95	78	0.3	2	8	
Rock										3	
Litter	74	93	93	38	23	3	18	97	92	78	93
Lichens	3				25	0.3	1		1	5	
Moss										2	
Basal Vegetation	5	5	5	2	2	2	3	3	5	4	7
VEGETATION STRUCTURE (nonstratified cover)											
Total Vegetation	74	94	80	42	60	50	80	70	77	72	92
Perennial Graminoids	62	48	72	30	46	35	74	66	72	67	73
Annual Graminoids	0.3	0.3	0.3	2		3	1		0.3	0.3	24
Perennial Forbs and Subshrubs	17	20	4	15	5	12	3	2	2	8	24
Annual/Biennial Forbs	32	82	4	3	18	4	4		13	1	21
Shrubs	4	2	23				2	6			
Trees 0.01-acre											
Trees 0.1-acre											
CLASS\SPECIES											
NATIVE PERENNIAL GRAMINOIDS (Cool Season)											
Agropyron smithii			0.3	10	8	0.3	12			5	1
Aristida longiseta						0.3					
Carex filifolia							5				
Koeleria cristata								0.3		1	
Poa juncifolia											
Poa sandbergii						0.3				0.3	
Stipa comata							4				
Stipa viridula			0.3							2	
TOTAL NPG(C)	**0.0**	**0.0**	**0.6**	**10.0**	**8.0**	**0.9**	**21.0**	**0.3**	**0.0**	**8.3**	**1.0**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)											
Bouteloua gracilis	0.3					0.3	10				
TOTAL NPG(W)	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**10.0**	**0.0**	**0.0**	**0.0**	**0.0**
INTRODUCED PERENNIAL GRAMINOIDS											
Agropyron cristatum	62	48	72	20	40	35	55	4	72	64	72
Agropyron repens											
Bromus inermis								48			
Phleum pratense											
Poa bulbosa											1
Poa compressa											
Poa pratensis								26			
TOTAL IPG	**62.0**	**48.0**	**72.0**	**20.0**	**40.0**	**35.0**	**55.0**	**78.0**	**72.0**	**64.0**	**73.0**
NATIVE ANNUAL GRAMINOIDS											
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Table B9-P. Percent Canopy Cover by Class and Species for 18 PASTURELAND (TAME PASTURE) Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PASTURELAND (TAME PASTURE)										
	PLOT NUMBER										
	006	022	023	033*	035*	040*	056*	169	174	176	204
INTRODUCED ANNUAL GRAMINOIDS											
Bromus japonicus	0.3	0.3	0.3	2		1	1		0.3	0.3	
Bromus tectorum						2					24
TOTAL IAG	**0.3**	**0.3**	**0.3**	**2.0**	**0.0**	**3.0**	**1.0**	**0.0**	**0.3**	**0.3**	**24.0**
NATIVE PERENNIAL FORBS AND SUBSHRUBS											
Achillea millefolium			1				0.3	1			
Artemisia frigida					0.3			0.3			
Artemisia ludoviciana											2
Aster falcatus						3					
Astragalus agrestis								0.3			
Astragalus drummondii			0.3							3	
Astragalus lotiflorus							0.3				
Astragalus purshii						0.3					
Cerastium arvense								0.3			
Echinacea angustifolia											
Gaura coccinea						0.3					
Gutierrezia sarothrae		1									
Linum lewisii								0.3			
Opuntia polyacantha	0.3			0.3	3						
Picradeniopsis oppositifolia						5					
Polygala alba	0.3	0.3					0.3				
Psoralea argophylla											
Psoralea esculenta								0.3			
Ratibida columnifera	0.3	0.3			0.3		0.3				
Sphaeralcea coccinea	2	0.3	0.3	0.3	2	0.3	0.3			3	
Vicia americana										0.3	
TOTAL NPF AND SUBSHRUBS	**2.9**	**1.9**	**1.6**	**0.6**	**5.6**	**8.9**	**1.5**	**2.5**	**0.0**	**6.3**	**2.0**
INTRODUCED PERENNIAL FORBS											
Cirsium arvense											
Medicago sativa	12	18				3					
Rumex crispus											
Taraxacum laevigatum	3		3	15		1	2	0.3	2	2	22
Taraxacum officinale											
TOTAL IPF	**15.0**	**18.0**	**3.0**	**15.0**	**0.0**	**4.0**	**2.0**	**0.3**	**2.0**	**2.0**	**22.0**
FERNS AND ALLIES											
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS											
Chenopodium rubrum											1
Conyza canadensis											
Dyssodia papposa						0.3					
Erysimum asperum				0.3							
Hedeoma hispidum			0.3		0.3						
Helianthus annuus					0.3		0.3				
Helianthus petiolaris	0.3										
Iva xanthifolia											
Lappula redowskii									0.3		
Linum rigidum						0.3	0.3				
Orthocarpus luteus	0.3	0.3	0.3								
Phacelia linearis									0.3		
Plantago elongata				0.3	0.3						
Plantago patagonica	0.3			0.3	0.3		0.3				
Polygonum arenastrum				0.3							
TOTAL NAF	**0.9**	**0.3**	**0.6**	**1.2**	**1.2**	**0.6**	**0.9**	**0.0**	**0.6**	**0.0**	**1.0**

Table B9-P. Percent Canopy Cover by Class and Species for 18 PASTURELAND (TAME PASTURE) Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PASTURELAND (TAME PASTURE)										
	PLOT NUMBER										
	006	022	023	033*	035*	040*	056*	169	174	176	204
INTRODUCED ANNUAL/BIENNIAL FORBS											
Alyssum desertorum				0.3			0.3		0.3	0.3	
Camelina microcarpa									1	0.3	0.3
Capsella bursa-pastoris											
Chorispora tenella											1
Descurainia sophia											3
Filago arvensis			2	2	3		1		0.3	0.3	
Lactuca serriola							0.3				0.3
Lepidium perfoliatum											0.3
Medicago lupulina						2					
Melilotus alba	1										
Melilotus officinalis	30	82			15	1	2		12		0.3
Sisymbrium altissimum											
Sisymbrium loeselii									0.3		2
Thlaspi arvense			1								15
Tragopogon dubius	0.3	1	0.3	0.3		0.3	0.3		0.3	0.3	0.3
TOTAL IAF	**31.3**	**83.0**	**3.3**	**2.6**	**18.0**	**3.3**	**3.9**	**0.0**	**14.2**	**1.2**	**22.5**
SHRUBS											
Artemisia cana			12								
Artemisia tridentata			11					6			
Atriplex nuttallii	4	2									
Ceratoides lanata							2				
Rosa arkansana											
Rosa woodsii											
Symphoricarpos occidentalis											
TOTAL SHRUBS	**4.0**	**2.0**	**23.0**	**0.0**	**0.0**	**0.0**	**2.0**	**6.0**	**0.0**	**0.0**	**0.0**
TREES 0.01-acre											
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TREES 0.1-acre											
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TOTAL VEGETATION (Stratified)	**116.7**	**153.5**	**104.4**	**51.4**	**72.8**	**56.0**	**97.3**	**87.1**	**89.1**	**82.1**	**145.5**

Footnotes are presented on cover page B-ii.

Table B9-P.

Percent Canopy Cover by Class and Species for 18 PASTURELAND (TAME PASTURE) Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PASTURELAND (TAME PASTURE)								
	PLOT NUMBER							Mean Cover	*Con-stancy*
	563	573	576	578	581	582	655	n=18	
SITE PARAMETERS*									
Slope (percent)	0-1	1	2	1	1-3	1-3	0-1		
Aspect (degrees)	000	285	200	234	260	006	280		
Topography	Ter	Bot	Bot-Swa	Toe-Bot	Bot	Bot	Bot		
Configuration	S(V)	V(S)	V(S)	V(S)	V	V(S)	V(S)		
Photo # (Digital)	154/155	001	041/042	023	874	263/264	031		
Investigator	SC	KS/PL	SC	PL	DB/KL	KS	PL		
Date	07/09/11	06/22/11	06/25/11	06/26/11	06/26/11	06/27/11	06/27/11		
GROUND COVER									
Bare Ground	5	8	0.3	2	25		72	**23.76**	***89***
Rock					0.3			**0.18**	***11***
Litter	92	86	95	93	70	93	26	**69.83**	***100***
Lichens				3				**2.13**	***39***
Moss				0.3				**0.13**	***11***
Basal Vegetation	3	6	5	2	5	7	2	**4.06**	***100***
VEGETATION STRUCTURE (nonstratified cover)									
Total Vegetation	100	96	93	73	90	94	93	**79.44**	***100***
Perennial Graminoids	98	60	82	65	55	86	70	**64.50**	***100***
Annual Graminoids	2		0.3	1	45	0.3		**4.45**	***78***
Perennial Forbs and Subshrubs	10	87	17	6	11	27	12	**15.67**	***100***
Annual/Biennial Forbs	80		8	0.3	11	0.3	30	**17.31**	***89***
Shrubs			4	5	3	31	0.3	**4.46**	***56***
Trees 0.01-acre									
Trees 0.1-acre									
CLASS\SPECIES									
NATIVE PERENNIAL GRAMINOIDS (Cool Season)									
Agropyron smithii	45	2	16	29	5	7	23	**9.09**	***78***
Aristida longiseta								**0.02**	***6***
Carex filifolia								**0.28**	***6***
Koeleria cristata				3				**0.24**	***17***
Poa juncifolia	2							**0.11**	***6***
Poa sandbergii								**0.03**	***11***
Stipa comata								**0.22**	***6***
Stipa viridula	10	2	3	3		0.3	2	**1.26**	***44***
TOTAL NPG(C)	**57.0**	**4.0**	**19.0**	**35.0**	**5.0**	**7.3**	**25.0**	**11.24**	***83***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)									
Bouteloua gracilis								**0.59**	***17***
TOTAL NPG(W)	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.59**	***17***
INTRODUCED PERENNIAL GRAMINOIDS									
Agropyron cristatum	45	4	72	28	3	82	40	**45.44**	***100***
Agropyron repens					10			**0.56**	***6***
Bromus inermis		15			4	3	3	**4.06**	***28***
Phleum pratense		1						**0.06**	***6***
Poa bulbosa						1		**0.11**	***11***
Poa compressa				0.3	6			**0.35**	***11***
Poa pratensis	16	40	1	8	32		4	**7.06**	***39***
TOTAL IPG	**61.0**	**60.0**	**73.0**	**36.3**	**55.0**	**86.0**	**47.0**	**57.63**	***100***
NATIVE ANNUAL GRAMINOIDS									
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***

Table B9-P. Percent Canopy Cover by Class and Species for 18 PASTURELAND (TAME PASTURE) Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PASTURELAND (TAME PASTURE)								
	PLOT NUMBER							Mean Cover	*Con-stancy*
	563	573	576	578	581	582	655	n=18	
INTRODUCED ANNUAL GRAMINOIDS									
Bromus japonicus	2		0.3	1	45	0.3		**3.01**	***72***
Bromus tectorum								**1.44**	***11***
TOTAL IAG	**2.0**	**0.0**	**0.3**	**1.0**	**45.0**	**0.3**	**0.0**	**4.45**	***78***
NATIVE PERENNIAL FORBS AND SUBSHRUBS									
Achillea millefolium	4	0.3		1	1			**0.48**	***39***
Artemisia frigida								**0.03**	***11***
Artemisia ludoviciana			1	0.3	1			**0.24**	***22***
Aster falcatus	2		1					**0.33**	***17***
Astragalus agrestis								**0.02**	***6***
Astragalus drummondii								**0.18**	***11***
Astragalus lotiflorus								**0.02**	***6***
Astragalus purshii								**0.02**	***6***
Cerastium arvense								**0.02**	***6***
Echinacea angustifolia			2					**0.11**	***6***
Gaura coccinea			0.3	0.3				**0.05**	***17***
Gutierrezia sarothrae								**0.06**	***6***
Linum lewisii								**0.02**	***6***
Opuntia polyacantha								**0.20**	***17***
Picradeniopsis oppositifolia								**0.28**	***6***
Polygala alba								**0.05**	***17***
Psoralea argophylla			0.3	0.3				**0.03**	***11***
Psoralea esculenta								**0.02**	***6***
Ratibida columnifera			0.3	0.3				**0.10**	***33***
Sphaeralcea coccinea				1	0.3			**0.54**	***56***
Vicia americana			2	3				**0.29**	***17***
TOTAL NPF AND SUBSHRUBS	**6.0**	**0.3**	**6.9**	**6.2**	**2.3**	**0.0**	**0.0**	**3.08**	***83***
INTRODUCED PERENNIAL FORBS									
Cirsium arvense		0.3			6			**0.35**	***11***
Medicago sativa	3	82				1		**6.61**	***33***
Rumex crispus					0.3			**0.02**	***6***
Taraxacum laevigatum	1	10	11	1	3	26	12	**6.35**	***89***
Taraxacum officinale						0.3		**0.02**	***6***
TOTAL IPF	**4.0**	**92.3**	**11.0**	**1.0**	**9.3**	**27.3**	**12.0**	**13.34**	***94***
FERNS AND ALLIES									
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS									
Chenopodium rubrum								**0.06**	***6***
Conyza canadensis			0.3					**0.02**	***6***
Dyssodia papposa								**0.02**	***6***
Erysimum asperum								**0.02**	***6***
Hedeoma hispidum								**0.03**	***11***
Helianthus annuus								**0.03**	***11***
Helianthus petiolaris								**0.02**	***6***
Iva xanthifolia					5			**0.28**	***6***
Lappula redowskii								**0.02**	***6***
Linum rigidum								**0.03**	***11***
Orthocarpus luteus								**0.05**	***17***
Phacelia linearis								**0.02**	***6***
Plantago elongata								**0.03**	***11***
Plantago patagonica								**0.07**	***22***
Polygonum arenastrum								**0.02**	***6***
TOTAL NAF	**0.0**	**0.0**	**0.3**	**0.0**	**5.0**	**0.0**	**0.0**	**0.70**	***61***

Table B9-P.

Percent Canopy Cover by Class and Species for 18 PASTURELAND (TAME PASTURE) Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PASTURELAND (TAME PASTURE)								
	PLOT NUMBER							Mean Cover	*Con-stancy*
	563	573	576	578	581	582	655	n=18	
INTRODUCED ANNUAL/BIENNIAL FORBS									
Alyssum desertorum				0.3				**0.08**	***28***
Camelina microcarpa								**0.09**	***17***
Capsella bursa-pastoris					1			**0.06**	***6***
Chorispora tenella								**0.06**	***6***
Descurainia sophia								**0.17**	***6***
Filago arvensis								**0.48**	***33***
Lactuca serriola					0.3			**0.05**	***17***
Lepidium perfoliatum								**0.02**	***6***
Medicago lupulina			8					**0.56**	***11***
Melilotus alba								**0.06**	***6***
Melilotus officinalis	80				0.3		30	**14.03**	***56***
Sisymbrium altissimum					0.3			**0.02**	***6***
Sisymbrium loeselii					0.3			**0.14**	***17***
Thlaspi arvense					4	0.3		**1.13**	***22***
Tragopogon dubius	1							**0.24**	***56***
TOTAL IAF	**81.0**	**0.0**	**8.0**	**0.3**	**6.2**	**0.3**	**30.0**	**17.17**	***89***
SHRUBS									
Artemisia cana			4	2	0.3	30	0.3	**2.70**	***33***
Artemisia tridentata				3				**1.11**	***17***
Atriplex nuttallii								**0.33**	***11***
Ceratoides lanata								**0.11**	***6***
Rosa arkansana				0.3				**0.02**	***6***
Rosa woodsii					0.3			**0.02**	***6***
Symphoricarpos occidentalis					2	1		**0.17**	***11***
TOTAL SHRUBS	**0.0**	**0.0**	**4.0**	**5.3**	**2.6**	**31.0**	**0.3**	**4.46**	***56***
TREES 0.01-acre									
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TREES 0.1-acre									
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TOTAL VEGETATION (Stratified)	**211.0**	**156.6**	**122.5**	**85.1**	**130.4**	**152.2**	**114.3**	**112.67**	***100***

Footnotes are presented on cover page B-ii.

Table B10. Percent Canopy Cover by Class and Species for 45 *ARTEMISIA CANA/AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA CANA/AGROPYRON SMITHII															
	PLOT NUMBER															
	044	045	046	064	070	119	148	230	259	571	572	574	579	580	583	584
SITE PARAMETERS*																
Slope (percent)	0-2	0-2	1-3	12-15	3	11-12	8	20-22	2-3	3	1-2	2	6	4	4-5	1
Aspect (degrees)	000	000	320	040	220	275	036	150	230	175	270	250	174	147	076	140
Topography	Low Ter	Low Ter	Swa-Toe	Upper	Low-Ben	Upper-Mid	Toe	Mid-Bnk	Bot-Toe	Bot	Bot	Bot-Swa	Bot-Ter	Bot	Bot-Ter	Bot
Configuration	S(V)	S(V)	V	V(U)	S	V	V	U	V	V	V(S)	V(S)	V	V	V(S)	V
Photo # (Digital)	502/503	504	506	066	133/134	008/009	991	384/385	117/118	043	035/036	025	790/791	854	048	584
Investigator	KS	KS	KS	ED	SC	SC	DB/KL	ED	SC	SC	SC	SC	DB/KL	DB/KL	ED	JE
Date	08/20/11	08/20/11	08/20/11	06/30/11	07/08/11	06/23/11	06/29/11	07/12/11	07/07/11	06/26/11	06/25/11	06/25/11	06/25/11	06/25/11	06/27/11	06/25/11
GROUND COVER																
Bare Ground	44	25	3	52	4	40	33	56	55	2	85	1	20	24	30	
Rock	0.3		0.3	0.3				5					1	0.3		
Litter	50	70	92	42	91	36	60	35	41	94	12	94	70	70	64	93
Lichens	2	0.3		0.3	0.3	20	2	0.3		0.3		0.3	2		0.3	
Moss				0.3	0.3	0.3	0.3					0.3	1			
Basal Vegetation	4	5	5	5	5	4	5	4	4	4	3	5	6	6	6	7
VEGETATION STRUCTURE (nonstratified cover)																
Total Vegetation	90	92	95	96	96	70	83	70	76	97	80	90	87	84	78	94
Perennial Graminoids	78	86	62	30	86	30	52	30	60	92	75	60	46	63	40	36
Annual Graminoids	0.3	0.3	16	54	2	24	0.3	16	0.3	5	0.3	2	12	3	20	
Perennial Forbs and Subshrubs	5	0.3	8	5	12	10	12	14	3	12	4	16	6	14	11	6
Annual/Biennial Forbs	5		76	68	0.3	1	5	26	3	0.3	12	1	3	8	35	7
Shrubs	28	26	15	23	28	12	38	6	26	9	20	40	43	16	7	80
Trees 0.01-acre							2									
Trees 0.1-acre							6				5					

Table B10. Percent Canopy Cover by Class and Species for 45 *ARTEMISIA CANA/AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA CANA/AGROPYRON SMITHII															
	PLOT NUMBER															
	044	045	046	064	070	119	148	230	259	571	572	574	579	580	583	584
CLASS\SPECIES																
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																
Agropyron smithii	16	32	14	7	60	8	10	5	58	45	60	50	44	50	22	20
Agropyron spicatum						0.3	1						0.3			
Aristida longiseta							2	2								
Carex filifolia							3									
Carex heliophila																
Hordeum jubatum																
Koeleria cristata				3			8		0.3			0.3	3	1	0.3	0.3
Poa sandbergii						0.3						0.3				
Poa scabrella				1									1		1	
Scirpus maritimus																
Stipa comata			9	12		24	12	6				1		2	3	
Stipa viridula	2	4	18		45		14	10	4	34	40	20	4	6	4	1
TOTAL NPG(C)	**18.0**	**36.0**	**41.0**	**23.0**	**105.0**	**32.6**	**50.0**	**23.0**	**62.3**	**79.0**	**100.0**	**71.6**	**52.3**	**59.0**	**30.3**	**21.3**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																
Andropogon scoparius				1												
Bouteloua curtipendula								8								
Bouteloua gracilis			2			0.3		2							15	
Calamovilfa longifolia			0.3					2						0.3		
Distichlis stricta														10		
Schedonnardus paniculatus																
TOTAL NPG(W)	**0.0**	**0.0**	**2.3**	**1.0**	**0.0**	**0.3**	**0.0**	**12.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**10.3**	**15.0**	**0.0**
INTRODUCED PERENNIAL GRAMINOIDS																
Agropyron cristatum	72	66	6	1	1				0.3							
Bromus inermis		5														
Phleum pratense																
Poa compressa							3									
Poa pratensis	1	3	28	9	3		4		3	28	8	10		1	1	20
TOTAL IPG	**73.0**	**74.0**	**34.0**	**10.0**	**4.0**	**0.0**	**7.0**	**0.0**	**3.3**	**28.0**	**8.0**	**10.0**	**0.0**	**1.0**	**1.0**	**20.0**
NATIVE ANNUAL GRAMINOIDS																
Festuca octoflora						0.3	0.3									
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Table B10. Percent Canopy Cover by Class and Species for 45 *ARTEMISIA CANA/AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA CANA/AGROPYRON SMITHII															
	PLOT NUMBER															
	044	045	046	064	070	119	148	230	259	571	572	574	579	580	583	584
INTRODUCED ANNUAL GRAMINOIDS																
Bromus japonicus	0.3	0.3	12	44	2	24	0.3	16	0.3	5	0.3	2	12	3	20	
Bromus tectorum			6	14				0.3								
TOTAL IAG	**0.3**	**0.3**	**18.0**	**58.0**	**2.0**	**24.0**	**0.3**	**16.3**	**0.3**	**5.0**	**0.3**	**2.0**	**12.0**	**3.0**	**20.0**	**0.0**
NATIVE PERENNIAL FORBS AND SUBSHRUBS																
Achillea millefolium	0.3				4		2	0.3	1	6		2	0.3	0.3		3
Agoseris glauca																
Allium textile							0.3									
Ambrosia psilostachya	1					3										
Antennaria microphylla																
Artemisia dracunculus						4		0.3								
Artemisia frigida			0.3	1			0.3									
Artemisia ludoviciana			2					2		1		3	0.3			
Asclepias speciosa						0.3										
Asclepias viridiflora				0.3				0.3								
Aster falcatus			5	0.3			0.3	0.3	0.3	1		0.3	1	1		
Aster oblongifolius								0.3				0.3				
Aster pansus																
Astragalus adsurgens																
Astragalus agrestis										1		2				0.3
Astragalus crassicarpus																
Astragalus gracilis																
Astragalus missouriensis								1								
Astragalus plattensis																
Calochortus nuttallii										0.3			0.3		0.3	
Cerastium arvense							2									
Chrysopsis villosa																
Cirsium undulatum						2	1	0.3								
Comandra umbellata													0.3			
Dalea candida						0.3										
Dalea purpurea																
Echinacea angustifolia								0.3								
Erigeron pumilus var. pumilus																
Evolvulus nuttallianus																
Gaura coccinea				0.3	0.3	0.3	2	1		1	0.3	2	0.3	0.3	0.3	0.3
Gutierrezia sarothrae													0.3		1	
Haplopappus spinulosus																
Hedeoma drummondii																
Helianthus maximilianii																0.3
Kuhnia eupatorioides												0.3				

Table B10. Percent Canopy Cover by Class and Species for 45 *ARTEMISIA CANA/AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA CANA/AGROPYRON SMITHII															
	PLOT NUMBER															
	044	045	046	064	070	119	148	230	259	571	572	574	579	580	583	584
Lactuca oblongifolia																
Liatris punctata				0.3												
Linum lewisii	0.3						0.3			0.3		0.3				
Lithospermum incisum						1	1									
Lomatium foeniculaceum														0.3		
Lomatium orientale																
Mertensia lanceolata										0.3						
Mirabilis linearis																
Musineon divaricatum																
Opuntia polyacantha							0.3			0.3						
Oxytropis lambertii																
Phlox hoodii							1									
Physalis longifolia				0.3												
Polygala alba							0.3	0.3								
Psoralea argophylla			0.3	0.3				6		0.3						
Psoralea esculenta																
Ratibida columnifera								2	0.3	0.3	0.3					
Sisyrinchium angustifolium																
Solidago missouriensis								0.3								
Solidago mollis																
Solidago rigida										0.3						
Sphaeralcea coccinea	3			0.3	5	0.3	0.3	1							4	
Vicia americana								0.3		1	0.3	2	0.3		0.3	1
Viola nuttallii																
Zigadenus venenosus																
TOTAL NPF AND SUBSHRUBS	**4.6**	**0.0**	**7.6**	**3.1**	**9.3**	**11.2**	**11.1**	**16.0**	**1.6**	**13.1**	**0.9**	**12.2**	**3.1**	**1.9**	**5.9**	**4.9**
INTRODUCED PERENNIAL FORBS																
Cirsium arvense				0.3												
Convolvulus arvensis					2											
Medicago sativa	1	0.3	0.3				0.3				0.3					
Rumex crispus																
Taraxacum laevigatum				2	1	0.3	1			0.3		4	3	13	6	1
Taraxacum officinale									1		3					
TOTAL IPF	**1.0**	**0.3**	**0.3**	**2.3**	**3.0**	**0.3**	**1.3**	**0.0**	**1.0**	**0.3**	**3.3**	**4.0**	**3.0**	**13.0**	**6.0**	**1.0**
FERNS AND ALLIES																
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Table B10. Percent Canopy Cover by Class and Species for 45 *ARTEMISIA CANA/AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA CANA/AGROPYRON SMITHII															
	PLOT NUMBER															
	044	045	046	064	070	119	148	230	259	571	572	574	579	580	583	584
NATIVE ANNUAL/BIENNIAL FORBS																
Arabis hirsuta																
Collomia linearis							0.3									
Conyza canadensis													0.3			
Descurainia pinnata						0.3							0.3			
Epilobium paniculatum													0.3			
Euphorbia spathulata							0.3								0.3	
Galium aparine																
Grindelia squarrosa									0.3							
Hedeoma hispidum							0.3		0.3							
Helianthus petiolaris				0.3												
Lappula redowskii															0.3	
Lepidium densiflorum																
Linum rigidum																
Orthocarpus luteus							4									
Parietaria pensylvanica																
Plantago patagonica				0.3		0.3	0.3						0.3		0.3	
Polygonum douglasii																
Silene antirrhina							0.3									
Xanthium strumarium								0.3								
TOTAL NAF	**0.0**	**0.0**	**0.0**	**0.6**	**0.0**	**0.6**	**5.5**	**0.3**	**0.6**	**0.0**	**0.0**	**0.0**	**1.2**	**0.0**	**0.9**	**0.0**
INTRODUCED ANNUAL/BIENNIAL FORBS																
Alyssum alyssoides														0.3		
Alyssum desertorum				0.3		0.3	0.3	0.3		0.3			0.3		0.3	
Camelina microcarpa				0.3									0.3		1	
Filago arvensis								0.3								
Lactuca serriola				3	0.3	0.3		0.3	0.3	0.3			0.3			4
Lepidium perfoliatum																
Medicago lupulina															1	
Melilotus officinalis	5		76	64				26	3		12	0.3	0.3	7	32	3
Sisymbrium altissimum													0.3			
Sisymbrium loeselii				3									1		0.3	
Thlaspi arvense					0.3							1		0.3		0.3
Tragopogon dubius	0.3			0.3	0.3	0.3		0.3		0.3	0.3		0.3	1	3	
TOTAL IAF	**5.3**	**0.0**	**76.0**	**70.9**	**0.9**	**0.9**	**0.3**	**27.2**	**3.3**	**0.9**	**12.3**	**1.3**	**2.8**	**8.6**	**37.6**	**7.3**

Table B10. Percent Canopy Cover by Class and Species for 45 *ARTEMISIA CANA/AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA CANA/AGROPYRON SMITHII															
	PLOT NUMBER															
	044	045	046	064	070	119	148	230	259	571	572	574	579	580	583	584
SHRUBS																
Artemisia cana	28	26	12	23	28	12	27	6	26	9	16	40	32	16	7	80
Artemisia tridentata							4				5		13			
Ceratoides lanata							1									
Rhus aromatica																
Rosa arkansana																2
Rosa woodsii																
Symphoricarpos occidentalis			4				10									
TOTAL SHRUBS	**28.0**	**26.0**	**16.0**	**23.0**	**28.0**	**12.0**	**42.0**	**6.0**	**26.0**	**9.0**	**21.0**	**40.0**	**45.0**	**16.0**	**7.0**	**82.0**
TREES 0.01-acre																
Juniperus scopulorum							2									
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**2.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TREES 0.1-acre																
Juniperus scopulorum							6				5					
Pinus ponderosa																
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**6.0**	**0.0**	**0.0**	**0.0**	**5.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TOTAL VEGETATION (Stratified)	**130.2**	**136.6**	**195.2**	**191.9**	**152.2**	**82.2**	**119.8**	**100.8**	**98.4**	**135.3**	**145.8**	**141.1**	**119.4**	**112.8**	**123.7**	**136.5**

Footnotes are presented on cover page B-ii.

Table B10. Percent Canopy Cover by Class and Species for 45 *ARTEMISIA CANA/AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA CANA/AGROPYRON SMITHII															
	PLOT NUMBER															
	585	587	589	590	591	600	603	604	605	607	609	622	623	624	626	629
SITE PARAMETERS*																
Slope (percent)	2	2-3	5	4	4	2-3/15-30	1	2	2	3-5	2-3	4	6	5-12	3-4	3
Aspect (degrees)	180	180	214	164	156	305	294	316	280	325	245	330	320	340	324	320
Topography	Bot	Bot	Bot	Bot	Bot	Bot-Swa	Bot	Bot	Bot	Bot-Swa	Bot	Bot-Swa	Swa	Bot-Swa	Bot-Swa	Ter-Bot
Configuration	V	V	V	V	V(S)	V	V	V	V	V	V(S)	V(S)	V	V	V	V
Photo # (Digital)	585	587	931	265	934/935	026/027	002	694/695	003	030/031	097/098	091/092	274/275	241	256	067/068
Investigator	JE	JE	DB/KL	KS/ED	DB/KL	SC	PL	DB/KL	PL	ED	SC	SC	KS	KS	KS/ED	SC
Date	06/25/11	06/25/11	06/27/11	06/27/11	06/27/11	06/25/11	06/23/11	06/22/11	06/23/11	06/23/11	06/29/11	06/29/11	06/28/11	06/23/11	06/25/11	06/28/11
GROUND COVER																
Bare Ground		1	12		10	5	48	28	1	2	3		1	6	30	7
Rock							5								0.3	
Litter	93	92	79	94	84	87	44	66	97	92	94	97	92	87	64	88
Lichens			1			0.3						0.3				0.3
Moss			1			3				0.3		0.3	0.3			
Basal Vegetation	7	7	7	6	6	5	3	6	2	6	3	3	7	7	6	5
VEGETATION STRUCTURE (nonstratified cover)																
Total Vegetation	94	90	94	92	89	94	88	78	80	86	97	96	90	84	94	98
Perennial Graminoids	71	50	40	72	70	80	78	62	60	84	86	85	76	76	74	96
Annual Graminoids	0.3	0.3	2	2	0.3	0.3	0.3			0.3			18	0.3	0.3	3
Perennial Forbs and Subshrubs	20	7	3	22	5	17	15	2	8	18	7	12	12	30	22	16
Annual/Biennial Forbs	30	45	40	54	15	1	2	1	2	1	31	3	2	6	27	6
Shrubs	8	15	42	15	10	12	6	26	18	15	14	14	28	7	16	16
Trees 0.01-acre																
Trees 0.1-acre																

Table B10. Percent Canopy Cover by Class and Species for 45 *ARTEMISIA CANA/AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA CANA/AGROPYRON SMITHII															
	PLOT NUMBER															
	585	587	589	590	591	600	603	604	605	607	609	622	623	624	626	629
CLASS\SPECIES																
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																
Agropyron smithii	35	40	26	54	45	20	40	50	45	32	70	62	46	18	56	72
Agropyron spicatum			3													
Aristida longiseta																
Carex filifolia																
Carex heliophila																
Hordeum jubatum																
Koeleria cristata		5				1		2	0.3	2		1	1	1		
Poa sandbergii						0.3										0.3
Poa scabrella								6					0.3			
Scirpus maritimus																
Stipa comata			4			2	38									
Stipa viridula	1	10		8	10	26	5	5	15	12	18	40	22	24	16	18
TOTAL NPG(C)	**36.0**	**55.0**	**33.0**	**62.0**	**55.0**	**49.3**	**83.0**	**63.0**	**60.3**	**46.0**	**88.0**	**103.0**	**69.3**	**43.0**	**72.0**	**90.3**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																
Andropogon scoparius										0.3						
Bouteloua curtipendula																
Bouteloua gracilis							1			0.3			2			
Calamovilfa longifolia																
Distichlis stricta																
Schedonnardus paniculatus																
TOTAL NPG(W)	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**0.0**	**0.0**	**0.6**	**0.0**	**0.0**	**2.0**	**0.0**	**0.0**	**0.0**
INTRODUCED PERENNIAL GRAMINOIDS																
Agropyron cristatum					10		1	1								
Bromus inermis																
Phleum pratense																
Poa compressa			3													
Poa pratensis	45	2	10	20	15	40		3	12	54	8	8	28	54	12	20
TOTAL IPG	**45.0**	**2.0**	**13.0**	**20.0**	**25.0**	**40.0**	**1.0**	**4.0**	**12.0**	**54.0**	**8.0**	**8.0**	**28.0**	**54.0**	**12.0**	**20.0**
NATIVE ANNUAL GRAMINOIDS																
Festuca octoflora																
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Table B10. Percent Canopy Cover by Class and Species for 45 *ARTEMISIA CANA/AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA CANA/AGROPYRON SMITHII															
	PLOT NUMBER															
	585	587	589	590	591	600	603	604	605	607	609	622	623	624	626	629
INTRODUCED ANNUAL GRAMINOIDS																
Bromus japonicus	0.3	0.3	2	2	0.3	0.3	0.3			0.3			18	0.3	0.3	3
Bromus tectorum													1			
TOTAL IAG	**0.3**	**0.3**	**2.0**	**2.0**	**0.3**	**0.3**	**0.3**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**19.0**	**0.3**	**0.3**	**3.0**
NATIVE PERENNIAL FORBS AND SUBSHRU																
Achillea millefolium			0.3	0.3						1	0.3	1		0.3	1	0.3
Agoseris glauca																
Allium textile								0.3								
Ambrosia psilostachya																
Antennaria microphylla																
Artemisia dracunculus																
Artemisia frigida		0.3	0.3				1			0.3		0.3		0.3		
Artemisia ludoviciana		1				3				0.3	0.3		0.3	6		2
Asclepias speciosa																
Asclepias viridiflora																
Aster falcatus	0.3		1	0.3	0.3	1	1	0.3		1	1		0.3	8	0.3	0.3
Aster oblongifolius																0.3
Aster pansus																
Astragalus adsurgens											0.3					0.3
Astragalus agrestis				4	3	2				1			0.3			8
Astragalus crassicarpus							0.3									
Astragalus gracilis							0.3									
Astragalus missouriensis																
Astragalus plattensis																
Calochortus nuttallii			0.3									0.3				
Cerastium arvense																
Chrysopsis villosa																
Cirsium undulatum						0.3	0.3									0.3
Comandra umbellata																
Dalea candida																
Dalea purpurea																
Echinacea angustifolia			0.3				0.3									
Erigeron pumilus var. pumilus																
Evolvulus nuttallianus							0.3									
Gaura coccinea		1	0.3		0.3	1	1		0.3	1		2	2	2	1	0.3
Gutierrezia sarothrae		0.3					2									
Haplopappus spinulosus							0.3									
Hedeoma drummondii																
Helianthus maximilianii																
Kuhnia eupatorioides																

Table B10. Percent Canopy Cover by Class and Species for 45 *ARTEMISIA CANA/AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA CANA/AGROPYRON SMITHII															
	PLOT NUMBER															
	585	587	589	590	591	600	603	604	605	607	609	622	623	624	626	629
Lactuca oblongifolia																
Liatris punctata																
Linum lewisii		0.3	0.3	0.3		0.3	0.3									
Lithospermum incisum							0.3									
Lomatium foeniculaceum																
Lomatium orientale																
Mertensia lanceolata																
Mirabilis linearis							0.3									
Musineon divaricatum																
Opuntia polyacantha						0.3										0.3
Oxytropis lambertii																
Phlox hoodii																
Physalis longifolia																
Polygala alba						0.3	0.3					0.3				
Psoralea argophylla						6								3		
Psoralea esculenta																0.3
Ratibida columnifera							0.3		0.3		0.3			0.3	0.3	
Sisyrinchium angustifolium	0.3															
Solidago missouriensis																
Solidago mollis													1			
Solidago rigida						0.3										
Sphaeralcea coccinea			0.3	0.3		0.3	0.3	0.3		1			1		0.3	2
Vicia americana			0.3	0.3	0.3	1		1		3			2	3	0.3	1
Viola nuttallii												0.3				
Zigadenus venenosus						0.3						0.3				0.3
TOTAL NPF AND SUBSHRUBS	**0.6**	**2.9**	**3.4**	**5.5**	**3.9**	**16.1**	**8.6**	**1.9**	**0.6**	**8.6**	**2.2**	**4.5**	**6.9**	**22.9**	**3.2**	**15.7**
INTRODUCED PERENNIAL FORBS																
Cirsium arvense	10								2							
Convolvulus arvensis																
Medicago sativa				6	0.3										2	
Rumex crispus																
Taraxacum laevigatum	10	5	1	12	1	2	6	1	6	10	5	8	5	10	18	1
Taraxacum officinale																
TOTAL IPF	**20.0**	**5.0**	**1.0**	**18.0**	**1.3**	**2.0**	**6.0**	**1.0**	**8.0**	**10.0**	**5.0**	**8.0**	**5.0**	**10.0**	**20.0**	**1.0**
FERNS AND ALLIES																
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Table B10. Percent Canopy Cover by Class and Species for 45 *ARTEMISIA CANA/AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA CANA/AGROPYRON SMITHII															
	PLOT NUMBER															
	585	587	589	590	591	600	603	604	605	607	609	622	623	624	626	629
NATIVE ANNUAL/BIENNIAL FORBS																
Arabis hirsuta																
Collomia linearis																
Conyza canadensis																
Descurainia pinnata																
Epilobium paniculatum																
Euphorbia spathulata										0.3						
Galium aparine																
Grindelia squarrosa																
Hedeoma hispidum																
Helianthus petiolaris																
Lappula redowskii																
Lepidium densiflorum																
Linum rigidum																
Orthocarpus luteus							1					0.3	0.3			
Parietaria pensylvanica									2							
Plantago patagonica			0.3				0.3									
Polygonum douglasii																
Silene antirrhina																
Xanthium strumarium															0.3	
TOTAL NAF	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**1.3**	**0.0**	**2.0**	**0.3**	**0.0**	**0.3**	**0.3**	**0.0**	**0.3**	**0.0**
INTRODUCED ANNUAL/BIENNIAL FORBS																
Alyssum alyssoides																
Alyssum desertorum																
Camelina microcarpa													0.3			0.3
Filago arvensis						0.3										
Lactuca serriola	2		0.3		0.3					0.3	1	0.3	0.3	0.3	1	0.3
Lepidium perfoliatum																
Medicago lupulina						0.3									0.3	
Melilotus officinalis	30	45	40	54	15		1	1	0.3	1	30	2	0.3	5	26	5
Sisymbrium altissimum													1			
Sisymbrium loeselii																
Thlaspi arvense																
Tragopogon dubius		0.3		0.3	0.3	0.3		0.3		0.3	1			0.3		0.3
TOTAL IAF	**32.0**	**45.3**	**40.3**	**54.3**	**15.6**	**0.9**	**1.0**	**1.3**	**0.3**	**1.6**	**32.0**	**2.3**	**1.9**	**5.6**	**27.3**	**5.9**

Table B10. Percent Canopy Cover by Class and Species for 45 *ARTEMISIA CANA/AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA CANA/AGROPYRON SMITHII															
	PLOT NUMBER															
	585	587	589	590	591	600	603	604	605	607	609	622	623	624	626	629
SHRUBS																
Artemisia cana	8	15	41	13	10	7	6	20	16	15	14	10	28	6	16	16
Artemisia tridentata			1	2		6		4	2			4		1	0.3	
Ceratoides lanata																
Rhus aromatica																
Rosa arkansana																
Rosa woodsii																
Symphoricarpos occidentalis						0.3	0.3	3								
TOTAL SHRUBS	**8.0**	**15.0**	**42.0**	**15.0**	**10.0**	**13.3**	**6.3**	**27.0**	**18.0**	**15.0**	**14.0**	**14.0**	**28.0**	**7.0**	**16.3**	**16.0**
TREES 0.01-acre																
Juniperus scopulorum																
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TREES 0.1-acre																
Juniperus scopulorum																
Pinus ponderosa																
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TOTAL VEGETATION (Stratified)	**141.9**	**125.5**	**135.0**	**176.8**	**111.1**	**121.9**	**108.5**	**98.2**	**101.2**	**136.4**	**149.2**	**140.1**	**160.4**	**142.8**	**151.4**	**151.9**

Footnotes are presented on cover page B-ii.

Table B10. Percent Canopy Cover by Class and Species for 45 *ARTEMISIA CANA/AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA CANA/AGROPYRON SMITHII														
	PLOT NUMBER														
	630	634	638	639	641	642	678	679	693	694	701	702	703	**Mean Cover**	***Con-stancy***
														n=45	
SITE PARAMETERS*															
Slope (percent)	1	2-7	4	5	5	5	5	4	2	4	6-8	6-8	5-12		
Aspect (degrees)	294	318	352	336	270	006	346	316	252	334	320	252	290		
Topography	Bot	Bot-Ter	Bot	Bot	Bot-Toe	Bot	Bot	Bot	Bot	Bot	Swa	Swa	Bot-Swa		
Configuration	V	V	V	V	V	V	V	V	V	V	V	V	V		
Photo # (Digital)	036	253/254	197	222	641	971	182	175	386/387	147	071/072	069/070	366/367		
Investigator	PL	KS	DB	DB/ED	JE	DB/KL	DB	DB	KS	DB/KL	ED	KS/ED	KS/ED		
Date	06/28/11	06/25/11	07/13/11	07/15/11	06/29/11	06/28/11	07/12/11	07/12/11	07/12/11	07/11/11	07/11/11	07/11/11	07/11/11		
GROUND COVER															
Bare Ground	7	9	7	12	2	8	14	12	70	34	42	40	70	**21.22**	***91***
Rock											1	0.3	2	**0.35**	***24***
Litter	90	85	85	80	92	85	80	81	24	60	50	54	23	**72.29**	***100***
Lichens	0.3										2	1		**0.74**	***40***
Moss	0.3	0.3												**0.18**	***29***
Basal Vegetation	3	6	8	8	6	7	6	7	6	6	5	5	5	**5.38**	***100***
VEGETATION STRUCTURE (nonstratified cover)															
Total Vegetation	78	84	90	97	86	87	75	93	88	81	88	88	94	**87.80**	***100***
Perennial Graminoids	50	70	65	70	40	71	52	60	82	44	53	70	48	**63.58**	***100***
Annual Graminoids	0.3	1	1	2	2	1	13	0.3		0.3	22	4	3	**5.17**	***87***
Perennial Forbs and Subshrubs	5	21	17	34	4	16	7	16	31	12	25	26	32	**13.34**	***100***
Annual/Biennial Forbs	14	1	1	3	27	2	9	16	2	12	6	26	85	**16.01**	***98***
Shrubs	26	36	30	28	24	7	10	14	8	26	16	28	20	**21.16**	***100***
Trees 0.01-acre														**0.04**	***2***
Trees 0.1-acre		1	1	3										**0.36**	***11***

Table B10. Percent Canopy Cover by Class and Species for 45 *ARTEMISIA CANA/AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA CANA/AGROPYRON SMITHII														
	PLOT NUMBER														
	630	634	638	639	641	642	678	679	693	694	701	702	703	**Mean Cover**	***Con-stancy***
														n=45	
CLASS\SPECIES															
NATIVE PERENNIAL GRAMINOIDS (Cool Season)															
Agropyron smithii	13	26	38	30	9	6	16	18	62	25	6	28	28	**33.71**	***100***
Agropyron spicatum					1									**0.12**	***11***
Aristida longiseta						2								**0.13**	***7***
Carex filifolia						9								**0.27**	***4***
Carex heliophila												7		**0.16**	***2***
Hordeum jubatum									1					**0.02**	***2***
Koeleria cristata		5			1	5		2		1	3			**1.03**	***49***
Poa sandbergii		5			0.3									**0.14**	***13***
Poa scabrella						1					2			**0.27**	***16***
Scirpus maritimus							0.3							**0.01**	***2***
Stipa comata		2		5	30	22					22			**4.31**	***36***
Stipa viridula	15	22	5	10	2	20		12	4	12	10	18	10	**12.80**	***91***
TOTAL NPG(C)	**28.0**	**60.0**	**43.0**	**45.0**	**43.3**	**65.0**	**16.3**	**32.0**	**67.0**	**38.0**	**43.0**	**53.0**	**38.0**	**52.98**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)															
Andropogon scoparius														**0.03**	***4***
Bouteloua curtipendula					1									**0.20**	***4***
Bouteloua gracilis		9			1	6					15	22		**1.68**	***27***
Calamovilfa longifolia						2								**0.10**	***9***
Distichlis stricta														**0.22**	***2***
Schedonnardus paniculatus												0.3		**0.01**	***2***
TOTAL NPG(W)	**0.0**	**9.0**	**0.0**	**0.0**	**2.0**	**8.0**	**0.0**	**0.0**	**0.0**	**0.0**	**15.0**	**22.3**	**0.0**	**2.24**	***31***
INTRODUCED PERENNIAL GRAMINOIDS															
Agropyron cristatum			2									10	0.3	**3.79**	***27***
Bromus inermis														**0.11**	***2***
Phleum pratense											0.3		0.3	**0.01**	***4***
Poa compressa							4							**0.22**	***7***
Poa pratensis	28	18	32	40		4	37	35	44	10	5		14	**15.93**	***87***
TOTAL IPG	**28.0**	**18.0**	**34.0**	**40.0**	**0.0**	**4.0**	**41.0**	**35.0**	**44.0**	**10.0**	**5.3**	**10.0**	**14.6**	**20.07**	***91***
NATIVE ANNUAL GRAMINOIDS															
Festuca octoflora											0.3			**0.02**	***7***
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.02**	***7***

Table B10. Percent Canopy Cover by Class and Species for 45 *ARTEMISIA CANA/AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA CANA/AGROPYRON SMITHII														
	PLOT NUMBER														
	630	634	638	639	641	642	678	679	693	694	701	702	703	**Mean Cover**	***Con-stancy***
														n=45	
INTRODUCED ANNUAL GRAMINOIDS															
Bromus japonicus	0.3	1	1	2	2	1	13	0.3		0.3	16	4	3	**4.73**	***87***
Bromus tectorum											8			**0.65**	***11***
TOTAL IAG	**0.3**	**1.0**	**1.0**	**2.0**	**2.0**	**1.0**	**13.0**	**0.3**	**0.0**	**0.3**	**24.0**	**4.0**	**3.0**	**5.38**	***87***
NATIVE PERENNIAL FORBS AND SUBSHRU															
Achillea millefolium		6	1	8	1	0.3	0.3	0.3		0.3	3	8	0.3	**1.16**	***64***
Agoseris glauca											0.3			**0.01**	***2***
Allium textile		0.3												**0.02**	***7***
Ambrosia psilostachya				1					0.3		2		0.3	**0.17**	***13***
Antennaria microphylla											0.3			**0.01**	***2***
Artemisia dracunculus											2			**0.14**	***7***
Artemisia frigida					0.3	0.3					0.3			**0.11**	***27***
Artemisia ludoviciana	3	0.3	10	12			2	2	2	6			0.3	**1.31**	***47***
Asclepias speciosa														**0.01**	***2***
Asclepias viridiflora														**0.01**	***4***
Aster falcatus	0.3			6		0.3	4				6	12	8	**1.36**	***64***
Aster oblongifolius														**0.02**	***7***
Aster pansus			2					12	12					**0.58**	***7***
Astragalus adsurgens														**0.01**	***4***
Astragalus agrestis			4	5					3	2		0.3	0.3	**0.80**	***33***
Astragalus crassicarpus														**0.01**	***2***
Astragalus gracilis	1													**0.03**	***4***
Astragalus missouriensis														**0.02**	***2***
Astragalus plattensis												0.3		**0.01**	***2***
Calochortus nuttallii														**0.03**	***11***
Cerastium arvense				1				1			3			**0.16**	***9***
Chrysopsis villosa											0.3			**0.01**	***2***
Cirsium undulatum											0.3			**0.10**	***16***
Comandra umbellata														**0.01**	***2***
Dalea candida														**0.01**	***2***
Dalea purpurea											0.3	0.3		**0.01**	***4***
Echinacea angustifolia					0.3						0.3	1	0.3	**0.06**	***16***
Erigeron pumilus var. pumilus						0.3					0.3			**0.01**	***4***
Evolvulus nuttallianus														**0.01**	***2***
Gaura coccinea		0.3		1	0.3	2		0.3			1		0.3	**0.57**	***69***
Gutierrezia sarothrae					0.3							1		**0.11**	***13***
Haplopappus spinulosus														**0.01**	***2***
Hedeoma drummondii							0.3							**0.01**	***2***
Helianthus maximilianii														**0.01**	***2***
Kuhnia eupatorioides												0.3		**0.01**	***4***

Table B10. Percent Canopy Cover by Class and Species for 45 *ARTEMISIA CANA/AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA CANA/AGROPYRON SMITHII														
	PLOT NUMBER														
	630	634	638	639	641	642	678	679	693	694	701	702	703	**Mean Cover**	***Con-stancy***
														n=45	
Lactuca oblongifolia									2		0.3			**0.05**	***4***
Liatris punctata											0.3			**0.01**	***4***
Linum lewisii														**0.06**	***20***
Lithospermum incisum														**0.05**	***7***
Lomatium foeniculaceum						0.3								**0.01**	***4***
Lomatium orientale		0.3												**0.01**	***2***
Mertensia lanceolata														**0.01**	***2***
Mirabilis linearis														**0.01**	***2***
Musineon divaricatum		0.3												**0.01**	***2***
Opuntia polyacantha		0.3												**0.03**	***11***
Oxytropis lambertii					0.3									**0.01**	***2***
Phlox hoodii					0.3									**0.03**	***4***
Physalis longifolia														**0.01**	***2***
Polygala alba					0.3	0.3								**0.05**	***16***
Psoralea argophylla	1				0.3	7					0.3	1	1	**0.59**	***27***
Psoralea esculenta														**0.01**	***2***
Ratibida columnifera	0.3		0.3	2		0.3	0.3	1	0.3	0.3	1	3	1	**0.32**	***44***
Sisyrinchium angustifolium														**0.01**	***2***
Solidago missouriensis														**0.01**	***2***
Solidago mollis														**0.02**	***2***
Solidago rigida														**0.01**	***4***
Sphaeralcea coccinea		2		0.3	1	3		0.3			2	0.3		**0.64**	***51***
Vicia americana				1				0.3		0.3		0.3	0.3	**0.44**	***49***
Viola nuttallii														**0.01**	***2***
Zigadenus venenosus		0.3			0.3	0.3								**0.04**	***13***
TOTAL NPF AND SUBSHRUBS	**5.6**	**10.1**	**17.3**	**37.3**	**4.7**	**14.4**	**6.9**	**17.2**	**19.6**	**8.9**	**23.3**	**27.8**	**12.1**	**9.32**	***98***
INTRODUCED PERENNIAL FORBS															
Cirsium arvense									3					**0.34**	***9***
Convolvulus arvensis														**0.04**	***2***
Medicago sativa		0.3							0.3		0.3	0.3	5	**0.37**	***29***
Rumex crispus									0.3					**0.01**	***2***
Taraxacum laevigatum	0.3	12	0.3	0.3	0.3	2	0.3	0.3	10	4	4	0.3	18	**4.10**	***87***
Taraxacum officinale														**0.09**	***4***
TOTAL IPF	**0.3**	**12.3**	**0.3**	**0.3**	**0.3**	**2.0**	**0.3**	**0.3**	**13.6**	**4.0**	**4.3**	**0.6**	**23.0**	**4.96**	***98***
FERNS AND ALLIES															
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***

Table B10. Percent Canopy Cover by Class and Species for 45 *ARTEMISIA CANA/AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA CANA/AGROPYRON SMITHII														
	PLOT NUMBER														
	630	634	638	639	641	642	678	679	693	694	701	702	703	**Mean Cover**	***Con-stancy***
														n=45	
NATIVE ANNUAL/BIENNIAL FORBS															
Arabis hirsuta							0.3							**0.01**	***2***
Collomia linearis														**0.01**	***2***
Conyza canadensis														**0.01**	***2***
Descurainia pinnata														**0.01**	***4***
Epilobium paniculatum														**0.01**	***2***
Euphorbia spathulata		0.3												**0.03**	***9***
Galium aparine			0.3											**0.01**	***2***
Grindelia squarrosa														**0.01**	***2***
Hedeoma hispidum					0.3		0.3					0.3		**0.03**	***11***
Helianthus petiolaris														**0.01**	***2***
Lappula redowskii														**0.01**	***2***
Lepidium densiflorum											0.3	0.3		**0.01**	***4***
Linum rigidum										0.3				**0.01**	***2***
Orthocarpus luteus				0.3	0.3	0.3		0.3						**0.15**	***18***
Parietaria pensylvanica														**0.04**	***2***
Plantago patagonica					0.3	0.3					0.3			**0.07**	***22***
Polygonum douglasii											0.3			**0.01**	***2***
Silene antirrhina														**0.01**	***2***
Xanthium strumarium									0.3					**0.02**	***7***
TOTAL NAF	**0.0**	**0.3**	**0.3**	**0.3**	**0.9**	**0.6**	**0.6**	**0.3**	**0.3**	**0.3**	**0.9**	**0.6**	**0.0**	**0.44**	***56***
INTRODUCED ANNUAL/BIENNIAL FORBS															
Alyssum alyssoides														**0.01**	***2***
Alyssum desertorum		0.3						0.3		0.3	0.3	0.3		**0.08**	***27***
Camelina microcarpa											0.3		0.3	**0.06**	***16***
Filago arvensis											0.3	2	0.3	**0.07**	***11***
Lactuca serriola			0.3		2		1			0.3	1		0.3	**0.44**	***53***
Lepidium perfoliatum					1									**0.02**	***2***
Medicago lupulina					0.3			3				7	52	**1.42**	***16***
Melilotus officinalis	14	1	0.3	3	25	2	8	13	2	12	2	20	58	**14.32**	***87***
Sisymbrium altissimum											0.3			**0.04**	***7***
Sisymbrium loeselii														**0.10**	***7***
Thlaspi arvense														**0.04**	***9***
Tragopogon dubius		0.3	0.3	0.3	0.3			0.3			1	0.3		**0.28**	***58***
TOTAL IAF	**14.0**	**1.6**	**0.9**	**3.3**	**28.6**	**2.0**	**9.0**	**16.6**	**2.0**	**12.6**	**5.2**	**29.6**	**110.9**	**16.88**	***98***

Table B10. Percent Canopy Cover by Class and Species for 45 *ARTEMISIA CANA/AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA CANA/AGROPYRON SMITHII														
	PLOT NUMBER														
	630	634	638	639	641	642	678	679	693	694	701	702	703	**Mean Cover**	***Con-stancy***
														n=45	
SHRUBS															
Artemisia cana	22	34	26	27	18	7	7	13	8	22	16	28	20	**19.49**	***100***
Artemisia tridentata		2			6	0.3				2				**1.17**	***33***
Ceratoides lanata														**0.02**	***2***
Rhus aromatica	2													**0.04**	***2***
Rosa arkansana														**0.04**	***2***
Rosa woodsii				1			3	1						**0.11**	***7***
Symphoricarpos occidentalis	5		5							2				**0.66**	***18***
TOTAL SHRUBS	**29.0**	**36.0**	**31.0**	**28.0**	**24.0**	**7.3**	**10.0**	**14.0**	**8.0**	**26.0**	**16.0**	**28.0**	**20.0**	**21.54**	***100***
TREES 0.01-acre															
Juniperus scopulorum														**0.04**	***2***
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.04**	***2***
TREES 0.1-acre															
Juniperus scopulorum		1	0.3	2										**0.32**	***11***
Pinus ponderosa			0.3	1										**0.03**	***4***
TOTAL TREES 0.1-acre	**0.0**	**1.0**	**0.6**	**3.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.35**	***11***
TOTAL VEGETATION (Stratified)	**105.2**	**148.3**	**127.8**	**156.2**	**105.8**	**104.3**	**97.1**	**115.7**	**154.5**	**100.1**	**137.3**	**175.9**	**221.6**	**133.87**	***100***

Footnotes are presented on cover page B-ii.

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	001	004	008	009	014	018	019	021	025	026	029	032	043	052	062	067
SITE PARAMETERS*																
Slope (percent)	8	12	4-6	6-10	6	11	13	3	5	12-14	7-8	10	7-8	12	4	5-6
Aspect (degrees)	294	040	338	246	300	254	332	076	300	182	262	024	320	050	190	135
Topography	Low-Mid	Low-Toe	Rid-Sho	Upper-Rid	Mid-Swa	Upper	Upper	Rid	Mid	Low-Mid	Upper	Mid-Ben	Mid-Swa	Upper	Toe	Upper
Configuration	U	X	V	S(X)	V	X	U	X(S)	S	U	V	S	S(V)	S	S	V
Photo # (Digital)	429/430	141	078/079	415/416	174	205	204	213	025	354	363	146	499/500	225/226	030	125/126
Investigator	KS	DB/KL	KS/ED	KS/ED	DB	DB/KL	DB/KL	DB/KL	JE	KS/ED	KS/ED	DB/KL	KS	SC	PL	SC
Date	07/14/11	07/11/11	07/14/11	07/14/11	07/12/11	07/14/11	07/14/11	07/14/11	07/13/11	07/10/11	07/10/11	07/11/11	08/20/11	07/13/11	06/27/11	07/07/11
GROUND COVER																
Bare Ground	40	38	24	50	21	41	40	34	10	37	23	29	20	30	20	54
Rock	1	1	0.3	0.3		1	2	1		0.3		2	1		2	
Litter	52	52	70	40	60	50	47	45	77	50	70	50	74	50	65	30
Lichens	2	4	0.3	5	4	3	6	12		8	2	8	0.3	15	10	12
Moss			0.3	0.3	12	1	1	2	10			5		2	0.3	0.3
Basal Vegetation	5	5	5	4	3	4	4	6	3	5	5	6	5	3	3	4
VEGETATION STRUCTURE (nonstratified cover)																
Total Vegetation	86	75	88	77	65	62	68	79	80	78	88	80	88	78	74	86
Perennial Graminoids	36	44	22	34	38	55	44	30	58	68	78	40	70	49	60	60
Annual Graminoids	18	1	35	8	25	2	3	4	0.3	8	12	4	14	1	1	5
Perennial Forbs and Subshrubs	56	25	42	40	8	5	21	14	8	16	18	15	18	26	18	5
Annual/Biennial Forbs	12	4	14	3	4	1	1	3	6	18	5	2	1	1	2	2
Shrubs	16	15	38	43	8	6	13	44	18	17	9	39	26	16	18	38
Trees 0.01-acre												0.3				
Trees 0.1-acre												0.3				

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	001	004	008	009	014	018	019	021	025	026	029	032	043	052	062	067
CLASS\SPECIES																
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																
Agropyron dasystachyum var. dasy.																
Agropyron dasystachyum var. riparium																
Agropyron smithii	5	17	4	12	30	28	14	5	30	30	34	15	16	30	22	16
Agropyron spicatum		6		4			2					4		2		
Agropyron trachycaulum																
Aristida longiseta	4	1	3					2		16						
Carex filifolia		4		3		1	2			1				1		
Carex stenophylla	0.3															
Elymus canadensis																
Koeleria cristata	1	4	1	4		2	1	3		2	0.3		1	0.3		
Oryzopsis hymenoides																
Poa glaucifolia																
Poa sandbergii		1			2					4	1				1	1
Poa scabrella			1	3								1				
Sitanion hystrix																
Stipa comata	4	4	3	5	2	5		9	1		7	6	20	12		
Stipa viridula	3				5	2	10	1	10	13	12	10	24	1	22	46
TOTAL NPG(C)	**17.3**	**37.0**	**12.0**	**31.0**	**39.0**	**38.0**	**29.0**	**20.0**	**41.0**	**66.0**	**54.3**	**36.0**	**61.0**	**46.3**	**45.0**	**63.0**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																
Andropogon scoparius							2	1								
Bouteloua curtipendula		3												5		1
Bouteloua gracilis	22	8	12	6		14	18	7	25	22	30	5	14	1	23	5
Calamovilfa longifolia														2		
Distichlis stricta																
Muhlenbergia cuspidata						3										
Panicum virgatum																
Schedonnardus paniculatus					1	4	0.3									
Sporobolus airoides					0.3											
TOTAL NPG(W)	**22.0**	**11.0**	**12.0**	**6.0**	**1.3**	**21.0**	**20.3**	**8.0**	**25.0**	**22.0**	**30.0**	**5.0**	**14.0**	**8.0**	**23.0**	**6.0**

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	001	004	008	009	014	018	019	021	025	026	029	032	043	052	062	067
INTRODUCED PERENNIAL GRAMINOIDS																
Agropyron cristatum								5				2			0.3	
Bromus inermis																
Poa compressa					3	3										
Poa pratensis											18		18			
TOTAL IPG	**0.0**	**0.0**	**0.0**	**0.0**	**3.0**	**3.0**	**0.0**	**5.0**	**0.0**	**0.0**	**18.0**	**2.0**	**18.0**	**0.0**	**0.3**	**0.0**
NATIVE ANNUAL GRAMINOIDS																
Festuca octoflora			0.3	1				0.3								
TOTAL NAG	**0.0**	**0.0**	**0.3**	**1.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
INTRODUCED ANNUAL GRAMINOIDS																
Bromus japonicus	16	1	24	7	25	2	3	4	0.3	8	12	4	7	1	1	5
Bromus tectorum	4		18						0.3				9			0.3
TOTAL IAG	**20.0**	**1.0**	**42.0**	**7.0**	**25.0**	**2.0**	**3.0**	**4.0**	**0.6**	**8.0**	**12.0**	**4.0**	**16.0**	**1.0**	**1.0**	**5.3**
NATIVE PERENNIAL FORBS AND SUBSHRUBS																
Achillea millefolium	0.3	2		1	0.3		0.3		0.3	0.3	0.3	3		1	0.3	0.3
Agoseris glauca																
Allium textile		0.3						0.3				0.3				0.3
Ambrosia psilostachya											3		1			
Antennaria dimorpha																
Antennaria howellii (neglecta)	1		2	1						0.3						
Antennaria microphylla		0.3														
Antennaria parvifolia	2	1		2	2			3						0.3		0.3
Artemisia dracunculus										0.3						
Artemisia frigida	2	0.3	1	3		0.3	0.3	0.3	0.3	3	0.3	1	0.3	0.3	0.3	0.3
Artemisia ludoviciana																
Aster falcatus	20	0.3	14	5	3	2				0.3			6	2		1
Aster oblongifolius		1						0.3		1		0.3				
Astragalus adsurgens		0.3														
Astragalus agrestis																
Astragalus crassicarpus																
Astragalus drummondii	1	0.3														
Astragalus flexuosus				0.3												
Astragalus gilviflorus																
Astragalus gracilis																
Astragalus lotiflorus																

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	001	004	008	009	014	018	019	021	025	026	029	032	043	052	062	067
Astragalus missouriensis		0.3												0.3		
Astragalus plattensis								1		2						
Astragalus purshii		0.3		0.3						0.3		0.3				
Astragalus spatulatus																
Besseya wyomingensis		0.3												0.3		
Calochortus nuttallii										0.3						
Castilleja sessiliflora														0.3		
Cerastium arvense												4	5	16		
Chrysopsis villosa	0.3															
Cirsium undulatum	0.3								0.3							0.3
Comandra umbellata				0.3										1		
Crepis occidentalis				0.3						0.3						
Cymopterus acaulis																
Dalea purpurea		0.3				0.3							0.3			
Echinacea angustifolia		0.3	0.3			0.3				1				0.3		
Erigeron pumilus var. pumilus		0.3													0.3	
Eriogonum pauciflorum																
Evolvulus nuttallianus																
Gaillardia aristata																
Gaura coccinea	0.3			0.3	0.3	0.3	0.3	0.3	1	1			1	0.3		0.3
Gutierrezia sarothrae		4				1	12			1		1			12	
Haplopappus spinulosus																
Iva axillaris																
Lactuca oblongifolia													0.3			
Leucocrinum montanum																
Linum lewisii		0.3		0.3		0.3						0.3				
Lithospermum incisum			0.3													
Lomatium foeniculaceum																
Lomatium orientale																
Lygodesmia juncea	0.3							0.3								
Machaeranthera grindelioides																
Mertensia lanceolata															0.3	
Musineon divaricatum																
Opuntia fragilis																
Opuntia polyacantha	1	1	0.3	1	2	0.3	0.3	0.3	4	2	1	0.3		0.3	1	0.3
Orobanche fasciculata															0.3	
Oxytropis sericea		0.3												0.3		
Penstemon albidus				1						0.3						

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	001	004	008	009	014	018	019	021	025	026	029	032	043	052	062	067
Phlox hoodii	0.3	4		1			1					3	0.3	0.3	1	0.3
Picradeniopsis oppositifolia							4									
Polygala alba		0.3		2			1									
Potentilla pensylvanica																
Psoralea argophylla	30	8	26	18		0.3	1	8					3	3		0.3
Psoralea esculenta		0.3	0.3	0.3			0.3		0.3	1				0.3	0.3	0.3
Ratibida columnifera		1	1			0.3	0.3		1	0.3	0.3	0.3	2	1	0.3	
Senecio plattensis																
Solidago missouriensis				4												
Solidago mollis																
Solidago rigida	1		0.3													
Sphaeralcea coccinea	1	0.3	1	0.3	0.3	0.3	1			0.3		1	1	0.3	1	1
Vicia americana	3				0.3		1		1			0.3			0.3	
Viola nuttallii				0.3												
Zigadenus venenosus														0.3		
TOTAL NPF AND SUBSHRUBS	**63.8**	**27.1**	**46.5**	**41.7**	**8.2**	**5.7**	**22.8**	**13.8**	**8.2**	**15.0**	**4.9**	**15.1**	**20.2**	**27.9**	**17.4**	**5.0**
INTRODUCED PERENNIAL FORBS																
Medicago sativa																
Taraxacum laevigatum		0.3	2	3	0.3	0.3	0.3	0.3	0.3	3	14	1		0.3	2	1
Taraxacum officinale																
TOTAL IPF	**0.0**	**0.3**	**2.0**	**3.0**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**3.0**	**14.0**	**1.0**	**0.0**	**0.3**	**2.0**	**1.0**
FERNS AND ALLIES																
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS																
Androsace occidentalis																
Arabis hirsuta																
Arabis holboellii								0.3		1		0.3				
Collinsia parviflora																
Cryptantha celosioides															0.3	0.3
Descurainia pinnata															0.3	
Draba reptans								0.3								
Epilobium paniculatum			0.3													
Erigeron divergens			3							0.3						
Erysimum asperum				0.3				0.3								
Euphorbia spathulata							0.3									

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	001	004	008	009	014	018	019	021	025	026	029	032	043	052	062	067
Evax prolifera																
Galium aparine																
Grindelia squarrosa																
Hedeoma hispidum	1	0.3	1	0.3		0.3	0.3	0.3			0.3			0.3		0.3
Helianthus annuus						0.3										
Lappula redowskii															0.3	
Lepidium densiflorum				0.3	0.3					0.3						
Linanthus septentrionalis								0.3								
Linum rigidum				0.3			0.3		0.3	0.3						
Microsteris gracilis				0.3												
Orthocarpus luteus	4	1	3	0.3	0.3	0.3	0.3		0.3	3		1		0.3		
Phacelia linearis																
Plantago elongata																
Plantago patagonica	0.3	0.3	0.3	0.3	0.3			0.3		0.3	0.3	0.3		1	0.3	
Polygonum douglasii																
Silene antirrhina					0.3											
Xanthium strumarium																
TOTAL NAF	**5.3**	**1.6**	**7.6**	**2.1**	**1.2**	**0.9**	**1.2**	**1.8**	**0.6**	**5.2**	**0.6**	**1.6**	**0.0**	**1.6**	**1.2**	**0.6**
INTRODUCED ANNUAL/BIENNIAL FORBS																
Alyssum alyssoides			0.3	0.3	0.3											
Alyssum desertorum		0.3		0.3			0.3			0.3		0.3			0.3	0.3
Camelina microcarpa			0.3	0.3									0.3			0.3
Draba nemorosa																
Filago arvensis	4		6	1	1			1	5	4	4					1
Lactuca serriola			0.3		0.3	0.3					0.3		0.3	0.3		
Lepidium perfoliatum																
Medicago lupulina																
Melilotus officinalis	3	3	0.3		1	0.3	0.3		0.3	10	0.3		1		1	
Sisymbrium altissimum																
Sisymbrium loeselii																
Thlaspi arvense																
Tragopogon dubius	0.3		0.3	0.3		0.3	0.3	0.3	0.3	0.3	0.3	0.3			0.3	0.3
Veronica arvensis					1											
TOTAL IAF	**7.3**	**3.3**	**7.5**	**2.2**	**3.6**	**0.9**	**0.9**	**1.3**	**5.6**	**14.6**	**4.9**	**0.6**	**1.6**	**0.3**	**1.6**	**1.9**

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	001	004	008	009	014	018	019	021	025	026	029	032	043	052	062	067
SHRUBS																
Artemisia cana													12			
Artemisia tridentata	16	15	38	42	8	6	13	44	18	15	9	39	14	16	18	38
Atriplex nuttallii																
Ceratoides lanata				1											0.3	
Chrysothamnus nauseosus																
Rhus aromatica																
Rosa arkansana																
Sarcobatus vermiculatus										2						
TOTAL SHRUBS	**16.0**	**15.0**	**38.0**	**43.0**	**8.0**	**6.0**	**13.0**	**44.0**	**18.0**	**17.0**	**9.0**	**39.0**	**26.0**	**16.0**	**18.3**	**38.0**
TREES 0.01-acre																
Juniperus scopulorum												0.3				
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**
TREES 0.1-acre																
Juniperus scopulorum												0.3				
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**
TOTAL VEGETATION (Stratified)	**151.7**	**96.3**	**167.9**	**137.0**	**89.6**	**77.8**	**90.5**	**98.5**	**99.3**	**150.8**	**147.7**	**104.6**	**156.8**	**101.4**	**109.8**	**120.8**

Footnotes are presented on cover page B-ii.

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	073	078	082	085	088	089	092	096	100	102	103	105	107	108	111	112
SITE PARAMETERS*																
Slope (percent)	13	6	4	10	11	10-12	7	10	4	11	14	3	3	4	1	10-12
Aspect (degrees)	260	020	244	318	290	238	292	135	180	206	262	325	258	278	235	254
Topography	Upper	Upper	Upper-Ben	Upper-Mid	Upper	Upper-Mid	Low	Mid	Mid	Low-Mid	Low	Mid-Ben	Upper-Swa	Low-Mid	Low-Ben	Mid
Configuration	X(S)	S(X)	U	U(V)	V	V	U	U(S)	X	X	V	S	U(V)	S	X	V(U)
Photo # (Digital)	150/151	286	952	188	088	058	970	096	100	099	084	158/159	041	043	095/096	043/044
Investigator	SC	KS	DB/KL	DB	JE/SC	ED	DB/KL	JE	JE	DB/KL	DB/KL	SC	PL	PL	SC	KS/ED
Date	07/08/11	06/29/11	06/27/11	07/13/11	07/11/11	06/29/11	06/28/11	06/29/11	06/29/11	07/09/11	07/09/11	07/09/11	06/29/11	06/29/11	06/29/11	06/25/11
GROUND COVER																
Bare Ground	20	33	50	10	15	4	40	0.3		17	38	10	26	25	12	24
Rock		0.3	3	4	0.3		0.3				2		0.3		0.3	0.3
Litter	72	50	40	76	73	89	49	95	93	68	47	27	50	20	84	52
Lichens	4	12	3	1	5	0.3	4			6	5	60	20	52	0.3	18
Moss			0.3	3	2	1	2			3	2		1	0.3	0.3	1
Basal Vegetation	4	5	4	6	5	6	5	5	7	6	6	3	3	3	3	5
VEGETATION STRUCTURE (nonstratified cover)																
Total Vegetation	78	75	62	85	82	90	65	78	92	85	81	90	76	85	90	72
Perennial Graminoids	50	57	42	65	48	82	34	71	48	54	56	80	57	63	58	48
Annual Graminoids	14	4	8	1	18	8	13	0.3	15	9	7	8	1	1	10	1
Perennial Forbs and Subshrubs	7	22	7	13	8	10	3	2	7	25	8	5	17	12	10	14
Annual/Biennial Forbs	1	2	3	2	2	2	4	1	24	2	5	6	2	1	4	6
Shrubs	21	24	10	18	30	9	30	14	23	28	24	18	14	28	34	24
Trees 0.01-acre					3											
Trees 0.1-acre					2					0.3	0.3					

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	073	078	082	085	088	089	092	096	100	102	103	105	107	108	111	112
CLASS\SPECIES																
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																
Agropyron dasystachyum var. dasy.		2	18			4										0.3
Agropyron dasystachyum var. riparium																
Agropyron smithii	30	24	4	42	20	65	16	5	20	23	18	70	4	5	12	20
Agropyron spicatum	2			8										0.3		7
Agropyron trachycaulum																
Aristida longiseta							1									
Carex filifolia	18	5			0.3											
Carex stenophylla																
Elymus canadensis																
Koeleria cristata		4		3	5	3	5			1		0.3	3	6		6
Oryzopsis hymenoides																
Poa glaucifolia																
Poa sandbergii	0.3		4		2			0.3			1		4	1	0.3	2
Poa scabrella		2				2	2									
Sitanion hystrix																
Stipa comata	2	5		2	12	4	2	70	20	17	25	10	45	35	18	10
Stipa viridula	2	1		18	12	5	4		15	15	8	12		25	32	3
TOTAL NPG(C)	**54.3**	**43.0**	**26.0**	**73.0**	**51.3**	**83.0**	**30.0**	**75.3**	**55.0**	**56.0**	**52.0**	**92.3**	**56.0**	**72.3**	**62.3**	**48.3**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																
Andropogon scoparius																
Bouteloua curtipendula																
Bouteloua gracilis	10	22	12		2	14	10				10	1	15	2	1	8
Calamovilfa longifolia																
Distichlis stricta																
Muhlenbergia cuspidata																
Panicum virgatum																
Schedonnardus paniculatus			3													
Sporobolus airoides			1													
TOTAL NPG(W)	**10.0**	**22.0**	**16.0**	**0.0**	**2.0**	**14.0**	**10.0**	**0.0**	**0.0**	**0.0**	**10.0**	**1.0**	**15.0**	**2.0**	**1.0**	**8.0**

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	073	078	082	085	088	089	092	096	100	102	103	105	107	108	111	112
INTRODUCED PERENNIAL GRAMINOIDS																
Agropyron cristatum			4													
Bromus inermis																
Poa compressa																
Poa pratensis					0.3					5		1			3	
TOTAL IPG	**0.0**	**0.0**	**4.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**5.0**	**0.0**	**1.0**	**0.0**	**0.0**	**3.0**	**0.0**
NATIVE ANNUAL GRAMINOIDS																
Festuca octoflora		0.3			0.3								0.3		0.3	
TOTAL NAG	**0.0**	**0.3**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.3**	**0.0**
INTRODUCED ANNUAL GRAMINOIDS																
Bromus japonicus	11	4	8	1	18	8	13	0.3	15	7	7	6	1	1	10	1
Bromus tectorum	5					0.3				2		2				
TOTAL IAG	**16.0**	**4.0**	**8.0**	**1.0**	**18.0**	**8.3**	**13.0**	**0.3**	**15.0**	**9.0**	**7.0**	**8.0**	**1.0**	**1.0**	**10.0**	**1.0**
NATIVE PERENNIAL FORBS AND SUBSHRUBS																
Achillea millefolium		2		0.3	2	1			3	4		1		0.3		1
Agoseris glauca				0.3												
Allium textile	0.3	0.3	0.3	0.3												0.3
Ambrosia psilostachya																
Antennaria dimorpha																0.3
Antennaria howellii (neglecta)																
Antennaria microphylla	0.3															
Antennaria parvifolia		0.3											0.3	0.3		
Artemisia dracunculus																
Artemisia frigida	0.3	0.3		1	4	0.3							4	7	0.3	0.3
Artemisia ludoviciana				0.3												
Aster falcatus		1		3					2			0.3	2			0.3
Aster oblongifolius	0.3															
Astragalus adsurgens													1			
Astragalus agrestis				2												
Astragalus crassicarpus																0.3
Astragalus drummondii	1									2						
Astragalus flexuosus																
Astragalus gilviflorus																
Astragalus gracilis	0.3															
Astragalus lotiflorus	0.3															

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	073	078	082	085	088	089	092	096	100	102	103	105	107	108	111	112
Astragalus missouriensis	0.3													0.3		
Astragalus plattensis																
Astragalus purshii							0.3									
Astragalus spatulatus																
Besseya wyomingensis																
Calochortus nuttallii	0.3		0.3	0.3			0.3		0.3							
Castilleja sessiliflora						0.3										
Cerastium arvense										14						
Chrysopsis villosa																
Cirsium undulatum						0.3		0.3					0.3			
Comandra umbellata																
Crepis occidentalis		0.3		0.3									0.3			0.3
Cymopterus acaulis																0.3
Dalea purpurea																
Echinacea angustifolia																
Erigeron pumilus var. pumilus	1	0.3	0.3			0.3		0.3		0.3	0.3		0.3	0.3		0.3
Eriogonum pauciflorum																
Evolvulus nuttallianus								0.3								
Gaillardia aristata																
Gaura coccinea				0.3	1	3		0.3		1	5	1	1	1	0.3	
Gutierrezia sarothrae		0.3	4	1		0.3				0.3			1	0.3		2
Haplopappus spinulosus																
Iva axillaris																
Lactuca oblongifolia																
Leucocrinum montanum																
Linum lewisii		0.3		0.3	0.3	0.3				0.3				0.3		0.3
Lithospermum incisum								0.3								
Lomatium foeniculaceum			0.3				0.3									
Lomatium orientale		0.3											0.3			
Lygodesmia juncea																
Machaeranthera grindelioides																
Mertensia lanceolata																
Musineon divaricatum		0.3									0.3					
Opuntia fragilis																
Opuntia polyacantha	0.3	0.3				0.3	1	0.3	0.3	3		0.3	1	0.3	0.3	
Orobanche fasciculata																
Oxytropis sericea																
Penstemon albidus		0.3														

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	073	078	082	085	088	089	092	096	100	102	103	105	107	108	111	112
Phlox hoodii	1	0.3	1	1	0.3					1	2		4	1		3
Picradeniopsis oppositifolia		0.3												1		
Polygala alba	0.3			0.3												2
Potentilla pensylvanica																
Psoralea argophylla	1				0.3					1						0.3
Psoralea esculenta	0.3	0.3		1			0.3		0.3		0.3					
Ratibida columnifera				1			0.3						0.3		0.3	
Senecio plattensis											0.3					
Solidago missouriensis																
Solidago mollis																
Solidago rigida																
Sphaeralcea coccinea	0.3	0.3		0.3		1			0.3	0.3		1	1	0.3	1	
Vicia americana		7					0.3		1	0.3	0.3					
Viola nuttallii																0.3
Zigadenus venenosus	0.3			0.3	0.3	0.3		0.3					0.3			
TOTAL NPF AND SUBSHRUBS	**7.9**	**14.5**	**6.2**	**13.3**	**8.2**	**7.4**	**2.8**	**2.1**	**7.2**	**27.5**	**8.5**	**3.6**	**17.1**	**12.4**	**2.2**	**11.3**
INTRODUCED PERENNIAL FORBS																
Medicago sativa						0.3										
Taraxacum laevigatum	0.3	10	1	0.3	0.3	3	1	0.3	0.3	0.3	0.3	1	1	1	8	4
Taraxacum officinale																
TOTAL IPF	**0.3**	**10.0**	**1.0**	**0.3**	**0.3**	**3.3**	**1.0**	**0.3**	**0.3**	**0.3**	**0.3**	**1.0**	**1.0**	**1.0**	**8.0**	**4.0**
FERNS AND ALLIES																
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS																
Androsace occidentalis																0.3
Arabis hirsuta																
Arabis holboellii							0.3						0.3			0.3
Collinsia parviflora																
Cryptantha celosioides																
Descurainia pinnata											0.3					
Draba reptans																
Epilobium paniculatum																
Erigeron divergens																
Erysimum asperum																
Euphorbia spathulata																

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	073	078	082	085	088	089	092	096	100	102	103	105	107	108	111	112
Evax prolifera								0.3								
Galium aparine																
Grindelia squarrosa																
Hedeoma hispidum	0.3		1		0.3	0.3				0.3	0.3					
Helianthus annuus																
Lappula redowskii																
Lepidium densiflorum																
Linanthus septentrionalis																
Linum rigidum		0.3	0.3	0.3						0.3	0.3		0.3			0.3
Microsteris gracilis																
Orthocarpus luteus	0.3			1					1	0.3	1		0.3	0.3		0.3
Phacelia linearis															0.3	
Plantago elongata								0.3								
Plantago patagonica		0.3	0.3		0.3	0.3	3			0.3	0.3	1	0.3	0.3	0.3	0.3
Polygonum douglasii										0.3						
Silene antirrhina																
Xanthium strumarium																
TOTAL NAF	**0.6**	**0.6**	**1.6**	**1.3**	**0.6**	**0.6**	**3.3**	**0.6**	**1.0**	**1.5**	**2.2**	**1.0**	**1.2**	**0.6**	**0.6**	**1.5**
INTRODUCED ANNUAL/BIENNIAL FORBS																
Alyssum alyssoides							0.3									
Alyssum desertorum	0.3	0.3	0.3		0.3	0.3		0.3		0.3			0.3	0.3		0.3
Camelina microcarpa		0.3				0.3						0.3	0.3			
Draba nemorosa																
Filago arvensis	0.3	1					0.3					4	0.3		2	
Lactuca serriola			0.3												0.3	
Lepidium perfoliatum								0.3								
Medicago lupulina											0.3					
Melilotus officinalis		0.3	1	1	0.3	1			22		1	1		0.3		2
Sisymbrium altissimum																
Sisymbrium loeselii																
Thlaspi arvense																
Tragopogon dubius	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1	1	2	0.3	0.3	0.3	1	2
Veronica arvensis																
TOTAL IAF	**0.9**	**2.2**	**1.9**	**1.3**	**0.9**	**1.9**	**0.9**	**0.9**	**23.0**	**1.3**	**3.3**	**5.6**	**1.2**	**0.9**	**3.3**	**4.3**

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	073	078	082	085	088	089	092	096	100	102	103	105	107	108	111	112
SHRUBS																
Artemisia cana												4				
Artemisia tridentata	21	24	8	16	30	8	27	12	23	28	24	15	14	28	34	24
Atriplex nuttallii																
Ceratoides lanata			2	2		1		2							0.3	
Chrysothamnus nauseosus																
Rhus aromatica																
Rosa arkansana																
Sarcobatus vermiculatus							3									
TOTAL SHRUBS	**21.0**	**24.0**	**10.0**	**18.0**	**30.0**	**9.0**	**30.0**	**14.0**	**23.0**	**28.0**	**24.0**	**19.0**	**14.0**	**28.0**	**34.3**	**24.0**
TREES 0.01-acre																
Juniperus scopulorum					3											
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**3.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TREES 0.1-acre																
Juniperus scopulorum					2					0.3	0.3					
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**2.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TOTAL VEGETATION (Stratified)	**111.0**	**120.6**	**74.7**	**108.2**	**114.9**	**127.5**	**91.0**	**93.5**	**124.5**	**128.6**	**107.3**	**132.5**	**106.8**	**118.2**	**125.0**	**102.4**

Footnotes are presented on cover page B-ii.

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	114	117	120	122	123	132	133	134	136	138	146	147	150	151	156	162
SITE PARAMETERS*																
Slope (percent)	10-12	4-8	5-6	12	8	4	3	2	16	10	11	14	18	6	4-6	4-12
Aspect (degrees)	092	340	267	276	220	250	250	240	232	160	234	220	284	325	342	034
Topography	Low-Mid	Upper-Mid	Low	Upper	Mid	Mid	Low	Low-Ben	Upper-Mid	Mid	Mid	Low-Mid	Toe	Mid	Low-Mid	Upper-Swa
Configuration	U(V)	X	S	U	S	S(U)	X	V(S)	V	S(X)	X	S	V	S	S	V
Photo # (Digital)	042	028/029	026	691/692	007	132	133	134	052	138	999	995/996	983/984	081/082	278	705
Investigator	ED	KS/ED	ED	DB/KL	SC	JE	JE	JE	DB/KL	JE/SC	DB/KL	DB/KL	DB/KL	SC	KS	DB/KL
Date	06/25/11	06/23/11	06/23/11	06/22/11	06/23/11	06/28/11	06/28/11	06/28/11	07/08/11	06/30/11	06/30/11	06/29/11	06/29/11	06/28/11	06/28/11	06/23/11
GROUND COVER																
Bare Ground	30	14	15	39	22	20	20	10	30	25	35	29	22	7	23	28
Rock	0.3			1		0.3	10		3			1	0.3			1
Litter	57	78	81	42	45	46	66	64	60	60	56	60	69	88	70	50
Lichens	6	3	0.3	10	30	5	0.3	20	2	10	4	1	2	0.3	0.3	14
Moss	2	0.3		3	0.3	25	0.3			0.3	0.3	3	1	0.3	1	2
Basal Vegetation	5	5	4	5	3	4	4	6	5	5	5	6	6	5	6	5
VEGETATION STRUCTURE (nonstratified cover)																
Total Vegetation	80	74	70	64	72	67	77	86	74	80	78	77	85	92	84	77
Perennial Graminoids	55	54	52	39	38	35	48	19	62	57	44	42	60	82	64	65
Annual Graminoids	8	0.3	7	1	1	1	0.3	21	3	0.3	9	8	15	3	7	2
Perennial Forbs and Subshrubs	21	17	7	13	19	4	22	22	8	9	7	3	4	7	29	16
Annual/Biennial Forbs	3	1	7	1	2	14	2	14	4	2	2	3	2	1	3	4
Shrubs	30	34	15	19	26	22	14	26	8	40	30	37	15	30	39	8
Trees 0.01-acre																
Trees 0.1-acre	0.3			1												

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	114	117	120	122	123	132	133	134	136	138	146	147	150	151	156	162
CLASS\SPECIES																
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																
Agropyron dasystachyum var. dasy.																
Agropyron dasystachyum var. riparium																
Agropyron smithii	16	4	24	6	25	20	3	18	35	9	8	12	28	42	16	20
Agropyron spicatum				4	1		1			1	3					
Agropyron trachycaulum																
Aristida longiseta				0.3		5				1						1
Carex filifolia				14	0.3		5		3	27	18	6	5			5
Carex stenophylla																
Elymus canadensis																
Koeleria cristata	10	8	0.3	4		3	0.3			1	1	5	4		0.3	8
Oryzopsis hymenoides													4			
Poa glaucifolia																
Poa sandbergii	2		0.3				0.3		1	0.3	1			0.3		
Poa scabrella		1		1									2		0.3	4
Sitanion hystrix																
Stipa comata	28		20	14	15	0.3	30		22	20	2	4	23			15
Stipa viridula	4	38		1		0.3	0.3			2	10	12		52	46	18
TOTAL NPG(C)	**60.0**	**51.0**	**44.6**	**44.3**	**41.3**	**28.6**	**39.9**	**18.0**	**61.0**	**61.3**	**43.0**	**39.0**	**66.0**	**94.3**	**62.6**	**71.0**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																
Andropogon scoparius				1												
Bouteloua curtipendula																
Bouteloua gracilis	7	6	0.3		1	10	0.3	1	10	3	5	8		9	12	
Calamovilfa longifolia							18									
Distichlis stricta								0.3								
Muhlenbergia cuspidata						1										
Panicum virgatum																
Schedonnardus paniculatus																
Sporobolus airoides																
TOTAL NPG(W)	**7.0**	**6.0**	**0.3**	**1.0**	**1.0**	**11.0**	**18.3**	**1.3**	**10.0**	**3.0**	**5.0**	**8.0**	**0.0**	**9.0**	**12.0**	**0.0**

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	114	117	120	122	123	132	133	134	136	138	146	147	150	151	156	162
INTRODUCED PERENNIAL GRAMINOIDS																
Agropyron cristatum		2	1		0.3											
Bromus inermis																
Poa compressa																
Poa pratensis			13											4		2
TOTAL IPG	**0.0**	**2.0**	**14.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**4.0**	**0.0**	**2.0**
NATIVE ANNUAL GRAMINOIDS																
Festuca octoflora				0.3	0.3		0.3	1	0.3	0.3	0.3		0.3			
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.3**	**0.3**	**0.0**	**0.3**	**1.0**	**0.3**	**0.3**	**0.3**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**
INTRODUCED ANNUAL GRAMINOIDS																
Bromus japonicus	8	0.3	7	1	1	1	0.3	20	3	0.3	9	8	12	3	7	2
Bromus tectorum									0.3				3			
TOTAL IAG	**8.0**	**0.3**	**7.0**	**1.0**	**1.0**	**1.0**	**0.3**	**20.0**	**3.3**	**0.3**	**9.0**	**8.0**	**15.0**	**3.0**	**7.0**	**2.0**
NATIVE PERENNIAL FORBS AND SUBSHRUBS																
Achillea millefolium	1	5						18		0.3				0.3	12	0.3
Agoseris glauca																
Allium textile	0.3	0.3		0.3	0.3					0.3	0.3					0.3
Ambrosia psilostachya							1		1							
Antennaria dimorpha																
Antennaria howellii (neglecta)										1						
Antennaria microphylla																
Antennaria parvifolia		0.3														
Artemisia dracunculus			5						0.3							
Artemisia frigida	1	0.3	0.3	1	0.3		0.3				0.3		0.3			0.3
Artemisia ludoviciana																
Aster falcatus		3		3				5				1	0.3	0.3		2
Aster oblongifolius				1						0.3					2	
Astragalus adsurgens			0.3			1										
Astragalus agrestis																
Astragalus crassicarpus					0.3											
Astragalus drummondii		4														
Astragalus flexuosus									1							
Astragalus gilviflorus																
Astragalus gracilis	0.3															
Astragalus lotiflorus											0.3					

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	114	117	120	122	123	132	133	134	136	138	146	147	150	151	156	162
Astragalus missouriensis				0.3						0.3						
Astragalus plattensis									1							
Astragalus purshii																
Astragalus spatulatus																
Besseya wyomingensis																
Calochortus nuttallii	0.3				0.3					0.3			0.3			
Castilleja sessiliflora				0.3	0.3											
Cerastium arvense																
Chrysopsis villosa																
Cirsium undulatum							0.3				1					
Comandra umbellata																
Crepis occidentalis	0.3	0.3		0.3						0.3						
Cymopterus acaulis																
Dalea purpurea																
Echinacea angustifolia					0.3					1						
Erigeron pumilus var. pumilus	0.3	0.3			0.3	0.3						0.3		0.3		0.3
Eriogonum pauciflorum																
Evolvulus nuttallianus							0.3									
Gaillardia aristata																
Gaura coccinea	3		0.3	0.3		0.3	0.3		0.3		1	1	2			
Gutierrezia sarothrae					0.3							1		0.3	0.3	8
Haplopappus spinulosus																
Iva axillaris																
Lactuca oblongifolia																
Leucocrinum montanum		0.3								0.3						
Linum lewisii																
Lithospermum incisum			0.3						1							
Lomatium foeniculaceum																0.3
Lomatium orientale	1	0.3														
Lygodesmia juncea													0.3			
Machaeranthera grindelioides																
Mertensia lanceolata																
Musineon divaricatum		0.3			0.3											
Opuntia fragilis														1		
Opuntia polyacantha	1				0.3	1	0.3	1		1	0.3		0.3			0.3
Orobanche fasciculata																
Oxytropis sericea																
Penstemon albidus				0.3					0.3							

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	114	117	120	122	123	132	133	134	136	138	146	147	150	151	156	162
Phlox hoodii	3	0.3		0.3	2	0.3				3	2					0.3
Picradeniopsis oppositifolia																
Polygala alba				0.3			0.3									0.3
Potentilla pensylvanica																
Psoralea argophylla	7			6	15	0.3	20		3	0.3					0.3	0.3
Psoralea esculenta																
Ratibida columnifera							0.3								0.3	0.3
Senecio plattensis																
Solidago missouriensis																
Solidago mollis																
Solidago rigida																
Sphaeralcea coccinea	0.3		0.3	0.3		0.3	0.3					0.3	0.3	2	2	0.3
Vicia americana						1				0.3					10	2
Viola nuttallii	0.3				0.3					0.3						0.3
Zigadenus venenosus	0.3								0.3							0.3
TOTAL NPF AND SUBSHRUBS	**19.4**	**14.7**	**6.5**	**13.7**	**20.3**	**4.5**	**23.4**	**24.0**	**8.2**	**9.0**	**5.2**	**3.6**	**3.8**	**4.2**	**26.9**	**15.9**
INTRODUCED PERENNIAL FORBS																
Medicago sativa																1
Taraxacum laevigatum	4	4	1	0.3	1	0.3	0.3	0.3	0.3	0.3	2	0.3	1	3	5	
Taraxacum officinale																1
TOTAL IPF	**4.0**	**4.0**	**1.0**	**0.3**	**1.0**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**2.0**	**0.3**	**1.0**	**3.0**	**5.0**	**2.0**
FERNS AND ALLIES																
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS																
Androsace occidentalis				0.3				0.3								
Arabis hirsuta		0.3														
Arabis holboellii	0.3	0.3		0.3												
Collinsia parviflora																
Cryptantha celosioides																
Descurainia pinnata		0.3														
Draba reptans	0.3			0.3												0.3
Epilobium paniculatum																
Erigeron divergens																
Erysimum asperum																
Euphorbia spathulata						0.3						1	0.3			

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	114	117	120	122	123	132	133	134	136	138	146	147	150	151	156	162
Evax prolifera																
Galium aparine																
Grindelia squarrosa																
Hedeoma hispidum	0.3				0.3	1	0.3	0.3	0.3	0.3	0.3	1	0.3	0.3		
Helianthus annuus																
Lappula redowskii		0.3											0.3			
Lepidium densiflorum	0.3															
Linanthus septentrionalis																
Linum rigidum	0.3					0.3	0.3		0.3	0.3	0.3		0.3			
Microsteris gracilis																
Orthocarpus luteus						0.3									0.3	1
Phacelia linearis		0.3								0.3						
Plantago elongata						0.3	0.3									
Plantago patagonica	0.3		1	0.3	0.3	0.3	0.3		0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Polygonum douglasii																
Silene antirrhina				0.3												
Xanthium strumarium																
TOTAL NAF	**1.8**	**1.5**	**1.0**	**1.5**	**0.6**	**2.5**	**1.2**	**0.6**	**0.9**	**1.2**	**0.9**	**2.3**	**1.5**	**0.6**	**0.6**	**1.6**
INTRODUCED ANNUAL/BIENNIAL FORBS																
Alyssum alyssoides												0.3	0.3			0.3
Alyssum desertorum	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3					
Camelina microcarpa	0.3			0.3									0.3		0.3	
Draba nemorosa					0.3											
Filago arvensis	1	0.3	5			0.3		0.3		1						
Lactuca serriola						0.3		0.3	0.3			0.3	0.3			
Lepidium perfoliatum							0.3									
Medicago lupulina									0.3							
Melilotus officinalis			0.3		1	12	0.3	12	3			0.3	0.3	1	2	2
Sisymbrium altissimum																
Sisymbrium loeselii			0.3													
Thlaspi arvense																
Tragopogon dubius		0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1	0.3	0.3	0.3	0.3	0.3
Veronica arvensis																
TOTAL IAF	**1.6**	**0.9**	**6.2**	**0.9**	**1.9**	**13.2**	**1.2**	**13.2**	**4.2**	**1.6**	**1.3**	**1.2**	**1.5**	**1.3**	**2.6**	**2.6**

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	114	117	120	122	123	132	133	134	136	138	146	147	150	151	156	162
SHRUBS																
Artemisia cana			10													
Artemisia tridentata	30	34	5	19	26	21	14	26	8	40	30	37	14	30	38	8
Atriplex nuttallii															1	
Ceratoides lanata						1							1	0.3		
Chrysothamnus nauseosus																
Rhus aromatica																
Rosa arkansana																
Sarcobatus vermiculatus																
TOTAL SHRUBS	**30.0**	**34.0**	**15.0**	**19.0**	**26.0**	**22.0**	**14.0**	**26.0**	**8.0**	**40.0**	**30.0**	**37.0**	**15.0**	**30.3**	**39.0**	**8.0**
TREES 0.01-acre																
Juniperus scopulorum																
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TREES 0.1-acre																
Juniperus scopulorum	0.3			1												
TOTAL TREES 0.1-acre	**0.3**	**0.0**	**0.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TOTAL VEGETATION (Stratified)	**131.8**	**114.4**	**95.6**	**82.0**	**93.7**	**83.1**	**98.9**	**104.4**	**96.2**	**117.0**	**96.7**	**99.4**	**104.1**	**149.7**	**155.7**	**105.1**

Footnotes are presented on cover page B-ii.

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	164	167	170	173	177	181	182	186	195	198	205	206	218	312	341	602
SITE PARAMETERS*																
Slope (percent)	14	14	3	3	4	7	3	10	2	4-17	3-5	5	8-10	6-15	0-8	9
Aspect (degrees)	320	230	054	034	190	185	210	334	180	252	200	310	126	222	248	246
Topography	Upper	Upper-Swa	Ben	Upper-Ben	Mid	Mid	Upper-Swa	Upper-Mid	Upper	Toe	Mid-Swa	Low-Ben	Mid-Ben	Mid	Rid	Bot-Swa
Configuration	S(U)	V	U(S)	S	U	S	V	U	X	V	V	S	S	U	X	V
Photo # (Digital)	087/088	838	232	012	177	023/024	182	025	195	899/900	051/052	024	433	699/700	894	708/709
Investigator	SC	DB/KL	KS et al.	PL	JE	SC	JE	PL	JE	DB/KL	SC	KS/ED	KS/KL	DB/KL	DB/KL	DB/KL
Date	06/29/11	06/25/11	06/22/11	06/24/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/27/11	06/27/11	06/22/11	07/15/11	06/23/11	06/26/11	06/23/11
GROUND COVER																
Bare Ground	12	20	1	23	5	7	22	15	38	30	0.3	4	79	45	42	40
Rock		3	0.3	0.3	0.3	5		15	0.3	2			2	2	5	
Litter	85	69	84	67	90	79	63	51	44	59	91	91	15	43	45	55
Lichens	0.3	1	2	5		5	10	15	15	2	3	0.3	0.3	5	3	
Moss	0.3	2	7	1			0.3	1	0.3	1	1	1		1	2	
Basal Vegetation	3	5	6	3	5	4	5	3	3	6	5	4	4	4	3	5
VEGETATION STRUCTURE (nonstratified cover)																
Total Vegetation	85	82	80	74	76	75	66	62	63	79	92	72	52	54	54	74
Perennial Graminoids	48	20	42	30	62	62	30	47	40	43	65	46	40	30	35	55
Annual Graminoids	7	36	18	2	0.3	0.3	0.3	1	0.3	7	16	7	4	5	1	
Perennial Forbs and Subshrubs	3	23	17	27	14	8	10	9	16	12	4	16	8	5	12	6
Annual/Biennial Forbs	1	4	10	0.3	1	1	8	1	3	3	1	3	6	8	2	18
Shrubs	46	26	15	18	9	15	25	13	12	29	32	30	8	16	20	7
Trees 0.01-acre																
Trees 0.1-acre		2														

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	164	167	170	173	177	181	182	186	195	198	205	206	218	312	341	602
CLASS\SPECIES																
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																
Agropyron dasystachyum var. dasy.							5									
Agropyron dasystachyum var. riparium																
Agropyron smithii	12	4	35	6	8	2	10	18	22	7	54	9	38	11	5	35
Agropyron spicatum			0.3	1			0.3	1		3						
Agropyron trachycaulum																
Aristida longiseta							0.3				0.3					
Carex filifolia					3	36	3	2	2						7	
Carex stenophylla								1								
Elymus canadensis														0.3		
Koeleria cristata	1		6	9	3		3	8	2	4	1	3		2	10	5
Oryzopsis hymenoides																
Poa glaucifolia																
Poa sandbergii	0.3			0.3		0.3		0.3		1	0.3	0.3		3	2	
Poa scabrella			3		4		0.3		2							
Sitanion hystrix							0.3									
Stipa comata	3	3		8	6	20	1	1	2	4	6	16		5	6	3
Stipa viridula	38	12	1		6	16	2		2	20	11			7		10
TOTAL NPG(C)	**54.3**	**19.0**	**45.3**	**24.3**	**30.0**	**74.3**	**25.2**	**31.3**	**32.0**	**39.0**	**72.6**	**28.3**	**38.0**	**28.3**	**30.0**	**53.0**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																
Andropogon scoparius																
Bouteloua curtipendula								2			0.3		3			
Bouteloua gracilis	1			9	40		8		12	7					10	
Calamovilfa longifolia																
Distichlis stricta																
Muhlenbergia cuspidata							0.3	4								
Panicum virgatum													1			
Schedonnardus paniculatus																
Sporobolus airoides																
TOTAL NPG(W)	**1.0**	**0.0**	**0.0**	**9.0**	**40.0**	**0.0**	**8.3**	**6.0**	**12.0**	**7.0**	**0.3**	**0.0**	**4.0**	**0.0**	**10.0**	**0.0**

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	164	167	170	173	177	181	182	186	195	198	205	206	218	312	341	602
INTRODUCED PERENNIAL GRAMINOIDS																
Agropyron cristatum		1	0.3	2								22		4		
Bromus inermis								16								
Poa compressa																4
Poa pratensis		2	1			1				1	4					3
TOTAL IPG	**0.0**	**3.0**	**1.3**	**2.0**	**0.0**	**1.0**	**0.0**	**16.0**	**0.0**	**1.0**	**4.0**	**22.0**	**0.0**	**4.0**	**0.0**	**7.0**
NATIVE ANNUAL GRAMINOIDS																
Festuca octoflora															0.3	
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**
INTRODUCED ANNUAL GRAMINOIDS																
Bromus japonicus	7	30	18	2	0.3	0.3	0.3	1	0.3	7	16	7	4	5	1	
Bromus tectorum		10				0.3								0.3		
TOTAL IAG	**7.0**	**40.0**	**18.0**	**2.0**	**0.3**	**0.6**	**0.3**	**1.0**	**0.3**	**7.0**	**16.0**	**7.0**	**4.0**	**5.3**	**1.0**	**0.0**
NATIVE PERENNIAL FORBS AND SUBSHRUBS																
Achillea millefolium	0.3	2	10		0.3	0.3		0.3		2	0.3	3				0.3
Agoseris glauca																
Allium textile			0.3						0.3					0.3	0.3	
Ambrosia psilostachya		9														
Antennaria dimorpha								0.3							2	
Antennaria howellii (neglecta)																
Antennaria microphylla																
Antennaria parvifolia			0.3													
Artemisia dracunculus												0.3				
Artemisia frigida			0.3	1	1	0.3		1		0.3		0.3	0.3		1	
Artemisia ludoviciana																
Aster falcatus	0.3		2	1			0.3	0.3	1				5			
Aster oblongifolius								0.3								
Astragalus adsurgens																
Astragalus agrestis							3									
Astragalus crassicarpus																
Astragalus drummondii						0.3				1	1				0.3	
Astragalus flexuosus																
Astragalus gilviflorus								0.3								
Astragalus gracilis				0.3												
Astragalus lotiflorus																

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	164	167	170	173	177	181	182	186	195	198	205	206	218	312	341	602
Astragalus missouriensis				0.3		0.3		0.3		0.3						
Astragalus plattensis																
Astragalus purshii										0.3					1	
Astragalus spatulatus															2	
Besseya wyomingensis			0.3								0.3					
Calochortus nuttallii	0.3								0.3						0.3	
Castilleja sessiliflora																
Cerastium arvense		7				0.3										
Chrysopsis villosa																
Cirsium undulatum		2														
Comandra umbellata							0.3	0.3	0.3						0.3	
Crepis occidentalis				0.3					0.3							
Cymopterus acaulis																
Dalea purpurea																
Echinacea angustifolia						1		0.3								
Erigeron pumilus var. pumilus				0.3			0.3		0.3						0.3	
Eriogonum pauciflorum								0.3								
Evolvulus nuttallianus																
Gaillardia aristata																
Gaura coccinea	0.3	0.3	0.3	0.3			0.3		0.3			2				0.3
Gutierrezia sarothrae				20			3	2	8				0.3	3	1	1
Haplopappus spinulosus								0.3								
Iva axillaris																
Lactuca oblongifolia																
Leucocrinum montanum																
Linum lewisii		0.3		0.3						0.3	0.3			0.3		
Lithospermum incisum																
Lomatium foeniculaceum															0.3	0.3
Lomatium orientale			0.3	0.3												
Lygodesmia juncea																
Machaeranthera grindelioides															0.3	
Mertensia lanceolata										0.3						
Musineon divaricatum				0.3			0.3								0.3	
Opuntia fragilis																
Opuntia polyacantha	0.3		0.3	0.3	1	0.3	1	0.3	1	0.3	0.3	0.3		1	0.3	
Orobanche fasciculata																
Oxytropis sericea									0.3							
Penstemon albidus				0.3												

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	164	167	170	173	177	181	182	186	195	198	205	206	218	312	341	602
Phlox hoodii				0.3	2		1	0.3	0.3	3					1	
Picradeniopsis oppositifolia																
Polygala alba	0.3					0.3	0.3	0.3	0.3							
Potentilla pensylvanica			0.3													
Psoralea argophylla				0.3	3	2		2	0.3	2		6			1	
Psoralea esculenta		0.3			0.3		0.3									
Ratibida columnifera				0.3				0.3		0.3						0.3
Senecio plattensis																
Solidago missouriensis																
Solidago mollis																
Solidago rigida																
Sphaeralcea coccinea		1		0.3	0.3	0.3		0.3	1	1	0.3	1		0.3		0.3
Vicia americana					4	3	0.3		1	1			1	0.3		0.3
Viola nuttallii				0.3					0.3		0.3	0.3				
Zigadenus venenosus				0.3				0.3								0.3
TOTAL NPF AND SUBSHRUBS	**1.8**	**21.9**	**14.4**	**26.8**	**11.9**	**8.4**	**10.4**	**9.8**	**15.3**	**12.1**	**2.8**	**13.2**	**6.6**	**5.2**	**11.7**	**3.1**
INTRODUCED PERENNIAL FORBS																
Medicago sativa		0.3							1				1			0.3
Taraxacum laevigatum	2	3	4		2	0.3	0.3		1	0.3		3	0.3	0.3	0.3	3
Taraxacum officinale				1							1	1				
TOTAL IPF	**2.0**	**3.3**	**4.0**	**1.0**	**2.0**	**0.3**	**0.3**	**0.0**	**2.0**	**0.3**	**1.0**	**4.0**	**1.3**	**0.3**	**0.3**	**3.3**
FERNS AND ALLIES																
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS																
Androsace occidentalis			0.3													
Arabis hirsuta																
Arabis holboellii																
Collinsia parviflora		0.3														
Cryptantha celosioides																
Descurainia pinnata			0.3													
Draba reptans															0.3	
Epilobium paniculatum																
Erigeron divergens																
Erysimum asperum				0.3												
Euphorbia spathulata		0.3														

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	164	167	170	173	177	181	182	186	195	198	205	206	218	312	341	602
Evax prolifera																
Galium aparine		0.3														
Grindelia squarrosa								0.3					0.3			
Hedeoma hispidum			7						0.3	0.3					0.3	
Helianthus annuus																
Lappula redowskii		0.3														
Lepidium densiflorum			0.3						0.3							
Linanthus septentrionalis																
Linum rigidum					0.3		0.3		0.3							
Microsteris gracilis																
Orthocarpus luteus							0.3		0.3							
Phacelia linearis		0.3	0.3							0.3	0.3					
Plantago elongata																
Plantago patagonica	0.3				0.3		0.3		0.3	0.3		0.3		0.3	0.3	
Polygonum douglasii		0.3									0.3					
Silene antirrhina																
Xanthium strumarium																
TOTAL NAF	**0.3**	**1.8**	**8.2**	**0.3**	**0.6**	**0.0**	**0.9**	**0.3**	**1.5**	**0.9**	**0.6**	**0.3**	**0.3**	**0.3**	**0.9**	**0.0**
INTRODUCED ANNUAL/BIENNIAL FORBS																
Alyssum alyssoides														0.3		
Alyssum desertorum	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3		0.3			0.3	
Camelina microcarpa	0.3	1				0.3			0.3			0.3			0.3	
Draba nemorosa			0.3			0.3										
Filago arvensis			1								0.3	1			0.3	
Lactuca serriola	0.3	0.3	0.3				0.3					0.3	1			
Lepidium perfoliatum																
Medicago lupulina																
Melilotus officinalis	0.3		0.3				6		0.3	2			5	8		18
Sisymbrium altissimum				0.3												
Sisymbrium loeselii		1										0.3				
Thlaspi arvense		0.3														
Tragopogon dubius	0.3	0.3	0.3		0.3	0.3	0.3	0.3	0.3	0.3	0.3	1	0.3	0.3	0.3	0.3
Veronica arvensis																
TOTAL IAF	**1.5**	**3.2**	**2.5**	**0.6**	**0.6**	**1.2**	**6.9**	**0.6**	**1.2**	**2.6**	**0.6**	**3.2**	**6.3**	**8.6**	**1.2**	**18.3**

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII															
	PLOT NUMBER															
	164	167	170	173	177	181	182	186	195	198	205	206	218	312	341	602
SHRUBS																
Artemisia cana												7				1
Artemisia tridentata	46	25	15	18	9	15	22	8	12	29	32	24	8	14	20	6
Atriplex nuttallii								2								
Ceratoides lanata	1	1		0.3	0.3		3	3								
Chrysothamnus nauseosus														0.3		
Rhus aromatica				0.3									0.3			
Rosa arkansana														3		
Sarcobatus vermiculatus																
TOTAL SHRUBS	**47.0**	**26.0**	**15.0**	**18.6**	**9.3**	**15.0**	**25.0**	**13.0**	**12.0**	**29.0**	**32.0**	**31.0**	**8.3**	**17.3**	**20.0**	**7.0**
TREES 0.01-acre																
Juniperus scopulorum																
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TREES 0.1-acre																
Juniperus scopulorum		2														
TOTAL TREES 0.1-acre	**0.0**	**2.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TOTAL VEGETATION (Stratified)	**114.9**	**118.2**	**108.7**	**84.6**	**94.7**	**100.8**	**77.3**	**78.0**	**76.3**	**98.9**	**129.9**	**109.0**	**68.8**	**69.3**	**75.4**	**91.7**

Footnotes are presented on cover page B-ii.

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII				
	PLOT NUMBER				
	625	647	651	**Mean Cover**	***Con-stancy***
				n=67	
SITE PARAMETERS*					
Slope (percent)	2	2	3-80		
Aspect (degrees)	264	300	230		
Topography	Bot-Swa	Bot-Bnk	Bot		
Configuration	V(S)	V	V		
Photo # (Digital)	033/034	148/149	450		
Investigator	KS/ED	SC	KS/KL		
Date	06/23/11	07/08/11	07/16/11		
GROUND COVER					
Bare Ground	2	70	68	**25.79**	***99***
Rock			15	**1.34**	***60***
Litter	94	27	12	**60.04**	***100***
Lichens		0.3		**6.83**	***90***
Moss	0.3			**1.60**	***72***
Basal Vegetation	4	3	5	**4.55**	***100***
VEGETATION STRUCTURE (nonstratified cover)					
Total Vegetation	82	77	52	**76.51**	***100***
Perennial Graminoids	72	66	23	**50.31**	***100***
Annual Graminoids	6	0.3	0.3	**6.84**	***99***
Perennial Forbs and Subshrubs	22	6	6	**13.99**	***100***
Annual/Biennial Forbs	4	3	22	**4.63**	***100***
Shrubs	7	10	15	**21.78**	***100***
Trees 0.01-acre				**0.05**	***3***
Trees 0.1-acre			1	**0.11**	***12***

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII				
	PLOT NUMBER				
	625	647	651	**Mean Cover**	***Con-stancy***
				n=67	
CLASS\SPECIES					
NATIVE PERENNIAL GRAMINOIDS (Cool Season)					
Agropyron dasystachyum var. dasy.				**0.44**	***7***
Agropyron dasystachyum var. riparium			2	**0.03**	***1***
Agropyron smithii	18	36	12	**19.61**	***100***
Agropyron spicatum			2	**0.79**	***30***
Agropyron trachycaulum			1	**0.01**	***1***
Aristida longiseta				**0.52**	***18***
Carex filifolia				**2.56**	***36***
Carex stenophylla				**0.02**	***3***
Elymus canadensis				**0.004**	***1***
Koeleria cristata	8			**2.47**	***70***
Oryzopsis hymenoides				**0.06**	***1***
Poa glaucifolia			2	**0.03**	***1***
Poa sandbergii	1	0.3		**0.59**	***49***
Poa scabrella				**0.43**	***22***
Sitanion hystrix				**0.004**	***1***
Stipa comata	5	5		**9.59**	***82***
Stipa viridula	16	20	4	**9.84**	***76***
TOTAL NPG(C)	**48.0**	**61.3**	**23.0**	**47.00**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)					
Andropogon scoparius				**0.06**	***4***
Bouteloua curtipendula				**0.21**	***9***
Bouteloua gracilis	1	12		**7.34**	***73***
Calamovilfa longifolia				**0.30**	***3***
Distichlis stricta			2	**0.03**	***3***
Muhlenbergia cuspidata				**0.12**	***6***
Panicum virgatum				**0.01**	***1***
Schedonnardus paniculatus				**0.12**	***6***
Sporobolus airoides				**0.02**	***3***
TOTAL NPG(W)	**1.0**	**12.0**	**2.0**	**8.23**	***82***

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII				
	PLOT NUMBER				
	625	647	651	**Mean Cover**	***Con-stancy***
				n=67	
INTRODUCED PERENNIAL GRAMINOIDS					
Agropyron cristatum				**0.66**	***18***
Bromus inermis				**0.24**	***1***
Poa compressa				**0.15**	***4***
Poa pratensis	36	2		**1.71**	***25***
TOTAL IPG	**36.0**	**2.0**	**0.0**	**2.75**	***43***
NATIVE ANNUAL GRAMINOIDS					
Festuca octoflora		0.3		**0.10**	***25***
TOTAL NAG	**0.0**	**0.3**	**0.0**	**0.10**	***25***
INTRODUCED ANNUAL GRAMINOIDS					
Bromus japonicus	6	0.3	0.3	**6.27**	***99***
Bromus tectorum				**0.82**	***21***
TOTAL IAG	**6.0**	**0.3**	**0.3**	**7.09**	***99***
NATIVE PERENNIAL FORBS AND SUBSHRUBS					
Achillea millefolium	1	2	0.3	**1.24**	***61***
Agoseris glauca				**0.004**	***1***
Allium textile				**0.09**	***30***
Ambrosia psilostachya				**0.22**	***7***
Antennaria dimorpha				**0.04**	***4***
Antennaria howellii (neglecta)				**0.08**	***7***
Antennaria microphylla				**0.01**	***3***
Antennaria parvifolia				**0.18**	***18***
Artemisia dracunculus				**0.09**	***6***
Artemisia frigida	0.3			**0.60**	***64***
Artemisia ludoviciana	1		2	**0.05**	***4***
Aster falcatus	3			**1.34**	***46***
Aster oblongifolius				**0.10**	***13***
Astragalus adsurgens				**0.04**	***6***
Astragalus agrestis	1			**0.09**	***4***
Astragalus crassicarpus				**0.01**	***3***
Astragalus drummondii				**0.16**	***13***
Astragalus flexuosus				**0.02**	***3***
Astragalus gilviflorus				**0.004**	***1***
Astragalus gracilis				**0.01**	***4***
Astragalus lotiflorus				**0.01**	***3***

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII				
	PLOT NUMBER				
	625	647	651	**Mean Cover**	***Con-stancy***
				n=67	
Astragalus missouriensis				**0.04**	***15***
Astragalus plattensis				**0.06**	***4***
Astragalus purshii				**0.04**	***10***
Astragalus spatulatus				**0.03**	***1***
Besseya wyomingensis				**0.02**	***6***
Calochortus nuttallii				**0.06**	***19***
Castilleja sessiliflora	0.3			**0.02**	***7***
Cerastium arvense				**0.69**	***9***
Chrysopsis villosa				**0.004**	***1***
Cirsium undulatum				**0.08**	***13***
Comandra umbellata				**0.04**	***9***
Crepis occidentalis				**0.05**	***18***
Cymopterus acaulis				**0.004**	***1***
Dalea purpurea				**0.01**	***4***
Echinacea angustifolia				**0.07**	***13***
Erigeron pumilus var. pumilus		1		**0.13**	***36***
Eriogonum pauciflorum				**0.004**	***1***
Evolvulus nuttallianus				**0.01**	***3***
Gaillardia aristata	0.3			**0.004**	***1***
Gaura coccinea	1			**0.49**	***58***
Gutierrezia sarothrae			0.3	**1.32**	***42***
Haplopappus spinulosus				**0.004**	***1***
Iva axillaris			3	**0.04**	***1***
Lactuca oblongifolia			0.3	**0.01**	***3***
Leucocrinum montanum				**0.01**	***3***
Linum lewisii	0.3			**0.08**	***25***
Lithospermum incisum				**0.03**	***6***
Lomatium foeniculaceum				**0.02**	***7***
Lomatium orientale				**0.04**	***9***
Lygodesmia juncea				**0.01**	***4***
Machaeranthera grindelioides				**0.004**	***1***
Mertensia lanceolata				**0.01**	***3***
Musineon divaricatum				**0.03**	***10***
Opuntia fragilis				**0.01**	***1***
Opuntia polyacantha	1	0.3		**0.54**	***75***
Orobanche fasciculata				**0.004**	***1***
Oxytropis sericea				**0.01**	***4***
Penstemon albidus				**0.04**	***9***

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII				
	PLOT NUMBER				
	625	647	651	**Mean Cover**	***Con-stancy***
				n=67	
Phlox hoodii				**0.67**	***51***
Picradeniopsis oppositifolia			0.3	**0.08**	***6***
Polygala alba		0.3		**0.13**	***22***
Potentilla pensylvanica				**0.004**	***1***
Psoralea argophylla	1	0.3		**2.54**	***49***
Psoralea esculenta				**0.10**	***27***
Ratibida columnifera	0.3			**0.18**	***34***
Senecio plattensis				**0.004**	***1***
Solidago missouriensis				**0.06**	***1***
Solidago mollis	1			**0.01**	***1***
Solidago rigida				**0.02**	***3***
Sphaeralcea coccinea		2		**0.43**	***67***
Vicia americana	5		0.3	**0.66**	***37***
Viola nuttallii				**0.04**	***15***
Zigadenus venenosus	0.3			**0.06**	***21***
TOTAL NPF AND SUBSHRUBS	**16.8**	**5.9**	**6.5**	**13.48**	***100***
INTRODUCED PERENNIAL FORBS					
Medicago sativa				**0.06**	***9***
Taraxacum laevigatum	7		0.3	**1.65**	***90***
Taraxacum officinale				**0.06**	***6***
TOTAL IPF	**7.0**	**0.0**	**0.3**	**1.77**	***94***
FERNS AND ALLIES					
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS					
Androsace occidentalis				**0.02**	***6***
Arabis hirsuta				**0.004**	***1***
Arabis holboellii				**0.05**	***13***
Collinsia parviflora				**0.004**	***1***
Cryptantha celosioides				**0.01**	***3***
Descurainia pinnata				**0.02**	***6***
Draba reptans				**0.02**	***7***
Epilobium paniculatum				**0.004**	***1***
Erigeron divergens				**0.05**	***3***
Erysimum asperum	0.3			**0.02**	***6***
Euphorbia spathulata				**0.03**	***7***

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII				
	PLOT NUMBER				
	625	647	651	**Mean Cover**	***Con-stancy***
				n=67	
Evax prolifera				**0.004**	***1***
Galium aparine				**0.004**	***1***
Grindelia squarrosa				**0.01**	***3***
Hedeoma hispidum				**0.29**	***46***
Helianthus annuus		0.3		**0.01**	***3***
Lappula redowskii				**0.02**	***6***
Lepidium densiflorum				**0.03**	***9***
Linanthus septentrionalis				**0.004**	***1***
Linum rigidum		0.3		**0.10**	***33***
Microsteris gracilis				**0.004**	***1***
Orthocarpus luteus	0.3			**0.31**	***37***
Phacelia linearis				**0.03**	***10***
Plantago elongata				**0.01**	***4***
Plantago patagonica	1			**0.29**	***69***
Polygonum douglasii				**0.01**	***4***
Silene antirrhina				**0.01**	***3***
Xanthium strumarium			0.3	**0.004**	***1***
TOTAL NAF	**1.6**	**0.6**	**0.3**	**1.37**	***96***
INTRODUCED ANNUAL/BIENNIAL FORBS					
Alyssum alyssoides		0.3		**0.04**	***13***
Alyssum desertorum	0.3			**0.18**	***61***
Camelina microcarpa	1			**0.11**	***28***
Draba nemorosa	0.3			**0.02**	***6***
Filago arvensis				**0.68**	***37***
Lactuca serriola			0.3	**0.10**	***30***
Lepidium perfoliatum				**0.01**	***3***
Medicago lupulina				**0.01**	***3***
Melilotus officinalis		2	22	**2.22**	***63***
Sisymbrium altissimum				**0.004**	***1***
Sisymbrium loeselii				**0.02**	***4***
Thlaspi arvense				**0.004**	***1***
Tragopogon dubius	1	0.3	0.3	**0.39**	***91***
Veronica arvensis				**0.01**	***1***
TOTAL IAF	**2.6**	**2.6**	**22.6**	**3.79**	***100***

Table B11. Percent Canopy Cover by Class and Species for 67 *ARTEMISIA TRIDENTATA / AGROPYRON SMITHII* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII				
	PLOT NUMBER				
	625	647	651	**Mean Cover**	***Con-stancy***
				n=67	
SHRUBS					
Artemisia cana	0.3			**0.51**	***9***
Artemisia tridentata	7	9	15	**20.88**	***100***
Atriplex nuttallii				**0.04**	***3***
Ceratoides lanata		1		**0.31**	***25***
Chrysothamnus nauseosus				**0.004**	***1***
Rhus aromatica				**0.01**	***3***
Rosa arkansana				**0.04**	***1***
Sarcobatus vermiculatus				**0.07**	***3***
TOTAL SHRUBS	**7.3**	**10.0**	**15.0**	**21.88**	***100***
TREES 0.01-acre					
Juniperus scopulorum				**0.05**	***3***
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.05**	***3***
TREES 0.1-acre					
Juniperus scopulorum			1	**0.11**	***12***
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**1.0**	**0.11**	***12***
TOTAL VEGETATION (Stratified)	**126.3**	**95.0**	**70.0**	**107.50**	***100***

Footnotes are presented on cover page B-ii.

Table B12. Percent Canopy Cover by Class and Species for 27 *ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM															
	PLOT NUMBER															
	003	012	037	079	086	090	097	099	118	135	161	172	179	183	187	196
SITE PARAMETERS*																
Slope (percent)	18	12	10	2-4	10-20	7-9	25	2	10-12	9	10	3	12	5	4	3
Aspect (degrees)	278	040	092	140	008	016	300	070	050	284	340	110	010	224	360	080
Topography	Low	Mid-Sho	Upper	Ben-Rid	Mid	Sho	Upper-Mid	Low-Mid	Mid	Upper-Mid	Toe-Swa	Knoll	Mid	Upper-Mid	Upper-Mid	Sho
Configuration	V	V	S	S	X(S)	U	X	S	V(S)	S(U)	V(S)	X	X	S	S	X
Photo # (Digital)	154	186	365	064	437	050/051	097	099	057	062	725	022	347	015	044/045	196
Investigator	DB/KL	DB	KS/ED	ED	KS/KL	ED/KS	JE	JE	ED	DB/KL	DB/KL	SC	KS/ED	PL	SC	JE
Date	07/11/11	07/12/11	07/10/11	06/29/11	07/15/11	06/27/11	06/29/11	06/28/11	06/28/11	07/08/11	06/23/11	06/24/11	07/09/11	06/25/11	06/26/11	06/25/11
GROUND COVER																
Bare Ground	35	25	29	35	30	50	30	30	35	32	34	2	36	8	26	20
Rock	7	1	20		3	10	0.3	10	3	2	10	0.3	0.3	0.3	2	10
Litter	50	60	28	54	36	31	67	57	53	51	43	84	50	29	47	47
Lichens	3	5	18	6	26	3		0.3	4	10	6	10	8	60	22	20
Moss		3		0.3		2	0.3	0.3		1	2			0.3	0.3	0.3
Basal Vegetation	5	6	5	5	5	4	3	3	5	4	5	4	6	3	3	3
VEGETATION STRUCTURE (nonstratified cover)																
Total Vegetation	72	83	68	74	76	74	67	53	78	76	59	60	82	70	59	62
Perennial Graminoids	47	37	56	42	63	46	35	34	54	55	41	35	66	48	25	50
Annual Graminoids	1	12	3	10	9	2		0.3	4	1		1	1	1	2	0.3
Perennial Forbs and Subshrubs	18	20	15	7	30	28	14	15	14	17	16	11	37	25	14	10
Annual/Biennial Forbs	11	6	7	7	6	2	1	1	2	3	0.3	1	4	1	0.3	1
Shrubs	8	39	6	52	12	42	31	6	48	7	9	21	26	6	32	10
Trees 0.01-acre																
Trees 0.1-acre		1				18	2	1			2					

Table B12. Percent Canopy Cover by Class and Species for 27 *ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM															
	PLOT NUMBER															
	003	012	037	079	086	090	097	099	118	135	161	172	179	183	187	196
CLASS\SPECIES																
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																
Agropyron dasystachyum var. dasy.			2											0.3		
Agropyron smithii	8	5	17	12	7	0.3			3	8			3	1	0.3	8
Agropyron spicatum	5	4	16	7	6	22	20	16	6	10	18	18	20	12	6	12
Aristida longiseta		1	4		1						0.3				1	
Carex filifolia	4	3	3		8	0.3	1	2		3	6		12	2	1	1
Carex heliophila		2							30							
Carex stenophylla																
Koeleria cristata	2	2	4	8	6	4	3	6	4	5	7	7	10	12	0.3	3
Poa sandbergii	1		3				0.3			4	4		1	0.3	0.3	
Poa scabrella				2		3			1							0.3
Stipa comata	2	4	2	8	8	7	10	2	8	13	2	10	16	22	6	5
Stipa viridula	8	2	0.3	6	4	14			6			1	5		5	
TOTAL NPG(C)	**30.0**	**23.0**	**51.3**	**43.0**	**40.0**	**50.6**	**34.3**	**26.0**	**58.0**	**43.0**	**37.3**	**36.0**	**67.0**	**49.6**	**19.9**	**29.3**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																
Andropogon scoparius		1			4			1				2				
Bouteloua curtipendula	14				5		2	6			0.3					
Bouteloua gracilis	5	17	10	5	12		2	2	2	10	8	0.3	6	7	1	2
Calamovilfa longifolia													12			
Muhlenbergia cuspidata	2		2		22			2		7						25
Sporobolus cryptandrus																
TOTAL NPG(W)	**21.0**	**18.0**	**12.0**	**5.0**	**43.0**	**0.0**	**4.0**	**11.0**	**2.0**	**17.0**	**8.3**	**2.3**	**18.0**	**7.0**	**1.0**	**27.0**
INTRODUCED PERENNIAL GRAMINOIDS																
Agropyron cristatum																
Poa pratensis									2						6	
TOTAL IPG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**2.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**6.0**	**0.0**
NATIVE ANNUAL GRAMINOIDS																
Festuca octoflora		0.3		0.3						0.3						
TOTAL NAG	**0.0**	**0.3**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
INTRODUCED ANNUAL GRAMINOIDS																
Bromus japonicus	1	12	3	9	9	2		0.3	4	1		1	1	1	2	0.3
Bromus tectorum				1												
TOTAL IAG	**1.0**	**12.0**	**3.0**	**10.0**	**9.0**	**2.0**	**0.0**	**0.3**	**4.0**	**1.0**	**0.0**	**1.0**	**1.0**	**1.0**	**2.0**	**0.3**

Table B12. Percent Canopy Cover by Class and Species for 27 *ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM															
	PLOT NUMBER															
	003	012	037	079	086	090	097	099	118	135	161	172	179	183	187	196
NATIVE PERENNIAL FORBS AND SUBSHRUBS																
Achillea millefolium	2	1		0.3	4			0.3				0.3	2		0.3	
Agoseris glauca		0.3							0.3							
Allium textile	0.3		0.3	0.3		0.3	0.3	0.3	0.3			0.3		0.3		0.3
Ambrosia psilostachya									0.3						0.3	
Antennaria dimorpha			1			3				0.3	1					
Antennaria howellii (neglecta)	0.3															
Antennaria microphylla		0.3					0.3	0.3								2
Antennaria parvifolia								0.3							0.3	
Arnica sororia		0.3				4										
Artemisia frigida		0.3	0.3	0.3	0.3	0.3			0.3	3	0.3	0.3	0.3	2	0.3	0.3
Artemisia ludoviciana									0.3							
Asclepias verticillata									0.3							
Asclepias viridiflora															0.3	
Aster falcatus	2	4			2	0.3	1	0.3	1	0.3	1	0.3	1		0.3	1
Aster oblongifolius								0.3	0.3		0.3					
Astragalus adsurgens						4			1			0.3				
Astragalus agrestis							0.3									
Astragalus bisulcatus																
Astragalus crassicarpus									0.3							
Astragalus drummondii	1			0.3		1		0.3								
Astragalus flexuosus										0.3						
Astragalus gilviflorus	0.3															
Astragalus gracilis												0.3			0.3	
Astragalus missouriensis		0.3					0.3			0.3	0.3	0.3		0.3		
Astragalus plattensis							0.3									
Astragalus purshii						0.3	0.3	0.3		0.3						0.3
Astragalus spatulatus					1						1			0.3		
Besseya wyomingensis		0.3			0.3											
Calochortus nuttallii			0.3			0.3	0.3		0.3		0.3					
Castilleja sessiliflora		0.3	0.3		0.3		0.3	0.3		0.3	0.3					0.3
Cerastium arvense		0.3			0.3	0.3							3		3	
Chrysopsis villosa									0.3							
Cirsium undulatum									0.3			4				0.3
Comandra umbellata	0.3				6		1				0.3		0.3			
Crepis occidentalis						0.3				0.3	0.3					
Dalea candida																0.3
Dalea purpurea	0.3				2			0.3		0.3	0.3	0.3			0.3	
Echinacea angustifolia	0.3				3		1	0.3		0.3	0.3	0.3			0.3	
Erigeron pumilus var. pumilus						0.3					0.3		0.3			
Eriogonum pauciflorum																

Table B12. Percent Canopy Cover by Class and Species for 27 *ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM															
	PLOT NUMBER															
	003	012	037	079	086	090	097	099	118	135	161	172	179	183	187	196
Gaura coccinea	0.3	3	0.3			1			1	0.3		0.3	0.3	0.3		0.3
Gilia congesta var. pseudotypica																
Gutierrezia sarothrae	2	0.3	8		2	1	4	0.3	0.3	0.3	4	3	5	17		1
Hedeoma drummondii	0.3															
Hedysarum boreale								4								
Helianthus rigidus					0.3											
Hymenopappus filifolius																
Iva axillaris																
Lesquerella alpina						0.3								0.3		
Leucocrinum montanum														0.3		
Liatris punctata							0.3								0.3	0.3
Linum lewisii						0.3		0.3					0.3		0.3	
Lithospermum incisum									0.3							
Lomatium foeniculaceum																
Lomatium orientale						0.3										
Machaeranthera grindelioides			0.3											0.3		
Musineon divaricatum	0.3			0.3		0.3		0.3			0.3					0.3
Opuntia polyacantha	0.3	1	0.3	2	0.3	2		0.3	0.3	0.3	0.3		0.3	0.3	0.3	0.3
Orobanche fasciculata																
Oxytropis lambertii						0.3	3	1		2			0.3		1	
Oxytropis sericea								0.3		0.3	0.3		0.3			
Penstemon eriantherus																
Penstemon nitidus																
Phlox alyssifolia																
Phlox hoodii	3		0.3	0.3	2	3	0.3	1		0.3	1			0.3	1	2
Picradeniopsis oppositifolia														0.3		
Polygala alba	0.3		0.3		1		0.3	0.3		0.3	1	0.3	0.3		0.3	1
Potentilla pensylvanica																
Psoralea argophylla	4	9		0.3	4	4	0.3	3	6	6	4		22	5	4	0.3
Psoralea esculenta			1		0.3	0.3	0.3	0.3								
Ratibida columnifera	1	0.3	2		3	0.3	0.3	0.3		0.3	0.3				0.3	
Senecio canus					0.3			0.3				0.3				
Sisyrinchium angustifolium											0.3					
Solidago missouriensis	0.3					0.3			0.3							
Sphaeralcea coccinea	1	0.3								0.3		0.3	0.3	1		
Thermopsis rhombifolia																
Vicia americana	0.3	0.3		0.3	1	4			1		0.3	1	4			
Viola nuttallii															0.3	
Yucca glauca																
Zigadenus venenosus	0.3		0.3		0.3	0.3		0.3		0.3		0.3			0.3	
TOTAL NPF AND SUBSHRUBS	**20.2**	**21.6**	**15.0**	**4.4**	**33.7**	**32.1**	**14.2**	**15.3**	**14.5**	**16.4**	**17.8**	**12.2**	**40.0**	**28.0**	**13.8**	**10.3**

Table B12. Percent Canopy Cover by Class and Species for 27 *ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM															
	PLOT NUMBER															
	003	012	037	079	086	090	097	099	118	135	161	172	179	183	187	196
INTRODUCED PERENNIAL FORBS																
Medicago sativa		0.3				0.3					0.3					
Taraxacum laevigatum	0.3	0.3	0.3	3	0.3	3		0.3		0.3		0.3	2	0.3	0.3	0.3
TOTAL IPF	**0.3**	**0.6**	**0.3**	**3.0**	**0.3**	**3.3**	**0.0**	**0.3**	**0.0**	**0.3**	**0.3**	**0.3**	**2.0**	**0.3**	**0.3**	**0.3**
FERNS AND ALLIES																
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS																
Arabis holboellii		0.3				0.3			0.3							
Cryptantha celosioides																
Descurainia pinnata				0.3												
Draba reptans														0.3		
Erysimum asperum				0.3												
Grindelia squarrosa	0.3															
Hedeoma hispidum	0.3	2			0.3				0.3	0.3						
Lappula redowskii																
Linum rigidum														0.3		
Orthocarpus luteus	1	0.3	7		2			0.3		0.3	0.3		0.3			0.3
Phacelia linearis				1		0.3			0.3							
Plantago patagonica	0.3	0.3		0.3	0.3		0.3		0.3	0.3			0.3	0.3		0.3
Silene antirrhina										0.3						
TOTAL NAF	**1.9**	**2.9**	**7.0**	**1.9**	**2.6**	**0.6**	**0.3**	**0.3**	**1.2**	**1.2**	**0.3**	**0.0**	**0.6**	**0.9**	**0.0**	**0.6**
INTRODUCED ANNUAL/BIENNIAL FORBS																
Alyssum alyssoides			0.3		0.3						0.3					
Alyssum desertorum	0.3	0.3		1		0.3	0.3	0.3	0.3	0.3			0.3	0.3	0.3	0.3
Camelina microcarpa				1								0.3	0.3	0.3		
Chorispora tenella																
Filago arvensis				2					0.3	0.3			0.3			
Lactuca serriola							0.3			0.3		0.3				0.3
Lepidium perfoliatum								0.3								
Medicago lupulina																
Melilotus officinalis	9	3		1	3	0.3				1			4			
Sisymbrium altissimum																
Tragopogon dubius	0.3		0.3	0.3	0.3	1				0.3	0.3	0.3		0.3	0.3	0.3
TOTAL IAF	**9.6**	**3.3**	**0.6**	**5.3**	**3.6**	**1.6**	**0.6**	**0.6**	**0.6**	**2.2**	**0.6**	**0.9**	**4.9**	**0.9**	**0.6**	**0.9**

Table B12. Percent Canopy Cover by Class and Species for 27 *ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM															
	PLOT NUMBER															
	003	012	037	079	086	090	097	099	118	135	161	172	179	183	187	196
SHRUBS																
Artemisia tridentata	8	39	4	52	12	42	30	6	48	7	9	21	26	6	32	10
Atriplex nuttallii													0.3			
Ceratoides lanata			2				1									
Chrysothamnus nauseosus																
TOTAL SHRUBS	**8.0**	**39.0**	**6.0**	**52.0**	**12.0**	**42.0**	**31.0**	**6.0**	**48.0**	**7.0**	**9.0**	**21.0**	**26.3**	**6.0**	**32.0**	**10.0**
TREES 0.01-acre																
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TREES 0.1-acre																
Juniperus scopulorum		1				18	2	1			2					
TOTAL TREES 0.1-acre	**0.0**	**1.0**	**0.0**	**0.0**	**0.0**	**18.0**	**2.0**	**1.0**	**0.0**	**0.0**	**2.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TOTAL VEGETATION (Stratified)	**92.0**	**120.7**	**95.2**	**124.9**	**144.2**	**132.2**	**84.4**	**59.8**	**130.3**	**88.4**	**73.6**	**73.7**	**159.8**	**93.7**	**75.6**	**78.7**

Footnotes are presented on cover page B-ii.

Table B12. Percent Canopy Cover by Class and Species for 27 *ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM												
	PLOT NUMBER												
	199	201	228	229	252	260	327	342	344	345	588	**Mean Cover**	***Con-stancy***
												n=27	
SITE PARAMETERS*													
Slope (percent)	8-16	12	2-8	10-12	30	2-5	4	28	12-30	8-16	6		
Aspect (degrees)	266	236	256	251	256	160	300	210	306	140	340		
Topography	Mid	Upper-Mid	Sho	Mid-Sho	Upper	Mid	Low	Rid-Sho	Upper	Mid	Upper-Swa		
Configuration	V	V	U	X	X	S	U	X	X	X	U		
Photo # (Digital)	901/902	769/770	377	073	032	260	327	342	771	866	903/904		
Investigator	DB/KL	DB/KL	KS/ED	ED	PL	JE	JE	JE	DB/KL	DB/KL	DB/KL		
Date	06/27/11	06/24/11	07/11/11	07/12/11	06/27/11	06/27/11	06/23/11	06/26/11	06/24/11	06/25/11	06/27/11		
GROUND COVER													
Bare Ground	40	42	60	56	30	55	10	33	35	25	37	**32.59**	***100***
Rock	5	5	1		65		0.3	15		20	8	**7.35**	***85***
Litter	45	45	20	28	3	42	84	50	46	50	42	**46.00**	***100***
Lichens	4	3	15	7	0.3	0.3			12	1	6	**9.26**	***89***
Moss	3	0.3	1	5		0.3			2		3	**0.90**	***63***
Basal Vegetation	3	5	3	4	2	3	6	2	5	4	4	**4.07**	***100***
VEGETATION STRUCTURE (nonstratified cover)													
Total Vegetation	56	58	64	69	62	62	78	48	63	51	65	**66.26**	***100***
Perennial Graminoids	38	23	40	34	30	20	25	23	40	23	49	**39.96**	***100***
Annual Graminoids	0.3	0.3	2	12	0.3	0.3	0.3	0.3	0.3	0.3		**2.37**	***89***
Perennial Forbs and Subshrubs	16	18	21	23	10	9	10	14	9	12	19	**16.74**	***100***
Annual/Biennial Forbs	1	0.3	4	9	25	21	55	3	2	23	1	**7.33**	***100***
Shrubs	9	27	32	10	5	26	9	14	22	8	6	**19.37**	***100***
Trees 0.01-acre												**0.00**	***0***
Trees 0.1-acre									0.3			**0.90**	***22***

Table B12. Percent Canopy Cover by Class and Species for 27 *ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM												
	PLOT NUMBER												
	199	201	228	229	252	260	327	342	344	345	588	**Mean Cover**	***Con-stancy***
												n=27	
CLASS\SPECIES													
NATIVE PERENNIAL GRAMINOIDS (Cool Season)													
Agropyron dasystachyum var. dasy.						18	4		17			**1.53**	***19***
Agropyron smithii	3	2		4	8		0.3	10	3	5	14	**4.51**	***78***
Agropyron spicatum	5	11	8	10	6	2	18	12	21	5	10	**11.33**	***100***
Aristida longiseta												**0.27**	***19***
Carex filifolia	11	2	1		0.3					2	4	**2.47**	***70***
Carex heliophila												**1.19**	***7***
Carex stenophylla	0.3											**0.01**	***4***
Koeleria cristata	4	5			0.3	0.3	2			2	3	**3.70**	***85***
Poa sandbergii			1		0.3							**0.56**	***37***
Poa scabrella	0.3	1		3		0.3						**0.40**	***30***
Stipa comata	9		16	12					2		5	**6.26**	***78***
Stipa viridula					18	2				6	7	**3.12**	***52***
TOTAL NPG(C)	**32.6**	**21.0**	**26.0**	**29.0**	**32.9**	**22.6**	**24.3**	**22.0**	**43.0**	**20.0**	**43.0**	**35.36**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)													
Andropogon scoparius		0.3										**0.31**	***19***
Bouteloua curtipendula		2			0.3					3	3	**1.32**	***33***
Bouteloua gracilis	7	1	18	6				1			7	**4.79**	***78***
Calamovilfa longifolia		1					0.3					**0.49**	***11***
Muhlenbergia cuspidata	2						2			2	2	**2.52**	***37***
Sporobolus cryptandrus				2	0.3							**0.09**	***7***
TOTAL NPG(W)	**9.0**	**4.3**	**18.0**	**8.0**	**0.6**	**0.0**	**2.3**	**1.0**	**0.0**	**5.0**	**12.0**	**9.51**	***89***
INTRODUCED PERENNIAL GRAMINOIDS													
Agropyron cristatum					1							**0.04**	***4***
Poa pratensis							0.3					**0.31**	***11***
TOTAL IPG	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.34**	***15***
NATIVE ANNUAL GRAMINOIDS													
Festuca octoflora	0.3		0.3	2					0.3			**0.14**	***26***
TOTAL NAG	**0.3**	**0.0**	**0.3**	**2.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.14**	***26***
INTRODUCED ANNUAL GRAMINOIDS													
Bromus japonicus	0.3	0.3	2	10	0.3	0.3	0.3	0.3	0.3	0.3		**2.26**	***89***
Bromus tectorum			0.3									**0.05**	***7***
TOTAL IAG	**0.3**	**0.3**	**2.3**	**10.0**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.0**	**2.31**	***89***

Table B12. Percent Canopy Cover by Class and Species for 27 *ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM												
	PLOT NUMBER												
	199	201	228	229	252	260	327	342	344	345	588	**Mean Cover**	***Con-stancy***
												n=27	
NATIVE PERENNIAL FORBS AND SUBSHRUBS													
Achillea millefolium							0.3				0.3	**0.40**	***37***
Agoseris glauca												**0.02**	***7***
Allium textile	0.3	0.3	0.3	0.3		0.3	0.3	0.3	0.3	0.3	0.3	**0.22**	***74***
Ambrosia psilostachya												**0.02**	***7***
Antennaria dimorpha	1											**0.23**	***19***
Antennaria howellii (neglecta)												**0.01**	***4***
Antennaria microphylla		1										**0.14**	***19***
Antennaria parvifolia												**0.02**	***7***
Arnica sororia												**0.16**	***7***
Artemisia frigida	0.3		1	10	0.3						1	**0.77**	***67***
Artemisia ludoviciana												**0.01**	***4***
Asclepias verticillata												**0.01**	***4***
Asclepias viridiflora		0.3										**0.02**	***7***
Aster falcatus	4		0.3				0.3	4		1	0.3	**0.90**	***70***
Aster oblongifolius		0.3					0.3					**0.06**	***19***
Astragalus adsurgens	1			0.3	0.3							**0.26**	***22***
Astragalus agrestis						2						**0.09**	***7***
Astragalus bisulcatus			2									**0.07**	***4***
Astragalus crassicarpus			0.3									**0.02**	***7***
Astragalus drummondii	1	1								0.3	0.3	**0.19**	***30***
Astragalus flexuosus												**0.01**	***4***
Astragalus gilviflorus		0.3		0.3	0.3		0.3					**0.06**	***19***
Astragalus gracilis				0.3								**0.03**	***11***
Astragalus missouriensis	0.3		0.3	0.3								**0.10**	***33***
Astragalus plattensis												**0.01**	***4***
Astragalus purshii		0.3										**0.07**	***22***
Astragalus spatulatus	0.3		7									**0.36**	***19***
Besseya wyomingensis												**0.02**	***7***
Calochortus nuttallii												**0.06**	***19***
Castilleja sessiliflora	0.3	0.3									0.3	**0.12**	***41***
Cerastium arvense												**0.26**	***19***
Chrysopsis villosa												**0.01**	***4***
Cirsium undulatum												**0.17**	***11***
Comandra umbellata	0.3				1		0.3	0.3			0.3	**0.37**	***37***
Crepis occidentalis		0.3				0.3						**0.06**	***19***
Dalea candida			6	2						0.3		**0.32**	***15***
Dalea purpurea	0.3	0.3					0.3				0.3	**0.19**	***41***
Echinacea angustifolia	0.3	0.3								0.3	0.3	**0.26**	***44***
Erigeron pumilus var. pumilus			0.3								0.3	**0.06**	***19***
Eriogonum pauciflorum					0.3			1	3			**0.16**	***11***

Table B12. Percent Canopy Cover by Class and Species for 27 *ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM												
	PLOT NUMBER												
	199	201	228	229	252	260	327	342	344	345	588	**Mean Cover**	***Con-stancy***
												n=27	
Gaura coccinea		0.3	0.3	2			0.3	0.3		2	0.3	**0.47**	***63***
Gilia congesta var. pseudotypica		0.3		0.3								**0.02**	***7***
Gutierrezia sarothrae	0.3	3	1	3	4	4	1	3	5	2	8	**3.06**	***93***
Hedeoma drummondii												**0.01**	***4***
Hedysarum boreale												**0.15**	***4***
Helianthus rigidus												**0.01**	***4***
Hymenopappus filifolius		0.3		0.3								**0.02**	***7***
Iva axillaris					0.3					1		**0.05**	***7***
Lesquerella alpina												**0.02**	***7***
Leucocrinum montanum	0.3										0.3	**0.03**	***11***
Liatris punctata												**0.03**	***11***
Linum lewisii		0.3										**0.06**	***19***
Lithospermum incisum												**0.01**	***4***
Lomatium foeniculaceum	0.3											**0.01**	***4***
Lomatium orientale							0.3					**0.02**	***7***
Machaeranthera grindelioides		0.3	0.3	0.3			0.3		0.3	0.3		**0.09**	***30***
Musineon divaricatum	0.3	0.3			0.3				0.3	0.3	0.3	**0.13**	***44***
Opuntia polyacantha				0.3			0.3	0.3		0.3	0.3	**0.36**	***70***
Orobanche fasciculata		0.3										**0.01**	***4***
Oxytropis lambertii		0.3										**0.29**	***26***
Oxytropis sericea	0.3										0.3	**0.07**	***22***
Penstemon eriantherus		0.3	0.3							0.3		**0.03**	***11***
Penstemon nitidus		0.3			0.3		0.3	1				**0.07**	***15***
Phlox alyssifolia								2				**0.07**	***4***
Phlox hoodii	2	1	0.3	0.3	1	1	0.3	1		1	4	**0.98**	***81***
Picradeniopsis oppositifolia												**0.01**	***4***
Polygala alba	0.3	0.3					1			0.3	0.3	**0.28**	***59***
Potentilla pensylvanica							0.3					**0.01**	***4***
Psoralea argophylla	2	4	1	0.3	1			0.3		1	1	**3.06**	***81***
Psoralea esculenta	0.3	0.3						0.3		0.3		**0.13**	***33***
Ratibida columnifera	0.3	0.3									0.3	**0.33**	***48***
Senecio canus								0.3				**0.04**	***15***
Sisyrinchium angustifolium												**0.01**	***4***
Solidago missouriensis												**0.03**	***11***
Sphaeralcea coccinea				3	0.3			0.3		0.3	0.3	**0.27**	***41***
Thermopsis rhombifolia		2				1	2					**0.19**	***11***
Vicia americana	1	1	2		1	1	2	0.3		0.3		**0.77**	***63***
Viola nuttallii										0.3		**0.02**	***7***
Yucca glauca											1	**0.04**	***4***
Zigadenus venenosus	0.3										0.3	**0.11**	***37***
TOTAL NPF AND SUBSHRUBS	**17.1**	**19.6**	**22.7**	**23.3**	**10.4**	**9.6**	**10.2**	**14.7**	**8.9**	**11.9**	**20.4**	**17.71**	***100***

Table B12. Percent Canopy Cover by Class and Species for 27 *ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM												
	PLOT NUMBER												
	199	201	228	229	252	260	327	342	344	345	588	**Mean Cover**	***Con-stancy***
												n=27	
INTRODUCED PERENNIAL FORBS													
Medicago sativa				1						0.3		**0.08**	***19***
Taraxacum laevigatum				1	0.3	0.3	0.3		0.3	0.3	0.3	**0.51**	***74***
TOTAL IPF	**0.0**	**0.0**	**0.0**	**2.0**	**0.3**	**0.3**	**0.3**	**0.0**	**0.3**	**0.6**	**0.3**	**0.59**	***78***
FERNS AND ALLIES													
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS													
Arabis holboellii												**0.03**	***11***
Cryptantha celosioides				0.3					0.3			**0.02**	***7***
Descurainia pinnata									0.3			**0.02**	***7***
Draba reptans				0.3					0.3			**0.03**	***11***
Erysimum asperum												**0.01**	***4***
Grindelia squarrosa								2				**0.09**	***7***
Hedeoma hispidum												**0.12**	***19***
Lappula redowskii									0.3	0.3		**0.02**	***7***
Linum rigidum	0.3		0.3	0.3							0.3	**0.06**	***19***
Orthocarpus luteus	0.3										0.3	**0.46**	***41***
Phacelia linearis												**0.06**	***11***
Plantago patagonica	0.3		1	0.3					0.3			**0.18**	***52***
Silene antirrhina												**0.01**	***4***
TOTAL NAF	**0.9**	**0.0**	**1.3**	**1.2**	**0.0**	**0.0**	**0.0**	**2.0**	**1.5**	**0.3**	**0.6**	**1.11**	***78***
INTRODUCED ANNUAL/BIENNIAL FORBS													
Alyssum alyssoides	0.3							0.3	0.3	0.3	0.3	**0.09**	***30***
Alyssum desertorum		0.3	0.3	0.3	0.3		0.3					**0.21**	***63***
Camelina microcarpa			0.3	0.3					0.3			**0.10**	***26***
Chorispora tenella									0.3			**0.01**	***4***
Filago arvensis			0.3									**0.12**	***19***
Lactuca serriola			0.3	0.3								**0.07**	***22***
Lepidium perfoliatum												**0.01**	***4***
Medicago lupulina							0.3					**0.01**	***4***
Melilotus officinalis		0.3	2	6	25	21	55	0.3		23		**5.70**	***56***
Sisymbrium altissimum										0.3		**0.01**	***4***
Tragopogon dubius	0.3	0.3	0.3	1	0.3	0.3		0.3	0.3	0.3	0.3	**0.29**	***78***
TOTAL IAF	**0.6**	**0.9**	**3.5**	**7.9**	**25.6**	**21.3**	**55.6**	**0.9**	**1.2**	**23.9**	**0.6**	**6.62**	***100***

Table B12. Percent Canopy Cover by Class and Species for 27 *ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM												
	PLOT NUMBER												
	199	201	228	229	252	260	327	342	344	345	588	**Mean Cover**	***Con-stancy***
												n=27	
SHRUBS													
Artemisia tridentata	9	27	32	10	5	26	9	11	16	8	6	**18.93**	***100***
Atriplex nuttallii									3			**0.12**	***7***
Ceratoides lanata									4			**0.26**	***11***
Chrysothamnus nauseosus					0.3			3				**0.12**	***7***
TOTAL SHRUBS	**9.0**	**27.0**	**32.0**	**10.0**	**5.3**	**26.0**	**9.0**	**14.0**	**23.0**	**8.0**	**6.0**	**19.43**	***100***
TREES 0.01-acre													
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TREES 0.1-acre													
Juniperus scopulorum									0.3			**0.90**	***22***
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.90**	***22***
TOTAL VEGETATION (Stratified)	**69.8**	**73.1**	**106.1**	**93.4**	**76.4**	**80.1**	**102.3**	**54.9**	**78.5**	**70.0**	**82.9**	**93.14**	***100***

Footnotes are presented on cover page B-ii.

Table B13. Percent Canopy Cover by Class and Species for 10 *ARTEMISIA TRIDENTATA/ANDROPOGON SCOPARIUS* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA/ANDROPOGON SCOPARIUS											
	PLOT NUMBER											
	010	031	081	083	094	144	149	200	220	313	**Mean Cover**	***Con-stancy***
											n=10	
SITE PARAMETERS*												
Slope (percent)	11	25	10-15	15	10	10-12	12	12-20	20	12-28		
Aspect (degrees)	200	230	142	250	012	080	038	058	190	272		
Topography	Mid	Upper-Mid	Upper-Mid	Mid	Upper-Mid	Low-Mid	Upper-Mid	Mid	Mid	Upper-Mid		
Configuration	U	S(X)	U	V(U)	V	V	S	U	X	U		
Photo # (Digital)	192	031	062/063	196	242	243	037	892/893	153	722/723		
Investigator	DB	JE/SC	ED	DB	DB/ED	KS/ED	KS/ED	DB/KL	DB/KL	DB/KL		
Date	07/13/11	07/12/11	06/29/11	07/13/11	07/16/11	06/24/11	06/24/11	06/26/11	07/11/11	06/23/11		
GROUND COVER												
Bare Ground	30	35	44	34	25	40	22	25	30	37	**32.20**	***100***
Rock	2	0.3	4	2	3	0.3	0.3	30	25	4	**7.09**	***100***
Litter	49	60	40	45	55	50	56	35	37	50	**47.70**	***100***
Lichens	10	0.3	7	12	8	4	16	5	4	3	**6.93**	***100***
Moss	4	1		2	2	0.3	1	2	1		**1.33**	***80***
Basal Vegetation	5	3	5	5	7	5	5	3	3	6	**4.70**	***100***
VEGETATION STRUCTURE (nonstratified cover)												
Total Vegetation	78	72	72	75	90	68	74	54	65	79	**72.70**	***100***
Perennial Graminoids	54	38	56	50	65	54	58	32	23	35	**46.50**	***100***
Annual Graminoids	10	0.3	2	4	5	0.3	0.3	1	0.3		**2.32**	***90***
Perennial Forbs and Subshrubs	16	17	17	22	19	32	26	22	12	9	**19.20**	***100***
Annual/Biennial Forbs	3	15	5	1	1	0.3	0.3	0.3	43	32	**10.09**	***100***
Shrubs	7	12	10	10	17	12	8	8	9	17	**11.00**	***100***
Trees 0.01-acre		2			22		15				**3.90**	***30***
Trees 0.1-acre		1			6		10				**1.70**	***30***

Table B13. Percent Canopy Cover by Class and Species for 10 *ARTEMISIA TRIDENTATA/ANDROPOGON SCOPARIUS* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA/ANDROPOGON SCOPARIUS											
	PLOT NUMBER											
	010	031	081	083	094	144	149	200	220	313	**Mean Cover**	***Con-stancy***
											n=10	
CLASS\SPECIES												
NATIVE PERENNIAL GRAMINOIDS (Cool Season)												
Agropyron dasystachyum var. dasy.						3					**0.30**	***10***
Agropyron smithii	4	15	6			2	3		4	7	**4.10**	***70***
Agropyron spicatum	3	3	7	8	5	7	14	6	2	3	**5.80**	***100***
Aristida longiseta		0.3				1	2				**0.33**	***30***
Calamagrostis montanensis						1					**0.10**	***10***
Carex filifolia	5	1	18	3		6	4	10	2		**4.90**	***80***
Festuca idahoensis					12						**1.20**	***10***
Koeleria cristata	5		6	6	4	5	7	4	2	4	**4.30**	***90***
Poa sandbergii		0.3						0.3			**0.06**	***20***
Stipa comata	19	0.3	10	18	6	6	5	4	2	4	**7.43**	***100***
Stipa viridula	8	5	2	5	26	4	8			3	**6.10**	***80***
TOTAL NPG(C)	**44.0**	**24.9**	**49.0**	**40.0**	**53.0**	**35.0**	**43.0**	**24.3**	**12.0**	**21.0**	**34.62**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)												
Andropogon scoparius	4	10	4	4	10	5	5	8	3	3	**5.60**	***100***
Bouteloua curtipendula	3		8	5	12	20	2	1	3		**5.40**	***80***
Bouteloua gracilis	7	12		5	7	2	1	3	5	10	**5.20**	***90***
Calamovilfa longifolia	1									5	**0.60**	***20***
Muhlenbergia cuspidata			3				0.3		2		**0.53**	***30***
TOTAL NPG(W)	**15.0**	**22.0**	**15.0**	**14.0**	**29.0**	**27.0**	**8.3**	**12.0**	**13.0**	**18.0**	**17.33**	***100***
INTRODUCED PERENNIAL GRAMINOIDS												
Poa pratensis							22				**2.20**	***10***
TOTAL IPG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**22.0**	**0.0**	**0.0**	**0.0**	**2.20**	***10***
NATIVE ANNUAL GRAMINOIDS												
Festuca octoflora				0.3							**0.03**	***10***
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.03**	***10***

Table B13. Percent Canopy Cover by Class and Species for 10 *ARTEMISIA TRIDENTATA/ANDROPOGON SCOPARIUS* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA/ANDROPOGON SCOPARIUS											
	PLOT NUMBER											
	010	031	081	083	094	144	149	200	220	313	**Mean Cover**	***Con-stancy***
											n=10	
INTRODUCED ANNUAL GRAMINOIDS												
Bromus japonicus	10	0.3	2	4	5	0.3	0.3	1	0.3		**2.32**	***90***
TOTAL IAG	**10.0**	**0.3**	**2.0**	**4.0**	**5.0**	**0.3**	**0.3**	**1.0**	**0.3**	**0.0**	**2.32**	***90***
NATIVE PERENNIAL FORBS AND SUBSHRUBS												
Achillea millefolium		1		1	1	0.3	0.3	0.3			**0.39**	***60***
Allium textile									0.3	0.3	**0.06**	***20***
Antennaria dimorpha						1		0.3			**0.13**	***20***
Antennaria microphylla					0.3		1	1			**0.23**	***30***
Antennaria parvifolia				0.3							**0.03**	***10***
Artemisia frigida	2	0.3	0.3	0.3	0.3	0.3	0.3	1	1		**0.58**	***90***
Artemisia ludoviciana				0.3							**0.03**	***10***
Asclepias viridiflora				0.3	0.3						**0.06**	***20***
Aster falcatus	1	1		2	2	1	3	0.3	1		**1.13**	***80***
Aster oblongifolius	1	0.3		6		1					**0.83**	***40***
Astragalus adsurgens					1						**0.10**	***10***
Astragalus agrestis		3									**0.30**	***10***
Astragalus drummondii		0.3			0.3	0.3	1	0.3			**0.22**	***50***
Astragalus gilviflorus									0.3		**0.03**	***10***
Astragalus gracilis			1	0.3							**0.13**	***20***
Astragalus lotiflorus				0.3							**0.03**	***10***
Astragalus missouriensis						0.3					**0.03**	***10***
Astragalus purshii				0.3	0.3	0.3					**0.09**	***30***
Astragalus spatulatus								1			**0.10**	***10***
Besseya wyomingensis			0.3		0.3	0.3		0.3			**0.12**	***40***
Calochortus nuttallii			1			0.3				0.3	**0.16**	***30***
Castilleja sessiliflora		0.3	0.3	0.3		1		0.3	0.3		**0.25**	***60***
Cerastium arvense					8			3			**1.10**	***20***
Chrysopsis villosa				0.3							**0.03**	***10***
Cirsium undulatum				0.3				0.3	0.3		**0.09**	***30***
Comandra umbellata								0.3	0.3	0.3	**0.09**	***30***
Crepis occidentalis								0.3			**0.03**	***10***
Dalea candida		0.3							1	0.3	**0.16**	***30***
Dalea purpurea								0.3	1		**0.13**	***20***
Echinacea angustifolia	2	0.3	1	1	1	1	2	0.3			**0.86**	***80***

Table B13. Percent Canopy Cover by Class and Species for 10 *ARTEMISIA TRIDENTATA/ANDROPOGON SCOPARIUS* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA/ANDROPOGON SCOPARIUS											
	PLOT NUMBER											
	010	031	081	083	094	144	149	200	220	313	**Mean Cover**	***Con-stancy***
											n=10	
Erigeron pumilus var. pumilus		0.3	0.3			0.3		0.3			**0.12**	***40***
Gaura coccinea	0.3	0.3	0.3	0.3	1		0.3	0.3	0.3	0.3	**0.34**	***90***
Geum triflorum								0.3			**0.03**	***10***
Gilia congesta var. pseudotypica										0.3	**0.03**	***10***
Gutierrezia sarothrae		1	0.3			8	0.3	3	1	2	**1.56**	***70***
Helianthus rigidus				1							**0.10**	***10***
Leucocrinum montanum			0.3				1				**0.13**	***20***
Liatris punctata			0.3					0.3	0.3		**0.09**	***30***
Linum lewisii		1		0.3	0.3		0.3	0.3		0.3	**0.25**	***60***
Lomatium foeniculaceum										0.3	**0.03**	***10***
Lomatium orientale							0.3	0.3			**0.06**	***20***
Lygodesmia juncea						0.3					**0.03**	***10***
Machaeranthera grindelioides								0.3			**0.03**	***10***
Musineon divaricatum				0.3		0.3		0.3			**0.09**	***30***
Opuntia polyacantha			0.3	1		0.3	0.3	0.3	0.3	0.3	**0.28**	***70***
Oxytropis lambertii			5			4					**0.90**	***20***
Oxytropis sericea		0.3						1	0.3		**0.16**	***30***
Penstemon albidus										0.3	**0.03**	***10***
Penstemon nitidus										0.3	**0.03**	***10***
Phlox hoodii	2	1	0.3	2	2	4	2	2	2	1	**1.83**	***100***
Polygala alba		0.3	0.3	0.3	0.3	2	0.3	0.3		0.3	**0.41**	***80***
Psoralea argophylla	5	5	6	3	1	6	9	2	2	0.3	**3.93**	***100***
Psoralea esculenta				0.3			0.3	0.3			**0.09**	***30***
Ratibida columnifera	2	1	0.3	2	0.3	0.3	3	0.3	0.3		**0.95**	***90***
Senecio canus								0.3			**0.03**	***10***
Solidago missouriensis		0.3						0.3			**0.06**	***20***
Solidago rigida								0.3			**0.03**	***10***
Sphaeralcea coccinea	0.3	0.3		0.3				0.3		0.3	**0.15**	***50***
Townsendia hookeri			0.3								**0.03**	***10***
Vicia americana		0.3			0.3	2	2	0.3		1	**0.59**	***60***
Yucca glauca						0.3				1	**0.13**	***20***
Zigadenus venenosus			0.3	0.3	0.3	0.3		0.3			**0.15**	***50***
TOTAL NPF AND SUBSHRUBS	**15.6**	**17.9**	**18.2**	**24.1**	**20.3**	**35.2**	**26.7**	**22.7**	**12.0**	**9.2**	**20.19**	***100***

Table B13. Percent Canopy Cover by Class and Species for 10 *ARTEMISIA TRIDENTATA/ANDROPOGON SCOPARIUS* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA/ANDROPOGON SCOPARIUS											
	PLOT NUMBER											
	010	031	081	083	094	144	149	200	220	313	**Mean Cover**	***Con-stancy***
											n=10	
INTRODUCED PERENNIAL FORBS												
Medicago sativa									0.3		**0.03**	***10***
Taraxacum laevigatum	0.3	0.3			0.3	0.3	3	0.3		0.3	**0.48**	***70***
TOTAL IPF	**0.3**	**0.3**	**0.0**	**0.0**	**0.3**	**0.3**	**3.0**	**0.3**	**0.3**	**0.3**	**0.51**	***80***
FERNS AND ALLIES												
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS												
Collomia linearis					0.3						**0.03**	***10***
Cryptantha celosioides										0.3	**0.03**	***10***
Draba reptans			0.3						0.3		**0.06**	***20***
Epilobium paniculatum							0.3				**0.03**	***10***
Erysimum asperum						0.3					**0.03**	***10***
Hedeoma hispidum	1										**0.10**	***10***
Orthocarpus luteus	1	0.3	0.3	0.3	0.3		0.3	0.3			**0.28**	***70***
Plantago patagonica	0.3	0.3	0.3	0.3				0.3	0.3	0.3	**0.21**	***70***
Silene antirrhina	0.3										**0.03**	***10***
TOTAL NAF	**2.6**	**0.6**	**0.9**	**0.6**	**0.6**	**0.3**	**0.6**	**0.6**	**0.6**	**0.6**	**0.80**	***100***
INTRODUCED ANNUAL/BIENNIAL FORBS												
Alyssum alyssoides	0.3		1	0.3		0.3	0.3				**0.22**	***50***
Alyssum desertorum			3					0.3	0.3		**0.36**	***30***
Camelina microcarpa			0.3	0.3							**0.06**	***20***
Filago arvensis	0.3										**0.03**	***10***
Lactuca serriola	0.3			0.3							**0.06**	***20***
Medicago lupulina									1		**0.10**	***10***
Melilotus alba		0.3							3		**0.33**	***20***
Melilotus officinalis		14						0.3	41	32	**8.73**	***40***
Tragopogon dubius	0.3	0.3	0.3	0.3	0.3		0.3			0.3	**0.21**	***70***
TOTAL IAF	**1.2**	**14.6**	**4.6**	**1.2**	**0.3**	**0.3**	**0.6**	**0.6**	**45.3**	**32.3**	**10.10**	***100***

Table B13. Percent Canopy Cover by Class and Species for 10 *ARTEMISIA TRIDENTATA/ANDROPOGON SCOPARIUS* **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA/ANDROPOGON SCOPARIUS											
	PLOT NUMBER											
	010	031	081	083	094	144	149	200	220	313	**Mean Cover**	***Con-stancy***
											n=10	
SHRUBS												
Artemisia cana				1							**0.10**	***10***
Artemisia tridentata	7	11	10	9	17	12	8	8	9	17	**10.80**	***100***
Rosa arkansana		1									**0.10**	***10***
TOTAL SHRUBS	**7.0**	**12.0**	**10.0**	**10.0**	**17.0**	**12.0**	**8.0**	**8.0**	**9.0**	**17.0**	**11.00**	***100***
TREES 0.01-acre												
Juniperus scopulorum		2			22		15				**3.90**	***30***
TOTAL TREES 0.01-acre	**0.0**	**2.0**	**0.0**	**0.0**	**22.0**	**0.0**	**15.0**	**0.0**	**0.0**	**0.0**	**3.90**	***30***
TREES 0.1-acre												
Juniperus scopulorum		1			6		10				**1.70**	***30***
TOTAL TREES 0.1-acre	**0.0**	**1.0**	**0.0**	**0.0**	**6.0**	**0.0**	**10.0**	**0.0**	**0.0**	**0.0**	**1.70**	***30***
TOTAL VEGETATION (Stratified)	**95.7**	**94.6**	**99.7**	**94.2**	**147.5**	**110.4**	**127.5**	**69.5**	**92.5**	**98.4**	**103.00**	***100***

Footnotes are presented on cover page B-ii.

Table B14. Percent Canopy Cover by Class and Species for Nine *AGROPYRON SMITHII* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***AGROPYRON SMITHII* BREAKS**										
	PLOT NUMBER										
	245	256	283	300	302	303	307	325	331	**Mean Cover**	***Con-stancy***
										n=9	
SITE PARAMETERS*											
Slope (percent)	32	9	18	7	2-5	5-8	4	2	0-4		
Aspect (degrees)	250	256	212	240	252	164	190	200	270		
Topography	Mid-Bnk	Toe	Low-Mid	Mid-Ben	Low	Sad-Rid	Sho	Sad	Mid-Rid		
Configuration	U	X	U	X	S	V	V	V	V		
Photo # (Digital)	219	284	959/960	967	255	244/245	037	325	331		
Investigator	JE/SC	KS	DB/KL	DB/KL	KS	KS	PL	JE	JE		
Date	07/12/11	06/29/11	06/27/11	06/28/11	06/25/11	06/24/11	06/28/11	06/23/11	06/25/11		
GROUND COVER											
Bare Ground	98	75	20	60	50	70	92	40	79	**64.89**	***100***
Rock		1	56	15	0.3	1	0.3	0.3	10	**9.32**	***89***
Litter	0.3	20	22	23	19	25	5	47	10	**19.03**	***100***
Lichens		0.3			28	2	0.3	10		**4.51**	***56***
Moss										**0.00**	***0***
Water										**0.00**	***0***
Basal Vegetation	2	4	2	2	3	2	2	3	1	**2.33**	***100***
VEGETATION STRUCTURE (nonstratified cover)											
Total Vegetation	24	46	48	26	60	46	29	43	18	**37.78**	***100***
Perennial Graminoids	15	19	28	12	19	32	5	35	15	**20.00**	***100***
Annual Graminoids	3	0.3			10	0.3		1		**1.62**	***56***
Perennial Forbs and Subshrubs	1	28	9	12	10	15	21	5	4	**11.67**	***100***
Annual/Biennial Forbs	5	0.3	16	2	30	2	6	7	0.3	**7.62**	***100***
Shrubs	1	1		1	0.3	4		1	1	**1.03**	***78***
Trees 0.01-acre										**0.00**	***0***
Trees 0.1-acre			2							**0.22**	***11***

Table B14. Percent Canopy Cover by Class and Species for Nine *AGROPYRON SMITHII* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***AGROPYRON SMITHII* BREAKS**										
	PLOT NUMBER										
	245	256	283	300	302	303	307	325	331	**Mean Cover**	***Con-stancy***
										n=9	
CLASS\SPECIES											
NATIVE PERENNIAL GRAMINOIDS (Cool Season)											
Agropyron dasystachyum var. dasy.		6		4		14			10	**3.78**	***44***
Agropyron smithii	15	4	12	8	12	10	4	35	2	**11.33**	***100***
Agropyron spicatum		2	4				0.3		0.3	**0.73**	***44***
Aristida longiseta		1				0.3				**0.14**	***22***
Carex filifolia		0.3								**0.03**	***11***
Koeleria cristata		6	0.3				0.3	1	0.3	**0.88**	***56***
Poa glaucifolia						1				**0.11**	***11***
Poa sandbergii		1			6		0.3			**0.81**	***33***
Poa scabrella								1		**0.11**	***11***
Sitanion hystrix							0.3			**0.03**	***11***
Stipa viridula						1				**0.11**	***11***
TOTAL NPG(C)	**15.0**	**20.3**	**16.3**	**12.0**	**18.0**	**26.3**	**5.2**	**37.0**	**12.6**	**18.08**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)											
Andropogon scoparius			1							**0.11**	***11***
Bouteloua curtipendula			1							**0.11**	***11***
Bouteloua gracilis			8							**0.89**	***11***
Calamovilfa longifolia			1						1	**0.22**	***22***
Distichlis stricta			3			6			3	**1.33**	***33***
Muhlenbergia cuspidata		0.3	1			1				**0.26**	***33***
Schedonnardus paniculatus					3					**0.33**	***11***
Sporobolus cryptandrus					0.3					**0.03**	***11***
TOTAL NPG(W)	**0.0**	**0.3**	**15.0**	**0.0**	**3.3**	**7.0**	**0.0**	**0.0**	**4.0**	**3.29**	***56***
INTRODUCED PERENNIAL GRAMINOIDS											
Agropyron cristatum	0.3									**0.03**	***11***
TOTAL IPG	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.03**	***11***
NATIVE ANNUAL GRAMINOIDS											
Festuca octoflora								0.3		**0.03**	***11***
Hordeum pusillum	0.3				0.3	0.3		0.3		**0.13**	***44***
TOTAL NAG	**0.3**	**0.0**	**0.0**	**0.0**	**0.3**	**0.3**	**0.0**	**0.6**	**0.0**	**0.17**	***44***
INTRODUCED ANNUAL GRAMINOIDS											
Bromus japonicus	3	0.3			10	0.3		1		**1.62**	***56***
Bromus tectorum	0.3									**0.03**	***11***
TOTAL IAG	**3.3**	**0.3**	**0.0**	**0.0**	**10.0**	**0.3**	**0.0**	**1.0**	**0.0**	**1.66**	***56***

Table B14. Percent Canopy Cover by Class and Species for Nine *AGROPYRON SMITHII* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***AGROPYRON SMITHII* BREAKS**										
	PLOT NUMBER										
	245	256	283	300	302	303	307	325	331	**Mean Cover**	***Con-stancy***
										n=9	
NATIVE PERENNIAL FORBS AND SUBSHRUBS											
Allium textile				0.3		0.3			0.3	**0.10**	***33***
Artemisia frigida		0.3								**0.03**	***11***
Aster falcatus		2	0.3			4		3		**1.03**	***44***
Astragalus adsurgens			0.3							**0.03**	***11***
Astragalus gilviflorus							0.3		0.3	**0.07**	***22***
Astragalus plattensis				0.3						**0.03**	***11***
Astragalus spatulatus		0.3								**0.03**	***11***
Calochortus nuttallii		0.3				0.3	0.3			**0.10**	***33***
Comandra umbellata			0.3				0.3		0.3	**0.10**	***33***
Crepis occidentalis				0.3						**0.03**	***11***
Cryptantha spiculifera (interrupta)		0.3								**0.03**	***11***
Dalea candida		3				0.3				**0.37**	***22***
Dalea purpurea			0.3				0.3		0.3	**0.10**	***33***
Erigeron pumilus var. pumilus		1		0.3						**0.14**	***22***
Eriogonum pauciflorum				5			0.3		1	**0.70**	***33***
Gaura coccinea		0.3								**0.03**	***11***
Gilia congesta var. pseudotypica			0.3				0.3		0.3	**0.10**	***33***
Gutierrezia sarothrae		14	3	5		6	12	0.3	0.3	**4.51**	***78***
Iva axillaris		3	2	1			0.3	0.3		**0.73**	***56***
Lomatium foeniculaceum			0.3				0.3			**0.07**	***22***
Lomatium orientale						0.3		0.3		**0.07**	***22***
Machaeranthera grindelioides		1							0.3	**0.14**	***22***
Musineon divaricatum		0.3	0.3			0.3			0.3	**0.13**	***44***
Oenothera caespitosa							0.3		1	**0.14**	***22***
Opuntia polyacantha					5					**0.56**	***11***
Oxytropis lambertii			0.3							**0.03**	***11***
Penstemon albidus		0.3				0.3				**0.07**	***22***
Phlox hoodii		0.3	1	0.3		1	0.3			**0.32**	***56***
Polygala alba		0.3	0.3							**0.07**	***22***
Psoralea argophylla		0.3	1	1		1				**0.37**	***44***
Psoralea esculenta		0.3				0.3	0.3			**0.10**	***33***
Ratibida columnifera						0.3				**0.03**	***11***
Senecio canus			0.3							**0.03**	***11***
Solidago missouriensis			0.3							**0.03**	***11***
Sphaeralcea coccinea	1				1					**0.22**	***22***
Suaeda moquinii							7			**0.78**	***11***
Townsendia hookeri		0.3								**0.03**	***11***
Vicia americana		2		0.3		2	0.3	0.3		**0.54**	***56***
TOTAL NPF AND SUBSHRUBS	**1.0**	**29.6**	**10.3**	**13.8**	**6.0**	**16.4**	**22.6**	**4.2**	**4.4**	**12.03**	***100***

Table B14. Percent Canopy Cover by Class and Species for Nine *AGROPYRON SMITHII* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***AGROPYRON SMITHII* BREAKS**										
	PLOT NUMBER										
	245	256	283	300	302	303	307	325	331	**Mean Cover**	***Con-stancy***
										n=9	
INTRODUCED PERENNIAL FORBS											
Taraxacum laevigatum	0.3	0.3	0.3		4	0.3		0.3		**0.61**	***67***
TOTAL IPF	**0.3**	**0.3**	**0.3**	**0.0**	**4.0**	**0.3**	**0.0**	**0.3**	**0.0**	**0.61**	***67***
FERNS AND ALLIES											
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS											
Atriplex argentea	2									**0.22**	***11***
Atriplex suckleyi						0.3				**0.03**	***11***
Cryptantha celosioides			0.3							**0.03**	***11***
Grindelia squarrosa		0.3	0.3	1		2	6	2	0.3	**1.32**	***78***
Lepidium densiflorum					6			0.3		**0.70**	***22***
Machaeranthera tanacetifolia	2									**0.22**	***11***
Plantago elongata	0.3				8					**0.92**	***22***
Plantago patagonica	0.3				12			1		**1.48**	***33***
Polygonum arenastrum						0.3				**0.03**	***11***
TOTAL NAF	**4.6**	**0.3**	**0.6**	**1.0**	**26.0**	**2.6**	**6.0**	**3.3**	**0.3**	**4.97**	***100***
INTRODUCED ANNUAL/BIENNIAL FORBS											
Alyssum desertorum			0.3		6					**0.70**	***22***
Filago arvensis	0.3							0.3		**0.07**	***22***
Lactuca serriola	0.3									**0.03**	***11***
Melilotus officinalis			16	1				4		**2.33**	***33***
Tragopogon dubius		0.3		0.3	0.3	0.3				**0.13**	***44***
TOTAL IAF	**0.6**	**0.3**	**16.3**	**1.3**	**6.3**	**0.3**	**0.0**	**4.3**	**0.0**	**3.27**	***78***
SHRUBS											
Artemisia tridentata		1		1	0.3	3				**0.59**	***44***
Atriplex nuttallii	0.3									**0.03**	***11***
Ceratoides lanata	1									**0.11**	***11***
Chrysothamnus nauseosus				0.3		1			1	**0.26**	***33***
Sarcobatus vermiculatus								1		**0.11**	***11***
TOTAL SHRUBS	**1.3**	**1.0**	**0.0**	**1.3**	**0.3**	**4.0**	**0.0**	**1.0**	**1.0**	**1.10**	***78***

Table B14. Percent Canopy Cover by Class and Species for Nine *AGROPYRON SMITHII* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***AGROPYRON SMITHII* BREAKS**										
	PLOT NUMBER										
	245	256	283	300	302	303	307	325	331	**Mean Cover**	***Con-stancy***
										n=9	
TREES 0.01-acre											
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TREES 0.1-acre											
Juniperus scopulorum			2							**0.22**	***11***
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**2.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.22**	***11***
TOTAL VEGETATION (Stratified)	**26.7**	**52.4**	**58.8**	**29.4**	**74.2**	**57.5**	**33.8**	**51.7**	**22.3**	**45.20**	***100***

Footnotes are presented on cover page B-ii.

Table B15. Percent Canopy Cover by Class and Species for Four *AGROPYRON SPICATUM* **BREAKS** and Four *SPOROBOLUS AIROIDES* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***AGROPYRON SPICATUM* BREAKS**											
	PLOT NUMBER						**PLOT NUMBER**					
	217	287	292	346	**Mean Cover**	***Con-stancy***	215	223	236	347	**Mean Cover**	***Con-stancy***
					n=4						**n=4**	
SITE PARAMETERS*												
Slope (percent)	7	2	30	4-16			5	8	10	9		
Aspect (degrees)	308	012	152	016			340	260	260	210		
Topography	Low-Toe	Rid	Low-Mid	Low			Toe-Bot	Low-Mid	Low-Mid	Upper		
Configuration	U	X	U	V			V	U	V	U		
Photo # (Digital)	187	042	004	726			183	223	236	231-232		
Investigator	DB	PL	PL	DB/KL			DB	JE	JE	SC		
Date	07/12/11	06/29/11	06/23/11	06/23/11			07/12/11	07/13/11	07/13/11	07/13/11		
GROUND COVER												
Bare Ground	78	74	40	70	**65.50**	***100***	87	60	40	55	**60.50**	***100***
Rock	2	25	59	5	**22.75**	***100***	2	10	0.3	40	**13.08**	***100***
Litter	17	0.3	1	23	**10.33**	***100***	10	28	57	2	**24.25**	***100***
Lichens		0.3			**0.08**	***25***				1	**0.25**	***25***
Moss					**0.00**	***0***					**0.00**	***0***
Water					**0.00**	***0***					**0.00**	***0***
Basal Vegetation	3	1	0.3	2	**1.58**	***100***	1	2	3	2	**2.00**	***100***
VEGETATION STRUCTURE (nonstratified cover)												
Total Vegetation	41	9	14	34	**24.50**	***100***	21	48	58	30	**39.25**	***100***
Perennial Graminoids	28	6	5	13	**13.00**	***100***	20	28	38	15	**25.25**	***100***
Annual Graminoids					**0.00**	***0***		0.3	5		**1.33**	***50***
Perennial Forbs and Subshrubs	12	4	11	16	**10.75**	***100***	1	11	17	14	**10.75**	***100***
Annual/Biennial Forbs	0.3		0.3	5	**1.40**	***75***		0.3	4	0.3	**1.15**	***75***
Shrubs	2	0.3	0.3	3	**1.40**	***100***		3	2	4	**2.25**	***75***
Trees 0.01-acre					**0.00**	***0***		10			**2.50**	***25***
Trees 0.1-acre					**0.00**	***0***		1			**0.25**	***25***

Table B15. Percent Canopy Cover by Class and Species for Four *AGROPYRON SPICATUM* **BREAKS** and Four *SPOROBOLUS AIROIDES* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***AGROPYRON SPICATUM* BREAKS**											
	PLOT NUMBER						**PLOT NUMBER**					
	217	287	292	346	**Mean Cover**	***Con-stancy***	215	223	236	347	**Mean Cover**	***Con-stancy***
					n=4						**n=4**	
CLASS\SPECIES												
NATIVE PERENNIAL GRAMINOIDS (Cool Season)												
Agropyron dasystachyum var. dasy.				4	**1.00**	***25***		3		2	**1.25**	***50***
Agropyron smithii	5				**1.25**	***25***		2	15	0.3	**4.33**	***75***
Agropyron spicatum	5	5	4	4	**4.50**	***100***				4	**1.00**	***25***
Aristida longiseta								1	1	3	**1.25**	***75***
Carex filifolia									2		**0.50**	***25***
Hordeum jubatum							0.3				**0.08**	***25***
Koeleria cristata	1				**0.25**	***25***		1	0.3	0.3	**0.40**	***75***
Oryzopsis hymenoides			0.3		**0.08**	***25***						
Poa sandbergii									0.3		**0.08**	***25***
Poa scabrella				3	**0.75**	***25***						
Scirpus americanus							1				**0.25**	***25***
Stipa comata				2	**0.50**	***25***						
Stipa viridula	0.3				**0.08**	***25***			2		**0.50**	***25***
TOTAL NPG(C)	**11.3**	**5.0**	**4.3**	**13.0**	**8.40**	***100***	**1.3**	**7.0**	**20.6**	**9.6**	**9.63**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)												
Andropogon scoparius	3	0.3	0.3		**0.90**	***75***		5			**1.25**	***25***
Bouteloua curtipendula	2		0.3		**0.58**	***50***		2			**0.50**	***25***
Bouteloua gracilis									5	2	**1.75**	***50***
Calamovilfa longifolia		1			**0.25**	***25***			1		**0.25**	***25***
Distichlis stricta	14				**3.50**	***25***	5				**1.25**	***25***
Muhlenbergia cuspidata								1	2		**0.75**	***50***
Sporobolus airoides							14	15	15	4	**12.00**	***100***
Sporobolus cryptandrus	0.3				**0.08**	***25***						
TOTAL NPG(W)	**19.3**	**1.3**	**0.6**	**0.0**	**5.30**	***75***	**19.0**	**23.0**	**23.0**	**6.0**	**17.75**	***100***
INTRODUCED PERENNIAL GRAMINOIDS												
TOTAL IPG	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL GRAMINOIDS												
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS												
Bromus japonicus								0.3	5		**1.33**	***50***
Bromus tectorum								0.3			**0.08**	***25***
TOTAL IAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.6**	**5.0**	**0.0**	**1.40**	***50***

Table B15. Percent Canopy Cover by Class and Species for Four *AGROPYRON SPICATUM* **BREAKS** and Four *SPOROBOLUS AIROIDES* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***AGROPYRON SPICATUM* BREAKS**											
	PLOT NUMBER						**PLOT NUMBER**					
	217	287	292	346	**Mean Cover**	***Con-stancy***	215	223	236	347	**Mean Cover**	***Con-stancy***
					n=4						**n=4**	
NATIVE PERENNIAL FORBS AND SUBSHRUBS												
Achillea millefolium	0.3				**0.08**	***25***			0.3		**0.08**	***25***
Allium textile				0.3	**0.08**	***25***			0.3	0.3	**0.15**	***50***
Antennaria howellii (neglecta)								1			**0.25**	***25***
Aster falcatus	3				**0.75**	***25***		1	2		**0.75**	***50***
Astragalus crassicarpus			0.3		**0.08**	***25***						
Astragalus gilviflorus			0.3		**0.08**	***25***		0.3		0.3	**0.15**	***50***
Astragalus missouriensis										0.3	**0.08**	***25***
Astragalus spatulatus	0.3				**0.08**	***25***						
Castilleja sessiliflora	0.3				**0.08**	***25***		0.3			**0.08**	***25***
Comandra umbellata	0.3				**0.08**	***25***				0.3	**0.08**	***25***
Dalea candida	0.3		1		**0.33**	***50***		1	0.3	2	**0.83**	***75***
Dalea purpurea		0.3			**0.08**	***25***		0.3	0.3		**0.15**	***50***
Echinacea angustifolia	0.3		0.3		**0.15**	***50***		0.3		1	**0.33**	***50***
Erigeron pumilus var. pumilus									0.3		**0.08**	***25***
Eriogonum pauciflorum	2	0.3	1	11	**3.58**	***100***		0.3		3	**0.83**	***50***
Gaura coccinea	0.3		0.3		**0.15**	***50***			0.3	0.3	**0.15**	***50***
Gutierrezia sarothrae	4	1	3	5	**3.25**	***100***		2	10	2	**3.50**	***75***
Hymenopappus filifolius	0.3				**0.08**	***25***				0.3	**0.08**	***25***
Iva axillaris							1	1			**0.50**	***50***
Liatris punctata			0.3		**0.08**	***25***						
Linum lewisii	0.3		0.3		**0.15**	***50***						
Machaeranthera grindelioides	0.3	0.3	0.3		**0.23**	***75***				1	**0.25**	***25***
Musineon divaricatum		0.3		0.3	**0.15**	***50***						
Opuntia polyacantha								1	0.3		**0.33**	***50***
Oxytropis lambertii			0.3		**0.08**	***25***						
Phlox hoodii	1		0.3		**0.33**	***50***				0.3	**0.08**	***25***
Polygala alba	0.3				**0.08**	***25***		1		2	**0.75**	***50***
Psoralea argophylla									2	0.3	**0.58**	***50***
Psoralea esculenta				0.3	**0.08**	***25***			0.3	1	**0.33**	***50***
Ratibida columnifera								0.3	0.3		**0.15**	***50***
Senecio canus	0.3	1	0.3		**0.40**	***75***		0.3		0.3	**0.15**	***50***
Solidago nemoralis		1			**0.25**	***25***						
Thermopsis rhombifolia			2		**0.50**	***25***		1		0.3	**0.33**	***50***
Yucca glauca			1		**0.25**	***25***						
TOTAL NPF AND SUBSHRUBS	**13.6**	**4.2**	**11.0**	**16.9**	**11.43**	***100***	**1.0**	**11.1**	**16.7**	**15.0**	**10.95**	***100***
INTRODUCED PERENNIAL FORBS												
Taraxacum laevigatum									0.3		**0.08**	***25***
TOTAL IPF	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.3**	**0.0**	**0.08**	***25***

Table B15. Percent Canopy Cover by Class and Species for Four *AGROPYRON SPICATUM* **BREAKS** and Four *SPOROBOLUS AIROIDES* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***AGROPYRON SPICATUM* BREAKS**											
	PLOT NUMBER						**PLOT NUMBER**					
	217	287	292	346	**Mean Cover**	***Con-stancy***	215	223	236	347	**Mean Cover**	***Con-stancy***
					n=4						**n=4**	
FERNS AND ALLIES												
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS												
Cryptantha celosioides			0.3		**0.08**	***25***						
Grindelia squarrosa	0.3				**0.08**	***25***		0.3			**0.08**	***25***
Hedeoma hispidum									0.3		**0.08**	***25***
Linum rigidum									0.3		**0.08**	***25***
Orthocarpus luteus									0.3	0.3	**0.15**	***50***
Plantago elongata									0.3		**0.08**	***25***
TOTAL NAF	**0.3**	**0.0**	**0.3**	**0.0**	**0.15**	***50***	**0.0**	**0.3**	**1.2**	**0.3**	**0.45**	***75***
INTRODUCED ANNUAL/BIENNIAL FORBS												
Filago arvensis									0.3		**0.08**	***25***
Lactuca serriola									0.3		**0.08**	***25***
Melilotus officinalis	0.3			5	**1.33**	***50***			2		**0.50**	***25***
Tragopogon dubius									0.3		**0.08**	***25***
TOTAL IAF	**0.3**	**0.0**	**0.0**	**5.0**	**1.33**	***50***	**0.0**	**0.0**	**2.9**	**0.0**	**0.73**	***25***
SHRUBS												
Artemisia tridentata				2	**0.50**	***25***		3	2	1	**1.50**	***75***
Atriplex confertifolia				1	**0.25**	***25***						
Ceratoides lanata										2	**0.50**	***25***
Chrysothamnus nauseosus	2	0.3	0.3	0.3	**0.73**	***100***				1	**0.25**	***25***
Rosa arkansana	0.3		0.3		**0.15**	***50***						
TOTAL SHRUBS	**2.3**	**0.3**	**0.6**	**3.3**	**1.63**	***100***	**0.0**	**3.0**	**2.0**	**4.0**	**2.25**	***75***
TREES 0.01-acre												
Juniperus scopulorum								10			**2.50**	***25***
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**10.0**	**0.0**	**0.0**	**2.50**	***25***
TREES 0.1-acre												
Juniperus scopulorum								1			**0.25**	***25***
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**1.0**	**0.0**	**0.0**	**0.25**	***25***
TOTAL VEGETATION (Stratified)	**47.1**	**10.8**	**16.8**	**38.2**	**28.23**	***100***	**21.3**	**55.0**	**71.7**	**34.9**	**45.73**	***100***

Footnotes are presented on cover page B-ii.

Table B16. Percent Canopy Cover by Class and Species for Five *CALAMOVILFA LONGIFOLIA* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***CALAMOVILFA LONGIFOLIA* BREAKS**						
	PLOT NUMBER						
	288	328	335	336	410	**Mean Cover**	***Con-stancy***
						n=5	
SITE PARAMETERS*							
Slope (percent)	15-20	0-2	1	5	20		
Aspect (degrees)	180	260	180	300	268		
Topography	Upper-Mid	Upper-Mid	Mid	Upper-Mid	Upper-Sho		
Configuration	X	V	U	S(X)	S		
Photo # (Digital)	040	328	335	014	005		
Investigator	PL	JE	JE	PL	PL		
Date	06/29/11	06/23/11	06/25/11	06/25/11	06/23/11		
GROUND COVER							
Bare Ground	30	72	80	75	20	**55.40**	***100***
Rock	55	2	3	6	72	**27.60**	***100***
Litter	8	24	15	10	7	**12.80**	***100***
Lichens	5	0.3		8		**2.66**	***60***
Moss				0.3		**0.06**	***20***
Water						**0.00**	***0***
Basal Vegetation	2	2	2	1	1	**1.60**	***100***
VEGETATION STRUCTURE (nonstratified cover)							
Total Vegetation	31	35	24	38	25	**30.60**	***100***
Perennial Graminoids	22	20	13	24	16	**19.00**	***100***
Annual Graminoids	0.3	0.3		0.3	0.3	**0.24**	***80***
Perennial Forbs and Subshrubs	10	14	13	14	9	**12.00**	***100***
Annual/Biennial Forbs	0.3	2	0.3	3	0.3	**1.18**	***100***
Shrubs	1	2	0.3	0.3	1	**0.92**	***100***
Trees 0.01-acre						**0.00**	***0***
Trees 0.1-acre						**0.00**	***0***

Table B16. Percent Canopy Cover by Class and Species for Five *CALAMOVILFA LONGIFOLIA* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***CALAMOVILFA LONGIFOLIA* BREAKS**						
	PLOT NUMBER						
	288	328	335	336	410	**Mean Cover**	***Con-stancy***
						n=5	
CLASS\SPECIES							
NATIVE PERENNIAL GRAMINOIDS (Cool Season)							
Agropyron dasystachyum var. dasy.		6		4		**2.00**	***40***
Agropyron smithii			3	5		**1.60**	***40***
Agropyron spicatum	15	0.3		1	2	**3.66**	***80***
Aristida longiseta			0.3	0.3	0.3	**0.18**	***60***
Carex filifolia		0.3		1	2	**0.66**	***60***
Koeleria cristata	0.3	1	1	0.3	0.3	**0.58**	***100***
Poa sandbergii				0.3		**0.06**	***20***
Poa scabrella			0.3			**0.06**	***20***
Stipa comata	3			0.3	0.3	**0.72**	***60***
Stipa viridula	1					**0.20**	***20***
TOTAL NPG(C)	**19.3**	**7.6**	**4.6**	**12.2**	**4.9**	**9.72**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)							
Andropogon scoparius	2		5		7	**2.80**	***60***
Bouteloua curtipendula	0.3					**0.06**	***20***
Bouteloua gracilis		6		2	1	**1.80**	***60***
Calamovilfa longifolia	3	6	4	4	3	**4.00**	***100***
Muhlenbergia cuspidata		2		8	0.3	**2.06**	***60***
TOTAL NPG(W)	**5.3**	**14.0**	**9.0**	**14.0**	**11.3**	**10.72**	***100***
INTRODUCED PERENNIAL GRAMINOIDS							
Agropyron cristatum				0.3		**0.06**	***20***
TOTAL IPG	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.06**	***20***
NATIVE ANNUAL GRAMINOIDS							
Festuca octoflora		0.3				**0.06**	***20***
TOTAL NAG	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.06**	***20***
INTRODUCED ANNUAL GRAMINOIDS							
Bromus japonicus	0.3	0.3		0.3	0.3	**0.24**	***80***
TOTAL IAG	**0.3**	**0.3**	**0.0**	**0.3**	**0.3**	**0.24**	***80***

Table B16. Percent Canopy Cover by Class and Species for Five *CALAMOVILFA LONGIFOLIA* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***CALAMOVILFA LONGIFOLIA* BREAKS**						
	PLOT NUMBER						
	288	328	335	336	410	**Mean Cover**	***Con-stancy***
						n=5	
NATIVE PERENNIAL FORBS AND SUBSHRUBS							
Allium textile		0.3	0.3	0.3	0.3	**0.24**	***80***
Antennaria dimorpha				1		**0.20**	***20***
Artemisia campestris					0.3	**0.06**	***20***
Artemisia frigida	1					**0.20**	***20***
Asclepias viridiflora	0.3					**0.06**	***20***
Aster falcatus		0.3	0.3	2		**0.52**	***60***
Astragalus adsurgens					0.3	**0.06**	***20***
Astragalus gilviflorus		0.3	1	0.3		**0.32**	***60***
Astragalus hyalinus					0.3	**0.06**	***20***
Astragalus missouriensis	0.3				1	**0.26**	***40***
Astragalus spatulatus				0.3		**0.06**	***20***
Calochortus nuttallii	0.3				0.3	**0.12**	***40***
Campanula rotundifolia	0.3					**0.06**	***20***
Chrysopsis villosa					0.3	**0.06**	***20***
Comandra umbellata					0.3	**0.06**	***20***
Dalea candida	0.3			0.3		**0.12**	***40***
Dalea purpurea		0.3	0.3	0.3		**0.18**	***60***
Echinacea angustifolia	0.3			0.3		**0.12**	***40***
Erigeron pumilus var. pumilus		0.3		0.3		**0.12**	***40***
Eriogonum pauciflorum	1	0.3	3	0.3	0.3	**0.98**	***100***
Gaura coccinea	1				0.3	**0.26**	***40***
Glycyrrhiza lepidota	0.3			2		**0.46**	***40***
Gutierrezia sarothrae	1	8	3	1	0.3	**2.66**	***100***
Hedeoma drummondii					0.3	**0.06**	***20***
Hymenopappus filifolius	0.3		0.3		0.3	**0.18**	***60***
Iva axillaris		0.3	1	2		**0.66**	***60***
Kuhnia eupatorioides	0.3					**0.06**	***20***
Lesquerella alpina	0.3				0.3	**0.12**	***40***
Liatris punctata					0.3	**0.06**	***20***
Lithospermum incisum				0.3		**0.06**	***20***
Machaeranthera grindelioides	0.3		0.3	0.3	0.3	**0.24**	***80***
Musineon divaricatum		0.3	0.3	0.3		**0.18**	***60***
Oenothera caespitosa			0.3			**0.06**	***20***
Opuntia polyacantha		1		1		**0.40**	***40***
Oxytropis lambertii				0.3		**0.06**	***20***
Penstemon albidus					0.3	**0.06**	***20***
Penstemon eriantherus			0.3			**0.06**	***20***
Penstemon nitidus					0.3	**0.06**	***20***
Phlox hoodii	1		2	0.3		**0.66**	***60***

Table B16. Percent Canopy Cover by Class and Species for Five *CALAMOVILFA LONGIFOLIA* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***CALAMOVILFA LONGIFOLIA* BREAKS**						
	PLOT NUMBER						
	288	328	335	336	410	**Mean Cover**	***Con-stancy***
						n=5	
Polygala alba	0.3		1	0.3	0.3	**0.38**	***80***
Psoralea argophylla		0.3		0.3		**0.12**	***40***
Psoralea esculenta		1	0.3	0.3	0.3	**0.38**	***80***
Ratibida columnifera	0.3			0.3		**0.12**	***40***
Senecio canus					1	**0.20**	***20***
Solidago missouriensis	1				0.3	**0.26**	***40***
Solidago nemoralis	0.3				1	**0.26**	***40***
Solidago rigida	0.3					**0.06**	***20***
Yucca glauca		2			1	**0.60**	***40***
Zigadenus venenosus					0.3	**0.06**	***20***
TOTAL NPF AND SUBSHRUBS	**10.5**	**14.7**	**13.7**	**14.1**	**10.3**	**12.66**	***100***
INTRODUCED PERENNIAL FORBS							
Taraxacum laevigatum	0.3	0.3		0.3		**0.18**	***60***
TOTAL IPF	**0.3**	**0.3**	**0.0**	**0.3**	**0.0**	**0.18**	***60***
FERNS AND ALLIES							
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS							
Arabis holboellii					0.3	**0.06**	***20***
Cryptantha celosioides			0.3			**0.06**	***20***
Draba reptans				0.3		**0.06**	***20***
Grindelia squarrosa			0.3	2		**0.46**	***40***
Hedeoma hispidum		0.3				**0.06**	***20***
Linum rigidum			0.3			**0.06**	***20***
Orthocarpus luteus		0.3		0.3		**0.12**	***40***
Plantago patagonica		0.3		0.3		**0.12**	***40***
TOTAL NAF	**0.0**	**0.9**	**0.9**	**2.9**	**0.3**	**1.00**	***80***
INTRODUCED ANNUAL/BIENNIAL FORBS							
Alyssum desertorum		0.3		0.3		**0.12**	***40***
Lactuca serriola	0.3					**0.06**	***20***
Melilotus officinalis		0.3				**0.06**	***20***
Tragopogon dubius		0.3		0.3	0.3	**0.18**	***60***
TOTAL IAF	**0.3**	**0.9**	**0.0**	**0.6**	**0.3**	**0.42**	***80***

Table B16. Percent Canopy Cover by Class and Species for Five *CALAMOVILFA LONGIFOLIA* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***CALAMOVILFA LONGIFOLIA* BREAKS**						
	PLOT NUMBER						
	288	328	335	336	410	**Mean Cover**	***Con-stancy***
						n=5	
SHRUBS							
Artemisia tridentata	1	2		0.3		**0.66**	***60***
Chrysothamnus nauseosus	0.3		0.3	0.3		**0.18**	***60***
Rhus aromatica					1	**0.20**	***20***
TOTAL SHRUBS	**1.3**	**2.0**	**0.3**	**0.6**	**1.0**	**1.04**	***100***
TREES 0.01-acre							
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TREES 0.1-acre							
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TOTAL VEGETATION (Stratified)	**37.3**	**41.0**	**28.5**	**45.3**	**28.4**	**36.10**	***100***

Footnotes are presented on cover page B-ii.

Table B17. Percent Canopy Cover by Class and Species for 25 *ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* BREAKS**													
	PLOT NUMBER													
	077	104	131	212	233	235	238	240	244	246	251	258	261	263
SITE PARAMETERS*														
Slope (percent)	2	0-1	4-8	15-100	22	1-12	14-16	1-8	10	15	7	14	28	2-4
Aspect (degrees)	250	000	170	188	230	045	230	330	232	230	190	235	020	290
Topography	Mid-Ben	Ben	Low	Bank-Toe	Low-Bank	Rid-Sho	Upper	Rid-Upper	Bank	Mid	Toe	Upper	Upper-Mid	Mid
Configuration	S	S(V)	U	U/V	S(U)	U(X)	X	U	U	U	U	S	U	S(V)
Photo # (Digital)	077	160/161	131	234	223/224	227/228	355	213	148/149	246	010/011	119/120	152/153	263
Investigator	JE	SC	JE	KS	SC	SC	KS/ED	JE/SC	DB/KL	JE/SC	SC	SC	SC	JE
Date	06/27/11	07/09/11	06/28/11	06/23/11	07/13/11	07/13/11	07/10/11	07/12/11	07/11/11	07/12/11	06/27/11	07/07/11	07/08/11	06/27/11
GROUND COVER														
Bare Ground	0.3	60	20	86	37	98	55	84	42	28	76	88	90	89
Rock			0.3	0.3	60		10	15	3	40	22	3	7	0.3
Litter	95	8	73	12	1	1	30	0.3	43	20	1	5	2	10
Lichens		30	0.3		0.3		2	0.3	8	10		0.3	0.3	
Moss			0.3						1					
Water														
Basal Vegetation	5	2	6	2	2	1	3	1	3	2	1	4	1	1
VEGETATION STRUCTURE (nonstratified cover)														
Total Vegetation	69	72	72	50	19	22	58	11	54	48	11	48	33	22
Perennial Graminoids	50	38	42	9	10	13	38	2	28	16	4	32	9	10
Annual Graminoids	3	10	0.3	6	0.3	0.3	1	0.3	0.3	0.3		1	0.3	0.3
Perennial Forbs and Subshrubs	7	8	0.3	6	2	5	22	2	8	6	4	14	10	4
Annual/Biennial Forbs	13	38	1	26	4	3	7	3	2	9	0.3	2	13	0.3
Shrubs	14	9	42	15	3	4	8	4	20	20	3	5	5	9
Trees 0.01-acre														
Trees 0.1-acre								1						

Table B17. Percent Canopy Cover by Class and Species for 25 *ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* BREAKS**													
	PLOT NUMBER													
	077	104	131	212	233	235	238	240	244	246	251	258	261	263
CLASS\SPECIES														
NATIVE PERENNIAL GRAMINOIDS (Cool Season)														
Agropyron dasystachyum var. dasy.					8	1		2		0.3	4	2	5	8
Agropyron smithii	25	35	40	3	0.3	10	2		10	3	0.3	10	1	
Agropyron spicatum				2					1	5		1	2	
Aristida longiseta							2					0.3	0.3	
Carex filifolia												2		
Koeleria cristata							1		0.3	1			0.3	
Poa glaucifolia					0.3	0.3		0.3						
Poa juncifolia		4											0.3	
Poa sandbergii	0.3								1			1		
Poa scabrella			1				0.3							2
Stipa comata									4	1		3		
Stipa viridula			2	1			4						1	
TOTAL NPG(C)	**25.3**	**39.0**	**43.0**	**6.0**	**8.6**	**11.3**	**9.3**	**2.3**	**16.3**	**10.3**	**4.3**	**19.3**	**9.9**	**10.0**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)														
Bouteloua curtipendula					0.3		8			1		1	0.3	
Bouteloua gracilis	35						12		15	7		12		
Calamovilfa longifolia				2								2		
Distichlis stricta					1		12			0.3				
Muhlenbergia cuspidata														
Sporobolus airoides														
TOTAL NPG(W)	**35.0**	**0.0**	**0.0**	**2.0**	**1.3**	**0.0**	**32.0**	**0.0**	**15.0**	**8.3**	**0.0**	**15.0**	**0.3**	**0.0**
INTRODUCED PERENNIAL GRAMINOIDS														
Agropyron cristatum		2												
Poa pratensis				1										
TOTAL IPG	**0.0**	**2.0**	**0.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL GRAMINOIDS														
Festuca octoflora	0.3													
Hordeum pusillum		0.3												
TOTAL NAG	**0.3**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Table B17. Percent Canopy Cover by Class and Species for 25 *ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* BREAKS**													
	PLOT NUMBER													
	077	104	131	212	233	235	238	240	244	246	251	258	261	263
INTRODUCED ANNUAL GRAMINOIDS														
Bromus japonicus	3	10	0.3	6	0.3	0.3	1	0.3	0.3	0.3		1	0.3	0.3
Bromus tectorum		1		0.3										
TOTAL IAG	**3.0**	**11.0**	**0.3**	**6.3**	**0.3**	**0.3**	**1.0**	**0.3**	**0.3**	**0.3**	**0.0**	**1.0**	**0.3**	**0.3**
NATIVE PERENNIAL FORBS AND SUBSHRUBS														
Achillea millefolium		0.3											2	
Allium textile							0.3					0.3	0.3	
Artemisia frigida		0.3		0.3			0.3		6			0.3		
Artemisia ludoviciana				1										
Aster falcatus	0.3						2					0.3	0.3	
Aster oblongifolius														
Astragalus adsurgens													0.3	
Astragalus drummondii					0.3									
Astragalus gilviflorus												0.3	0.3	
Astragalus lotiflorus													0.3	
Astragalus missouriensis											0.3	0.3		
Astragalus spatulatus										0.3				
Calochortus nuttallii							0.3							
Cerastium arvense													0.3	
Comandra umbellata					0.3		0.3			0.3			0.3	
Crepis occidentalis														
Cryptantha spiculifera (interrupta)														
Dalea candida							8							
Dalea purpurea							0.3			0.3		6	0.3	
Echinacea angustifolia												1		
Erigeron pumilus var. pumilus									0.3			0.3		
Eriogonum flavum													0.3	
Eriogonum pauciflorum						3					3	0.3	1	4
Gaura coccinea				0.3			0.3					0.3		
Gilia congesta var. pseudotypica														
Gutierrezia sarothrae						1	8	0.3	0.3	2	0.3	1	5	0.3
Hymenopappus filifolius														
Iva axillaris					0.3	1	0.3	0.3						
Lactuca oblongifolia				4										
Linum lewisii								0.3						
Lithospermum incisum														

Table B17. Percent Canopy Cover by Class and Species for 25 *ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* BREAKS**													
	PLOT NUMBER													
	077	104	131	212	233	235	238	240	244	246	251	258	261	263
Lomatium foeniculaceum														
Lomatium orientale														
Machaeranthera grindelioides										0.3	0.3			
Musineon divaricatum										0.3				
Oenothera caespitosa														
Opuntia polyacantha	0.3	2										0.3		
Oxytropis lambertii												0.3		
Oxytropis sericea							0.3			0.3				
Penstemon albidus								0.3				0.3		
Penstemon eriantherus										0.3				
Penstemon nitidus														
Phlox hoodii							1	0.3		0.3		0.3	0.3	
Polygala alba							1			0.3		0.3		
Psoralea argophylla							0.3			0.3		3		
Psoralea esculenta							0.3							
Ratibida columnifera														
Solidago missouriensis					0.3									
Sphaeralcea coccinea	0.3			0.3	0.3		0.3	0.3	1					
Suaeda moquinii														
Thermopsis rhombifolia						0.3								
Vicia americana	1	0.3	0.3		0.3		0.3	0.3			0.3			0.3
Viola nuttallii														
Zigadenus venenosus										0.3				
TOTAL NPF AND SUBSHRUBS	**1.9**	**2.9**	**0.3**	**5.9**	**1.8**	**5.3**	**23.6**	**2.1**	**7.6**	**5.3**	**4.2**	**14.9**	**11.0**	**4.6**
INTRODUCED PERENNIAL FORBS														
Medicago sativa		5			0.3									
Taraxacum laevigatum	5	0.3	0.3		0.3				0.3					
TOTAL IPF	**5.0**	**5.3**	**0.3**	**0.0**	**0.6**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
FERNS AND ALLIES														
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS														
Atriplex suckleyi						3		2						0.3
Cryptantha celosioides										0.3				
Descurainia richardsonii														
Erysimum asperum										0.3				
Grindelia squarrosa					1		4			0.3			0.3	

Table B17. Percent Canopy Cover by Class and Species for 25 *ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* BREAKS**													
	PLOT NUMBER													
	077	104	131	212	233	235	238	240	244	246	251	258	261	263
Hedeoma hispidum	0.3									0.3		0.3		
Helianthus annuus													0.3	
Lepidium densiflorum														
Linum rigidum												0.3		
Machaeranthera canescens														
Orthocarpus luteus			0.3				0.3							
Plantago elongata												0.3		
Plantago patagonica	0.3		0.3				0.3		0.3	0.3		0.3		
Suaeda depressa														
TOTAL NAF	**0.6**	**0.0**	**0.6**	**0.0**	**1.0**	**3.0**	**4.6**	**2.0**	**0.3**	**1.5**	**0.0**	**1.2**	**0.6**	**0.3**
INTRODUCED ANNUAL/BIENNIAL FORBS														
Alyssum alyssoides				1	0.3									
Alyssum desertorum	0.3		0.3										0.3	
Camelina microcarpa														
Filago arvensis	10	0.3												
Lactuca serriola	0.3		0.3							0.3				
Lepidium perfoliatum	0.3													
Medicago lupulina	0.3													
Melilotus officinalis	2	38	0.3	24	3	0.3	3	1	2	8	0.3	1	12	0.3
Sisymbrium altissimum				0.3										
Thlaspi arvense				0.3										
Tragopogon dubius	0.3	0.3	0.3	2			0.3		0.3	0.3		0.3		0.3
TOTAL IAF	**13.5**	**38.6**	**1.2**	**27.6**	**3.3**	**0.3**	**3.3**	**1.0**	**2.3**	**8.6**	**0.3**	**1.3**	**12.3**	**0.6**
SHRUBS														
Artemisia cana				6										
Artemisia tridentata	8	1	38		3	2	4	1	9	19	2	5	4	5
Atriplex nuttallii						1			4	0.3				
Ceratoides lanata									0.3					
Chrysothamnus nauseosus				9		1	4	3	8	1	0.3	0.3	1	4
Rhus aromatica							0.3							
Rosa arkansana						0.3								
Rosa woodsii				0.3										
Sarcobatus vermiculatus	6	8	6		0.3			0.3			1		0.3	
TOTAL SHRUBS	**14.0**	**9.0**	**44.0**	**15.3**	**3.3**	**4.3**	**8.3**	**4.3**	**21.3**	**20.3**	**3.3**	**5.3**	**5.3**	**9.0**

Table B17. Percent Canopy Cover by Class and Species for 25 *ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* BREAKS**													
	PLOT NUMBER													
	077	104	131	212	233	235	238	240	244	246	251	258	261	263
TREES 0.01-acre														
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TREES 0.1-acre														
Juniperus scopulorum								1						
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TOTAL VEGETATION (Stratified)	**98.6**	**108.1**	**89.7**	**64.1**	**20.2**	**24.5**	**82.1**	**12.0**	**63.4**	**54.6**	**12.1**	**58.0**	**39.7**	**24.8**

Footnotes are presented on cover page B-ii.

Table B17. Percent Canopy Cover by Class and Species for 25 *ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* BREAKS**												
	PLOT NUMBER												
	265	271	276	296	301	308	310	314	326	334	337	**Mean Cover**	***Con-stancy***
												n=25	
SITE PARAMETERS*													
Slope (percent)	6-12	42	6	18-34	20-48	4-24	6	32	1-2	5	3		
Aspect (degrees)	174	270	180	314	194	260	180	200	280	220	264		
Topography	Upper-Mid	Upper-Mid	Low-Mid	Low	Upper	Upper-Toe	Mid-Rid	Upper	Ben-Rid	Upper	Sho		
Configuration	U	U	X	X	X	U	X	U	X	U	U		
Photo # (Digital)	947	202/203	276	045	980	273	277	716/717	326	334	027		
Investigator	DB/KL	JE/SC	JE	DB/KL	DB/KL	KS	KS	DB/KL	JE	JE	PL		
Date	06/27/11	07/11/11	06/29/11	07/07/11	06/28/11	06/28/11	06/28/11	06/23/11	06/23/11	06/25/11	06/27/11		
GROUND COVER													
Bare Ground	50	87	40	52	65	73	88	60	45	30	92	**61.41**	***100***
Rock	20	1	0.3	10	12	5		2	0.3	20	4	**9.42**	***84***
Litter	28	10	57	35	20	20	10	35	53	47	3	**24.77**	***100***
Lichens		0.3	0.3						0.3			**2.10**	***48***
Moss			0.3									**0.06**	***12***
Water												**0.00**	***0***
Basal Vegetation	2	2	3	3	3	2	2	3	2	3	1	**2.40**	***100***
VEGETATION STRUCTURE (nonstratified cover)													
Total Vegetation	36	58	68	40	48	32	52	47	42	46	18	**43.04**	***100***
Perennial Graminoids	24	21	23	21	20	15	22	7	13	19	5	**19.64**	***100***
Annual Graminoids	0.3	5	0.3		3	0.3	0.3	2		5		**1.58**	***84***
Perennial Forbs and Subshrubs	5	3	6	4	7	6	14	2	30	16	8	**7.97**	***100***
Annual/Biennial Forbs	1	0.3	46	9	2	10	14	25	0.3	4		**9.33**	***96***
Shrubs	9	40	6	8	22	3	8	19	4	4	8	**11.68**	***100***
Trees 0.01-acre												**0.00**	***0***
Trees 0.1-acre												**0.04**	***4***

Table B17. Percent Canopy Cover by Class and Species for 25 *ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* BREAKS**												
	PLOT NUMBER												
	265	271	276	296	301	308	310	314	326	334	337	**Mean Cover**	***Con-stancy***
												n=25	
CLASS\SPECIES													
NATIVE PERENNIAL GRAMINOIDS (Cool Season)													
Agropyron dasystachyum var. dasy.	4	16			8	9	8		1			**3.05**	***56***
Agropyron smithii	4	6	9	6	4	2	10	1	6	12	4	**8.14**	***92***
Agropyron spicatum			3			0.3				2	1	**0.69**	***36***
Aristida longiseta												**0.10**	***12***
Carex filifolia			3									**0.20**	***8***
Koeleria cristata			1			0.3	0.3	1	5	1		**0.45**	***40***
Poa glaucifolia										3		**0.16**	***16***
Poa juncifolia	5	0.3				4	6					**0.78**	***24***
Poa sandbergii												**0.09**	***12***
Poa scabrella			1						2			**0.25**	***20***
Stipa comata			3					1				**0.48**	***20***
Stipa viridula					4	0.3		3		2		**0.69**	***32***
TOTAL NPG(C)	**13.0**	**22.3**	**20.0**	**6.0**	**16.0**	**15.9**	**24.3**	**6.0**	**14.0**	**20.0**	**5.0**	**15.10**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)													
Bouteloua curtipendula												**0.42**	***20***
Bouteloua gracilis			4									**3.40**	***24***
Calamovilfa longifolia								1				**0.20**	***12***
Distichlis stricta	12			14	6			0.3				**1.82**	***28***
Muhlenbergia cuspidata			2							1		**0.12**	***8***
Sporobolus airoides				2								**0.08**	***4***
TOTAL NPG(W)	**12.0**	**0.0**	**6.0**	**16.0**	**6.0**	**0.0**	**0.0**	**1.3**	**0.0**	**1.0**	**0.0**	**6.05**	***56***
INTRODUCED PERENNIAL GRAMINOIDS													
Agropyron cristatum												**0.08**	***4***
Poa pratensis												**0.04**	***4***
TOTAL IPG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.12**	***8***
NATIVE ANNUAL GRAMINOIDS													
Festuca octoflora												**0.01**	***4***
Hordeum pusillum						0.3	0.3					**0.04**	***12***
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.05**	***16***

Table B17. Percent Canopy Cover by Class and Species for 25 *ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* BREAKS**												
	PLOT NUMBER												
	265	271	276	296	301	308	310	314	326	334	337	**Mean Cover**	***Con-stancy***
												n=25	
INTRODUCED ANNUAL GRAMINOIDS													
Bromus japonicus	0.3	4	0.3		3	0.3	0.3	2		5		**1.54**	***84***
Bromus tectorum		1										**0.09**	***12***
TOTAL IAG	**0.3**	**5.0**	**0.3**	**0.0**	**3.0**	**0.3**	**0.3**	**2.0**	**0.0**	**5.0**	**0.0**	**1.64**	***84***
NATIVE PERENNIAL FORBS AND SUBSHRUBS													
Achillea millefolium												**0.09**	***8***
Allium textile					0.3	0.3			0.3	0.3		**0.08**	***28***
Artemisia frigida												**0.29**	***20***
Artemisia ludoviciana												**0.04**	***4***
Aster falcatus	0.3						1		1	2		**0.29**	***32***
Aster oblongifolius	0.3											**0.01**	***4***
Astragalus adsurgens												**0.01**	***4***
Astragalus drummondii												**0.01**	***4***
Astragalus gilviflorus						0.3			2		0.3	**0.13**	***20***
Astragalus lotiflorus												**0.01**	***4***
Astragalus missouriensis									0.3			**0.04**	***12***
Astragalus spatulatus									2			**0.09**	***8***
Calochortus nuttallii			0.3							0.3		**0.04**	***12***
Cerastium arvense												**0.01**	***4***
Comandra umbellata	0.3		0.3					0.3		0.3		**0.10**	***32***
Crepis occidentalis							0.3					**0.01**	***4***
Cryptantha spiculifera (interrupta)			0.3									**0.01**	***4***
Dalea candida						0.3			0.3			**0.34**	***12***
Dalea purpurea			0.3								0.3	**0.30**	***24***
Echinacea angustifolia												**0.04**	***4***
Erigeron pumilus var. pumilus												**0.02**	***8***
Eriogonum flavum												**0.01**	***4***
Eriogonum pauciflorum	0.3				0.3				0.3		1	**0.53**	***36***
Gaura coccinea			0.3	0.3		0.3		0.3		0.3		**0.10**	***32***
Gilia congesta var. pseudotypica									0.3			**0.01**	***4***
Gutierrezia sarothrae	1		1		2	1	8	1	15	2	3	**2.09**	***72***
Hymenopappus filifolius			0.3									**0.01**	***4***
Iva axillaris	2	0.3		3	2		0.3	0.3	2	8		**0.79**	***48***
Lactuca oblongifolia												**0.16**	***4***
Linum lewisii									0.3			**0.02**	***8***
Lithospermum incisum										0.3		**0.01**	***4***

Table B17. Percent Canopy Cover by Class and Species for 25 *ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* BREAKS**												
	PLOT NUMBER												
	265	271	276	296	301	308	310	314	326	334	337	**Mean Cover**	***Con-stancy***
												n=25	
Lomatium foeniculaceum							0.3					**0.01**	***4***
Lomatium orientale									0.3			**0.01**	***4***
Machaeranthera grindelioides			1					0.3	1		0.3	**0.13**	***24***
Musineon divaricatum	0.3		0.3	0.3					0.3		0.3	**0.07**	***24***
Oenothera caespitosa	0.3			0.3		0.3						**0.04**	***12***
Opuntia polyacantha							0.3		0.3	0.3		**0.14**	***24***
Oxytropis lambertii												**0.01**	***4***
Oxytropis sericea												**0.02**	***8***
Penstemon albidus												**0.02**	***8***
Penstemon eriantherus			0.3				0.3	0.3			0.3	**0.06**	***20***
Penstemon nitidus			0.3									**0.01**	***4***
Phlox hoodii						0.3	0.3		0.3	0.3	0.3	**0.15**	***40***
Polygala alba			0.3						1		0.3	**0.13**	***24***
Psoralea argophylla	0.3				1	2	0.3		4	0.3		**0.46**	***36***
Psoralea esculenta									1	0.3		**0.06**	***12***
Ratibida columnifera				0.3								**0.01**	***4***
Solidago missouriensis												**0.01**	***4***
Sphaeralcea coccinea		0.3										**0.11**	***28***
Suaeda moquinii		3			1							**0.16**	***8***
Thermopsis rhombifolia											2	**0.09**	***8***
Vicia americana	0.3		0.3		1	2	4	0.3	0.3	2		**0.53**	***64***
Viola nuttallii									0.3			**0.01**	***4***
Zigadenus venenosus												**0.01**	***4***
TOTAL NPF AND SUBSHRUBS	**5.4**	**3.6**	**5.3**	**4.2**	**7.6**	**6.8**	**15.1**	**2.8**	**32.6**	**16.7**	**8.1**	**7.98**	***100***
INTRODUCED PERENNIAL FORBS													
Medicago sativa			1									**0.25**	***12***
Taraxacum laevigatum		0.3							0.3	0.3		**0.28**	***32***
TOTAL IPF	**0.0**	**0.3**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.3**	**0.0**	**0.54**	***36***
FERNS AND ALLIES													
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS													
Atriplex suckleyi	0.3					2						**0.30**	***20***
Cryptantha celosioides			0.3									**0.02**	***8***
Descurainia richardsonii								0.3				**0.01**	***4***
Erysimum asperum												**0.01**	***4***
Grindelia squarrosa				1	1	7	14			2		**1.22**	***36***

Table B17. Percent Canopy Cover by Class and Species for 25 *ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* BREAKS**												
	PLOT NUMBER												
	265	271	276	296	301	308	310	314	326	334	337	**Mean Cover**	***Con-stancy***
												n=25	
Hedeoma hispidum												**0.04**	***12***
Helianthus annuus												**0.01**	***4***
Lepidium densiflorum							0.3			0.3		**0.02**	***8***
Linum rigidum									0.3			**0.02**	***8***
Machaeranthera canescens					0.3							**0.01**	***4***
Orthocarpus luteus										0.3		**0.04**	***12***
Plantago elongata												**0.01**	***4***
Plantago patagonica										0.3		**0.08**	***28***
Suaeda depressa						1						**0.04**	***4***
TOTAL NAF	**0.3**	**0.0**	**0.3**	**1.0**	**1.3**	**10.0**	**14.3**	**0.3**	**0.3**	**2.9**	**0.0**	**1.86**	***80***
INTRODUCED ANNUAL/BIENNIAL FORBS													
Alyssum alyssoides										0.3		**0.06**	***12***
Alyssum desertorum					0.3		0.3					**0.06**	***20***
Camelina microcarpa										0.3		**0.01**	***4***
Filago arvensis												**0.41**	***8***
Lactuca serriola					0.3							**0.05**	***16***
Lepidium perfoliatum												**0.01**	***4***
Medicago lupulina												**0.01**	***4***
Melilotus officinalis	1	0.3	46	8			0.3	25		0.3		**7.04**	***84***
Sisymbrium altissimum												**0.01**	***4***
Thlaspi arvense												**0.01**	***4***
Tragopogon dubius		0.3	0.3		0.3	0.3	0.3		0.3	0.3		**0.26**	***64***
TOTAL IAF	**1.0**	**0.6**	**46.3**	**8.0**	**0.9**	**0.3**	**0.9**	**25.0**	**0.3**	**1.2**	**0.0**	**7.95**	***96***
SHRUBS													
Artemisia cana												**0.24**	***4***
Artemisia tridentata	0.3	10	5		15	1	3	17	3	2		**6.29**	***88***
Atriplex nuttallii												**0.21**	***12***
Ceratoides lanata									0.3			**0.02**	***8***
Chrysothamnus nauseosus	1		1	7	1	0.3		2	1	1	8	**2.16**	***76***
Rhus aromatica												**0.01**	***4***
Rosa arkansana												**0.01**	***4***
Rosa woodsii												**0.01**	***4***
Sarcobatus vermiculatus	8	31		1	7	2	5			1		**3.08**	***56***
TOTAL SHRUBS	**9.3**	**41.0**	**6.0**	**8.0**	**23.0**	**3.3**	**8.0**	**19.0**	**4.3**	**4.0**	**8.0**	**12.04**	***100***

Table B17. Percent Canopy Cover by Class and Species for 25 *ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* BREAKS**												
	PLOT NUMBER												
	265	271	276	296	301	308	310	314	326	334	337	**Mean Cover**	***Con-stancy***
												n=25	
TREES 0.01-acre													
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TREES 0.1-acre													
Juniperus scopulorum												**0.04**	***4***
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.04**	***4***
TOTAL VEGETATION (Stratified)	**41.3**	**72.8**	**85.2**	**43.2**	**57.8**	**36.9**	**63.2**	**56.4**	**51.8**	**51.1**	**21.1**	**53.31**	***100***

Footnotes are presented on cover page B-ii.

Table B18. Percent Canopy Cover by Class and Species for Four *RHUS AROMATICA/ AGROPYRON SPICATUM-ANDROPOGON SCOPARIUS* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***RHUS AROMATICA/AGROPYRON SPICATUM-ANDROPOGON SCOPARIUS* BREAKS**					
	PLOT NUMBER					
	047	048	049	388	**Mean Cover**	***Con-stancy***
					n=4	
SITE PARAMETERS*						
Slope (percent)	5-25	2-10	3-10	6-20		
Aspect (degrees)	Variable	Variable	Variable	252		
Topography	Mid	Rid	Rid	Rid-Sho		
Configuration	U(X)	X	X	X		
Photo # (Digital)	371	369	373	257/258		
Investigator	KS/ED	KS/ED	KS/ED	KS/ED		
Date	07/11/11	07/11/11	07/11/11	06/26/11		
GROUND COVER						
Bare Ground	1	1	1	9	**3.00**	***100***
Rock	70	72	67	50	**64.75**	***100***
Litter	22	22	24	36	**26.00**	***100***
Lichens	4	2	4	1	**2.75**	***100***
Moss	0.3	0.3	0.3		**0.23**	***75***
Water					**0.00**	***0***
Basal Vegetation	3	3	4	4	**3.50**	***100***
VEGETATION STRUCTURE (nonstratified cover)						
Total Vegetation	70	69	74	84	**74.25**	***100***
Perennial Graminoids	38	36	38	22	**33.50**	***100***
Annual Graminoids	4	13	1	18	**9.00**	***100***
Perennial Forbs and Subshrubs	24	18	37	7	**21.50**	***100***
Annual/Biennial Forbs	2	4	1	45	**13.00**	***100***
Shrubs	30	38	18	22	**27.00**	***100***
Trees 0.01-acre					**0.00**	***0***
Trees 0.1-acre					**0.00**	***0***

Table B18. Percent Canopy Cover by Class and Species for Four *RHUS AROMATICA/ AGROPYRON SPICATUM-ANDROPOGON SCOPARIUS* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***RHUS AROMATICA/AGROPYRON SPICATUM-ANDROPOGON SCOPARIUS* BREAKS**					
	PLOT NUMBER					
	047	048	049	388	**Mean Cover**	***Con-stancy***
					n=4	
CLASS\SPECIES						
NATIVE PERENNIAL GRAMINOIDS (Cool Season)						
Agropyron smithii		0.3		0.3	**0.15**	***50***
Agropyron spicatum	16	9	7	5	**9.25**	***100***
Aristida longiseta		1	1		**0.50**	***50***
Carex filifolia	2	0.3	4		**1.58**	***75***
Carex heliophila	2				**0.50**	***25***
Koeleria cristata	0.3		0.3		**0.15**	***50***
Poa sandbergii	0.3	0.3			**0.15**	***50***
Stipa comata	12	16	28	2	**14.50**	***100***
TOTAL NPG(C)	**32.6**	**26.9**	**40.3**	**7.3**	**26.78**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)						
Andropogon scoparius	7	7		8	**5.50**	***75***
Bouteloua curtipendula	1			6	**1.75**	***50***
Bouteloua gracilis	0.3	5	2		**1.83**	***75***
Calamovilfa longifolia		0.3			**0.08**	***25***
Muhlenbergia cuspidata	2	1		1	**1.00**	***75***
TOTAL NPG(W)	**10.3**	**13.3**	**2.0**	**15.0**	**10.15**	***100***
INTRODUCED PERENNIAL GRAMINOIDS						
Agropyron cristatum	2				**0.50**	***25***
Poa pratensis	0.3			2	**0.58**	***50***
TOTAL IPG	**2.3**	**0.0**	**0.0**	**2.0**	**1.08**	***50***
NATIVE ANNUAL GRAMINOIDS						
Festuca octoflora		0.3			**0.08**	***25***
TOTAL NAG	**0.0**	**0.3**	**0.0**	**0.0**	**0.08**	***25***
INTRODUCED ANNUAL GRAMINOIDS						
Bromus japonicus	1	8	0.3	10	**4.83**	***100***
Bromus tectorum	3	6	1	10	**5.00**	***100***
TOTAL IAG	**4.0**	**14.0**	**1.3**	**20.0**	**9.83**	***100***
NATIVE PERENNIAL FORBS AND SUBSHRUBS						
Allium textile		0.3	0.3		**0.15**	***50***
Ambrosia psilostachya	2			3	**1.25**	***50***
Artemisia dracunculus	2	2	0.3		**1.08**	***75***
Artemisia frigida	2	3	1	0.3	**1.58**	***100***
Aster falcatus	0.3			0.3	**0.15**	***50***
Astragalus adsurgens			0.3		**0.08**	***25***
Astragalus crassicarpus		0.3			**0.08**	***25***
Astragalus lotiflorus		0.3			**0.08**	***25***
Astragalus plattensis	0.3	0.3	0.3		**0.23**	***75***
Besseya wyomingensis	0.3				**0.08**	***25***
Calochortus nuttallii				0.3	**0.08**	***25***
Campanula rotundifolia	1		0.3		**0.33**	***50***
Cerastium arvense	5	2	2		**2.25**	***75***
Chrysopsis villosa	0.3		1		**0.33**	***50***
Cirsium undulatum			0.3		**0.08**	***25***
Dalea candida	0.3	0.3			**0.15**	***50***
Dalea purpurea	2	2	0.3		**1.08**	***75***
Echinacea angustifolia			0.3		**0.08**	***25***
Gutierrezia sarothrae		0.3	12		**3.08**	***50***

Table B18. Percent Canopy Cover by Class and Species for Four *RHUS AROMATICA/ AGROPYRON SPICATUM-ANDROPOGON SCOPARIUS* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***RHUS AROMATICA/AGROPYRON SPICATUM-ANDROPOGON SCOPARIUS* BREAKS**					
	PLOT NUMBER					
	047	048	049	388	**Mean Cover**	***Con-stancy***
					n=4	
Hedeoma drummondii		0.3			**0.08**	***25***
Heuchera richardsonii		4			**1.00**	***25***
Kuhnia eupatorioides	0.3				**0.08**	***25***
Lactuca oblongifolia			1		**0.25**	***25***
Linum lewisii				1	**0.25**	***25***
Lithospermum incisum	0.3	0.3	0.3		**0.23**	***75***
Opuntia fragilis	0.3				**0.08**	***25***
Oxytropis sericea	3		4		**1.75**	***50***
Phlox hoodii			2		**0.50**	***25***
Potentilla arguta	1	3	2		**1.50**	***75***
Psoralea argophylla	1	0.3	14	2	**4.33**	***100***
Ratibida columnifera	0.3		0.3		**0.15**	***50***
Sisyrinchium angustifolium	0.3				**0.08**	***25***
Solidago missouriensis	4				**1.00**	***25***
Sphaeralcea coccinea				0.3	**0.08**	***25***
Tradescantia occidentalis		0.3			**0.08**	***25***
Vicia americana				0.3	**0.08**	***25***
Zigadenus venenosus	0.3	0.3			**0.15**	***50***
TOTAL NPF AND SUBSHRUBS	**26.3**	**19.3**	**42.0**	**7.5**	**23.78**	***100***
INTRODUCED PERENNIAL FORBS						
Taraxacum laevigatum			0.3	0.3	**0.15**	***50***
TOTAL IPF	**0.0**	**0.0**	**0.3**	**0.3**	**0.15**	***50***
FERNS AND ALLIES						
Cystopteris fragilis		0.3			**0.08**	***25***
Woodsia oregana	1	0.3	0.3	0.3	**0.48**	***100***
TOTAL F&A	**1.0**	**0.6**	**0.3**	**0.3**	**0.55**	***100***
NATIVE ANNUAL/BIENNIAL FORBS						
Androsace occidentalis		0.3			**0.08**	***25***
Arabis holboellii		0.3			**0.08**	***25***
Chenopodium leptophyllum	0.3				**0.08**	***25***
Conyza canadensis		0.3			**0.08**	***25***
Cryptantha celosioides			0.3		**0.08**	***25***
Cryptantha torreyana		0.3		1	**0.33**	***50***
Erigeron strigosus		0.3			**0.08**	***25***
Euphorbia glyptosperma		0.3			**0.08**	***25***
Galium aparine	0.3				**0.08**	***25***
Hedeoma hispidum		0.3			**0.08**	***25***
Helianthus petiolaris		0.3			**0.08**	***25***
Lappula redowskii		0.3		0.3	**0.15**	***50***
Lepidium densiflorum			0.3		**0.08**	***25***
Mentzelia dispersa	0.3			0.3	**0.15**	***50***
Mimulus suksdorfii	0.3				**0.08**	***25***
Parietaria pensylvanica	0.3	1	0.3	1	**0.65**	***100***
Phacelia linearis	0.3			1	**0.33**	***50***
Plantago patagonica	0.3	0.3	0.3		**0.23**	***75***
Polanisia trachysperma		0.3			**0.08**	***25***
Polygonum douglasii				0.3	**0.08**	***25***
Silene antirrhina	0.3	0.3	0.3	0.3	**0.30**	***100***
Triodanis leptocarpa				0.3	**0.08**	***25***
TOTAL NAF	**2.4**	**4.6**	**1.5**	**4.5**	**3.25**	***100***

Table B18. Percent Canopy Cover by Class and Species for Four *RHUS AROMATICA/ AGROPYRON SPICATUM-ANDROPOGON SCOPARIUS* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***RHUS AROMATICA/AGROPYRON SPICATUM-ANDROPOGON SCOPARIUS* BREAKS**					
	PLOT NUMBER					
	047	048	049	388	**Mean Cover**	***Con-stancy***
					n=4	
INTRODUCED ANNUAL/BIENNIAL FORBS						
Alyssum desertorum		0.3	0.3	0.3	**0.23**	***75***
Filago arvensis	0.3	0.3	0.3	0.3	**0.30**	***100***
Lactuca serriola	0.3	0.3	0.3	0.3	**0.30**	***100***
Melilotus officinalis				42	**10.50**	***25***
Sisymbrium altissimum		0.3		0.3	**0.15**	***50***
Sisymbrium loeselii	0.3			0.3	**0.15**	***50***
Tragopogon dubius		0.3		0.3	**0.15**	***50***
TOTAL IAF	**0.9**	**1.5**	**0.9**	**43.8**	**11.78**	***100***
SHRUBS						
Artemisia cana		4			**1.00**	***25***
Prunus virginiana	4	15			**4.75**	***50***
Rhus aromatica	26	24	15	22	**21.75**	***100***
Ribes cereum	2	2	3		**1.75**	***75***
TOTAL SHRUBS	**32.0**	**45.0**	**18.0**	**22.0**	**29.25**	***100***
TREES 0.01-acre						
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TREES 0.1-acre						
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TOTAL VEGETATION (Stratified)	**111.8**	**125.5**	**106.6**	**122.7**	**116.65**	***100***

Footnotes are presented on cover page B-ii.

Table B19. Percent Canopy Cover by Class and Species for 15 *ARTEMISIA TRIDENTATA-RHUS AROMATICA-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-RHUS AROMATICA-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SPICATUM* BREAKS**												
	PLOT NUMBER												
	213	219	222	224	225	231	241	242	243	255	268	272	289
SITE PARAMETERS*													
Slope (percent)	12-14	46	1-2	46	38	15-80	5	20-30	10-35	6	48	35	5-25
Aspect (degrees)	238	216	064	086	020	182	258	068	268	070	180	180	020
Topography	Mid	Upper	Rid	Sho-Rid	Upper-Rid	Low-Bank	Rid-Sho	Upper-Sho	Upper	Rid-Sho	Upper	Upper	Mid-Bank
Configuration	U	U	S	X	U	U	V	U	U	X	U	X	U
Photo # (Digital)	080	209	155	164	207	379	144	143	140	063	233	272	246
Investigator	ED	DB/KL	DB/KL	DB/KL	DB/KL	KS/ED	DB/KL	DB/KL	DB/KL	SC	DB/ED	JE	KS
Date	07/14/11	07/14/11	07/11/11	07/11/11	07/14/11	07/12/11	07/11/11	07/11/11	07/11/11	06/27/11	07/16/11	06/29/11	06/25/11
GROUND COVER													
Bare Ground	35	35	80	37	30	67	81	20	60	78	62	0.3	38
Rock	48	30	12	30	40	12	6	40	8	10	4	70	3
Litter	10	29	7	26	27	18	12	35	29	8	30	27	28
Lichens	3	2		3	1	0.3		1		2	2		24
Moss		1						1		0.3	0.3		4
Water													
Basal Vegetation	4	3	1	4	2	3	1	3	3	2	2	3	3
VEGETATION STRUCTURE (nonstratified cover)													
Total Vegetation	50	52	22	51	40	85	20	54	45	24	55	52	58
Perennial Graminoids	24	28	9	18	22	22	7	9	4	9	19	36	34
Annual Graminoids	0.3	13		1	0.3	3	0.3	4	0.3		11	0.3	0.3
Perennial Forbs and Subshrubs	11	8	6	25	9	11	6	10	15	12	14	10	15
Annual/Biennial Forbs	8	2	0.3	1	1	75	0.3	26	13		14	1	3
Shrubs	13	8	8	16	10	13	8	12	19	4	9	8	19
Trees 0.01-acre	2										3		
Trees 0.1-acre	4							2			6		0.3

Table B19. Percent Canopy Cover by Class and Species for 15 *ARTEMISIA TRIDENTATA-RHUS AROMATICA-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-RHUS AROMATICA-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SPICATUM* BREAKS**												
	PLOT NUMBER												
	213	219	222	224	225	231	241	242	243	255	268	272	289
CLASS\SPECIES													
NATIVE PERENNIAL GRAMINOIDS (Cool Season)													
Agropyron albicans var. griffithsii													0.3
Agropyron dasystachyum var. dasy.	1							3	2				5
Agropyron smithii	2	3		3							3		1
Agropyron spicatum	8	5	8	10	5	2	4	5	0.3	2	9	35	15
Agropyron trachycaulum													
Aristida longiseta		4							1	0.3			
Carex filifolia										1			
Koeleria cristata	0.3		1		2			1	0.3	0.3			4
Oryzopsis hymenoides		3			3	4					2		
Poa scabrella	0.3												
Sitanion hystrix													
Stipa comata		6								0.3			4
Stipa viridula		1							1	1			2
TOTAL NPG(C)	**11.6**	**22.0**	**9.0**	**13.0**	**10.0**	**6.0**	**4.0**	**9.0**	**4.6**	**4.9**	**14.0**	**35.0**	**31.3**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)													
Andropogon scoparius	4			2	9	3				4	3		3
Bouteloua curtipendula	6	3		4	4	8					2	2	
Bouteloua gracilis		1											
Calamovilfa longifolia	1			2		7							3
Distichlis stricta							3						
Muhlenbergia cuspidata	4	4											1
Sporobolus cryptandrus		1				0.3							
TOTAL NPG(W)	**15.0**	**9.0**	**0.0**	**8.0**	**13.0**	**18.3**	**3.0**	**0.0**	**0.0**	**4.0**	**5.0**	**2.0**	**7.0**
INTRODUCED PERENNIAL GRAMINOIDS													
Bromus inermis													
TOTAL IPG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL GRAMINOIDS													
Festuca octoflora						0.3							0.3
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**

Table B19. Percent Canopy Cover by Class and Species for 15 *ARTEMISIA TRIDENTATA-RHUS AROMATICA-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-RHUS AROMATICA-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SPICATUM* BREAKS**												
	PLOT NUMBER												
	213	219	222	224	225	231	241	242	243	255	268	272	289
INTRODUCED ANNUAL GRAMINOIDS													
Bromus japonicus	0.3	8		1	0.3	1	0.3	4	0.3		10	0.3	0.3
Bromus tectorum		6				2					1		0.3
TOTAL IAG	**0.3**	**14.0**	**0.0**	**1.0**	**0.3**	**3.0**	**0.3**	**4.0**	**0.3**	**0.0**	**11.0**	**0.3**	**0.6**
NATIVE PERENNIAL FORBS AND SUBSHRUBS													
Achillea millefolium	0.3							0.3					0.3
Allium textile	0.3				0.3							0.3	0.3
Ambrosia psilostachya						1							
Antennaria dimorpha													0.3
Antennaria howellii (neglecta)					0.3								
Antennaria microphylla										0.3			0.3
Antennaria parvifolia										0.3			
Artemisia campestris		0.3			0.3								0.3
Artemisia frigida		0.3				4				0.3		0.3	0.3
Artemisia ludoviciana						3		4			2		
Asclepias viridiflora				0.3									
Aster falcatus	2			0.3				1		1			0.3
Aster laevis	0.3												0.3
Astragalus gilviflorus							0.3			0.3			
Astragalus spatulatus							0.3			1			
Astragalus tenellus											5		
Campanula rotundifolia					0.3								
Castilleja sessiliflora													0.3
Chrysopsis villosa													0.3
Cirsium undulatum		1			0.3				0.3			2	
Comandra umbellata	0.3			0.3					0.3		0.3		0.3
Crepis occidentalis	0.3									0.3			
Cryptantha spiculifera (interrupta)				0.3									0.3
Dalea candida	1		0.3	0.3	0.3	0.3	1				1		1
Dalea purpurea				1	0.3			0.3		0.3		0.3	
Echinacea angustifolia	1			0.3	0.3					0.3		2	
Erigeron pumilus var. pumilus										0.3			0.3
Eriogonum pauciflorum		4	3	1	1		4		11	2	1	2	0.3
Euphorbia robusta					0.3								
Evolvulus nuttallianus											0.3		
Gaura coccinea		1		0.3	0.3				0.3	0.3	0.3	0.3	0.3
Gilia congesta var. pseudotypica													0.3
Glycyrrhiza lepidota													0.3
Gutierrezia sarothrae	1	0.3	2	17	2	0.3		1	2	1	3		4
Haplopappus armerioides					1								

Table B19. Percent Canopy Cover by Class and Species for 15 *ARTEMISIA TRIDENTATA-RHUS AROMATICA-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-RHUS AROMATICA-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SPICATUM* BREAKS**												
	PLOT NUMBER												
	213	219	222	224	225	231	241	242	243	255	268	272	289
Hedeoma drummondii				0.3				1					
Hymenopappus filifolius					0.3					0.3	0.3		0.3
Lesquerella alpina												0.3	
Liatris punctata													0.3
Linum lewisii			0.3	0.3	0.3					0.3		0.3	0.3
Lomatium foeniculaceum													
Lupinus argenteus											0.3		
Machaeranthera grindelioides	0.3	0.3	0.3	0.3	0.3		0.3			0.3	0.3		1
Musineon divaricatum					0.3					0.3			0.3
Oenothera caespitosa													
Opuntia polyacantha				0.3									
Oxytropis lambertii					1	1				0.3	0.3		0.3
Penstemon albidus		0.3								0.3			
Penstemon eriantherus				0.3					0.3				0.3
Penstemon nitidus											0.3		
Phacelia hastata												2	
Phlox alyssifolia	0.3												
Phlox hoodii	0.3			3	1		0.3	1	0.3	0.3			1
Polygala alba	0.3			0.3	0.3					1	0.3	0.3	1
Psoralea argophylla		0.3						1		3		0.3	
Psoralea esculenta	0.3		0.3	0.3					0.3	0.3		0.3	0.3
Senecio canus	0.3			0.3						0.3			0.3
Solidago missouriensis					2								1
Solidago nemoralis	0.3												1
Solidago rigida													
Sphaeralcea coccinea		1		1				0.3	0.3			0.3	
Stephanomeria runcinata											0.3		
Thermopsis rhombifolia	2									0.3			
Toxicodendron rydbergii						2							
Vicia americana	0.3							0.3			0.3		
Viola nuttallii				0.3									
Zigadenus venenosus					0.3							0.3	0.3
TOTAL NPF AND SUBSHRUBS	**10.9**	**8.8**	**6.2**	**27.8**	**12.8**	**11.6**	**6.2**	**10.2**	**15.1**	**14.7**	**15.3**	**11.3**	**17.8**
INTRODUCED PERENNIAL FORBS													
Cuscuta approximata											0.3		
Medicago sativa	1										0.3		
Taraxacum laevigatum								0.3					0.3
TOTAL IPF	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.6**	**0.0**	**0.3**

Table B19. Percent Canopy Cover by Class and Species for 15 *ARTEMISIA TRIDENTATA-RHUS AROMATICA-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-RHUS AROMATICA-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SPICATUM* BREAKS**												
	PLOT NUMBER												
	213	219	222	224	225	231	241	242	243	255	268	272	289
FERNS AND ALLIES													
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS													
Arabis holboellii													0.3
Cryptantha celosioides	0.3		0.3		0.3		0.3		0.3		0.3	0.3	
Descurainia pinnata													0.3
Erysimum asperum				0.3									
Grindelia squarrosa								2			0.3		
Helianthus petiolaris						0.3							
Linum rigidum					0.3								0.3
Microsteris gracilis												0.3	
Phacelia linearis												0.3	
Plantago patagonica		1		0.3									0.3
TOTAL NAF	**0.3**	**1.0**	**0.3**	**0.6**	**0.6**	**0.3**	**0.3**	**2.0**	**0.3**	**0.0**	**0.6**	**0.9**	**1.2**
INTRODUCED ANNUAL/BIENNIAL FORBS													
Alyssum alyssoides											0.3		
Alyssum desertorum				0.3		0.3		1					
Camelina microcarpa						0.3							
Filago arvensis		0.3											
Lactuca serriola					0.3			1			0.3		
Melilotus alba						3			1				
Melilotus officinalis	8	1		0.3	0.3	72		24	12		14	0.3	2
Sisymbrium altissimum						0.3							
Tragopogon dubius		0.3		0.3				0.3					
TOTAL IAF	**8.0**	**1.6**	**0.0**	**0.9**	**0.6**	**75.9**	**0.0**	**26.3**	**13.0**	**0.0**	**14.6**	**0.3**	**2.0**
SHRUBS													
Artemisia cana						11							
Artemisia tridentata	7	1	1	14		2	3	11	15	2	0.3	3	17
Ceratoides lanata				0.3									
Chrysothamnus nauseosus	2	0.3	7		3		5	0.3	4	2	3		2
Rhus aromatica	1	7		3	6	1		0.3			6	5	
Rosa arkansana	3							1					0.3
Rosa woodsii					1								
Sarcobatus vermiculatus							0.3						
Symphoricarpos occidentalis													0.3
TOTAL SHRUBS	**13.0**	**8.3**	**8.0**	**17.3**	**10.0**	**14.0**	**8.3**	**12.6**	**19.0**	**4.0**	**9.3**	**8.0**	**19.6**

Table B19. Percent Canopy Cover by Class and Species for 15 *ARTEMISIA TRIDENTATA-RHUS AROMATICA-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-RHUS AROMATICA-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SPICATUM* BREAKS**												
	PLOT NUMBER												
	213	219	222	224	225	231	241	242	243	255	268	272	289
TREES 0.01-acre													
Juniperus scopulorum											3		
Pinus ponderosa	2												
TOTAL TREES 0.01-acre	**2.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**3.0**	**0.0**	**0.0**
TREES 0.1-acre													
Juniperus scopulorum	2							2			3		0.3
Pinus ponderosa	2										3		0.3
TOTAL TREES 0.1-acre	**4.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**2.0**	**0.0**	**0.0**	**6.0**	**0.0**	**0.6**
TOTAL VEGETATION (Stratified)	**62.1**	**64.7**	**23.5**	**68.6**	**47.3**	**129.4**	**22.1**	**64.4**	**52.3**	**27.6**	**73.4**	**57.8**	**80.1**

Footnotes are presented on cover page B-ii.

Table B19. Percent Canopy Cover by Class and Species for 15 *ARTEMISIA TRIDENTATA-RHUS AROMATICA-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ART TRI-RHU ARO-CHR NAU/AGR SPI* BREAKS**			
	PLOT NUMBER			
	309	315	**Mean Cover**	***Con-stancy***
			n=15	
SITE PARAMETERS*				
Slope (percent)	20-40	5-25		
Aspect (degrees)	062	054		
Topography	Upper	Sad		
Configuration	U	U		
Photo # (Digital)	276	721		
Investigator	KS/ED	DB/KL		
Date	06/28/11	06/23/11		
GROUND COVER				
Bare Ground	79	30	**48.82**	***100***
Rock	2	40	**23.67**	***100***
Litter	16	28	**22.00**	***100***
Lichens			**2.55**	***60***
Moss			**0.44**	***33***
Water			**0.00**	***0***
Basal Vegetation	3	2	**2.60**	***100***
VEGETATION STRUCTURE (nonstratified cover)				
Total Vegetation	47	22	**45.13**	***100***
Perennial Graminoids	28	6	**18.33**	***100***
Annual Graminoids	0.3		**2.27**	***80***
Perennial Forbs and Subshrubs	18	7	**11.80**	***100***
Annual/Biennial Forbs	1	1	**9.77**	***93***
Shrubs	6	9	**10.80**	***100***
Trees 0.01-acre			**0.33**	***13***
Trees 0.1-acre			**0.82**	***27***

Table B19. Percent Canopy Cover by Class and Species for 15 *ARTEMISIA TRIDENTATA-RHUS AROMATICA-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ART TRI-RHU ARO-CHR NAU/AGR SPI* BREAKS**			
	PLOT NUMBER			
	309	315	**Mean Cover**	***Con-stancy***
			n=15	
CLASS\SPECIES				
NATIVE PERENNIAL GRAMINOIDS (Cool Season)				
Agropyron albicans var. griffithsii	5		**0.35**	***13***
Agropyron dasystachyum var. dasy.	4	2	**1.13**	***40***
Agropyron smithii			**0.80**	***33***
Agropyron spicatum	18	2	**8.55**	***100***
Agropyron trachycaulum		0.3	**0.02**	***7***
Aristida longiseta			**0.35**	***20***
Carex filifolia			**0.07**	***7***
Koeleria cristata	1	1	**0.73**	***60***
Oryzopsis hymenoides			**0.80**	***27***
Poa scabrella	0.3	0.3	**0.06**	***20***
Sitanion hystrix		0.3	**0.02**	***7***
Stipa comata			**0.69**	***20***
Stipa viridula			**0.33**	***27***
TOTAL NPG(C)	**28.3**	**5.9**	**13.91**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)				
Andropogon scoparius	2		**2.00**	***53***
Bouteloua curtipendula			**1.93**	***47***
Bouteloua gracilis			**0.07**	***7***
Calamovilfa longifolia	0.3		**0.89**	***33***
Distichlis stricta			**0.20**	***7***
Muhlenbergia cuspidata			**0.60**	***20***
Sporobolus cryptandrus			**0.09**	***13***
TOTAL NPG(W)	**2.3**	**0.0**	**5.77**	***73***
INTRODUCED PERENNIAL GRAMINOIDS				
Bromus inermis	0.3		**0.02**	***7***
TOTAL IPG	**0.3**	**0.0**	**0.02**	***7***
NATIVE ANNUAL GRAMINOIDS				
Festuca octoflora			**0.04**	***13***
TOTAL NAG	**0.0**	**0.0**	**0.04**	***13***

Table B19. Percent Canopy Cover by Class and Species for 15 *ARTEMISIA TRIDENTATA-RHUS AROMATICA-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ART TRI-RHU ARO-CHR NAU/AGR SPI* BREAKS**			
	PLOT NUMBER			
	309	315	**Mean Cover**	***Con-stancy***
			n=15	
INTRODUCED ANNUAL GRAMINOIDS				
Bromus japonicus	0.3		**1.74**	***80***
Bromus tectorum			**0.62**	***27***
TOTAL IAG	**0.3**	**0.0**	**2.36**	***80***
NATIVE PERENNIAL FORBS AND SUBSHRUBS				
Achillea millefolium			**0.06**	***20***
Allium textile			**0.08**	***27***
Ambrosia psilostachya			**0.07**	***7***
Antennaria dimorpha		0.3	**0.04**	***13***
Antennaria howellii (neglecta)			**0.02**	***7***
Antennaria microphylla			**0.04**	***13***
Antennaria parvifolia			**0.02**	***7***
Artemisia campestris	0.3		**0.08**	***27***
Artemisia frigida			**0.35**	***33***
Artemisia ludoviciana			**0.60**	***20***
Asclepias viridiflora	0.3		**0.04**	***13***
Aster falcatus			**0.31**	***33***
Aster laevis	0.3		**0.06**	***20***
Astragalus gilviflorus	0.3		**0.06**	***20***
Astragalus spatulatus			**0.09**	***13***
Astragalus tenellus			**0.33**	***7***
Campanula rotundifolia			**0.02**	***7***
Castilleja sessiliflora			**0.02**	***7***
Chrysopsis villosa	0.3		**0.04**	***13***
Cirsium undulatum			**0.24**	***27***
Comandra umbellata	0.3		**0.12**	***40***
Crepis occidentalis	0.3		**0.06**	***20***
Cryptantha spiculifera (interrupta)	0.3		**0.06**	***20***
Dalea candida	4	0.3	**0.63**	***67***
Dalea purpurea			**0.15**	***33***
Echinacea angustifolia	0.3		**0.28**	***40***
Erigeron pumilus var. pumilus			**0.04**	***13***
Eriogonum pauciflorum	0.3	5	**2.31**	***80***
Euphorbia robusta			**0.02**	***7***
Evolvulus nuttallianus			**0.02**	***7***
Gaura coccinea	0.3		**0.23**	***60***
Gilia congesta var. pseudotypica			**0.02**	***7***
Glycyrrhiza lepidota			**0.02**	***7***
Gutierrezia sarothrae	5	0.3	**2.59**	***87***
Haplopappus armerioides			**0.07**	***7***

Table B19. Percent Canopy Cover by Class and Species for 15 *ARTEMISIA TRIDENTATA-RHUS AROMATICA-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ART TRI-RHU ARO-CHR NAU/AGR SPI* BREAKS**			
	PLOT NUMBER			
	309	315	**Mean Cover**	***Con-stancy***
			n=15	
Hedeoma drummondii			**0.09**	***13***
Hymenopappus filifolius	0.3		**0.10**	***33***
Lesquerella alpina			**0.02**	***7***
Liatris punctata			**0.02**	***7***
Linum lewisii			**0.12**	***40***
Lomatium foeniculaceum		0.3	**0.02**	***7***
Lupinus argenteus			**0.02**	***7***
Machaeranthera grindelioides	0.3		**0.25**	***67***
Musineon divaricatum			**0.06**	***20***
Oenothera caespitosa		0.3	**0.02**	***7***
Opuntia polyacantha			**0.02**	***7***
Oxytropis lambertii	0.3		**0.21**	***40***
Penstemon albidus			**0.04**	***13***
Penstemon eriantherus			**0.06**	***20***
Penstemon nitidus	0.3		**0.04**	***13***
Phacelia hastata			**0.13**	***7***
Phlox alyssifolia			**0.02**	***7***
Phlox hoodii	0.3		**0.50**	***60***
Polygala alba	1		**0.30**	***53***
Psoralea argophylla	2		**0.44**	***33***
Psoralea esculenta		0.3	**0.16**	***53***
Senecio canus			**0.08**	***27***
Solidago missouriensis			**0.20**	***13***
Solidago nemoralis	0.3		**0.11**	***20***
Solidago rigida	0.3		**0.02**	***7***
Sphaeralcea coccinea			**0.19**	***33***
Stephanomeria runcinata			**0.02**	***7***
Thermopsis rhombifolia		1	**0.22**	***20***
Toxicodendron rydbergii			**0.13**	***7***
Vicia americana	2		**0.19**	***27***
Viola nuttallii			**0.02**	***7***
Zigadenus venenosus	0.3		**0.08**	***27***
TOTAL NPF AND SUBSHRUBS	**19.7**	**7.8**	**13.08**	***100***
INTRODUCED PERENNIAL FORBS				
Cuscuta approximata			**0.02**	***7***
Medicago sativa			**0.09**	***13***
Taraxacum laevigatum			**0.04**	***13***
TOTAL IPF	**0.0**	**0.0**	**0.15**	***27***

Table B19. Percent Canopy Cover by Class and Species for 15 *ARTEMISIA TRIDENTATA-RHUS AROMATICA-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ART TRI-RHU ARO-CHR NAU/AGR SPI* BREAKS**			
	PLOT NUMBER			
	309	315	**Mean Cover**	***Con-stancy***
			n=15	
FERNS AND ALLIES				
TOTAL F&A	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS				
Arabis holboellii			**0.02**	***7***
Cryptantha celosioides			**0.14**	***47***
Descurainia pinnata			**0.02**	***7***
Erysimum asperum			**0.02**	***7***
Grindelia squarrosa		0.3	**0.17**	***20***
Helianthus petiolaris			**0.02**	***7***
Linum rigidum			**0.04**	***13***
Microsteris gracilis			**0.02**	***7***
Phacelia linearis			**0.02**	***7***
Plantago patagonica			**0.11**	***20***
TOTAL NAF	**0.0**	**0.3**	**0.58**	***87***
INTRODUCED ANNUAL/BIENNIAL FORBS				
Alyssum alyssoides			**0.02**	***7***
Alyssum desertorum			**0.11**	***20***
Camelina microcarpa			**0.02**	***7***
Filago arvensis			**0.02**	***7***
Lactuca serriola			**0.11**	***20***
Melilotus alba			**0.27**	***13***
Melilotus officinalis	1	0.3	**9.01**	***80***
Sisymbrium altissimum			**0.02**	***7***
Tragopogon dubius	0.3	0.3	**0.10**	***33***
TOTAL IAF	**1.3**	**0.6**	**9.67**	***80***
SHRUBS				
Artemisia cana			**0.73**	***7***
Artemisia tridentata	5	9	**6.02**	***93***
Ceratoides lanata			**0.02**	***7***
Chrysothamnus nauseosus		0.3	**1.93**	***73***
Rhus aromatica			**1.95**	***53***
Rosa arkansana	1		**0.35**	***27***
Rosa woodsii	0.3		**0.09**	***13***
Sarcobatus vermiculatus			**0.02**	***7***
Symphoricarpos occidentalis			**0.02**	***7***
TOTAL SHRUBS	**6.3**	**9.3**	**11.13**	***100***

Table B19. Percent Canopy Cover by Class and Species for 15 *ARTEMISIA TRIDENTATA-RHUS AROMATICA-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ART TRI-RHU ARO-CHR NAU/AGR SPI* BREAKS**			
	PLOT NUMBER			
	309	315	**Mean Cover**	***Con-stancy***
			n=15	
TREES 0.01-acre				
Juniperus scopulorum			**0.20**	***7***
Pinus ponderosa			**0.13**	***7***
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.33**	***13***
TREES 0.1-acre				
Juniperus scopulorum			**0.49**	***27***
Pinus ponderosa			**0.35**	***20***
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.84**	***27***
TOTAL VEGETATION (Stratified)	**58.5**	**23.9**	**57.05**	***100***

Footnotes are presented on cover page B-ii.

Table B20. Percent Canopy Cover by Class and Species for Six *ARTEMISIA TRIDENTATA-RHUS AROMATICA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-RHUS AROMATICA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* BREAKS**							
	PLOT NUMBER							
	214	239	285	295	324	360	**Mean Cover**	***Con-stancy***
							n=6	
SITE PARAMETERS*								
Slope (percent)	45-55	50	42	35	38	14-20		
Aspect (degrees)	221	220	230	250	275	240		
Topography	Sho	Upper	Upper	Upper	Upper	Low		
Configuration	U	X	U	X	U	U		
Photo # (Digital)	414	239	255	048	018/019	250		
Investigator	KS/ED	JE	SC	DB/KL	SC	SC		
Date	07/14/11	07/13/11	07/15/11	07/08/11	06/24/11	07/15/11		
GROUND COVER								
Bare Ground	25	45	3	40	28	7	**24.67**	***100***
Rock	53	0.3	94	15	70	90	**53.72**	***100***
Litter	18	53	1	40	1	1	**19.00**	***100***
Lichens	1				0.3	0.3	**0.27**	***50***
Moss							**0.00**	***0***
Water							**0.00**	***0***
Basal Vegetation	3	2	2	5	1	2	**2.50**	***100***
VEGETATION STRUCTURE (nonstratified cover)								
Total Vegetation	56	48	37	69	17	42	**44.83**	***100***
Perennial Graminoids	26	16	13	32	6	19	**18.67**	***100***
Annual Graminoids	0.3	0.3	0.3	3			**0.65**	***67***
Perennial Forbs and Subshrubs	8	5	9	3	8	16	**8.17**	***100***
Annual/Biennial Forbs	12	18	1	0.3	0.3	1	**5.43**	***100***
Shrubs	27	20	20	36	3	13	**19.83**	***100***
Trees 0.01-acre		0.3					**0.05**	***17***
Trees 0.1-acre		0.3			2	2	**0.72**	***50***

Table B20. Percent Canopy Cover by Class and Species for Six *ARTEMISIA TRIDENTATA-RHUS AROMATICA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-RHUS AROMATICA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* BREAKS**							
	PLOT NUMBER							
	214	239	285	295	324	360	**Mean Cover**	***Con-stancy***
							n=6	
CLASS\SPECIES								
NATIVE PERENNIAL GRAMINOIDS (Cool Season)								
Agropyron dasystachyum var. dasy.					2		**0.33**	***17***
Agropyron smithii	15		1	8		2	**4.33**	***67***
Agropyron spicatum	6	2	11	14	4	12	**8.17**	***100***
Stipa comata		8					**1.33**	***17***
Stipa viridula			0.3	8	0.3	4	**2.10**	***67***
TOTAL NPG(C)	**21.0**	**10.0**	**12.3**	**30.0**	**6.3**	**18.0**	**16.27**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)								
Andropogon scoparius	3						**0.50**	***17***
Bouteloua curtipendula	3	2	1			2	**1.33**	***67***
Bouteloua gracilis		5					**0.83**	***17***
Distichlis stricta				5			**0.83**	***17***
TOTAL NPG(W)	**6.0**	**7.0**	**1.0**	**5.0**	**0.0**	**2.0**	**3.50**	***83***
INTRODUCED PERENNIAL GRAMINOIDS								
TOTAL IPG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL GRAMINOIDS								
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS								
Bromus japonicus	0.3	0.3	0.3	3			**0.65**	***67***
TOTAL IAG	**0.3**	**0.3**	**0.3**	**3.0**	**0.0**	**0.0**	**0.65**	***67***
NATIVE PERENNIAL FORBS AND SUBSHRUBS								
Artemisia frigida	1	1					**0.33**	***33***
Aster falcatus						1	**0.17**	***17***
Aster laevis			0.3				**0.05**	***17***
Aster oblongifolius	0.3						**0.05**	***17***
Astragalus adsurgens						2	**0.33**	***17***
Astragalus flexuosus			0.3				**0.05**	***17***
Astragalus gilviflorus			0.3			0.3	**0.10**	***33***
Astragalus gracilis						1	**0.17**	***17***
Cirsium undulatum	0.3		0.3		0.3	0.3	**0.20**	***67***

Table B20. Percent Canopy Cover by Class and Species for Six *ARTEMISIA TRIDENTATA-RHUS AROMATICA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-RHUS AROMATICA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* BREAKS**							
	PLOT NUMBER							
	214	239	285	295	324	360	**Mean Cover**	***Con-stancy***
							n=6	
Comandra umbellata	0.3	0.3			1		**0.27**	***50***
Cryptantha spiculifera (interrupta)			0.3				**0.05**	***17***
Dalea candida		0.3	1		2	2	**0.88**	***67***
Dalea purpurea			1			2	**0.50**	***33***
Echinacea angustifolia			1			0.3	**0.22**	***33***
Eriogonum pauciflorum		0.3	1		1	0.3	**0.43**	***67***
Gaura coccinea	2			0.3			**0.38**	***33***
Gutierrezia sarothrae	1	0.3	2		2	3	**1.38**	***83***
Hedeoma drummondii	0.3						**0.05**	***17***
Hymenopappus filifolius		0.3			0.3		**0.10**	***33***
Linum lewisii			0.3			0.3	**0.10**	***33***
Lygodesmia juncea			0.3				**0.05**	***17***
Machaeranthera grindelioides	0.3	0.3			0.3	0.3	**0.20**	***67***
Opuntia polyacantha		0.3					**0.05**	***17***
Oxytropis sericea					0.3		**0.05**	***17***
Penstemon eriantherus			0.3		0.3		**0.10**	***33***
Penstemon nitidus		0.3					**0.05**	***17***
Phlox hoodii	1	1	0.3		0.3	0.3	**0.48**	***83***
Polygala alba		0.3	0.3			0.3	**0.15**	***50***
Psoralea argophylla	1					0.3	**0.22**	***33***
Psoralea esculenta			0.3				**0.05**	***17***
Senecio canus					0.3		**0.05**	***17***
Solidago missouriensis		0.3			0.3		**0.10**	***33***
Solidago nemoralis					0.3		**0.05**	***17***
Sphaeralcea coccinea	0.3		0.3	0.3		0.3	**0.20**	***67***
Vicia americana	0.3		0.3	1			**0.27**	***50***
Yucca glauca			0.3			3	**0.55**	***33***
TOTAL NPF AND SUBSHRUBS	**8.1**	**5.0**	**10.2**	**1.6**	**8.7**	**17.0**	**8.43**	***100***
INTRODUCED PERENNIAL FORBS								
Medicago sativa			0.3				**0.05**	***17***
Taraxacum laevigatum				1		0.3	**0.22**	***33***
TOTAL IPF	**0.0**	**0.0**	**0.3**	**1.0**	**0.0**	**0.3**	**0.27**	***50***
FERNS AND ALLIES								
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***

Table B20. Percent Canopy Cover by Class and Species for Six *ARTEMISIA TRIDENTATA-RHUS AROMATICA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-RHUS AROMATICA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* BREAKS**							
	PLOT NUMBER							
	214	239	285	295	324	360	**Mean Cover**	***Con-stancy***
							n=6	
NATIVE ANNUAL/BIENNIAL FORBS								
Atriplex argentea		0.3					**0.05**	***17***
Cryptantha celosioides			0.3		0.3		**0.10**	***33***
Hedeoma hispidum	0.3						**0.05**	***17***
Helianthus petiolaris				0.3			**0.05**	***17***
Machaeranthera canescens			0.3				**0.05**	***17***
TOTAL NAF	**0.3**	**0.3**	**0.6**	**0.3**	**0.3**	**0.0**	**0.30**	***83***
INTRODUCED ANNUAL/BIENNIAL FORBS								
Alyssum desertorum						0.3	**0.05**	***17***
Filago arvensis	0.3						**0.05**	***17***
Lactuca serriola	0.3	0.3		0.3			**0.15**	***50***
Melilotus officinalis	12	18	0.3		0.3	1	**5.27**	***83***
Tragopogon dubius	0.3		0.3	0.3			**0.15**	***50***
TOTAL IAF	**12.9**	**18.3**	**0.6**	**0.6**	**0.3**	**1.3**	**5.67**	***100***
SHRUBS								
Artemisia tridentata	18	16	12	32	2	12	**15.33**	***100***
Chrysothamnus nauseosus		2	3		1	0.3	**1.05**	***67***
Rhus aromatica	6		3		0.3		**1.55**	***50***
Rosa arkansana	0.3		0.3				**0.10**	***33***
Sarcobatus vermiculatus	5	3	3	6		1	**3.00**	***83***
TOTAL SHRUBS	**29.3**	**21.0**	**21.3**	**38.0**	**3.3**	**13.3**	**21.03**	***100***
TREES 0.01-acre								
Juniperus scopulorum		0.3					**0.05**	***17***
TOTAL TREES 0.01-acre	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.05**	***17***
TREES 0.1-acre								
Juniperus scopulorum		0.3				2	**0.38**	***33***
Pinus ponderosa		0.3			2	0.3	**0.43**	***50***
TOTAL TREES 0.1-acre	**0.0**	**0.6**	**0.0**	**0.0**	**2.0**	**2.3**	**0.82**	***50***
TOTAL VEGETATION (Stratified)	**77.9**	**62.2**	**46.6**	**79.5**	**18.9**	**51.9**	**56.17**	***100***

Footnotes are presented on cover page B-ii.

Table B21. Percent Canopy Cover by Class and Species for 26 *ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* BREAKS**													
	PLOT NUMBER													
	237	249	250	253	254	257	269	270	273	274	275	277	278	279
SITE PARAMETERS*														
Slope (percent)	26	38	15-25	48	64	3-5	67	40-60	12	5-30	45-55	68	42	57
Aspect (degrees)	250	255	202	234	275	290	134	160	230	100	250	240	240	190
Topography	Low-Mid	Kno-Sho	Upper	Sho-Upper	Upper-Kno	Upper	Upper	Mid	Mid	Ben-Bnk	Sho	Upper-Mid	Upper-Sho	Upper
Configuration	U	X(U)	X(S)	U	X	U	U	U	X	U(S)	U	U	U	U
Photo # (Digital)	235/236	115/116	029	975	176/177	127/128	100	264	273	969	275	968	976	206/207
Investigator	SC	SC	PL	DB/KL	SC	SC	DB/KL	JE/SC	JE	DB/KL	JE	DB/KL	DB/KL	JE/SC
Date	07/13/11	07/07/11	06/27/11	06/28/11	07/10/11	07/07/11	07/10/11	07/16/11	06/29/11	06/28/11	06/28/11	06/28/11	06/28/11	07/11/11
GROUND COVER														
Bare Ground	96	27	72	70	95	82	63	74	30	40	30	40	50	8
Rock	0.3	70	20	10	3	15	12	20	10	8	40	12	30	86
Litter	1	2	5	18	1	2	20	4	56	44	26	44	18	4
Lichens		0.3	0.3			0.3	3	0.3		4	0.3			0.3
Moss			0.3							1	0.3			
Water														
Basal Vegetation	3	1	3	2	1	1	2	2	4	3	4	4	2	2
VEGETATION STRUCTURE (nonstratified cover)														
Total Vegetation	55	22	40	25	32	22	38	46	60	43	84	64	34	60
Perennial Graminoids	16	8	15	9	3	11	11	14	25	20	68	25	10	14
Annual Graminoids	0.3		0.3	0.3	0.3	1	3	1	0.3	0.3	0.3	25	2	1
Perennial Forbs and Subshrubs	16	12	17	7	2	4	17	17	5	12	4	5	9	3
Annual/Biennial Forbs	30	0.3	1	0.3	22	2	1	0.3	1	0.3	1	8	1	2
Shrubs	6	6	17	10	7	5	12	16	40	14	23	21	14	44
Trees 0.01-acre														
Trees 0.1-acre	1	1												

Table B21. Percent Canopy Cover by Class and Species for 26 *ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* BREAKS**													
	PLOT NUMBER													
	237	249	250	253	254	257	269	270	273	274	275	277	278	279
CLASS\SPECIES														
NATIVE PERENNIAL GRAMINOIDS (Cool Season)														
Agropyron dasystachyum var. dasy.		4		5	1	6			10	3		5	6	4
Agropyron dasystachyum var. riparium														
Agropyron smithii			5					2	3	2		2		2
Agropyron spicatum	0.3	4	5		2		4	8		4	68	5	0.3	8
Aristida longiseta							1	1			0.3			
Carex filifolia	2													
Koeleria cristata	0.3									3				
Oryzopsis hymenoides							1					5		
Poa juncifolia														
Poa sandbergii						0.3								
Poa scabrella									0.3	0.3				
Sitanion hystrix				0.3										
Stipa comata							5					6		
Stipa viridula			6						15					
TOTAL NPG(C)	**2.6**	**8.0**	**16.0**	**5.3**	**3.0**	**6.3**	**11.0**	**11.0**	**28.3**	**12.3**	**68.3**	**23.0**	**6.3**	**14.0**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)														
Andropogon scoparius	0.3									8				
Bouteloua curtipendula	9					0.3		4			0.3			
Bouteloua gracilis	0.3					4				1	0.3			
Calamovilfa longifolia	1													
Distichlis stricta				4								4	4	0.3
Muhlenbergia cuspidata	1													
Sporobolus airoides	4													
Sporobolus cryptandrus						0.3								
TOTAL NPG(W)	**15.6**	**0.0**	**0.0**	**4.0**	**0.0**	**4.6**	**0.0**	**4.0**	**0.0**	**9.0**	**0.6**	**4.0**	**4.0**	**0.3**
INTRODUCED PERENNIAL GRAMINOIDS														
TOTAL IPG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL GRAMINOIDS														
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Table B21. Percent Canopy Cover by Class and Species for 26 *ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* BREAKS**													
	PLOT NUMBER													
	237	249	250	253	254	257	269	270	273	274	275	277	278	279
INTRODUCED ANNUAL GRAMINOIDS														
Bromus japonicus	0.3		0.3	0.3	0.3	1	3	1	0.3	0.3	0.3	18	2	1
Bromus tectorum							0.3	0.3				11		
TOTAL IAG	**0.3**	**0.0**	**0.3**	**0.3**	**0.3**	**1.0**	**3.3**	**1.3**	**0.3**	**0.3**	**0.3**	**29.0**	**2.0**	**1.0**
NATIVE PERENNIAL FORBS AND SUBSHRUBS														
Achillea millefolium														
Agoseris glauca									0.3					
Allium textile			0.3			0.3			0.3	0.3				
Ambrosia psilostachya											1			
Antennaria dimorpha										1				
Artemisia frigida											1	1		
Aster falcatus										1				
Aster oblongifolius					0.3									
Astragalus adsurgens														
Astragalus gilviflorus		0.3								0.3				
Astragalus missouriensis	0.3							0.3						
Calochortus nuttallii									0.3	0.3				
Castilleja sessiliflora										0.3				
Chrysopsis villosa								0.3						
Cirsium undulatum														
Comandra umbellata	0.3	0.3	0.3	0.3					0.3	0.3				
Coryphantha missouriensis														
Crepis occidentalis										0.3				
Cryptantha spiculifera (interrupta)							0.3							
Dalea candida	6			0.3				2						
Dalea purpurea		1								0.3				
Erigeron pumilus var. pumilus	0.3					0.3								
Eriogonum pauciflorum		8	1	4		1	5	2			0.3	3	6	0.3
Evolvulus nuttallianus		0.3						1						
Gaillardia aristata														
Gaura coccinea							0.3	2	2	0.3	0.3	0.3		0.3
Gilia congesta var. pseudotypica		0.3								0.3				
Gutierrezia sarothrae	2	0.3	12	0.3		2	8	1		4	0.3	1	3	1
Hymenopappus filifolius							0.3					0.3		
Iva axillaris										1				0.3
Liatris punctata								0.3						
Linum lewisii														

Table B21. Percent Canopy Cover by Class and Species for 26 *ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* BREAKS**													
	PLOT NUMBER													
	237	249	250	253	254	257	269	270	273	274	275	277	278	279
Lomatium orientale														
Machaeranthera grindelioides	1	1	0.3			0.3	1	0.3				0.3		
Musineon divaricatum										0.3			0.3	
Oenothera caespitosa									0.3					
Opuntia polyacantha						0.3				0.3				
Oxytropis lambertii										0.3				
Oxytropis sericea	2													
Penstemon albidus	0.3									0.3				
Penstemon eriantherus				0.3									0.3	
Penstemon nitidus														0.3
Phlox hoodii	0.3	0.3	2							1	0.3		0.3	
Polygala alba	1	0.3						1		0.3				
Psoralea argophylla	2	0.3								0.3				
Psoralea esculenta	1									1				
Senecio canus		0.3								0.3				
Solidago rigida														
Sphaeralcea coccinea			0.3				0.3	0.3			1			1
Stephanomeria runcinata														
Suaeda moquinii				2	2									
Vicia americana	0.3		1						2					1
Yucca glauca							3	8			1			
Zigadenus venenosus											0.3			
TOTAL NPF AND SUBSHRUBS	**16.8**	**12.7**	**17.2**	**7.2**	**2.3**	**4.2**	**18.2**	**18.5**	**5.5**	**13.8**	**5.5**	**5.9**	**9.9**	**4.2**
INTRODUCED PERENNIAL FORBS														
Taraxacum laevigatum	1											0.3		
Taraxacum officinale			0.3											
TOTAL IPF	**1.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**
FERNS AND ALLIES														
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS														
Atriplex suckleyi					18									
Cryptantha celosioides				0.3						0.3				0.3
Descurainia pinnata												0.3		
Grindelia squarrosa			0.3	0.3	3								0.3	
Lappula redowskii												0.3		
Lepidium densiflorum												0.3		
Linum rigidum						0.3			0.3	0.3				

Table B21. Percent Canopy Cover by Class and Species for 26 *ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* BREAKS**													
	PLOT NUMBER													
	237	249	250	253	254	257	269	270	273	274	275	277	278	279
Machaeranthera canescens					0.3							0.3		
Mentzelia dispersa														
Plantago patagonica						0.3			0.3					
TOTAL NAF	**0.0**	**0.0**	**0.3**	**0.6**	**21.3**	**0.6**	**0.0**	**0.0**	**0.6**	**0.6**	**0.0**	**1.2**	**0.3**	**0.3**
INTRODUCED ANNUAL/BIENNIAL FORBS														
Alyssum desertorum									0.3	0.3		0.3		
Camelina microcarpa							0.3				0.3	5		0.3
Filago arvensis														0.3
Lactuca serriola			0.3				0.3	0.3			0.3	0.3		0.3
Melilotus officinalis	30		0.3		0.3	2			0.3		0.3	0.3		1
Sisymbrium altissimum												1		
Tragopogon dubius		0.3	0.3		0.3		0.3	0.3	0.3	0.3	0.3	1	0.3	0.3
TOTAL IAF	**30.0**	**0.3**	**0.9**	**0.0**	**0.6**	**2.0**	**0.9**	**0.6**	**0.9**	**0.6**	**1.2**	**7.9**	**0.3**	**2.2**
SHRUBS														
Artemisia tridentata	6	2	14	4	2	3	9	16	37	12	16	12	13	33
Atriplex confertifolia		0.3	2	4	3	2	4	0.3	2	0.3	8	7		12
Ceratoides lanata												3		
Chrysothamnus nauseosus		3	0.3	0.3						0.3				
Rhus aromatica														
Rosa arkansana														
Sarcobatus vermiculatus		0.3	1	2	2				2	1			2	
TOTAL SHRUBS	**6.0**	**5.6**	**17.3**	**10.3**	**7.0**	**5.0**	**13.0**	**16.3**	**41.0**	**13.6**	**24.0**	**22.0**	**15.0**	**45.0**
TREES 0.01-acre														
Juniperus scopulorum														
Pinus ponderosa														
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TREES 0.1-acre														
Juniperus scopulorum	1	1												
Pinus ponderosa														
TOTAL TREES 0.1-acre	**1.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TOTAL VEGETATION (Stratified)	**72.3**	**26.6**	**52.3**	**27.7**	**34.5**	**23.7**	**46.4**	**51.7**	**76.6**	**50.2**	**99.9**	**93.3**	**37.8**	**67.0**

Footnotes are presented on cover page B-ii.

Table B21. Percent Canopy Cover by Class and Species for 26 *ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* BREAKS**													
	PLOT NUMBER													
	280	281	282	284	286	291	306	323	329	330	333	517	**Mean Cover**	***Con-stancy***
													n=26	
SITE PARAMETERS*														
Slope (percent)	8	20-60	38	4-20	58	5-15	48	3	2-30	2-10	2-10	92		
Aspect (degrees)	234	230	160	294	240	170	265	360	260	180	080	290		
Topography	Knob	Upper	Low	Ben-Rid	Upper-Mid	Low-Toe	Upper-Mid	Sho	Upper	Mid-Rid	Upper	Bank		
Configuration	X	X	U	X(U)	U	X	U	U	X	U	X	U		
Photo # (Digital)	281	059/060	246	951	240	279	087/088	323	329	330	333	260		
Investigator	KS	KS/ED	JE/SC	DB/KL	JE/SC	KS/ED	SC	JE	JE	JE	JE	JE/SC		
Date	06/29/11	06/29/11	07/14/11	06/27/11	07/14/11	06/28/11	06/29/11	06/22/11	06/23/11	06/23/11	06/23/11	07/15/11		
GROUND COVER														
Bare Ground	60	83	82	30	94	87	78	37	52	69	40	91	**60.77**	***100***
Rock	18	0.3	12	35	3	1	15	37	45	1	5	6	**19.79**	***100***
Litter	19	14	4	32	1	10	5	22	3	28	53	1	**16.81**	***100***
Lichens	0.3	0.3	0.3				0.3	0.3			0.3		**0.41**	***54***
Moss								0.3					**0.07**	***15***
Water													**0.00**	***0***
Basal Vegetation	3	2	2	3	2	2	2	3	0.3	2	2	2	**2.28**	***100***
VEGETATION STRUCTURE (nonstratified cover)														
Total Vegetation	56	43	62	52	34	34	44	42	18	32	42	22	**42.54**	***100***
Perennial Graminoids	22	19	37	16	10	12	10	19	6	19	17	11	**17.19**	***100***
Annual Graminoids	2	1	2		1	0.3	5	0.3	0.3	0.3	0.3	0.3	**1.84**	***92***
Perennial Forbs and Subshrubs	15	12	11	10	9	2	4	8	8	9	12	1	**8.88**	***100***
Annual/Biennial Forbs	2	0.3	2	0.3	0.3	0.3	2	3	3	0.3	2	5	**3.49**	***100***
Shrubs	23	15	23	30	16	23	28	18	2	5	18	8	**17.08**	***100***
Trees 0.01-acre				1				0.3					**0.05**	***8***
Trees 0.1-acre				0.3				0.3					**0.10**	***15***

Table B21. Percent Canopy Cover by Class and Species for 26 *ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* BREAKS**													
	PLOT NUMBER													
	280	281	282	284	286	291	306	323	329	330	333	517	**Mean Cover**	***Con-stancy***
													n=26	
CLASS\SPECIES														
NATIVE PERENNIAL GRAMINOIDS (Cool Season)														
Agropyron dasystachyum var. dasy.	10	8		11		6	3	2		7	7		**3.77**	***65***
Agropyron dasystachyum var. riparium	6	4											**0.38**	***8***
Agropyron smithii		4	4				2	2		3	3	5	**1.50**	***50***
Agropyron spicatum		2	16	6	9	4	5	9	0.3	3	2	6	**6.57**	***85***
Aristida longiseta													**0.09**	***12***
Carex filifolia										1			**0.12**	***8***
Koeleria cristata		0.3						2			1		**0.25**	***19***
Oryzopsis hymenoides													**0.23**	***8***
Poa juncifolia			0.3										**0.01**	***4***
Poa sandbergii						0.3	0.3					0.3	**0.05**	***15***
Poa scabrella	2	2						2			1		**0.29**	***23***
Sitanion hystrix	4			0.3					6				**0.41**	***15***
Stipa comata		0.3	5							2			**0.70**	***19***
Stipa viridula			2			2		4			5		**1.31**	***23***
TOTAL NPG(C)	**22.0**	**20.6**	**27.3**	**17.3**	**9.0**	**12.3**	**10.3**	**21.0**	**6.3**	**16.0**	**19.0**	**11.3**	**15.68**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)														
Andropogon scoparius			2										**0.40**	***12***
Bouteloua curtipendula			8										**0.83**	***19***
Bouteloua gracilis			1							0.3			**0.27**	***23***
Calamovilfa longifolia			2		1					2			**0.23**	***15***
Distichlis stricta	2												**0.55**	***19***
Muhlenbergia cuspidata										2			**0.12**	***8***
Sporobolus airoides	0.3												**0.17**	***8***
Sporobolus cryptandrus													**0.01**	***4***
TOTAL NPG(W)	**2.3**	**0.0**	**13.0**	**0.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**4.3**	**0.0**	**0.0**	**2.57**	***50***
INTRODUCED PERENNIAL GRAMINOIDS														
TOTAL IPG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL GRAMINOIDS														
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***

Table B21. Percent Canopy Cover by Class and Species for 26 *ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* BREAKS**													
	PLOT NUMBER													
	280	281	282	284	286	291	306	323	329	330	333	517	**Mean Cover**	***Con-stancy***
													n=26	
INTRODUCED ANNUAL GRAMINOIDS														
Bromus japonicus	2	1	2		1	0.3	5	0.3	0.3	0.3	0.3	0.3	**1.57**	***92***
Bromus tectorum													**0.45**	***12***
TOTAL IAG	**2.0**	**1.0**	**2.0**	**0.0**	**1.0**	**0.3**	**5.0**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**2.02**	***92***
NATIVE PERENNIAL FORBS AND SUBSHRU														
Achillea millefolium								2					**0.08**	***4***
Agoseris glauca													**0.01**	***4***
Allium textile		0.3						0.3			0.3		**0.08**	***27***
Ambrosia psilostachya													**0.04**	***4***
Antennaria dimorpha													**0.04**	***4***
Artemisia frigida													**0.08**	***8***
Aster falcatus								1				0.3	**0.09**	***12***
Aster oblongifolius			0.3				0.3	0.3					**0.05**	***15***
Astragalus adsurgens												0.3	**0.01**	***4***
Astragalus gilviflorus										1	0.3		**0.07**	***15***
Astragalus missouriensis			0.3							0.3			**0.05**	***15***
Calochortus nuttallii													**0.02**	***8***
Castilleja sessiliflora													**0.01**	***4***
Chrysopsis villosa													**0.01**	***4***
Cirsium undulatum			1										**0.04**	***4***
Comandra umbellata					0.3					1		0.3	**0.13**	***35***
Coryphantha missouriensis										0.3			**0.01**	***4***
Crepis occidentalis								0.3			0.3		**0.03**	***12***
Cryptantha spiculifera (interrupta)		0.3	0.3										**0.03**	***12***
Dalea candida			0.3										**0.33**	***15***
Dalea purpurea										0.3			**0.06**	***12***
Erigeron pumilus var. pumilus											0.3		**0.03**	***12***
Eriogonum pauciflorum	3	5		7	4		0.3		8	2	1		**2.34**	***69***
Evolvulus nuttallianus													**0.05**	***8***
Gaillardia aristata										0.3			**0.01**	***4***
Gaura coccinea			2					0.3					**0.30**	***35***
Gilia congesta var. pseudotypica										0.3			**0.03**	***12***
Gutierrezia sarothrae	0.3	4	0.3	0.3	4	1	2	0.3	0.3	1	6		**2.09**	***88***
Hymenopappus filifolius		1		0.3	1								**0.11**	***19***
Iva axillaris	4										2		**0.28**	***15***
Liatris punctata			0.3										**0.02**	***8***
Linum lewisii				0.3				0.3					**0.02**	***8***

Table B21. Percent Canopy Cover by Class and Species for 26 *ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* BREAKS**													
	PLOT NUMBER													
	280	281	282	284	286	291	306	323	329	330	333	517	**Mean Cover**	***Con-stancy***
													n=26	
Lomatium orientale											0.3		**0.01**	***4***
Machaeranthera grindelioides		1	0.3		0.3					0.3			**0.23**	***42***
Musineon divaricatum						0.3				0.3			**0.05**	***15***
Oenothera caespitosa	1			0.3			0.3				0.3		**0.08**	***19***
Opuntia polyacantha										0.3			**0.03**	***12***
Oxytropis lambertii													**0.01**	***4***
Oxytropis sericea													**0.08**	***4***
Penstemon albidus										0.3			**0.03**	***12***
Penstemon eriantherus											0.3		**0.03**	***12***
Penstemon nitidus									0.3				**0.02**	***8***
Phlox hoodii			0.3	2		0.3		2		0.3	0.3		**0.36**	***46***
Polygala alba		0.3	1										**0.15**	***23***
Psoralea argophylla			0.3										**0.11**	***15***
Psoralea esculenta			1				0.3			0.3			**0.14**	***19***
Senecio canus													**0.02**	***8***
Solidago rigida								0.3					**0.01**	***4***
Sphaeralcea coccinea							0.3						**0.12**	***23***
Stephanomeria runcinata		0.3											**0.01**	***4***
Suaeda moquinii	7						0.3		0.3				**0.45**	***19***
Vicia americana			2			1		1			2		**0.40**	***31***
Yucca glauca			2		0.3					1			**0.59**	***23***
Zigadenus venenosus													**0.01**	***4***
TOTAL NPF AND SUBSHRUBS	**15.3**	**12.2**	**11.7**	**10.2**	**9.9**	**2.6**	**3.8**	**8.1**	**8.9**	**9.3**	**13.4**	**0.9**	**9.55**	***100***
INTRODUCED PERENNIAL FORBS														
Taraxacum laevigatum							0.3	0.3				0.3	**0.08**	***19***
Taraxacum officinale													**0.01**	***4***
TOTAL IPF	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.3**	**0.0**	**0.0**	**0.0**	**0.3**	**0.10**	***23***
FERNS AND ALLIES														
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS														
Atriplex suckleyi													**0.69**	***4***
Cryptantha celosioides			0.3	0.3	0.3								**0.07**	***23***
Descurainia pinnata									0.3				**0.02**	***8***
Grindelia squarrosa	2	0.3					2		2		2		**0.47**	***35***
Lappula redowskii													**0.01**	***4***
Lepidium densiflorum		0.3											**0.02**	***8***
Linum rigidum		0.3											**0.05**	***15***

Table B21. Percent Canopy Cover by Class and Species for 26 *ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* BREAKS**													
	PLOT NUMBER													
	280	281	282	284	286	291	306	323	329	330	333	517	**Mean Cover**	***Con-stancy***
													n=26	
Machaeranthera canescens													**0.02**	***8***
Mentzelia dispersa							0.3						**0.01**	***4***
Plantago patagonica													**0.02**	***8***
TOTAL NAF	**2.0**	**0.9**	**0.3**	**0.3**	**0.3**	**0.0**	**2.3**	**0.0**	**2.3**	**0.0**	**2.0**	**0.0**	**1.39**	***65***
INTRODUCED ANNUAL/BIENNIAL FORBS														
Alyssum desertorum							0.3			0.3			**0.06**	***19***
Camelina microcarpa		0.3					0.3						**0.25**	***23***
Filago arvensis													**0.01**	***4***
Lactuca serriola			0.3									0.3	**0.09**	***31***
Melilotus officinalis			1					3	0.3			5	**1.68**	***46***
Sisymbrium altissimum													**0.04**	***4***
Tragopogon dubius	0.3		0.3		0.3	0.3		0.3	0.3		0.3	0.3	**0.25**	***73***
TOTAL IAF	**0.3**	**0.3**	**1.6**	**0.0**	**0.3**	**0.3**	**0.6**	**3.3**	**0.6**	**0.3**	**0.3**	**5.6**	**2.38**	***92***
SHRUBS														
Artemisia tridentata	1	9	23	16	11	15	20	15	1	4	15	4	**12.04**	***100***
Atriplex confertifolia	3	4	0.3	5	5		2				3	1	**2.62**	***77***
Ceratoides lanata		2					0.3		1	1		2	**0.36**	***23***
Chrysothamnus nauseosus		0.3		0.3		0.3		0.3	0.3		0.3	2	**0.30**	***42***
Rhus aromatica				1									**0.04**	***4***
Rosa arkansana								3					**0.12**	***4***
Sarcobatus vermiculatus	20			12		8	10						**2.32**	***42***
TOTAL SHRUBS	**24.0**	**15.3**	**23.3**	**34.3**	**16.0**	**23.3**	**32.3**	**18.3**	**2.3**	**5.0**	**18.3**	**9.0**	**17.79**	***100***
TREES 0.01-acre														
Juniperus scopulorum								0.3					**0.01**	***4***
Pinus ponderosa				1									**0.04**	***4***
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.05**	***8***
TREES 0.1-acre														
Juniperus scopulorum								0.3					**0.09**	***12***
Pinus ponderosa				0.3									**0.01**	***4***
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.10**	***15***
TOTAL VEGETATION (Stratified)	**67.9**	**50.3**	**79.2**	**63.1**	**37.5**	**38.8**	**54.6**	**51.6**	**20.7**	**35.2**	**53.3**	**27.4**	**51.52**	***100***

Footnotes are presented on cover page B-ii.

Table B22. Percent Canopy Cover by Class and Species for 13 *ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-RHUS AROMATICA/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-RHUS AROMATICA/AGROPYRON SPICATUM* BREAKS**														
	PLOT NUMBER														
	216	267	293	294	297	298	304	305	317	318	319	363	379	**Mean Cover**	***Con-stancy***
														n=13	
SITE PARAMETERS*															
Slope (percent)	30	32	104	80	38	48	55	56	70-95	80	8-80	74	69		
Aspect (degrees)	204	254	212	224	236	204	230	196	140	240	160	220	220		
Topography	Upper	Upper	Upper	Upper	Sho	Upper	Upper	Upper	Upper	Upper-Sho	Upper	Upper	Upper		
Configuration	U(V)	U	U	U	X	U	X	U	U	X	U	U	X		
Photo # (Digital)	177	189	033/034	035	053	061	035	024	809	786/787	784/785	200/201	002		
Investigator	DB	DB	DB/KL	DB/KL	DB/KL	DB/KL	PL	DB/KL	DB/KL	DB/KL	DB/KL	JE/SC	DB/KL		
Date	07/12/11	07/13/11	07/07/11	07/07/11	07/08/11	07/08/11	06/28/11	06/30/11	06/25/11	06/24/11	06/23/11	07/11/11	06/30/11		
GROUND COVER															
Bare Ground	60	45	70	40	45	60	94	50	45	48	54	36	50	**53.62**	***100***
Rock	6	26	3	40	25	20	0.3	15	35	35	30	60	22	**24.41**	***100***
Litter	26	25	24	19	27	18	5	30	15	13	10	2	24	**18.31**	***100***
Lichens	3		0.3	0.3				2	2	2	4		1	**1.12**	***62***
Moss	1		2											**0.23**	***15***
Water														**0.00**	***0***
Basal Vegetation	4	4	1	1	3	2	1	3	3	2	2	2	3	**2.38**	***100***
VEGETATION STRUCTURE (nonstratified cover)															
Total Vegetation	60	60	20	20	35	40	18	48	26	34	23	31	40	**35.00**	***100***
Perennial Graminoids	28	20	6	5	16	9	4	20	2	3	10	14	9	**11.23**	***100***
Annual Graminoids	3	0.3		0.3			0.3	2		1	1	0.3	0.3	**0.65**	***69***
Perennial Forbs and Subshrubs	5	17	4	4	10	6	2	12	4	6	7	4	14	**7.31**	***100***
Annual/Biennial Forbs	5	1		0.3	1	0.3	2	1	0.3	1	0.3	0.3	0.3	**0.98**	***92***
Shrubs	26	30	8	12	12	27	12	18	21	24	8	15	20	**17.92**	***100***
Trees 0.01-acre			3	1								3		**0.54**	***23***
Trees 0.1-acre			4	1	4						0.3	2	2	**1.02**	***46***

Table B22. Percent Canopy Cover by Class and Species for 13 *ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-RHUS AROMATICA/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-RHUS AROMATICA/AGROPYRON SPICATUM* BREAKS**														
	PLOT NUMBER														
	216	267	293	294	297	298	304	305	317	318	319	363	379	**Mean Cover**	***Con-stancy***
														n=13	
CLASS\SPECIES															
NATIVE PERENNIAL GRAMINOIDS (Cool Season)															
Agropyron dasystachyum var. dasy.						6								**0.46**	***8***
Agropyron smithii	3				3		4	4				2	4	**1.54**	***46***
Agropyron spicatum	1	11	5	5	8	2	0.3	5	2	2	9	12	5	**5.18**	***100***
Aristida longiseta								5						**0.38**	***8***
Carex filifolia								1						**0.08**	***8***
Koeleria cristata										0.3				**0.02**	***8***
Oryzopsis hymenoides		10	1			1		0.3		1	1			**1.10**	***46***
Poa sandbergii							0.3					0.3		**0.05**	***15***
Sitanion hystrix	3													**0.23**	***8***
Stipa comata	5							1						**0.46**	***15***
Stipa viridula	6													**0.46**	***8***
TOTAL NPG(C)	**18.0**	**21.0**	**6.0**	**5.0**	**11.0**	**9.0**	**4.6**	**16.3**	**2.0**	**3.3**	**10.0**	**14.3**	**9.0**	**9.96**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)															
Andropogon scoparius	1													**0.08**	***8***
Bouteloua curtipendula	3							5						**0.62**	***15***
Bouteloua gracilis					6									**0.46**	***8***
Muhlenbergia cuspidata	1													**0.08**	***8***
Sporobolus airoides	8													**0.62**	***8***
TOTAL NPG(W)	**13.0**	**0.0**	**0.0**	**0.0**	**6.0**	**0.0**	**0.0**	**5.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.85**	***23***
INTRODUCED PERENNIAL GRAMINOIDS															
TOTAL IPG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL GRAMINOIDS															
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS															
Bromus japonicus	3	0.3		0.3			0.3	2		1	1	0.3	0.3	**0.65**	***69***
Bromus tectorum				0.3									0.3	**0.05**	***15***
TOTAL IAG	**3.0**	**0.3**	**0.0**	**0.6**	**0.0**	**0.0**	**0.3**	**2.0**	**0.0**	**1.0**	**1.0**	**0.3**	**0.6**	**0.70**	***69***

Table B22. Percent Canopy Cover by Class and Species for 13 *ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-RHUS AROMATICA/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-RHUS AROMATICA/AGROPYRON SPICATUM* BREAKS**														
	PLOT NUMBER														
	216	267	293	294	297	298	304	305	317	318	319	363	379	**Mean Cover**	***Con-stancy***
														n=13	
NATIVE PERENNIAL FORBS AND SUBSHRUBS															
Artemisia frigida												1	0.3	**0.10**	***15***
Aster falcatus													0.3	**0.02**	***8***
Aster oblongifolius								1						**0.08**	***8***
Astragalus adsurgens			0.3		0.3							1		**0.12**	***23***
Astragalus gilviflorus	0.3													**0.02**	***8***
Comandra umbellata		0.3			0.3	0.3		0.3						**0.09**	***31***
Cryptantha spiculifera (interrupta)				0.3								0.3	0.3	**0.07**	***23***
Dalea candida	0.3				3									**0.25**	***15***
Dalea purpurea								0.3						**0.02**	***8***
Echinacea angustifolia										0.3				**0.02**	***8***
Erigeron pumilus var. concinnus								0.3						**0.02**	***8***
Eriogonum pauciflorum		0.3		3	2	5	0.3		2	4	3	0.3		**1.53**	***69***
Gaura coccinea	0.3	0.3			0.3			0.3	0.3		0.3		0.3	**0.16**	***54***
Gilia congesta var. pseudotypica				0.3										**0.02**	***8***
Gutierrezia sarothrae	2	10	3		1			4	2	2	3	1	5	**2.54**	***77***
Hymenopappus filifolius			0.3			0.3								**0.05**	***15***
Linum lewisii		0.3												**0.02**	***8***
Machaeranthera grindelioides		0.3			0.3	1		0.3	0.3		0.3			**0.19**	***46***
Mirabilis linearis												0.3		**0.02**	***8***
Oenothera caespitosa							1				0.3			**0.10**	***15***
Opuntia polyacantha					0.3									**0.02**	***8***
Penstemon nitidus					0.3									**0.02**	***8***
Phacelia hastata				0.3										**0.02**	***8***
Phlox hoodii		1			2			1						**0.31**	***23***
Polygala alba	0.3							0.3						**0.05**	***15***
Psoralea argophylla	1							3						**0.31**	***15***
Sphaeralcea coccinea	1	0.3			0.3			1	0.3	0.3	0.3	0.3	2	**0.45**	***69***
Stephanomeria runcinata			0.3	0.3	0.3			0.3	0.3					**0.12**	***38***
Suaeda moquinii							0.3							**0.02**	***8***
Vicia americana	0.3				0.3			0.3					0.3	**0.09**	***31***
Viola nuttallii								0.3						**0.02**	***8***
Yucca glauca		5											6	**0.85**	***15***
TOTAL NPF AND SUBSHRUBS	**5.5**	**17.8**	**3.9**	**4.2**	**10.7**	**6.6**	**1.6**	**12.7**	**5.2**	**6.6**	**7.2**	**4.2**	**14.5**	**7.75**	***100***
INTRODUCED PERENNIAL FORBS															
Taraxacum laevigatum		0.3												**0.02**	***8***
TOTAL IPF	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.02**	***8***

Table B22. Percent Canopy Cover by Class and Species for 13 *ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-RHUS AROMATICA/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-RHUS AROMATICA/AGROPYRON SPICATUM* BREAKS**														
	PLOT NUMBER														
	216	267	293	294	297	298	304	305	317	318	319	363	379	**Mean Cover**	***Con-stancy***
														n=13	
FERNS AND ALLIES															
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS															
Cryptantha celosioides		0.3			0.3	0.3		0.3	0.3		0.3			**0.14**	***46***
Erysimum asperum								0.3						**0.02**	***8***
Grindelia squarrosa	0.3	0.3					1							**0.12**	***23***
Helianthus petiolaris							1	0.3					0.3	**0.12**	***23***
Lappula redowskii								0.3		0.3			0.3	**0.07**	***23***
Machaeranthera canescens												0.3		**0.02**	***8***
Mentzelia dispersa				0.3										**0.02**	***8***
Orthocarpus luteus	0.3													**0.02**	***8***
TOTAL NAF	**0.6**	**0.6**	**0.0**	**0.3**	**0.3**	**0.3**	**2.0**	**1.2**	**0.3**	**0.3**	**0.3**	**0.3**	**0.6**	**0.55**	***92***
INTRODUCED ANNUAL/BIENNIAL FORBS															
Lactuca serriola					0.3		0.3							**0.05**	***15***
Melilotus officinalis	4											0.3		**0.33**	***15***
Sisymbrium loeselii										1				**0.08**	***8***
Tragopogon dubius		0.3		0.3	0.3		0.3	0.3					0.3	**0.14**	***46***
TOTAL IAF	**4.0**	**0.3**	**0.0**	**0.3**	**0.6**	**0.0**	**0.6**	**0.3**	**0.0**	**1.0**	**0.0**	**0.3**	**0.3**	**0.59**	***69***
SHRUBS															
Artemisia tridentata	23	21	0.3	3	8	12	5	16	12	2	4	6	5	**9.02**	***100***
Atriplex confertifolia	4	1	2	8	2	15	7		8	20	3	7	9	**6.62**	***92***
Chrysothamnus nauseosus		1	0.3		1	1			2	2	1		7	**1.18**	***62***
Rhus aromatica		10	3	2	2			2	0.3		0.3	2		**1.66**	***62***
Rosa arkansana			2											**0.15**	***8***
TOTAL SHRUBS	**27.0**	**33.0**	**7.6**	**13.0**	**13.0**	**28.0**	**12.0**	**18.0**	**22.3**	**24.0**	**8.3**	**15.0**	**21.0**	**18.63**	***100***
TREES 0.01-acre															
Juniperus scopulorum			1									3		**0.31**	***15***
Pinus ponderosa			2	1										**0.23**	***15***
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**3.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**3.0**	**0.0**	**0.54**	***23***
TREES 0.1-acre															
Juniperus scopulorum			3		1							1	0.3	**0.41**	***31***
Pinus ponderosa			1	1	3						0.3	1	2	**0.64**	***46***
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**4.0**	**1.0**	**4.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**2.0**	**2.3**	**1.05**	***46***
TOTAL VEGETATION (Stratified)	**71.1**	**73.3**	**20.5**	**24.4**	**41.6**	**43.9**	**21.1**	**55.5**	**29.8**	**36.2**	**26.8**	**37.4**	**46.0**	**40.58**	***100***

Footnotes are presented on cover page B-ii.

Table B23. Percent Canopy Cover by Class and Species for 11 *JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* BREAKS**												
	PLOT NUMBER												
	361	381	387	390	402	416	430	515	516	520	538	**Mean Cover**	***Con-stancy***
												n=11	
SITE PARAMETERS*													
Slope (percent)	5-30	80	20-48	4-12	3-10	45-60	40	60-65	28	75	30		
Aspect (degrees)	356	080	180	330	300	240	036	015	320	048	060		
Topography	Low	Upper	Low	Ben-Sho	Bot	Toe	Upper	Low	Toe	Mid	Toe-Bnk		
Configuration	U	S	U	X	V	V	S	U	U	U	V		
Photo # (Digital)	271	038	706	390	707	783	034	061	262/263	269/270	538		
Investigator	KS/ED	PL	DB/KL	JE	DB/KL	DB/KL	PL	KS/ED	JE/SC	KS/ED	JE		
Date	06/27/11	06/29/11	06/23/11	06/22/11	06/23/11	06/23/11	06/28/11	06/29/11	07/15/11	06/27/11	07/15/11		
GROUND COVER													
Bare Ground	30	26	10	5	20	40	31	38	4	36	40	**25.45**	***100***
Rock	8	55	40	32	35	25	20	24	93		0.3	**30.21**	***91***
Litter	40	5	46	30	40	30	45	34	1	26	58	**32.27**	***100***
Lichens	18	13		30	2	1	1	0.3				**5.94**	***64***
Moss	0.3	0.3		0.3			0.3	1		35		**3.38**	***55***
Basal Vegetation	4	1	4	3	3	4	3	3	2	3	2	**2.91**	***100***
VEGETATION STRUCTURE (nonstratified cover)													
Total Vegetation	66	15	71	63	68	59	72	55	56	70	50	**58.64**	***100***
Perennial Graminoids	34	7	2	17	6	29	10	18	8	20	19	**15.45**	***100***
Annual Graminoids	0.3	0.3	0.3	0.3	0.3					0.3	0.3	**0.19**	***64***
Perennial Forbs and Subshrubs	27	2	0.3	10	3	10	10	24	15	17	11	**11.75**	***100***
Annual/Biennial Forbs	2	1	1	1	3	2	0.3	2	5	8	4	**2.66**	***100***
Shrubs	0.3	0.3				3	1	4	2	1	10	**1.96**	***73***
Trees 0.01-acre	28	7	70	42	65	33	55	17	42	38	16	**37.55**	***100***
Trees 0.1-acre	18	21	50	35	40	16	65	40	62	68	25	**40.00**	***100***

Table B23. Percent Canopy Cover by Class and Species for 11 *JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* BREAKS**												
	PLOT NUMBER												
	361	381	387	390	402	416	430	515	516	520	538	**Mean Cover**	***Con-stancy***
												n=11	
CLASS\SPECIES													
NATIVE PERENNIAL GRAMINOIDS (Cool Season)													
Agropyron smithii						5				0.3	0.3	**0.51**	***27***
Agropyron spicatum	22	2	1	4	2	16	8	9	4	18	15	**9.18**	***100***
Aristida longiseta	0.3			0.3		0.3						**0.08**	***27***
Carex filifolia	3						0.3	1				**0.39**	***27***
Carex heliophila									0.3			**0.03**	***9***
Carex rossii								3		1		**0.36**	***18***
Koeleria cristata	3	0.3		1	1			0.3			1	**0.60**	***55***
Oryzopsis hymenoides		1										**0.09**	***9***
Poa sandbergii		0.3								0.3		**0.05**	***18***
Poa scabrella					0.3							**0.03**	***9***
Stipa comata		3		1								**0.36**	***18***
Stipa viridula			1									**0.09**	***9***
TOTAL NPG(C)	**28.3**	**6.6**	**2.0**	**6.3**	**3.3**	**21.3**	**8.3**	**13.3**	**4.3**	**19.6**	**16.3**	**11.78**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)													
Andropogon scoparius	8			6	3	2		5	0.3			**2.21**	***55***
Bouteloua curtipendula	2	1		4		7	2	1	4		3	**2.18**	***73***
Bouteloua gracilis				2	0.3							**0.21**	***18***
Muhlenbergia cuspidata						1					1	**0.18**	***18***
TOTAL NPG(W)	**10.0**	**1.0**	**0.0**	**12.0**	**3.3**	**10.0**	**2.0**	**6.0**	**4.3**	**0.0**	**4.0**	**4.78**	***82***
INTRODUCED PERENNIAL GRAMINOIDS													
Poa pratensis					0.3							**0.03**	***9***
TOTAL IPG	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.03**	***9***
NATIVE ANNUAL GRAMINOIDS													
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS													
Bromus japonicus	0.3	0.3	0.3	0.3	0.3					0.3	0.3	**0.19**	***64***
TOTAL IAG	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.3**	**0.19**	***64***

Table B23. Percent Canopy Cover by Class and Species for 11 *JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* BREAKS**												
	PLOT NUMBER												
	361	381	387	390	402	416	430	515	516	520	538	**Mean Cover**	***Con-stancy***
												n=11	
NATIVE PERENNIAL FORBS AND SUBSHRUBS													
Achillea millefolium	0.3				0.3		0.3	0.3	0.3	2		**0.32**	***55***
Allium textile						0.3						**0.03**	***9***
Anemone multifida										0.3		**0.03**	***9***
Antennaria dimorpha	0.3											**0.03**	***9***
Antennaria howellii (neglecta)				0.3	0.3			0.3		1		**0.17**	***36***
Antennaria microphylla					0.3							**0.03**	***9***
Antennaria parvifolia				0.3			0.3					**0.05**	***18***
Artemisia campestris								0.3		0.3		**0.05**	***18***
Artemisia frigida		1		0.3		0.3						**0.15**	***27***
Artemisia ludoviciana											1	**0.09**	***9***
Aster falcatus	0.3										0.3	**0.05**	***18***
Aster laevis	4				0.3			1	0.3	2	0.3	**0.72**	***55***
Aster oblongifolius						0.3	0.3					**0.05**	***18***
Astragalus adsurgens	0.3				1	0.3	3	2	2	0.3	1	**0.90**	***73***
Astragalus drummondii									0.3	0.3	1	**0.15**	***27***
Astragalus gilviflorus	0.3							0.3				**0.05**	***18***
Astragalus missouriensis		0.3				0.3	0.3				0.3	**0.11**	***36***
Astragalus purshii				0.3								**0.03**	***9***
Astragalus spatulatus	4											**0.36**	***9***
Astragalus tenellus	0.3							1				**0.12**	***18***
Besseya wyomingensis						0.3	0.3	0.3				**0.08**	***27***
Campanula rotundifolia							0.3	1		0.3		**0.15**	***27***
Castilleja sessiliflora	0.3							0.3				**0.05**	***18***
Cerastium arvense				1			1	2	0.3	6		**0.94**	***45***
Cirsium undulatum			0.3	0.3								**0.05**	***18***
Comandra umbellata							0.3	0.3			0.3	**0.08**	***27***
Crepis intermedia										1		**0.09**	***9***
Crepis occidentalis	0.3							1				**0.12**	***18***
Dalea candida	2			0.3				2	5		0.3	**0.87**	***45***
Dalea purpurea	0.3			1						0.3	0.3	**0.17**	***36***
Echinacea angustifolia	0.3						0.3	0.3	0.3		0.3	**0.14**	***45***
Eriogonum pauciflorum				0.3								**0.03**	***9***
Euphorbia robusta	0.3											**0.03**	***9***
Gaillardia aristata				0.3								**0.03**	***9***
Gaura coccinea						0.3						**0.03**	***9***
Geum triflorum							0.3	1	0.3			**0.15**	***27***
Gilia congesta var. pseudotypica	0.3								0.3			**0.05**	***18***
Glycyrrhiza lepidota								0.3				**0.03**	***9***

Table B23. Percent Canopy Cover by Class and Species for 11 *JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* BREAKS**												
	PLOT NUMBER												
	361	381	387	390	402	416	430	515	516	520	538	**Mean Cover**	***Con-stancy***
												n=11	
Gutierrezia sarothrae	2			2	0.3	3	1	0.3	1		2	**1.05**	***73***
Hedeoma drummondii				0.3								**0.03**	***9***
Hymenopappus filifolius							0.3					**0.03**	***9***
Lactuca oblongifolia											0.3	**0.03**	***9***
Liatris punctata	0.3					0.3	0.3					**0.08**	***27***
Linum lewisii				0.3	0.3				0.3	0.3	0.3	**0.14**	***45***
Machaeranthera grindelioides				1								**0.09**	***9***
Musineon divaricatum	0.3						0.3					**0.05**	***18***
Opuntia polyacantha								0.3				**0.03**	***9***
Oxytropis lambertii	0.3						0.3	2	0.3	0.3		**0.29**	***45***
Oxytropis sericea							0.3				0.3	**0.05**	***18***
Penstemon nitidus				0.3			0.3					**0.05**	***18***
Phlox hoodii	0.3			1							0.3	**0.15**	***27***
Polygala alba	0.3					0.3	0.3	1	1	0.3	1	**0.38**	***64***
Psoralea argophylla	0.3					4	1		5		1	**1.03**	***45***
Psoralea esculenta	0.3					0.3						**0.05**	***18***
Ratibida columnifera											0.3	**0.03**	***9***
Senecio canus	0.3						0.3	0.3				**0.08**	***27***
Sisyrinchium angustifolium					0.3			0.3				**0.05**	***18***
Smilacina stellata										1		**0.09**	***9***
Solidago missouriensis	0.3						0.3	0.3			0.3	**0.11**	***36***
Solidago nemoralis	3			0.3		0.3		2				**0.51**	***36***
Solidago rigida	4			1	0.3			1	0.3		0.3	**0.63**	***55***
Sphaeralcea coccinea						0.3					0.3	**0.05**	***18***
Stephanomeria runcinata						0.3						**0.03**	***9***
Thermopsis rhombifolia	5									2	1	**0.73**	***27***
Toxicodendron rydbergii								1				**0.09**	***9***
Vicia americana						0.3			0.3			**0.05**	***18***
Yucca glauca		1			0.3	0.3	0.3					**0.17**	***36***
Zigadenus venenosus	0.3					0.3	0.3	0.3			0.3	**0.14**	***45***
TOTAL NPF AND SUBSHRUBS	**30.6**	**2.3**	**0.3**	**10.6**	**3.7**	**11.8**	**12.0**	**22.5**	**17.3**	**17.7**	**12.8**	**12.87**	***100***
INTRODUCED PERENNIAL FORBS													
Medicago sativa	0.3							4				**0.39**	***18***
Taraxacum laevigatum			0.3	0.3		0.3	0.3	0.3				**0.14**	***45***
Taraxacum officinale									0.3			**0.03**	***9***
TOTAL IPF	**0.3**	**0.0**	**0.3**	**0.3**	**0.0**	**0.3**	**0.3**	**4.3**	**0.3**	**0.0**	**0.0**	**0.55**	***64***
FERNS AND ALLIES													
Cystopteris fragilis		0.3										**0.03**	***9***
TOTAL F&A	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.03**	***9***

Table B23. Percent Canopy Cover by Class and Species for 11 *JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* BREAKS**												
	PLOT NUMBER												
	361	381	387	390	402	416	430	515	516	520	538	**Mean Cover**	***Con-stancy***
												n=11	
NATIVE ANNUAL/BIENNIAL FORBS													
Arabis hirsuta								0.3				**0.03**	***9***
Arabis holboellii				0.3								**0.03**	***9***
Chenopodium fremontii		0.3										**0.03**	***9***
Collinsia parviflora			0.3									**0.03**	***9***
Cryptantha celosioides			0.3			0.3						**0.05**	***18***
Descurainia pinnata		0.3										**0.03**	***9***
Descurainia richardsonii			0.3									**0.03**	***9***
Draba reptans		0.3	0.3									**0.05**	***18***
Eriogonum cernuum		0.3										**0.03**	***9***
Orthocarpus luteus											0.3	**0.03**	***9***
Plantago patagonica					0.3							**0.03**	***9***
TOTAL NAF	**0.0**	**1.2**	**1.2**	**0.3**	**0.3**	**0.3**	**0.0**	**0.3**	**0.0**	**0.0**	**0.3**	**0.35**	***64***
INTRODUCED ANNUAL/BIENNIAL FORBS													
Alyssum alyssoides					0.3						0.3	**0.05**	***18***
Alyssum desertorum		0.3		0.3			0.3			0.3		**0.11**	***36***
Camelina microcarpa										0.3		**0.03**	***9***
Draba nemorosa				0.3								**0.03**	***9***
Lactuca serriola		0.3	0.3									**0.05**	***18***
Melilotus officinalis	2		0.3	0.3	3	1		2	5	8	4	**2.33**	***82***
Tragopogon dubius	0.3					0.3						**0.05**	***18***
TOTAL IAF	**2.3**	**0.6**	**0.6**	**0.9**	**3.3**	**1.3**	**0.3**	**2.0**	**5.0**	**8.6**	**4.3**	**2.65**	***100***
SHRUBS													
Artemisia tridentata							1	4	2	0.3	8	**1.39**	***45***
Chrysothamnus nauseosus	0.3					3						**0.30**	***18***
Rhus aromatica		0.3				0.3	0.3				1	**0.17**	***36***
Ribes aureum										1		**0.09**	***9***
Ribes cereum										0.3		**0.03**	***9***
Rosa arkansana	0.3							0.3			0.3	**0.08**	***27***
Symphoricarpos occidentalis											1	**0.09**	***9***
TOTAL SHRUBS	**0.6**	**0.3**	**0.0**	**0.0**	**0.0**	**3.3**	**1.3**	**4.3**	**2.0**	**1.6**	**10.3**	**2.15**	***73***
TREES 0.01-acre													
Juniperus scopulorum	28	7	70	42	65	33	53	16	42	38	16	**37.27**	***100***
Pinus ponderosa						0.3	4	1				**0.48**	***27***
TOTAL TREES 0.01-acre	**28.0**	**7.0**	**70.0**	**42.0**	**65.0**	**33.3**	**57.0**	**17.0**	**42.0**	**38.0**	**16.0**	**37.75**	***100***

Table B23. Percent Canopy Cover by Class and Species for 11 *JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* BREAKS**												
	PLOT NUMBER												
	361	381	387	390	402	416	430	515	516	520	538	**Mean Cover**	***Con-stancy***
												n=11	
TREES 0.1-acre													
Juniperus scopulorum	18	21	50	35	40	14	63	39	62	68	25	**39.55**	***100***
Pinus ponderosa		1		0.3		2	4	1	1			**0.85**	***55***
TOTAL TREES 0.1-acre	**18.0**	**22.0**	**50.0**	**35.3**	**40.0**	**16.0**	**67.0**	**40.0**	**63.0**	**68.0**	**25.0**	**40.39**	***100***
TOTAL VEGETATION (Stratified)	**100.4**	**19.6**	**74.7**	**72.7**	**79.5**	**81.6**	**81.2**	**69.7**	**75.2**	**85.8**	**64.3**	**73.15**	***100***

Footnotes are presented on cover page B-ii.

Table B24. Percent Canopy Cover by Class and Species for 17 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* BREAKS**													
	PLOT NUMBER													
	348	349	351	353	356	364	368	371	372	373	380	382	383	384
SITE PARAMETERS*														
Slope (percent)	20-30	35-45	32	48	25-50	72	16	30	62	20-90	4-16	72	2-5	45-90
Aspect (degrees)	098	236	240	320	226	160	168	210	196	310	050	260	var.	152
Topography	Mid	Mid	Upper	Upper-Sho	Sho	Upper-Mid	Mid	Upper	Mid	Rid	Rid	Upper	Rid	Upper-Mid
Configuration	U	U	U	X	X	U	X	X	X	U	X	U	X	U
Photo # (Digital)	409	408	256/257	353	440/441	265	110	092	097	238	987	083/084	383	808
Investigator	KS/ED	KS/ED	SC	JE	KS/KL	JE/SC	DB/KL	DB/KL	DB/KL	KS/ED	DB/KL	PL/SC	JE	DB/KL
Date	07/13/11	07/13/11	07/15/11	07/15/11	07/15/11	07/16/11	07/10/11	07/09/11	07/09/11	06/23/11	06/29/11	06/29/11	06/24/11	06/25/11
GROUND COVER														
Bare Ground	80	10	51	40	0.3	45	35	60	40	32	8	44	10	74
Rock	2	73	48	30	88	45	8		30	50	60	20	78	10
Litter	16	15	0.3	28	10	8	49	28	25	16	27	30	10	15
Lichens		0.3					3	8	2	0.3	2	2		
Moss							2	1		0.3	1	0.3		
Basal Vegetation	2	2	1	2	2	2	3	3	3	2	2	4	2	1
VEGETATION STRUCTURE (nonstratified cover)														
Total Vegetation	44	64	12	44	66	33	61	43	47	40	49	36	21	25
Perennial Graminoids	6	16	2	24	8	12	24	18	27	9	30	19	10	6
Annual Graminoids	1	0.3				0.3	0.3	1	0.3	0.3	1	0.3		
Perennial Forbs and Subshrubs	24	11	7	10	18	20	27	28	15	11	10	9	7	10
Annual/Biennial Forbs	22	27	3	1	46	0.3	1	0.3	2	0.3	2	0.3	0.3	0.3
Shrubs	4	2	0.3	5	7		1	1	0.3	2	5	0.3	4	1
Trees 0.01-acre	2	36		10	22	2	19	1	18	26	12	8	2	10
Trees 0.1-acre	4	24	16	20	20	11	15	9	13	25	17	30	32	8

Table B24. Percent Canopy Cover by Class and Species for 17 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* BREAKS**													
	PLOT NUMBER													
	348	349	351	353	356	364	368	371	372	373	380	382	383	384
CLASS\SPECIES														
NATIVE PERENNIAL GRAMINOIDS (Cool Season)														
Agropyron dasystachyum var. dasy.									3					
Agropyron smithii							5							
Agropyron spicatum	5	12	2	20	8	9	12	10	7	7	6	18	10	2
Aristida longiseta												0.3		1
Carex filifolia								2		0.3	16	0.3		
Koeleria cristata	0.3	0.3		3			1			0.3	2			
Oryzopsis hymenoides									3				0.3	
Stipa comata									7		4		0.3	
Stipa viridula		3												
TOTAL NPG(C)	**5.3**	**15.3**	**2.0**	**23.0**	**8.0**	**9.0**	**18.0**	**12.0**	**20.0**	**7.6**	**28.0**	**18.6**	**10.6**	**3.0**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)														
Andropogon scoparius	1			1		1	4	4	3	1	1	1		
Bouteloua curtipendula		1				1	3	2			1			3
Bouteloua gracilis						0.3					2			
Calamovilfa longifolia						1		1	5	0.3				
Sporobolus cryptandrus									1					
TOTAL NPG(W)	**1.0**	**1.0**	**0.0**	**1.0**	**0.0**	**3.3**	**7.0**	**7.0**	**9.0**	**1.3**	**4.0**	**1.0**	**0.0**	**3.0**
INTRODUCED PERENNIAL GRAMINOIDS														
Poa pratensis								0.3						
TOTAL IPG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL GRAMINOIDS														
Festuca octoflora										0.3				
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**
INTRODUCED ANNUAL GRAMINOIDS														
Bromus japonicus	1	0.3				0.3	0.3	1	0.3	0.3	0.3	0.3		
Bromus tectorum										0.3	1			
TOTAL IAG	**1.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.3**	**0.3**	**1.0**	**0.3**	**0.6**	**1.3**	**0.3**	**0.0**	**0.0**

Table B24. Percent Canopy Cover by Class and Species for 17 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* BREAKS**													
	PLOT NUMBER													
	348	349	351	353	356	364	368	371	372	373	380	382	383	384
NATIVE PERENNIAL FORBS AND SUBSHRUBS														
Achillea millefolium	0.3	0.3		0.3							0.3			
Allium textile							0.3				0.3			
Ambrosia psilostachya									0.3					
Antennaria parvifolia														
Apocynum androsaemifolium						0.3								
Artemisia campestris										0.3				
Artemisia frigida		1								2	1	0.3		
Artemisia ludoviciana						0.3								
Aster falcatus	4	1												
Aster laevis	0.3													
Aster oblongifolius							1		0.3					
Astragalus adsurgens		0.3		3		5	0.3		0.3	0.3				
Astragalus drummondii							0.3							
Astragalus flexuosus						3							1	2
Astragalus gilviflorus	0.3			0.3					0.3					
Astragalus hyalinus				0.3						0.3				
Astragalus missouriensis							0.3		0.3			0.3		
Astragalus tenellus								18						
Calochortus nuttallii								0.3			0.3	0.3		
Campanula rotundifolia	0.3													
Castilleja sessiliflora	0.3													
Cerastium arvense											0.3			
Chrysopsis villosa										2				
Cirsium undulatum					1			0.3	1		1	0.3		0.3
Comandra umbellata	0.3	0.3	0.3		0.3		0.3	1						
Crepis occidentalis	0.3													
Cryptantha spiculifera (interrupta)													0.3	
Dalea candida	3		2	1	3	4	12	3						
Dalea purpurea			1		0.3						1	0.3	0.3	
Echinacea angustifolia	1												0.3	
Eriogonum pauciflorum	1	1	1	1									0.3	
Evolvulus nuttallianus					0.3				0.3					
Gaura coccinea	0.3	0.3			2		1	1	0.3		0.3	0.3	0.3	0.3
Gilia congesta var. pseudotypica		0.3			0.3								0.3	

Table B24. Percent Canopy Cover by Class and Species for 17 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* BREAKS**													
	PLOT NUMBER													
	348	349	351	353	356	364	368	371	372	373	380	382	383	384
Glycyrrhiza lepidota														
Gutierrezia sarothrae	6	2	3	1			4	3	2	0.3	0.3	2	0.3	
Hedeoma drummondii					0.3									
Hymenopappus filifolius	2	1	0.3	0.3				0.3		0.3				
Kuhnia eupatorioides					2						0.3			
Lactuca oblongifolia				0.3										
Lesquerella alpina					1						1			
Liatris punctata					0.3						1		0.3	0.3
Linum lewisii					0.3			0.3					0.3	
Lygodesmia juncea			0.3											
Machaeranthera grindelioides	2	0.3	0.3				0.3	1					1	
Microseris nutans													0.3	
Oxytropis besseyi										0.3				
Oxytropis lambertii		0.3				1	0.3							
Penstemon eriantherus			0.3	0.3									0.3	
Penstemon nitidus					0.3		0.3	0.3		0.3				
Phlox hoodii	0.3				0.3		2	1			1		0.3	
Physaria didymocarpa									0.3					
Polygala alba		0.3		0.3	0.3		1	0.3		0.3	0.3		0.3	
Psoralea argophylla		0.3		2								0.3		
Psoralea esculenta							0.3				1	0.3	0.3	
Psoralea hypogaea										0.3				
Ratibida columnifera	0.3													
Senecio canus							0.3		0.3	1	0.3	0.3		
Solidago missouriensis		1				0.3			1	1	0.3			1
Solidago nemoralis	2									2			0.3	
Solidago rigida	2													
Sphaeralcea coccinea					0.3							0.3		
Stephanomeria runcinata	1						0.3		0.3				0.3	0.3
Thermopsis rhombifolia					6									
Vicia americana					0.3	1	1		0.3					0.3
Yucca glauca					1	6	4		8	1		5		5
Zigadenus venenosus											0.3			
TOTAL NPF AND SUBSHRUBS	**27.0**	**9.7**	**8.5**	**10.1**	**19.6**	**20.9**	**29.3**	**29.8**	**15.3**	**11.7**	**10.3**	**10.0**	**6.8**	**9.5**

Table B24. Percent Canopy Cover by Class and Species for 17 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* BREAKS**													
	PLOT NUMBER													
	348	349	351	353	356	364	368	371	372	373	380	382	383	384
INTRODUCED PERENNIAL FORBS														
Asparagus officinalis		0.3												
Medicago sativa		1												
Taraxacum laevigatum									0.3	0.3		0.3	0.3	0.3
TOTAL IPF	**0.0**	**1.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.3**	**0.0**	**0.3**	**0.3**	**0.3**
FERNS AND ALLIES														
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS														
Arabis holboellii										0.3	0.3			
Chenopodium leptophyllum									0.3					
Cryptantha celosioides							0.3	0.3			0.3			0.3
Descurainia richardsonii											0.3			
Draba reptans														
Euphorbia glyptosperma									0.3					
Hedeoma hispidum											0.3			
Lappula redowskii									0.3		0.3			
Linum rigidum									0.3					
Phacelia linearis											0.3			
Silene antirrhina											0.3			
TOTAL NAF	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.3**	**1.2**	**0.3**	**2.1**	**0.0**	**0.0**	**0.3**
INTRODUCED ANNUAL/BIENNIAL FORBS														
Alyssum desertorum						0.3			0.3		0.3	0.3		
Camelina microcarpa												0.3		
Draba nemorosa									0.3					
Lactuca serriola		0.3					0.3		0.3	0.3		0.3		
Melilotus alba	0.3	1												
Melilotus officinalis	22	26	3	1	46		0.3							
Sisymbrium loeselii										0.3				
Tragopogon dubius					0.3		0.3	0.3	0.3				0.3	
TOTAL IAF	**22.3**	**27.3**	**3.0**	**1.0**	**46.3**	**0.3**	**0.9**	**0.3**	**1.2**	**0.6**	**0.3**	**0.9**	**0.3**	**0.0**

Table B24. Percent Canopy Cover by Class and Species for 17 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* BREAKS**													
	PLOT NUMBER													
	348	349	351	353	356	364	368	371	372	373	380	382	383	384
SHRUBS														
Artemisia cana	0.3													
Artemisia tridentata			0.3				1	0.3			5		1	
Chrysothamnus nauseosus	4	1	0.3	3				0.3					1	1
Rhus aromatica		1		1	7		0.3		0.3	2	0.3	0.3	2	
Ribes cereum										0.3				
Rosa arkansana	0.3			0.3	0.3								0.3	
Shepherdia argentea				1										
TOTAL SHRUBS	**4.6**	**2.0**	**0.6**	**5.3**	**7.3**	**0.0**	**1.3**	**0.6**	**0.3**	**2.3**	**5.3**	**0.3**	**4.3**	**1.0**
TREES 0.01-acre														
Juniperus scopulorum				2	10		0.3			1	6	4	2	8
Pinus ponderosa	2	36		8	18	2	19	1	18	26	8	6		2
TOTAL TREES 0.01-acre	**2.0**	**36.0**	**0.0**	**10.0**	**28.0**	**2.0**	**19.3**	**1.0**	**18.0**	**27.0**	**14.0**	**10.0**	**2.0**	**10.0**
TREES 0.1-acre														
Juniperus scopulorum	0.3	2	12	8	12	4	9	3	5	3	10	20	15	5
Pinus ponderosa	4	23	5	12	12	8	7	6	8	22	8	15	20	3
TOTAL TREES 0.1-acre	**4.3**	**25.0**	**17.0**	**20.0**	**24.0**	**12.0**	**16.0**	**9.0**	**13.0**	**25.0**	**18.0**	**35.0**	**35.0**	**8.0**
TOTAL VEGETATION (Stratified)	**63.2**	**92.9**	**14.1**	**50.4**	**109.2**	**35.8**	**76.4**	**52.3**	**65.6**	**52.0**	**65.3**	**41.4**	**24.3**	**27.1**

Footnotes are presented on cover page B-ii.

Table B24. Percent Canopy Cover by Class and Species for 17 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* BREAKS**				
	PLOT NUMBER				
	403	415	425	**Mean Cover**	***Con-stancy***
				n=17	
SITE PARAMETERS*					
Slope (percent)	59	45-65	68-82		
Aspect (degrees)	234	264	276		
Topography	Mid	Mid	Upper-Mid		
Configuration	U	U	U		
Photo # (Digital)	776	795/796	985		
Investigator	DB/KL	DB/KL	DB/KL		
Date	06/23/11	06/25/11	06/29/11		
GROUND COVER					
Bare Ground	15	40	30	**36.14**	***100***
Rock	20	30	15	**35.71**	***94***
Litter	59	24	42	**23.66**	***100***
Lichens	2	3	1	**1.39**	***59***
Moss	1	1	10	**0.98**	***47***
Basal Vegetation	3	2	2	**2.24**	***100***
VEGETATION STRUCTURE (nonstratified cover)					
Total Vegetation	51	22	35	**40.76**	***100***
Perennial Graminoids	22	10	9	**14.82**	***100***
Annual Graminoids				**0.28**	***53***
Perennial Forbs and Subshrubs	17	6	8	**14.00**	***100***
Annual/Biennial Forbs	0.3	0.3	0.3	**6.28**	***100***
Shrubs	0.3	4	0.3	**2.21**	***94***
Trees 0.01-acre	25	3	21	**12.76**	***94***
Trees 0.1-acre	14	10	14	**16.59**	***100***

Table B24. Percent Canopy Cover by Class and Species for 17 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* BREAKS**				
	PLOT NUMBER				
	403	415	425	**Mean Cover**	***Con-stancy***
				n=17	
CLASS\SPECIES					
NATIVE PERENNIAL GRAMINOIDS (Cool Season)					
Agropyron dasystachyum var. dasy.				**0.18**	***6***
Agropyron smithii		0.3		**0.31**	***12***
Agropyron spicatum	18	4	5	**9.12**	***100***
Aristida longiseta				**0.08**	***12***
Carex filifolia	3	1	1	**1.39**	***41***
Koeleria cristata			0.3	**0.42**	***41***
Oryzopsis hymenoides			0.3	**0.21**	***18***
Stipa comata				**0.66**	***18***
Stipa viridula				**0.18**	***6***
TOTAL NPG(C)	**21.0**	**5.3**	**6.6**	**12.55**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)					
Andropogon scoparius	1	5		**1.35**	***65***
Bouteloua curtipendula				**0.65**	***35***
Bouteloua gracilis				**0.14**	***12***
Calamovilfa longifolia			3	**0.61**	***29***
Sporobolus cryptandrus				**0.06**	***6***
TOTAL NPG(W)	**1.0**	**5.0**	**3.0**	**2.80**	***82***
INTRODUCED PERENNIAL GRAMINOIDS					
Poa pratensis				**0.02**	***6***
TOTAL IPG	**0.0**	**0.0**	**0.0**	**0.02**	***6***
NATIVE ANNUAL GRAMINOIDS					
Festuca octoflora				**0.02**	***6***
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.02**	***6***
INTRODUCED ANNUAL GRAMINOIDS					
Bromus japonicus				**0.24**	***53***
Bromus tectorum				**0.08**	***12***
TOTAL IAG	**0.0**	**0.0**	**0.0**	**0.32**	***53***

Table B24. Percent Canopy Cover by Class and Species for 17 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* BREAKS**				
	PLOT NUMBER				
	403	415	425	**Mean Cover**	***Con-stancy***
				n=17	
NATIVE PERENNIAL FORBS AND SUBSHRUBS					
Achillea millefolium				**0.07**	***24***
Allium textile				**0.04**	***12***
Ambrosia psilostachya				**0.02**	***6***
Antennaria parvifolia	0.3			**0.02**	***6***
Apocynum androsaemifolium				**0.02**	***6***
Artemisia campestris				**0.02**	***6***
Artemisia frigida			0.3	**0.27**	***29***
Artemisia ludoviciana	2			**0.14**	***12***
Aster falcatus				**0.29**	***12***
Aster laevis				**0.02**	***6***
Aster oblongifolius				**0.08**	***12***
Astragalus adsurgens	1	1		**0.66**	***47***
Astragalus drummondii				**0.02**	***6***
Astragalus flexuosus			2	**0.47**	***24***
Astragalus gilviflorus				**0.05**	***18***
Astragalus hyalinus				**0.04**	***12***
Astragalus missouriensis	0.3			**0.07**	***24***
Astragalus tenellus	1	2		**1.24**	***18***
Calochortus nuttallii				**0.05**	***18***
Campanula rotundifolia	0.3			**0.04**	***12***
Castilleja sessiliflora				**0.02**	***6***
Cerastium arvense				**0.02**	***6***
Chrysopsis villosa	2			**0.24**	***12***
Cirsium undulatum				**0.23**	***35***
Comandra umbellata		0.3		**0.16**	***41***
Crepis occidentalis				**0.02**	***6***
Cryptantha spiculifera (interrupta)				**0.02**	***6***
Dalea candida		0.3		**1.66**	***47***
Dalea purpurea				**0.17**	***29***
Echinacea angustifolia				**0.08**	***12***
Eriogonum pauciflorum				**0.25**	***29***
Evolvulus nuttallianus				**0.04**	***12***
Gaura coccinea	0.3	0.3		**0.39**	***71***
Gilia congesta var. pseudotypica				**0.05**	***18***

Table B24. Percent Canopy Cover by Class and Species for 17 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* BREAKS**				
	PLOT NUMBER				
	403	415	425	**Mean Cover**	***Con-stancy***
				n=17	
Glycyrrhiza lepidota			1	**0.06**	***6***
Gutierrezia sarothrae		1	0.3	**1.48**	***76***
Hedeoma drummondii				**0.02**	***6***
Hymenopappus filifolius		0.3		**0.26**	***41***
Kuhnia eupatorioides	0.3			**0.15**	***18***
Lactuca oblongifolia				**0.02**	***6***
Lesquerella alpina				**0.12**	***12***
Liatris punctata	0.3	0.3		**0.15**	***35***
Linum lewisii				**0.05**	***18***
Lygodesmia juncea				**0.02**	***6***
Machaeranthera grindelioides				**0.29**	***35***
Microseris nutans				**0.02**	***6***
Oxytropis besseyi				**0.02**	***6***
Oxytropis lambertii	0.3			**0.11**	***24***
Penstemon eriantherus				**0.05**	***18***
Penstemon nitidus	0.3			**0.09**	***29***
Phlox hoodii				**0.29**	***35***
Physaria didymocarpa				**0.02**	***6***
Polygala alba				**0.18**	***47***
Psoralea argophylla				**0.15**	***18***
Psoralea esculenta				**0.11**	***24***
Psoralea hypogaea				**0.02**	***6***
Ratibida columnifera				**0.02**	***6***
Senecio canus		0.3	0.3	**0.16**	***41***
Solidago missouriensis		1	1	**0.39**	***47***
Solidago nemoralis	0.3			**0.27**	***24***
Solidago rigida				**0.12**	***6***
Sphaeralcea coccinea				**0.04**	***12***
Stephanomeria runcinata	0.3	0.3		**0.16**	***41***
Thermopsis rhombifolia	6			**0.71**	***12***
Vicia americana	1			**0.23**	***35***
Yucca glauca	1	0.3	3	**2.02**	***59***
Zigadenus venenosus				**0.02**	***6***
TOTAL NPF AND SUBSHRUBS	**17.0**	**7.4**	**7.9**	**14.75**	***100***

Table B24. Percent Canopy Cover by Class and Species for 17 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* BREAKS**				
	PLOT NUMBER				
	403	415	425	**Mean Cover**	***Con-stancy***
				n=17	
INTRODUCED PERENNIAL FORBS					
Asparagus officinalis				**0.02**	***6***
Medicago sativa				**0.06**	***6***
Taraxacum laevigatum				**0.09**	***29***
TOTAL IPF	**0.0**	**0.0**	**0.0**	**0.16**	***35***
FERNS AND ALLIES					
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS					
Arabis holboellii				**0.04**	***12***
Chenopodium leptophyllum				**0.02**	***6***
Cryptantha celosioides		0.3		**0.09**	***29***
Descurainia richardsonii	0.3			**0.04**	***12***
Draba reptans	0.3			**0.02**	***6***
Euphorbia glyptosperma				**0.02**	***6***
Hedeoma hispidum				**0.02**	***6***
Lappula redowskii				**0.04**	***12***
Linum rigidum				**0.02**	***6***
Phacelia linearis				**0.02**	***6***
Silene antirrhina				**0.02**	***6***
TOTAL NAF	**0.6**	**0.3**	**0.0**	**0.32**	***47***
INTRODUCED ANNUAL/BIENNIAL FORBS					
Alyssum desertorum	0.3			**0.09**	***29***
Camelina microcarpa				**0.02**	***6***
Draba nemorosa				**0.02**	***6***
Lactuca serriola			0.3	**0.11**	***35***
Melilotus alba				**0.08**	***12***
Melilotus officinalis				**5.78**	***35***
Sisymbrium loeselii				**0.02**	***6***
Tragopogon dubius				**0.09**	***29***
TOTAL IAF	**0.3**	**0.0**	**0.3**	**6.19**	***88***

Table B24. Percent Canopy Cover by Class and Species for 17 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* BREAKS**				
	PLOT NUMBER				
	403	415	425	**Mean Cover**	***Con-stancy***
				n=17	
SHRUBS					
Artemisia cana				**0.02**	***6***
Artemisia tridentata		2		**0.56**	***35***
Chrysothamnus nauseosus				**0.62**	***41***
Rhus aromatica	0.3	2	0.3	**0.99**	***71***
Ribes cereum				**0.02**	***6***
Rosa arkansana				**0.07**	***24***
Shepherdia argentea				**0.06**	***6***
TOTAL SHRUBS	**0.3**	**4.0**	**0.3**	**2.34**	***94***
TREES 0.01-acre					
Juniperus scopulorum	3	2	7	**2.66**	***65***
Pinus ponderosa	25	1	15	**11.00**	***88***
TOTAL TREES 0.01-acre	**28.0**	**3.0**	**22.0**	**13.66**	***94***
TREES 0.1-acre					
Juniperus scopulorum	5	8	4	**7.37**	***100***
Pinus ponderosa	10	2	10	**10.29**	***100***
TOTAL TREES 0.1-acre	**15.0**	**10.0**	**14.0**	**17.66**	***100***
TOTAL VEGETATION (Stratified)	**68.2**	**25.0**	**40.1**	**53.14**	***100***

Footnotes are presented on cover page B-ii.

Table B25. Percent Canopy Cover by Class and Species for 15 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ANDROPOGON SCOPARIUS* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS* BREAKS**																
	PLOT NUMBER																
	350	355	357	359	362	365	366	369	370	374	375	378	437	449	465	**Mean Cover**	***Con-stancy***
																n=15	
SITE PARAMETERS*																	
Slope (percent)	23	47	12	68	30	56	38	52	16	23	2-10	60	55-80	14-26	52		
Aspect (degrees)	020	164	176	130	140	160	164	172	264	170	042	192	240	244	244		
Topography	Upper-Sho	Low	Toe	Upper	Sho-Rid	Mid	Mid	Mid	Upper	Upper	Ben-Sho	Upper-Mid	Mid	Low	Low-Mid		
Configuration	U	X	Und	X	X	U	U	U	U	S	U	U	U	U	U(V)		
Photo # (Digital)	210	202	230	225	205	196	238	234	117/118	003	698	026	003	041	235/237		
Investigator	JE/SC	DB	DB/ED	DB/ED	JE/SC	JE/SC	DB/ED	DB/ED	DB/KL	PL/SC	DB/KL	DB/KL	DB/KL	DB/KL	DB/ED		
Date	07/12/11	07/13/11	07/15/11	07/15/11	07/11/11	07/11/11	07/16/11	07/16/11	07/10/11	06/22/11	06/22/11	07/07/11	06/30/11	07/07/11	07/16/11		
GROUND COVER																	
Bare Ground	77	40	34	30	10	50	34	35	32	74	35	60	39	25	27	**40.13**	***100***
Rock	6	22	2	24	86	43	30	35	16	6	20	4	25	30	18	**24.47**	***100***
Litter	10	34	53	39	2	5	29	27	44	15	33	33	30	36	45	**29.00**	***100***
Lichens	5	1	6	2		0.3	2	1	1		8	1	2	4	4	**2.49**	***87***
Moss			1	2			2		2		1		1	2	2	**0.87**	***53***
Basal Vegetation	2	3	4	3	2	2	3	2	5	5	3	2	3	3	4	**3.07**	***100***
VEGETATION STRUCTURE (nonstratified cover)																	
Total Vegetation	62	54	78	65	34	41	53	58	69	55	40	29	49	52	90	**55.27**	***100***
Perennial Graminoids	18	20	70	27	20	20	24	24	44	35	28	11	23	17	23	**26.93**	***100***
Annual Graminoids	0.3			1	0.3	1	0.3	2	0.3	5	2		0.3	0.3	1	**0.92**	***80***
Perennial Forbs and Subshrubs	18	13	11	17	10	18	12	30	18	9	13	7	12	8	18	**14.27**	***100***
Annual/Biennial Forbs	18	4	1	2	1	1	0.3	13	1	1	1	1	0.3	3	35	**5.51**	***100***
Shrubs	5	1	5	0.3	1	6	2		1	8	4	4	6	3	0.3	**3.11**	***93***
Trees 0.01-acre	7	26	2	32	7	2	28		11		2	10	14	32	74	**16.47**	***87***
Trees 0.1-acre	15	7	16	20	14	16	25	18	12	7	11	17	16	18	28	**16.00**	***100***

Table B25. Percent Canopy Cover by Class and Species for 15 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ANDROPOGON SCOPARIUS* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS* BREAKS**																
	PLOT NUMBER																
	350	355	357	359	362	365	366	369	370	374	375	378	437	449	465	**Mean Cover**	***Con-stancy***
																n=15	
CLASS\SPECIES																	
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																	
Agropyron dasystachyum var. dasy.					1											**0.07**	***7***
Agropyron smithii	1	1			3			4	2	18						**1.93**	***40***
Agropyron spicatum	1	4	5	4	1	1	2	1	4	5	2	3	4	5	8	**3.33**	***100***
Aristida longiseta			2	1							1		1			**0.33**	***27***
Carex filifolia	1	2	7	3	0.3		9			0.3				2	2	**1.77**	***60***
Koeleria cristata	0.3		1	2	0.3				3		2			1	2	**0.77**	***53***
Oryzopsis hymenoides		1										1		1		**0.20**	***20***
Poa sandbergii	0.3															**0.02**	***7***
Stipa comata	0.3		22	2				1	8	2	1					**2.42**	***47***
Stipa viridula			2													**0.13**	***7***
TOTAL NPG(C)	**3.9**	**8.0**	**39.0**	**12.0**	**5.6**	**1.0**	**11.0**	**6.0**	**17.0**	**25.3**	**6.0**	**4.0**	**5.0**	**9.0**	**12.0**	**10.99**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																	
Andropogon scoparius	14	3	20	9	14	12	7	6	20	12	22	4	10	4	3	**10.67**	***100***
Bouteloua curtipendula	1	2	10	7	2	4	5	9	10	1	1	2	7	3	4	**4.53**	***100***
Bouteloua gracilis		2	15		0.3	2										**1.29**	***27***
Calamovilfa longifolia	0.3	6				2	3	6				2	2	2	3	**1.75**	***60***
Muhlenbergia cuspidata			4		0.3						1	0.3			2	**0.51**	***33***
Sporobolus cryptandrus				1												**0.07**	***7***
TOTAL NPG(W)	**15.3**	**13.0**	**49.0**	**17.0**	**16.6**	**20.0**	**15.0**	**21.0**	**30.0**	**13.0**	**24.0**	**8.3**	**19.0**	**9.0**	**12.0**	**18.81**	***100***
INTRODUCED PERENNIAL GRAMINOIDS																	
Agropyron cristatum										0.3						**0.02**	***7***
TOTAL IPG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.02**	***7***
NATIVE ANNUAL GRAMINOIDS																	
Festuca octoflora							0.3									**0.02**	***7***
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.02**	***7***
INTRODUCED ANNUAL GRAMINOIDS																	
Bromus japonicus	0.3			1	0.3	1	0.3	2	0.3	5	2		0.3	0.3	1	**0.92**	***80***
Bromus tectorum	0.3					0.3										**0.04**	***13***
TOTAL IAG	**0.6**	**0.0**	**0.0**	**1.0**	**0.3**	**1.3**	**0.3**	**2.0**	**0.3**	**5.0**	**2.0**	**0.0**	**0.3**	**0.3**	**1.0**	**0.96**	***80***

Table B25. Percent Canopy Cover by Class and Species for 15 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ANDROPOGON SCOPARIUS* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS* BREAKS**																
	PLOT NUMBER																
	350	355	357	359	362	365	366	369	370	374	375	378	437	449	465	**Mean Cover**	***Con-stancy***
																n=15	
NATIVE PERENNIAL FORBS AND SUBSHRUBS																	
Achillea millefolium	0.3													0.3		**0.04**	***13***
Allium textile			0.3		0.3			0.3		0.3	0.3		0.3			**0.12**	***40***
Ambrosia psilostachya										1						**0.07**	***7***
Antennaria microphylla	2															**0.13**	***7***
Antennaria parvifolia	2														0.3	**0.15**	***13***
Artemisia campestris	0.3										0.3					**0.04**	***13***
Artemisia frigida	0.3				0.3					0.3						**0.06**	***20***
Artemisia ludoviciana															3	**0.20**	***7***
Asclepias viridiflora							0.3									**0.02**	***7***
Aster falcatus	0.3	0.3			0.3					1					0.3	**0.15**	***33***
Aster laevis														0.3		**0.02**	***7***
Aster oblongifolius		1					0.3	0.3	0.3		0.3			0.3		**0.17**	***40***
Astragalus adsurgens				0.3			0.3		2			0.3	1	0.3		**0.28**	***40***
Astragalus agrestis	1															**0.07**	***7***
Astragalus crassicarpus	0.3															**0.02**	***7***
Astragalus flexuosus						0.3										**0.02**	***7***
Astragalus gilviflorus	0.3					0.3					0.3					**0.06**	***20***
Astragalus gracilis										1						**0.07**	***7***
Astragalus hyalinus												1				**0.07**	***7***
Astragalus missouriensis				0.3		0.3	0.3		0.3			1	0.3	0.3	0.3	**0.21**	***53***
Astragalus tenellus								18	4						2	**1.60**	***20***
Besseya wyomingensis	0.3					0.3										**0.04**	***13***
Calochortus nuttallii										0.3				0.3		**0.04**	***13***
Campanula rotundifolia											0.3					**0.02**	***7***
Castilleja sessiliflora	0.3				0.3		0.3							0.3		**0.08**	***27***
Cerastium arvense											0.3					**0.02**	***7***
Chrysopsis villosa							2		2	0.3					1	**0.35**	***27***
Cirsium undulatum	0.3			0.3					1			0.3		0.3	3	**0.35**	***40***
Comandra umbellata	0.3	0.3	0.3		0.3			0.3	0.3		0.3			0.3		**0.16**	***53***
Crepis acuminata						0.3									0.3	**0.04**	***13***
Dalea candida	3	1	1	1		3	3	3	1		0.3				0.3	**1.11**	***67***
Dalea purpurea	0.3		0.3		0.3	0.3					0.3				0.3	**0.12**	***40***
Echinacea angustifolia	1				3					1	0.3					**0.35**	***27***
Eriogonum pauciflorum	1	0.3	0.3								0.3			0.3		**0.15**	***33***
Euphorbia robusta											0.3					**0.02**	***7***
Evolvulus nuttallianus		0.3		1		0.3				0.3						**0.13**	***27***
Gaura coccinea		1	2	0.3		0.3	1	1		0.3	0.3			1	0.3	**0.50**	***67***
Gilia congesta var. pseudotypica											0.3				0.3	**0.04**	***13***

Table B25. Percent Canopy Cover by Class and Species for 15 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ANDROPOGON SCOPARIUS* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS* BREAKS**																
	PLOT NUMBER																
	350	355	357	359	362	365	366	369	370	374	375	378	437	449	465	**Mean Cover**	***Con-stancy***
																n=15	
Glycyrrhiza lepidota															2	**0.13**	***7***
Gutierrezia sarothrae	1	2	5		0.3	1			2	0.3	4	1	4	1		**1.44**	***73***
Hedeoma drummondii				0.3			0.3									**0.04**	***13***
Helianthus rigidus		3												2		**0.33**	***13***
Hymenopappus filifolius	0.3										0.3					**0.04**	***13***
Liatris punctata			1	0.3	0.3			0.3	1	0.3	0.3		0.3	0.3		**0.27**	***60***
Linum lewisii	0.3		0.3		0.3					0.3	0.3					**0.10**	***33***
Lithospermum incisum						0.3										**0.02**	***7***
Lygodesmia juncea														0.3		**0.02**	***7***
Machaeranthera grindelioides	0.3		0.3		0.3				0.3		0.3		0.3			**0.12**	***40***
Mirabilis linearis			0.3			0.3										**0.04**	***13***
Musineon divaricatum	0.3										0.3			0.3		**0.06**	***20***
Oxytropis lambertii	1				2							1				**0.27**	***20***
Oxytropis sericea												0.3				**0.02**	***7***
Penstemon albidus	0.3										0.3					**0.04**	***13***
Penstemon nitidus		0.3		0.3												**0.04**	***13***
Phlox alyssifolia		1														**0.07**	***7***
Phlox hoodii	1				0.3					0.3	2					**0.24**	***27***
Polygala alba	2	0.3	0.3		1				0.3	0.3	0.3		0.3	0.3		**0.34**	***60***
Psoralea argophylla		1		4	2	3		1		0.3	0.3	1				**0.84**	***53***
Psoralea esculenta		0.3					0.3		1		0.3			0.3		**0.15**	***33***
Ratibida columnifera										0.3					0.3	**0.04**	***13***
Senecio canus	0.3								0.3		0.3	0.3				**0.08**	***27***
Solidago missouriensis							1	0.3	3		0.3					**0.31**	***27***
Solidago rigida											0.3					**0.02**	***7***
Sphaeralcea coccinea		0.3								0.3			0.3			**0.06**	***20***
Stephanomeria runcinata				1				0.3				0.3			0.3	**0.13**	***27***
Thermopsis rhombifolia											1					**0.07**	***7***
Toxicodendron rydbergii															0.3	**0.02**	***7***
Vicia americana							0.3		0.3				1		4	**0.37**	***27***
Viola nuttallii														0.3		**0.02**	***7***
Yucca glauca		2	1	8		9	4	7		1	0.3	1	4	0.3	1	**2.57**	***80***
Zigadenus venenosus									0.3	0.3			0.3			**0.06**	***20***
TOTAL NPF AND SUBSHRUBS	**20.1**	**14.4**	**12.4**	**17.1**	**11.3**	**19.0**	**13.4**	**31.8**	**19.4**	**9.5**	**15.1**	**7.5**	**12.1**	**9.1**	**19.3**	**15.43**	***100***
INTRODUCED PERENNIAL FORBS																	
Medicago sativa								3								**0.20**	***7***
Taraxacum laevigatum	0.3		0.3	0.3		0.3		0.3	0.3	0.3			0.3	0.3		**0.18**	***60***
TOTAL IPF	**0.3**	**0.0**	**0.3**	**0.3**	**0.0**	**0.3**	**0.0**	**3.3**	**0.3**	**0.3**	**0.0**	**0.0**	**0.3**	**0.3**	**0.0**	**0.38**	***60***
FERNS AND ALLIES																	
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***

Table B25. Percent Canopy Cover by Class and Species for 15 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ANDROPOGON SCOPARIUS* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS* BREAKS**																
	PLOT NUMBER																
	350	355	357	359	362	365	366	369	370	374	375	378	437	449	465	**Mean Cover**	***Con-stancy***
																n=15	
NATIVE ANNUAL/BIENNIAL FORBS																	
Chenopodium leptophyllum															0.3	**0.02**	***7***
Conyza canadensis				0.3												**0.02**	***7***
Cryptantha celosioides		0.3									0.3	0.3				**0.06**	***20***
Descurainia richardsonii															0.3	**0.02**	***7***
Draba reptans				0.3							0.3					**0.04**	***13***
Euphorbia spathulata												0.3				**0.02**	***7***
Grindelia squarrosa								0.3								**0.02**	***7***
Linum rigidum	0.3															**0.02**	***7***
Orthocarpus luteus	0.3															**0.02**	***7***
Plantago patagonica			0.3							0.3						**0.04**	***13***
Silene antirrhina			0.3	0.3		0.3										**0.06**	***20***
TOTAL NAF	**0.6**	**0.3**	**0.6**	**0.9**	**0.0**	**0.3**	**0.0**	**0.3**	**0.0**	**0.3**	**0.6**	**0.6**	**0.0**	**0.0**	**0.6**	**0.34**	***67***
INTRODUCED ANNUAL/BIENNIAL FORBS																	
Alyssum alyssoides		0.3													0.3	**0.04**	***13***
Alyssum desertorum						0.3	0.3		0.3	0.3						**0.08**	***27***
Camelina microcarpa										0.3						**0.02**	***7***
Draba nemorosa				0.3								0.3				**0.04**	***13***
Filago arvensis			0.3	0.3	0.3											**0.06**	***20***
Lactuca serriola		0.3	0.3	0.3		0.3	0.3	0.3	0.3		0.3	0.3				**0.18**	***60***
Melilotus officinalis	18	4		1	1			13	0.3	0.3	0.3			3	35	**5.06**	***67***
Tragopogon dubius		0.3	0.3	0.3	0.3	0.3			0.3	0.3	0.3	0.3	0.3	0.3		**0.22**	***73***
TOTAL IAF	**18.0**	**4.9**	**0.9**	**2.2**	**1.6**	**0.9**	**0.6**	**13.3**	**1.2**	**1.2**	**0.9**	**0.9**	**0.3**	**3.3**	**35.3**	**5.70**	***100***
SHRUBS																	
Artemisia cana										7						**0.47**	***7***
Artemisia tridentata	2	0.3	2		1							0.3	1			**0.44**	***40***
Calylophus serrulatus							2				1					**0.20**	***13***
Ceratoides lanata			3													**0.20**	***7***
Chrysothamnus nauseosus	2				0.3						0.3	3	5	3		**0.91**	***40***
Rhus aromatica	1	0.3		0.3		6			1	1	3	0.3	0.3		0.3	**0.90**	***67***
Rosa arkansana	0.3										0.3					**0.04**	***13***
TOTAL SHRUBS	**5.3**	**0.6**	**5.0**	**0.3**	**1.3**	**6.0**	**2.0**	**0.0**	**1.0**	**8.0**	**4.6**	**3.6**	**6.3**	**3.0**	**0.3**	**3.15**	***93***
TREES 0.01-acre																	
Juniperus scopulorum	4	22		6	6	2	28		6		0.3	6	7	30	15	**8.82**	***80***
Pinus ponderosa	3	15	2	28	1				6		2	4	7	4	70	**9.47**	***73***
TOTAL TREES 0.01-acre	**7.0**	**37.0**	**2.0**	**34.0**	**7.0**	**2.0**	**28.0**	**0.0**	**12.0**	**0.0**	**2.3**	**10.0**	**14.0**	**34.0**	**85.0**	**18.29**	***87***

Table B25. Percent Canopy Cover by Class and Species for 15 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ANDROPOGON SCOPARIUS* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS* BREAKS**																
	PLOT NUMBER																
	350	355	357	359	362	365	366	369	370	374	375	378	437	449	465	**Mean Cover**	***Con-stancy***
																n=15	
TREES 0.1-acre																	
Juniperus scopulorum	4	3	1	8	11	8	12	10	2	3	0.3	9	12	9	20	**7.49**	***100***
Pinus ponderosa	11	5	15	14	3	10	15	9	11	4	11	8	4	11	13	**9.60**	***100***
TOTAL TREES 0.1-acre	**15.0**	**8.0**	**16.0**	**22.0**	**14.0**	**18.0**	**27.0**	**19.0**	**13.0**	**7.0**	**11.3**	**17.0**	**16.0**	**20.0**	**33.0**	**17.09**	***100***
TOTAL VEGETATION (Stratified)	**71.1**	**78.2**	**109.2**	**84.8**	**43.7**	**50.8**	**70.6**	**77.7**	**81.2**	**62.9**	**55.5**	**34.9**	**57.3**	**68.0**	**165.5**	**74.09**	***100***

Footnotes are presented on cover page B-ii.

Table B26. Percent Canopy Cover by Class and Species for Four PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ARTEMISIA TRIDENTATA **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ARTEMISIA TRIDENTATA* BREAKS**					
	PLOT NUMBER					
	358	367	376	377	**Mean Cover**	***Con-stancy***
					n=4	
SITE PARAMETERS*						
Slope (percent)	16	12-48	11	15		
Aspect (degrees)	254	242	260	354		
Topography	Upper-Mid	Sho	Low	Rid		
Configuration	U	X	X	U		
Photo # (Digital)	220	102	046	051		
Investigator	DB/ED	DB/KL	DB/KL	DB/KL		
Date	07/15/11	07/10/11	07/08/11	07/08/11		
GROUND COVER						
Bare Ground	40	55	45	46	**46.50**	***100***
Rock		3	0.3	14	**4.33**	***75***
Litter	46	30	42	36	**38.50**	***100***
Lichens	7	8	6	1	**5.50**	***100***
Moss	2	1	2		**1.25**	***75***
Basal Vegetation	5	3	4	3	**3.75**	***100***
VEGETATION STRUCTURE (nonstratified cover)						
Total Vegetation	76	54	60	42	**58.00**	***100***
Perennial Graminoids	50	20	37	7	**28.50**	***100***
Annual Graminoids	0.3	0.3	0.3	2	**0.73**	***100***
Perennial Forbs and Subshrubs	23	24	15	12	**18.50**	***100***
Annual/Biennial Forbs	5	0.3	1	6	**3.08**	***100***
Shrubs	18	11	15	18	**15.50**	***100***
Trees 0.01-acre	27	4	3	5	**9.75**	***100***
Trees 0.1-acre	18	6	6	10	**10.00**	***100***
CLASS\SPECIES						
NATIVE PERENNIAL GRAMINOIDS (Cool Season)						
Agropyron dasystachyum var. dasy.	1	6	5	2	**3.50**	***100***
Agropyron smithii			10		**2.50**	***25***
Agropyron spicatum	6	6	2	5	**4.75**	***100***
Aristida longiseta	2				**0.50**	***25***
Carex filifolia	5		2		**1.75**	***50***
Koeleria cristata	2		3		**1.25**	***50***
Poa scabrella			1		**0.25**	***25***
Stipa comata	12				**3.00**	***25***
Stipa viridula	10				**2.50**	***25***
TOTAL NPG(C)	**38.0**	**12.0**	**23.0**	**7.0**	**20.00**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)						
Andropogon scoparius	4	9	4		**4.25**	***75***
Bouteloua curtipendula	16		2		**4.50**	***50***
Bouteloua gracilis			5		**1.25**	***25***
Calamovilfa longifolia			2		**0.50**	***25***
Distichlis stricta			4		**1.00**	***25***
TOTAL NPG(W)	**20.0**	**9.0**	**17.0**	**0.0**	**11.50**	***75***
INTRODUCED PERENNIAL GRAMINOIDS						
TOTAL IPG	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL GRAMINOIDS						
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***

Table B26. Percent Canopy Cover by Class and Species for Four PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ARTEMISIA TRIDENTATA **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ARTEMISIA TRIDENTATA* BREAKS**					
	PLOT NUMBER					
	358	367	376	377	**Mean Cover**	***Con-stancy***
					n=4	
INTRODUCED ANNUAL GRAMINOIDS						
Bromus japonicus	0.3	0.3	0.3	2	**0.73**	***100***
TOTAL IAG	**0.3**	**0.3**	**0.3**	**2.0**	**0.73**	***100***
NATIVE PERENNIAL FORBS AND SUBSHRUBS						
Achillea millefolium	0.3			0.3	**0.15**	***50***
Allium textile		0.3			**0.08**	***25***
Antennaria dimorpha			1		**0.25**	***25***
Antennaria parvifolia	1				**0.25**	***25***
Aster falcatus	1				**0.25**	***25***
Astragalus adsurgens	0.3				**0.08**	***25***
Astragalus missouriensis	0.3				**0.08**	***25***
Balsamorhiza sagittata	6				**1.50**	***25***
Castilleja sessiliflora	0.3				**0.08**	***25***
Comandra umbellata		0.3	0.3	0.3	**0.23**	***75***
Crepis acuminata	0.3				**0.08**	***25***
Crepis occidentalis				0.3	**0.08**	***25***
Dalea candida	0.3	1	1		**0.58**	***75***
Dalea purpurea		0.3	0.3		**0.15**	***50***
Echinacea angustifolia	0.3		0.3		**0.15**	***50***
Erigeron pumilus var. pumilus		10			**2.50**	***25***
Gaura coccinea	0.3		0.3	0.3	**0.23**	***75***
Gutierrezia sarothrae	7	9	4	3	**5.75**	***100***
Haplopappus armerioides	0.3				**0.08**	***25***
Hedysarum boreale	2				**0.50**	***25***
Hymenopappus filifolius		0.3			**0.08**	***25***
Linum lewisii	0.3	0.3		0.3	**0.23**	***75***
Lomatium foeniculaceum				0.3	**0.08**	***25***
Machaeranthera grindelioides	0.3	1			**0.33**	***50***
Musineon divaricatum		0.3	0.3		**0.15**	***50***
Opuntia polyacantha			0.3		**0.08**	***25***
Oxytropis lambertii			1		**0.25**	***25***
Penstemon nitidus		0.3			**0.08**	***25***
Phlox alyssifolia		0.3			**0.08**	***25***
Phlox hoodii	3		1	1	**1.25**	***75***
Polygala alba	0.3	0.3	0.3		**0.23**	***75***
Psoralea argophylla	0.3		5	5	**2.58**	***75***
Psoralea esculenta	0.3		0.3	0.3	**0.23**	***75***
Senecio canus			0.3		**0.08**	***25***
Stephanomeria runcinata		0.3			**0.08**	***25***
Thermopsis rhombifolia				1	**0.25**	***25***
Vicia americana			0.3	0.3	**0.15**	***50***
Yucca glauca		3	0.3		**0.83**	***50***
Zigadenus venenosus	0.3				**0.08**	***25***
TOTAL NPF AND SUBSHRUBS	**24.5**	**27.0**	**16.3**	**12.4**	**20.05**	***100***
INTRODUCED PERENNIAL FORBS						
Medicago sativa	2				**0.50**	***25***
Taraxacum laevigatum			0.3		**0.08**	***25***
TOTAL IPF	**2.0**	**0.0**	**0.3**	**0.0**	**0.58**	***50***
FERNS AND ALLIES						
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***

Table B26. Percent Canopy Cover by Class and Species for Four PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ARTEMISIA TRIDENTATA **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ARTEMISIA TRIDENTATA* BREAKS**					
	PLOT NUMBER					
	358	367	376	377	**Mean Cover**	***Con-stancy***
					n=4	
NATIVE ANNUAL/BIENNIAL FORBS						
Cryptantha celosioides	0.3	0.3			**0.15**	***50***
Grindelia squarrosa				2	**0.50**	***25***
Linum rigidum			0.3		**0.08**	***25***
Plantago patagonica			0.3		**0.08**	***25***
TOTAL NAF	**0.3**	**0.3**	**0.6**	**2.0**	**0.80**	***100***
INTRODUCED ANNUAL/BIENNIAL FORBS						
Alyssum alyssoides	0.3				**0.08**	***25***
Alyssum desertorum			0.3		**0.08**	***25***
Camelina microcarpa	0.3				**0.08**	***25***
Draba nemorosa			0.3		**0.08**	***25***
Lactuca serriola	0.3	0.3	0.3		**0.23**	***75***
Melilotus officinalis	4			4	**2.00**	***50***
Tragopogon dubius	0.3	0.3	0.3	0.3	**0.30**	***100***
TOTAL IAF	**5.2**	**0.6**	**1.2**	**4.3**	**2.83**	***100***
SHRUBS						
Artemisia tridentata	17	6	10	6	**9.75**	***100***
Atriplex nuttallii			1		**0.25**	***25***
Ceratoides lanata	0.3	1			**0.33**	***50***
Chrysothamnus nauseosus		4	5	8	**4.25**	***75***
Rosa arkansana				2	**0.50**	***25***
Rosa woodsii	0.3				**0.08**	***25***
Symphoricarpos oreophilus				4	**1.00**	***25***
TOTAL SHRUBS	**17.6**	**11.0**	**16.0**	**20.0**	**16.15**	***100***
TREES 0.01-acre						
Juniperus scopulorum	15		3	2	**5.00**	***75***
Pinus ponderosa	12	4		3	**4.75**	***75***
TOTAL TREES 0.01-acre	**27.0**	**4.0**	**3.0**	**5.0**	**9.75**	***100***
TREES 0.1-acre						
Juniperus scopulorum	12	1	6	4	**5.75**	***100***
Pinus ponderosa	6	5		6	**4.25**	***75***
TOTAL TREES 0.1-acre	**18.0**	**6.0**	**6.0**	**10.0**	**10.00**	***100***
TOTAL VEGETATION (Stratified)	**134.9**	**64.2**	**77.7**	**52.7**	**82.38**	***100***

Footnotes are presented on cover page B-ii.

Table B27. Percent Canopy Cover by Class and Species for Seven *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA* BREAKS**								
	PLOT NUMBER								
	316	352	354	385	386	404	534	**Mean Cover**	***Con-stancy***
								n=7	
SITE PARAMETERS*									
Slope (percent)	54	64	7-35	35-45	55-80	40-60	68		
Aspect (degrees)	280	280	276	195	210	268	300		
Topography	Upper	Mid	Upper	Mid	Mid	Mid	Upper		
Configuration	U(V)	X	U	U	U	U	X		
Photo # (Digital)	316	258/259	190	793/794	779/782	777/778	534		
Investigator	JE	SC	DB	DB/KL	DB/KL	DB/KL	JE		
Date	06/24/11	07/15/11	07/13/11	06/25/11	06/23/11	06/23/11	07/13/11		
GROUND COVER									
Bare Ground	68	46	34	35	70	28	40	**45.86**	***100***
Rock	22	50	20	25	15	12	30	**24.86**	***100***
Litter	7	2	42	35	13	44	27	**24.29**	***100***
Lichens				3	0.3	7		**1.47**	***43***
Moss					0.3	5		**0.76**	***29***
Basal Vegetation	3	2	4	2	1	4	3	**2.71**	***100***
VEGETATION STRUCTURE (nonstratified cover)									
Total Vegetation	52	75	78	35	20	64	50	**53.43**	***100***
Perennial Graminoids	20	23	41	14	2	40	10	**21.43**	***100***
Annual Graminoids	0.3	0.3				0.3	0.3	**0.17**	***57***
Perennial Forbs and Subshrubs	5	8	14	6	6	9	2	**7.14**	***100***
Annual/Biennial Forbs	0.3	0.3	0.3	0.3	1	1	0.3	**0.50**	***100***
Shrubs	30	50	36	14	3	17	41	**27.29**	***100***
Trees 0.01-acre			1		8	11	8	**4.00**	***57***
Trees 0.1-acre	19	6	18	5	4	16	14	**11.71**	***100***
CLASS\SPECIES NATIVE PERENNIAL GRAMINOIDS (Cool Season)									
Agropyron smithii		2	3	6	0.3	15		**3.76**	***71***
Agropyron spicatum	20	20	20	6	1	19	10	**13.71**	***100***
Aristida longiseta						0.3		**0.04**	***14***
Koeleria cristata						4		**0.57**	***14***
Oryzopsis hymenoides		2		2				**0.57**	***29***
Stipa comata				1				**0.14**	***14***
Stipa viridula			14			0.3		**2.04**	***29***
TOTAL NPG(C)	**20.0**	**24.0**	**37.0**	**15.0**	**1.3**	**38.6**	**10.0**	**20.84**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)									
Andropogon scoparius						2		**0.29**	***14***
Bouteloua curtipendula						2		**0.29**	***14***
Calamovilfa longifolia					1			**0.14**	***14***
Muhlenbergia cuspidata						2		**0.29**	***14***
TOTAL NPG(W)	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**6.0**	**0.0**	**1.00**	***29***

Table B27. Percent Canopy Cover by Class and Species for Seven *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA* BREAKS**								
	PLOT NUMBER								
	316	352	354	385	386	404	534	**Mean Cover**	***Con-stancy***
								n=7	
INTRODUCED PERENNIAL GRAMINOIDS									
Poa pratensis			9					**1.29**	***14***
TOTAL IPG	**0.0**	**0.0**	**9.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.29**	***14***
NATIVE ANNUAL GRAMINOIDS									
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS									
Bromus japonicus	0.3	0.3				0.3	0.3	**0.17**	***57***
TOTAL IAG	**0.3**	**0.3**	**0.0**	**0.0**	**0.0**	**0.3**	**0.3**	**0.17**	***57***
NATIVE PERENNIAL FORBS AND SUBSHRUBS									
Achillea millefolium			0.3			0.3	0.3	**0.13**	***43***
Allium textile						0.3		**0.04**	***14***
Antennaria parvifolia						0.3		**0.04**	***14***
Aster falcatus						0.3		**0.04**	***14***
Aster oblongifolius						0.3		**0.04**	***14***
Astragalus adsurgens	0.3				0.3			**0.09**	***29***
Astragalus missouriensis						0.3		**0.04**	***14***
Besseya wyomingensis						0.3		**0.04**	***14***
Cirsium undulatum			0.3					**0.04**	***14***
Comandra umbellata		0.3	0.3		1	0.3		**0.27**	***57***
Cryptantha spiculifera (interrupta)	0.3	0.3	0.3	0.3				**0.17**	***57***
Dalea candida		0.3						**0.04**	***14***
Eriogonum pauciflorum	0.3	4	1		0.3			**0.80**	***57***
Gaura coccinea			0.3	3	0.3			**0.51**	***43***
Gilia congesta var. pseudotypica		0.3						**0.04**	***14***
Gutierrezia sarothrae	2	2	6	0.3	3	6	0.3	**2.80**	***100***
Iva axillaris			4					**0.57**	***14***
Lactuca oblongifolia			1					**0.14**	***14***
Linum lewisii		0.3	0.3					**0.09**	***29***
Machaeranthera grindelioides	0.3	0.3			0.3			**0.13**	***43***
Oenothera caespitosa	0.3							**0.04**	***14***
Orobanche fasciculata				0.3				**0.04**	***14***
Oxytropis sericea	0.3					0.3		**0.09**	***29***
Penstemon albidus							0.3	**0.04**	***14***
Penstemon eriantherus	1						0.3	**0.19**	***29***
Polygala alba		0.3	0.3					**0.09**	***29***
Ratibida columnifera			0.3					**0.04**	***14***
Solidago missouriensis							0.3	**0.04**	***14***
Solidago nemoralis	0.3					0.3		**0.09**	***29***
Sphaeralcea coccinea		1	0.3	2				**0.47**	***43***
Vicia americana		0.3	0.3			0.3		**0.13**	***43***
Yucca glauca	0.3	0.3			1			**0.23**	***43***
Zigadenus venenosus						0.3		**0.04**	***14***
TOTAL NPF AND SUBSHRUBS	**5.4**	**9.7**	**15.0**	**5.9**	**6.2**	**9.6**	**1.5**	**7.61**	***100***
INTRODUCED PERENNIAL FORBS									
Taraxacum laevigatum			0.3	0.3		0.3		**0.13**	***43***
TOTAL IPF	**0.0**	**0.0**	**0.3**	**0.3**	**0.0**	**0.3**	**0.0**	**0.13**	***43***
FERNS AND ALLIES									
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***

Table B27. Percent Canopy Cover by Class and Species for Seven *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA* BREAKS**								
	PLOT NUMBER								
	316	352	354	385	386	404	534	**Mean Cover**	***Con-stancy***
								n=7	
NATIVE ANNUAL/BIENNIAL FORBS									
Cryptantha celosioides	0.3				0.3			**0.09**	***29***
Descurainia pinnata	0.3					0.3		**0.09**	***29***
Draba reptans						0.3		**0.04**	***14***
Hedeoma hispidum						0.3		**0.04**	***14***
Lappula redowskii				0.3				**0.04**	***14***
Machaeranthera canescens							0.3	**0.04**	***14***
TOTAL NAF	**0.6**	**0.0**	**0.0**	**0.3**	**0.3**	**0.9**	**0.3**	**0.34**	***71***
INTRODUCED ANNUAL/BIENNIAL FORBS									
Lactuca serriola			0.3	0.3				**0.09**	***29***
Melilotus officinalis					0.3	0.3		**0.09**	***29***
Tragopogon dubius	0.3	0.3	0.3	0.3		0.3	0.3	**0.26**	***86***
TOTAL IAF	**0.3**	**0.3**	**0.6**	**0.6**	**0.3**	**0.6**	**0.3**	**0.43**	***100***
SHRUBS									
Artemisia tridentata	18	32	10	8	1	13	35	**16.71**	***100***
Atriplex confertifolia	12	24	21	3	1		2	**9.00**	***86***
Ceratoides lanata			3					**0.43**	***14***
Chrysothamnus nauseosus	1			4			3	**1.14**	***43***
Rhus aromatica	2					0.3	1	**0.47**	***43***
Rosa woodsii			2					**0.29**	***14***
Sarcobatus vermiculatus					1	6		**1.00**	***29***
Symphoricarpos occidentalis			4					**0.57**	***14***
TOTAL SHRUBS	**33.0**	**56.0**	**40.0**	**15.0**	**3.0**	**19.3**	**41.0**	**29.61**	***100***
TREES 0.01-acre									
Juniperus scopulorum			1		8	11	8	**4.00**	***57***
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**1.0**	**0.0**	**8.0**	**11.0**	**8.0**	**4.00**	***57***
TREES 0.1-acre									
Juniperus scopulorum	18	6	6	5	4	16	10	**9.29**	***100***
Pinus ponderosa	1		12		0.3	0.3	5	**2.66**	***71***
TOTAL TREES 0.1-acre	**19.0**	**6.0**	**18.0**	**5.0**	**4.3**	**16.3**	**15.0**	**11.94**	***100***
TOTAL VEGETATION (Stratified)	**59.6**	**90.3**	**102.9**	**37.1**	**20.1**	**86.6**	**61.4**	**65.43**	***100***

Footnotes are presented on cover page B-ii.

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	391	392	393	396	397	399	400	401	405	406	413	414	417	418	419	420	421	422
SITE PARAMETERS*																		
Slope (percent)	20	5-10	33	32	30	30-35	40	36	12	18	77	8	10	58	78-80	55	49	20
Aspect (degrees)	300	016	335	020	348	090	336	335	030	025	040	294	360	020	330	040	034	110
Topography	Mid	Sho	Upper-Mid	Upper-Sho	Low-Toe	Upper	Upper	Mid	Mid	Mid	Upper-Mid	Rid-Sho	Sho	Upper	Upper	Upper	Upper	Low
Configuration	U	U	X	S	S(V)	S	S(X)	S	S	S	V(U)	U	X	U	X(U)	U	U	U
Photo # (Digital)	391	233	003	015	008	259	026	048/050	004	339	076	810	840	789	079/080	820	824/825	993
Investigator	JE	KS et al	KS et al	PL/SC	PL	KS/ED	PL/SC	PL/SC	PL/SC	PL/SC	PL/SC	DB/KL	DB/KL	DB/KL	PL/SC	DB/KL	DB/KL	DB/KL
Date	06/22/11	06/22/11	06/22/11	07/24/11	06/24/11	06/26/11	06/27/11	06/27/11	06/23/11	06/22/11	06/28/11	06/25/11	06/25/11	06/24/11	06/28/11	06/25/11	06/25/11	06/29/11
GROUND COVER																		
Bare Ground	5	35	2	0.3	32	1	5	6	1	2	64	10	5	10	84	10	4	50
Rock	26	1	4	2	20	2	15	18	0.3	75	7	1	2	20	8	45	1	5
Litter	36	41	91	94	45	92	78	72	94	20	25	76	66	60	5	39	85	40
Lichens	0.3	18	0.3	0.3	0.3	0.3	0.3	2	2		0.3	1	10		0.3	0.3	3	2
Moss	30	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1	1	2	10	15	5		5	4	
Basal Vegetation	3	5	2	3	3	4	2	2	2	2	2	2	2	5	3	1	3	3
VEGETATION STRUCTURE (nonstratified cover)																		
Total Vegetation	70	56	50	52	84	74	50	46	85	52	56	65	48	86	35	81	82	68
Perennial Graminoids	6	36	7	4	14	38	17	12	35	5	7	2	26	1	10	1	2	15
Annual Graminoids		0.3				20			0.3			0.3	0.3					
Perennial Forbs and Subshrubs	5	19	6	6	9	11	32	11	12	8	8	5	9	1	9	0.3	4	8
Annual/Biennial Forbs	0.3	1	0.3	1	1	4	0.3	2	0.3	1		1	0.3	0.3		0.3	0.3	0.3
Shrubs	1	1	0.3	0.3	0.3	18	1	1	0.3	0.3	0.3				0.3		1	
Trees 0.01-acre	78	7	45	48	79	12	3	26	68	46	61	62	20	85	22	80	80	57
Trees 0.1-acre	60	18	48	70	68	22	19	68	72	37	52	53	10	78	20	55	63	19

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	391	392	393	396	397	399	400	401	405	406	413	414	417	418	419	420	421	422
CLASS\SPECIES																		
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																		
Agropyron smithii		0.3				9												6
Agropyron spicatum	3	12	4	4	14	10	14	11	7	5	5	0.3	18	0.3	8	1	2	3
Agropyron trachycaulum																		
Aristida longiseta		3																
Carex filifolia			1				3				0.3		2					4
Carex heliophila											0.3				2			
Carex rossii			2						0.3		0.3					0.3		
Carex stenophylla																		
Festuca idahoensis																		
Koeleria cristata	0.3	1		0.3	0.3		0.3	0.3	0.3	0.3	0.3		4		0.3			
Oryzopsis hymenoides																		
Oryzopsis micrantha																		
Poa juncifolia																		
Poa sandbergii										0.3				0.3				
Poa scabrella												0.3				0.3		
Stipa comata		4				6			0.3				3					
Stipa viridula		7				12	1											
TOTAL NPG(C)	**3.3**	**27.3**	**7.0**	**4.3**	**14.3**	**37.0**	**18.3**	**11.3**	**7.9**	**5.6**	**6.2**	**0.6**	**27.0**	**0.6**	**10.3**	**1.6**	**2.0**	**13.0**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																		
Andropogon gerardii																		
Andropogon scoparius								0.3	3	0.3	1		1					1
Bouteloua curtipendula	3	4				3	0.3	2	7			1						2
Bouteloua gracilis		8							0.3			0.3						
Calamovilfa longifolia						2												
Muhlenbergia cuspidata																		
TOTAL NPG(W)	**3.0**	**12.0**	**0.0**	**0.0**	**0.0**	**5.0**	**0.3**	**2.3**	**10.3**	**0.3**	**1.0**	**1.3**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**3.0**
INTRODUCED PERENNIAL GRAMINOIDS																		
Agropyron cristatum						0.3												
Poa pratensis				0.3					20									
TOTAL IPG	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.3**	**0.0**	**0.0**	**20.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	391	392	393	396	397	399	400	401	405	406	413	414	417	418	419	420	421	422
NATIVE ANNUAL GRAMINOIDS																		
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
INTRODUCED ANNUAL GRAMINOIDS																		
Bromus japonicus		0.3				15			0.3			0.3	0.3					
Bromus tectorum		0.3				8												
TOTAL IAG	**0.0**	**0.6**	**0.0**	**0.0**	**0.0**	**23.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.3**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE PERENNIAL FORBS AND SUBSHRUBS																		
Achillea millefolium	0.3	0.3	0.3	0.3	0.3		0.3	0.3		0.3	0.3	1	0.3	0.3	0.3	0.3	0.3	
Agoseris glauca						0.3												
Allium textile		0.3					0.3		0.3	0.3			0.3				0.3	
Ambrosia psilostachya									1				0.3					
Anemone multifida					0.3							0.3						
Anemone patens																		
Antennaria dimorpha																		
Antennaria howellii (neglecta)	0.3	0.3																
Antennaria microphylla													0.3					
Antennaria parvifolia		0.3		0.3			0.3		0.3	0.3		1	0.3		0.3			
Apocynum androsaemifolium																		
Arnica sororia																		
Artemisia campestris											1							
Artemisia frigida		0.3	0.3	0.3	1	0.3	0.3	1	1	0.3			0.3					
Artemisia ludoviciana						2												
Asclepias viridiflora																		
Aster falcatus				0.3	0.3		1	0.3	0.3									
Aster laevis			0.3	0.3						1	0.3							
Aster oblongifolius								0.3										1
Aster pansus																		
Astragalus adsurgens	0.3				5		5	3			1	0.3			4			
Astragalus agrestis			1															
Astragalus crassicarpus									0.3									
Astragalus drummondii																	1	
Astragalus flexuosus																		
Astragalus gilviflorus								0.3										

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	391	392	393	396	397	399	400	401	405	406	413	414	417	418	419	420	421	422
Astragalus hyalinus																		
Astragalus missouriensis							0.3		0.3		0.3			0.3				0.3
Astragalus plattensis													0.3					
Astragalus purshii				0.3					0.3				0.3					
Astragalus spatulatus																		
Astragalus tenellus																		
Balsamorhiza sagittata																		0.3
Berberis repens											0.3							
Besseya wyomingensis	0.3							0.3				0.3		0.3				
Calochortus nuttallii			0.3	0.3														0.3
Campanula rotundifolia	0.3		0.3	0.3	0.3		0.3	0.3		0.3	0.3	0.3	0.3		0.3	0.3	0.3	0.3
Castilleja sessiliflora																		
Cerastium arvense			0.3	1	1		1	2	0.3	1	0.3		2		1	0.3	1	0.3
Chrysopsis villosa		0.3							0.3						1			
Cirsium undulatum		0.3	0.3				0.3										0.3	
Comandra umbellata	0.3	0.3					0.3											0.3
Crepis acuminata																		0.3
Crepis intermedia																		
Crepis occidentalis								0.3										0.3
Cryptantha spiculifera (interrupta)		0.3																
Dalea candida																		
Dalea purpurea		0.3	0.3				0.3	0.3		0.3			0.3					0.3
Echinacea angustifolia		1		0.3			0.3	0.3	0.3	0.3								
Eriogonum flavum											0.3							
Eriogonum pauciflorum		0.3	0.3				0.3			0.3	0.3				0.3			
Euphorbia robusta							0.3											
Fragaria virginiana																		
Fritillaria atropurpurea																		
Gaillardia aristata		0.3																
Gaura coccinea		2				1			0.3				0.3					0.3
Geum triflorum							0.3	0.3			0.3				0.3			0.3
Gilia congesta var. pseudotypica																		
Glycyrrhiza lepidota																		
Gutierrezia sarothrae	0.3	8					7	0.3		0.3	0.3							
Hedeoma drummondii	0.3	0.3								0.3							0.3	
Hedysarum boreale									0.3									

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	391	392	393	396	397	399	400	401	405	406	413	414	417	418	419	420	421	422
Helianthus maximilianii																		
Helianthus rigidus																		
Heuchera richardsonii																		
Hymenopappus filifolius							0.3				0.3							
Iva axillaris																		
Kuhnia eupatorioides									1									
Lactuca oblongifolia																		
Lesquerella alpina			0.3				0.3			0.3	1				0.3			
Leucocrinum montanum			0.3							0.3								
Liatris punctata		0.3					0.3											
Linum lewisii	0.3	2		0.3			0.3	0.3	0.3	0.3	0.3						0.3	0.3
Lithospermum incisum																		
Lomatium foeniculaceum																		
Lomatium orientale				0.3	0.3													
Lupinus argenteus																		
Lygodesmia juncea																		
Machaeranthera grindelioides											0.3							
Mertensia lanceolata		0.3																
Mirabilis linearis																		
Musineon divaricatum		0.3	0.3				0.3	0.3		0.3	0.3		0.3					
Opuntia polyacantha		0.3				0.3												
Oxytropis lambertii				0.3							0.3							
Oxytropis sericea	0.3		0.3	0.3			4	0.3		1	0.3	0.3			0.3			
Penstemon nitidus										0.3				0.3				
Phlox alyssifolia																		
Phlox hoodii	0.3	1	0.3									0.3					0.3	
Physaria didymocarpa																		
Polygala alba	0.3	0.3								0.3	0.3							0.3
Psoralea argophylla				0.3				0.3	0.3			1	4					1
Psoralea esculenta		0.3	0.3	0.3			0.3	1		0.3								0.3
Ratibida columnifera																		
Senecio canus					0.3						0.3				0.3			0.3
Senecio plattensis																		
Sisyrinchium angustifolium									0.3									
Smilacina stellata					1													
Solidago missouriensis			0.3				0.3	0.3	0.3		1				0.3			
Solidago mollis																		

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	391	392	393	396	397	399	400	401	405	406	413	414	417	418	419	420	421	422
Solidago nemoralis	2	0.3												0.3				
Solidago rigida		0.3	0.3	0.3			3		0.3	0.3								0.3
Sphaeralcea coccinea						2												
Stephanomeria runcinata																		
Thermopsis rhombifolia	0.3						8											1
Toxicodendron rydbergii							1											
Vicia americana				0.3				0.3				0.3		0.3				0.3
Viola nuttallii		0.3	0.3	0.3														
Yucca glauca		1				4												
Zigadenus venenosus				0.3	0.3			0.3		0.3								
TOTAL NPF AND SUBSHRUBS	**5.9**	**21.6**	**6.4**	**6.7**	**10.1**	**9.9**	**36.0**	**12.4**	**7.8**	**8.7**	**9.4**	**5.1**	**9.6**	**1.8**	**8.7**	**0.9**	**4.1**	**8.1**
INTRODUCED PERENNIAL FORBS																		
Cirsium arvense																		0.3
Medicago sativa						1												
Taraxacum laevigatum	0.3	0.3	0.3	0.3	0.3	1	0.3	0.3	5	0.3	0.3	0.3	0.3		0.3		0.3	0.3
Taraxacum officinale																		
TOTAL IPF	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**2.0**	**0.3**	**0.3**	**5.0**	**0.3**	**0.3**	**0.3**	**0.3**	**0.0**	**0.3**	**0.0**	**0.3**	**0.6**
FERNS AND ALLIES																		
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS																		
Arabis hirsuta																		
Arabis holboellii												0.3	0.3			0.3		
Collomia linearis												0.3		0.3				
Conyza canadensis																		
Cryptantha celosioides																		
Cryptantha torreyana																		
Descurainia pinnata					0.3													
Descurainia richardsonii																		0.3
Draba reptans			0.3									0.3						
Epilobium paniculatum																		
Erysimum asperum												0.3						
Grindelia squarrosa																		
Hedeoma hispidum												0.3				0.3		

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	391	392	393	396	397	399	400	401	405	406	413	414	417	418	419	420	421	422
Linum rigidum																		
Orthocarpus luteus																		
Phacelia linearis						0.3												
Plantago patagonica		0.3																
Polygonum douglasii																		
Silene antirrhina																		
TOTAL NAF	**0.0**	**0.3**	**0.3**	**0.0**	**0.3**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.5**	**0.3**	**0.3**	**0.0**	**0.6**	**0.0**	**0.3**
INTRODUCED ANNUAL/BIENNIAL FORBS																		
Alyssum alyssoides		0.3																
Alyssum desertorum		0.3			0.3	0.3			0.3	0.3		0.3						0.3
Camelina microcarpa	0.3		0.3			0.3												
Draba nemorosa																		
Filago arvensis																		
Lactuca serriola				0.3		0.3												0.3
Medicago lupulina																		
Melilotus alba																		
Melilotus officinalis	0.3			1	1	1		2		1								
Polygonum convolvulus				0.3														
Sisymbrium altissimum						1												
Sisymbrium loeselii						1											0.3	
Tragopogon dubius		0.3				0.3	0.3		0.3				0.3				0.3	0.3
TOTAL IAF	**0.6**	**0.9**	**0.3**	**1.6**	**1.3**	**4.2**	**0.3**	**2.0**	**0.6**	**1.3**	**0.0**	**0.3**	**0.3**	**0.0**	**0.0**	**0.0**	**0.6**	**0.9**
SHRUBS																		
Artemisia cana							0.3											
Artemisia tridentata	0.3	0.3				18		0.3										
Calylophus serrulatus																		
Ceratoides lanata																	1	
Chrysothamnus nauseosus		0.3																
Prunus virginiana																		
Rhus aromatica	0.3		0.3	0.3	0.3		0.3	0.3	0.3	0.3	0.3				0.3			
Rosa arkansana	0.3	0.3					0.3											
Rosa woodsii																		
Symphoricarpos occidentalis	0.3																	
Symphoricarpos oreophilus																		
TOTAL SHRUBS	**1.2**	**0.9**	**0.3**	**0.3**	**0.3**	**18.0**	**0.9**	**0.6**	**0.3**	**0.3**	**0.3**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**1.0**	**0.0**

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	391	392	393	396	397	399	400	401	405	406	413	414	417	418	419	420	421	422
TREES 0.01-acre																		
Juniperus scopulorum	65	7	30	12	8	4	2	22		40	60	55	15	80	13	65	60	45
Pinus ponderosa	30		20	45	75	8	2	7	68	9	3	12	15	12	12	20	30	15
TOTAL TREES 0.01-acre	**95.0**	**7.0**	**50.0**	**57.0**	**83.0**	**12.0**	**4.0**	**29.0**	**68.0**	**49.0**	**63.0**	**67.0**	**30.0**	**92.0**	**25.0**	**85.0**	**90.0**	**60.0**
TREES 0.1-acre																		
Juniperus scopulorum	50	13	20	35	45	8	2	24	3	17	40	50	6	65	12	45	55	15
Pinus ponderosa	20	5	35	50	40	18	18	60	70	25	15	5	7	20	11	20	25	5
TOTAL TREES 0.1-acre	**70.0**	**18.0**	**55.0**	**85.0**	**85.0**	**26.0**	**20.0**	**84.0**	**73.0**	**42.0**	**55.0**	**55.0**	**13.0**	**85.0**	**23.0**	**65.0**	**80.0**	**20.0**
TOTAL VEGETATION (Stratified)	**109.3**	**70.9**	**64.6**	**70.5**	**109.6**	**111.7**	**60.1**	**57.9**	**120.2**	**65.5**	**80.2**	**76.4**	**68.8**	**94.7**	**44.6**	**88.1**	**98.0**	**85.9**

Footnotes are presented on cover page B-ii.

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	423	424	426	436	438	439	440	441	444	445	446	447	448	453	454	456	457	458
SITE PARAMETERS*																		
Slope (percent)	12	16	30-60	10	60	4	8	9	6-30	18	12	38	14	50	54	62	68	24
Aspect (degrees)	052	058	030	244	306	226	038	082	028	070	294	294	030	034	348	316	010	322
Topography	Knoll	Low-Toe	Upper-Mid	Bot	Mid	Bot	Rid-Sho	Rid-Sho	Low-Toe	Upper-Mid	Sho-Sad	Sho-Uppe	Low	Mid	Upper-Mid	Upper	Upper	Upper-Mid
Configuration	X	X	U	V/U	U	V	S/X	S/X	X	U	S(V)	X(U)	X	U(S)	X	X	V	S(X)
Photo # (Digital)	986	992	990	001	025	047	037	036	049	057	044	039	043	082	080	085	093	098
Investigator	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL
Date	06/29/11	06/29/11	06/29/11	06/30/11	07/07/11	07/08/11	07/07/11	07/07/11	07/08/11	07/08/11	07/07/11	07/07/11	07/07/11	07/09/11	07/09/11	07/09/11	07/09/11	07/09/11
GROUND COVER																		
Bare Ground	14	8	20	48	15	30	12	21	18	30	46	40	15	15	17	20	8	28
Rock			59	7	35	18	0.3	3	1	3	6	1	1	3	5	20	1	4
Litter	80	85	15	34	45	43	80	70	68	53	36	50	75	65	63	52	80	57
Lichens	1		1	2	1	3	1	1	5	7	5	2	2	5	3	2	2	4
Moss	1		4	5	2	4	2	1	3	3	3	3	2	7	8	3	5	3
Basal Vegetation	4	7	1	4	2	2	5	4	5	4	4	4	5	5	4	3	4	4
VEGETATION STRUCTURE (nonstratified cover)																		
Total Vegetation	78	91	22	65	42	44	84	60	78	68	60	70	79	90	77	72	87	52
Perennial Graminoids	4	2	6	12	18	18	38	36	37	40	20	20	45	8	15	9	21	24
Annual Graminoids	0.3			0.3		0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3			0.3		
Perennial Forbs and Subshrubs	3	2	6	11	7	12	13	3	25	16	8	11	15	6	13	11	12	6
Annual/Biennial Forbs	2			16	0.3	8	1	0.3	0.3	0.3	1	0.3	0.3	2	0.3	0.3		0.3
Shrubs			0.3		0.3	0.3	2		1	1	5	12	13		4	0.3	0.3	
Trees 0.01-acre	78	90	12	42	22	9	60	28	35	21	36	43	23	87	66	63	74	28
Trees 0.1-acre	52	46	22	29	36	20	33	26	30	25	33	24	21	40	45	37	66	33

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	423	424	426	436	438	439	440	441	444	445	446	447	448	453	454	456	457	458
CLASS\SPECIES																		
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																		
Agropyron smithii				1		5			5	5	1		5					
Agropyron spicatum	2	1	2	3	7	7	18	15	5	5	3	9	4	3	10	3	17	5
Agropyron trachycaulum		1																
Aristida longiseta									3	3	2		7					
Carex filifolia			2		0.3			1			2	3	1	1		1		8
Carex heliophila							4		3									
Carex rossii	0.3	0.3	1		0.3											1	2	0.3
Carex stenophylla								0.3										
Festuca idahoensis																		
Koeleria cristata					2		4	3	2	2	2	1	3		2			1
Oryzopsis hymenoides																1		
Oryzopsis micrantha																		
Poa juncifolia																		
Poa sandbergii								1		2								
Poa scabrella	0.3						2											
Stipa comata	0.3							4		1		6	8	0.3				
Stipa viridula										8			7		0.3		4	
TOTAL NPG(C)	**2.9**	**2.3**	**5.0**	**4.0**	**9.6**	**12.0**	**28.0**	**24.3**	**18.0**	**26.0**	**10.0**	**19.0**	**35.0**	**4.3**	**12.3**	**6.0**	**23.0**	**14.3**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																		
Andropogon gerardii																		
Andropogon scoparius	0.3		1	5	7		8	10	8	3	6	2	6	2		2		3
Bouteloua curtipendula					1		5	5	12	14	4		4	1	4			5
Bouteloua gracilis									5				4					
Calamovilfa longifolia					3	8					2	1	3	1		1		3
Muhlenbergia cuspidata	0.3																	
TOTAL NPG(W)	**0.6**	**0.0**	**1.0**	**5.0**	**11.0**	**8.0**	**13.0**	**15.0**	**25.0**	**17.0**	**12.0**	**3.0**	**17.0**	**4.0**	**4.0**	**3.0**	**0.0**	**11.0**
INTRODUCED PERENNIAL GRAMINOIDS																		
Agropyron cristatum																		
Poa pratensis				4														
TOTAL IPG	**0.0**	**0.0**	**0.0**	**4.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	423	424	426	436	438	439	440	441	444	445	446	447	448	453	454	456	457	458
NATIVE ANNUAL GRAMINOIDS																		
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
INTRODUCED ANNUAL GRAMINOIDS																		
Bromus japonicus	0.3			0.3		0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3			0.3		
Bromus tectorum																		
TOTAL IAG	**0.3**	**0.0**	**0.0**	**0.3**	**0.0**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**
NATIVE PERENNIAL FORBS AND SUBSHRUBS																		
Achillea millefolium		0.3	0.3	1		0.3	0.3		0.3	1	0.3	0.3	0.3	1	1		0.3	0.3
Agoseris glauca																		
Allium textile	0.3								0.3	0.3		0.3					0.3	
Ambrosia psilostachya																		
Anemone multifida																		
Anemone patens																		
Antennaria dimorpha																		
Antennaria howellii (neglecta)				1			0.3		0.3	1			1	0.3	1	0.3	0.3	
Antennaria microphylla			1						0.3				1			1	1	0.3
Antennaria parvifolia		0.3			0.3			0.3	0.3	0.3			0.3	0.3				
Apocynum androsaemifolium																		
Arnica sororia										1								
Artemisia campestris																		
Artemisia frigida			0.3		0.3								0.3	0.3		0.3	0.3	0.3
Artemisia ludoviciana				0.3		2			0.3									
Asclepias viridiflora																		
Aster falcatus											0.3	0.3	1		0.3			
Aster laevis				0.3		1			1					0.3	1		0.3	
Aster oblongifolius							0.3		0.3	1	0.3		0.3					
Aster pansus						0.3												
Astragalus adsurgens		0.3		0.3	1	6			0.3			0.3	2		1	0.3		
Astragalus agrestis									0.3					0.3				
Astragalus crassicarpus																		
Astragalus drummondii									6	1								
Astragalus flexuosus					0.3	0.3												0.3
Astragalus gilviflorus																		

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	423	424	426	436	438	439	440	441	444	445	446	447	448	453	454	456	457	458
Astragalus hyalinus																0.3		
Astragalus missouriensis				0.3		0.3										0.3		
Astragalus plattensis																		
Astragalus purshii							0.3	0.3		0.3								
Astragalus spatulatus																		
Astragalus tenellus														0.3		0.3		
Balsamorhiza sagittata																	2	
Berberis repens																		
Besseya wyomingensis		0.3			0.3				1	0.3				1	2		2	
Calochortus nuttallii																		
Campanula rotundifolia	0.3		0.3	0.3	0.3	0.3							0.3	0.3	0.3	0.3	0.3	0.3
Castilleja sessiliflora													0.3					
Cerastium arvense	2	0.3	1	1			4		2				0.3		1		0.3	2
Chrysopsis villosa				0.3												1		
Cirsium undulatum						0.3										1		0.3
Comandra umbellata				0.3	0.3				0.3	0.3	0.3	0.3	0.3		0.3			
Crepis acuminata														0.3	0.3	0.3		0.3
Crepis intermedia																		
Crepis occidentalis								0.3			0.3			0.3				
Cryptantha spiculifera (interrupta)																		
Dalea candida				0.3					0.3			0.3	0.3					
Dalea purpurea	0.3			0.3		0.3	0.3		0.3									
Echinacea angustifolia				0.3			0.3		2	1	3	0.3	2		0.3			
Eriogonum flavum												0.3						
Eriogonum pauciflorum																		
Euphorbia robusta																		
Fragaria virginiana																		
Fritillaria atropurpurea																		
Gaillardia aristata																		
Gaura coccinea				0.3					0.3		0.3	0.3						
Geum triflorum									1		0.3		1	1	1		4	
Gilia congesta var. pseudotypica																		
Glycyrrhiza lepidota				0.3		0.3												
Gutierrezia sarothrae				1					4	0.3	1	3	1		1			
Hedeoma drummondii																0.3		
Hedysarum boreale																		

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	423	424	426	436	438	439	440	441	444	445	446	447	448	453	454	456	457	458
Helianthus maximilianii				0.3														
Helianthus rigidus																		
Heuchera richardsonii			0.3														0.3	
Hymenopappus filifolius																		
Iva axillaris																		
Kuhnia eupatorioides																		
Lactuca oblongifolia																		
Lesquerella alpina																		
Leucocrinum montanum								0.3	0.3									
Liatris punctata														0.3				0.3
Linum lewisii									0.3	0.3	0.3	0.3			0.3			
Lithospermum incisum								0.3								0.3		
Lomatium foeniculaceum												0.3						
Lomatium orientale																		
Lupinus argenteus																0.3		
Lygodesmia juncea					0.3													
Machaeranthera grindelioides											0.3							
Mertensia lanceolata																		
Mirabilis linearis													0.3					
Musineon divaricatum								0.3				0.3						
Opuntia polyacantha																		
Oxytropis lambertii				1									0.3			1		
Oxytropis sericea			0.3		1		1		0.3								0.3	1
Penstemon nitidus						0.3												
Phlox alyssifolia																		
Phlox hoodii			0.3						2	1	0.3	1						
Physaria didymocarpa																		0.3
Polygala alba					0.3	0.3	0.3	0.3	1	0.3	0.3	0.3	0.3		0.3	0.3		0.3
Psoralea argophylla							6	1	0.3	6	0.3		0.3					
Psoralea esculenta				0.3						0.3			0.3	0.3				
Ratibida columnifera									0.3	1			1					
Senecio canus			0.3		0.3											0.3		
Senecio plattensis																		
Sisyrinchium angustifolium				0.3														
Smilacina stellata						1			0.3							0.3		
Solidago missouriensis		1	2		1	0.3			0.3			1				3		0.3
Solidago mollis																		

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	423	424	426	436	438	439	440	441	444	445	446	447	448	453	454	456	457	458
Solidago nemoralis																		
Solidago rigida				2					1								0.3	
Sphaeralcea coccinea										0.3								
Stephanomeria runcinata																		
Thermopsis rhombifolia												3			2			
Toxicodendron rydbergii																		
Vicia americana					1				0.3		0.3			0.3	0.3			
Viola nuttallii	0.3						0.3											
Yucca glauca											1					1		
Zigadenus venenosus							0.3	0.3				0.3	0.3					
TOTAL NPF AND SUBSHRUBS	**3.2**	**2.5**	**6.1**	**11.5**	**6.7**	**13.3**	**13.7**	**3.4**	**27.3**	**17.0**	**8.9**	**12.2**	**14.5**	**6.6**	**13.4**	**12.2**	**12.0**	**6.3**
INTRODUCED PERENNIAL FORBS																		
Cirsium arvense																		
Medicago sativa																		
Taraxacum laevigatum	0.3	0.3	0.3	1	0.3			0.3	0.3	0.3			0.3	0.3		0.3	0.3	0.3
Taraxacum officinale																		
TOTAL IPF	**0.3**	**0.3**	**0.3**	**1.0**	**0.3**	**0.0**	**0.0**	**0.3**	**0.3**	**0.3**	**0.0**	**0.0**	**0.3**	**0.3**	**0.0**	**0.3**	**0.3**	**0.3**
FERNS AND ALLIES																		
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS																		
Arabis hirsuta																		
Arabis holboellii					0.3		0.3	0.3							0.3	0.3		0.3
Collomia linearis																		
Conyza canadensis																		
Cryptantha celosioides																		
Cryptantha torreyana	0.3																	
Descurainia pinnata	0.3																	
Descurainia richardsonii																		
Draba reptans							0.3											
Epilobium paniculatum	0.3																	
Erysimum asperum																		
Grindelia squarrosa																		
Hedeoma hispidum																		

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	423	424	426	436	438	439	440	441	444	445	446	447	448	453	454	456	457	458
Linum rigidum																		
Orthocarpus luteus											0.3							
Phacelia linearis	0.3																	
Plantago patagonica																		
Polygonum douglasii							0.3											
Silene antirrhina	1							0.3										
TOTAL NAF	**2.2**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.9**	**0.6**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.3**	**0.3**	**0.0**	**0.3**
INTRODUCED ANNUAL/BIENNIAL FORBS																		
Alyssum alyssoides				0.3														
Alyssum desertorum							0.3				0.3							
Camelina microcarpa						0.3										0.3		
Draba nemorosa							0.3											
Filago arvensis						0.3	0.3											
Lactuca serriola				0.3		0.3	0.3				0.3							0.3
Medicago lupulina				2														
Melilotus alba																		
Melilotus officinalis				14	0.3	7			0.3		0.3			2	0.3			
Polygonum convolvulus																		
Sisymbrium altissimum						0.3												
Sisymbrium loeselii																		
Tragopogon dubius					0.3			0.3	0.3	0.3	0.3	0.3	0.3		0.3			
TOTAL IAF	**0.0**	**0.0**	**0.0**	**16.6**	**0.6**	**8.2**	**1.2**	**0.3**	**0.6**	**0.3**	**1.2**	**0.3**	**0.3**	**2.0**	**0.6**	**0.3**	**0.0**	**0.3**
SHRUBS																		
Artemisia cana													9					
Artemisia tridentata							1		0.3	1	5	5	3		3			
Calylophus serrulatus																		
Ceratoides lanata													1					
Chrysothamnus nauseosus											0.3							
Prunus virginiana																		
Rhus aromatica			0.3		0.3	0.3	1		1			7			1	0.3		
Rosa arkansana																		
Rosa woodsii									0.3						0.3			
Symphoricarpos occidentalis						0.3												
Symphoricarpos oreophilus												2			0.3		0.3	
TOTAL SHRUBS	**0.0**	**0.0**	**0.3**	**0.0**	**0.3**	**0.6**	**2.0**	**0.0**	**1.6**	**1.0**	**5.3**	**14.0**	**13.0**	**0.0**	**4.6**	**0.3**	**0.3**	**0.0**

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	423	424	426	436	438	439	440	441	444	445	446	447	448	453	454	456	457	458
TREES 0.01-acre																		
Juniperus scopulorum	35	45	9	30	14	5	35	20	35	16	25	41	1	35	50	10	10	19
Pinus ponderosa	60	70	3	14	8	5	30	15	1	6	15	4	22	65	30	58	70	13
TOTAL TREES 0.01-acre	**95.0**	**115.0**	**12.0**	**44.0**	**22.0**	**10.0**	**65.0**	**35.0**	**36.0**	**22.0**	**40.0**	**45.0**	**23.0**	**100.0**	**80.0**	**68.0**	**80.0**	**32.0**
TREES 0.1-acre																		
Juniperus scopulorum	42	30	14	23	20	14	14	8	30	17	14	18	10	15	20	17	22	12
Pinus ponderosa	18	20	9	7	18	7	22	21	1	9	20	7	12	30	30	22	48	25
TOTAL TREES 0.1-acre	**60.0**	**50.0**	**23.0**	**30.0**	**38.0**	**21.0**	**36.0**	**29.0**	**31.0**	**26.0**	**34.0**	**25.0**	**22.0**	**45.0**	**50.0**	**39.0**	**70.0**	**37.0**
TOTAL VEGETATION (Stratified)	**104.5**	**120.1**	**24.7**	**86.4**	**50.8**	**52.4**	**124.1**	**79.2**	**109.1**	**83.9**	**78.0**	**93.8**	**103.4**	**117.2**	**115.2**	**90.7**	**115.6**	**64.5**

Footnotes are presented on cover page B-ii.

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	459	460	461	462	463	464	470	471	473	475	476	478	479	481	482	483	484	485
SITE PARAMETERS*																		
Slope (percent)	52	20	18	44	42	62	30	28	14	18	36	48	22	56	31	24	40	62
Aspect (degrees)	310	286	308	064	072	330	110	300	354	060	032	360	324	315	340	340	005	360
Topography	Upper-Mid	Upper	Upper	Low-Mid	Upper	Low	Low	Toe-Low	Mid	Low	Mid	Upper-Mid	Upper-Mid	Upper	Low-Mid	Sho-Ben	Upper-Mid	Upper
Configuration	X(U)	V(U)	U	U	X	X(U)	S	U	U	X	X(S)	U	X	V(U)	U	U	U	U
Photo # (Digital)	130	112	101	111	109	195	244	245	224	226	227	229	241	274/275	276/277	245	484	244
Investigator	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL	JE/SC	DB/ED	DB/ED	DB/ED	DB/ED	DB/ED	DB/ED	DB/ED	JE/SC	JE/SC	JE/SC	JE/SC	JE/SC
Date	07/09/11	07/10/11	07/10/11	07/10/11	07/10/11	07/11/11	07/16/11	07/16/11	07/15/11	07/15/11	07/15/11	07/15/11	07/16/11	07/16/11	07/16/11	07/14/11	07/14/11	07/14/11
GROUND COVER																		
Bare Ground	10	22	43	38	14	28	32	15	24	34	32	15	30	20	26	1		1
Rock	15	2	15	12	1	7	5	1		1	6	5	10	10	1	0.3	10	
Litter	65	66	28	40	77	57	53	70	66	54	51	70	53	28	54	92	78	97
Lichens	3	2	3	3	1	1	4	6	4	2	3	2	1		1	1		0.3
Moss	5	4	6	2	4	5	2	5	2	4	4	5	2	40	15	4	10	
Basal Vegetation	2	4	5	5	3	2	4	3	4	5	4	3	4	2	3	2	2	2
VEGETATION STRUCTURE (nonstratified cover)																		
Total Vegetation	53	82	70	67	60	40	80	85	85	88	68	74	89	44	55	62	58	42
Perennial Graminoids	8	17	24	28	13	4	15	20	19	42	12	20	30	6	19	3	14	2
Annual Graminoids		0.3	0.3				0.3		0.3	0.3		0.3	0.3					
Perennial Forbs and Subshrubs	2	10	14	13	10	5	13	11	12	48	12	20	10	14	20	5	2	13
Annual/Biennial Forbs		0.3		0.3	0.3		0.3	0.3	31	2		1	0.3		0.3			
Shrubs	0.3	4	1			0.3	0.3	1	5	2	0.3	2	0.3	0.3	2			0.3
Trees 0.01-acre	48	70	51	38	50	34	67	73	58	28	55	51	74	33	20	60	50	35
Trees 0.1-acre	48	32	45	48	40	55	64	69	62	42	65	60	66	35	66	70	55	50

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	459	460	461	462	463	464	470	471	473	475	476	478	479	481	482	483	484	485
CLASS\SPECIES																		
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																		
Agropyron smithii	0.3	3		3				3		3								
Agropyron spicatum	4	7	8	10	9	4	9	6	10	5	5	13	8	4	5	2	10	2
Agropyron trachycaulum																		
Aristida longiseta																		
Carex filifolia	0.3		3					0.3	2	1	2			0.3		0.3		
Carex heliophila															0.3	1	4	0.3
Carex rossii	1				1	0.3		1			0.3	2		0.3	0.3		0.3	0.3
Carex stenophylla																		
Festuca idahoensis									1									
Koeleria cristata		2	2			0.3	1		3	3	1		2	0.3				
Oryzopsis hymenoides																		
Oryzopsis micrantha																		
Poa juncifolia						0.3												
Poa sandbergii														1				
Poa scabrella																		
Stipa comata															0.3			
Stipa viridula								2	4		2				0.3			
TOTAL NPG(C)	**5.6**	**12.0**	**13.0**	**13.0**	**10.0**	**4.9**	**10.0**	**12.3**	**20.0**	**12.0**	**10.3**	**15.0**	**10.0**	**5.9**	**6.2**	**3.3**	**14.3**	**2.6**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																		
Andropogon gerardii							3	4										
Andropogon scoparius	2		7	9	2		1	1		4		2	4	1	2			
Bouteloua curtipendula		6	6	8	1		2				2		20		12		0.3	
Bouteloua gracilis								3		24					0.3			
Calamovilfa longifolia	0.3		1							7		4			0.3			
Muhlenbergia cuspidata								1										
TOTAL NPG(W)	**2.3**	**6.0**	**14.0**	**17.0**	**3.0**	**0.0**	**6.0**	**9.0**	**0.0**	**35.0**	**2.0**	**6.0**	**24.0**	**1.0**	**14.6**	**0.0**	**0.3**	**0.0**
INTRODUCED PERENNIAL GRAMINOIDS																		
Agropyron cristatum																		
Poa pratensis																		
TOTAL IPG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	459	460	461	462	463	464	470	471	473	475	476	478	479	481	482	483	484	485
NATIVE ANNUAL GRAMINOIDS																		
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
INTRODUCED ANNUAL GRAMINOIDS																		
Bromus japonicus		0.3	0.3				0.3		0.3	0.3		0.3	0.3					
Bromus tectorum																		
TOTAL IAG	**0.0**	**0.3**	**0.3**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.3**	**0.3**	**0.0**	**0.3**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE PERENNIAL FORBS AND SUBSHRUBS																		
Achillea millefolium		2	0.3	0.3	1	1	0.3	1	0.3	0.3	0.3		1	0.3	0.3			0.3
Agoseris glauca																		
Allium textile		0.3		0.3	0.3				0.3	0.3					0.3			
Ambrosia psilostachya																		
Anemone multifida								0.3				0.3						0.3
Anemone patens																		
Antennaria dimorpha			0.3															
Antennaria howellii (neglecta)		2	0.3	0.3				1		3	1				0.3			
Antennaria microphylla			0.3						0.3	1	0.3	2	0.3					0.3
Antennaria parvifolia				0.3		0.3	0.3		1			0.3			0.3			0.3
Apocynum androsaemifolium																		
Arnica sororia																		
Artemisia campestris						0.3								0.3				
Artemisia frigida						0.3			0.3			0.3		0.3	0.3	0.3		
Artemisia ludoviciana						0.3	1				0.3							
Asclepias viridiflora																		
Aster falcatus		0.3	0.3				0.3	0.3	1	0.3	0.3							
Aster laevis				1	0.3		0.3		0.3		0.3	0.3	0.3		0.3			0.3
Aster oblongifolius			0.3	0.3					0.3	2					0.3			
Aster pansus																		
Astragalus adsurgens			0.3		0.3		3	2		1		2		1	1			1
Astragalus agrestis					0.3	1	0.3	1	0.3									
Astragalus crassicarpus					0.3													
Astragalus drummondii		2	0.3	0.3			2			1				1				
Astragalus flexuosus						0.3								1				
Astragalus gilviflorus			1			0.3								5				1

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	459	460	461	462	463	464	470	471	473	475	476	478	479	481	482	483	484	485
Astragalus hyalinus																		
Astragalus missouriensis				0.3	0.3		0.3		0.3						0.3			0.3
Astragalus plattensis																		
Astragalus purshii									0.3									
Astragalus spatulatus																		
Astragalus tenellus									0.3	2								
Balsamorhiza sagittata							1	2	1						4			
Berberis repens												3						
Besseya wyomingensis			0.3		0.3	0.3		0.3		0.3	0.3	0.3	1		0.3			0.3
Calochortus nuttallii																		
Campanula rotundifolia				0.3		0.3					0.3	0.3			0.3	0.3	0.3	0.3
Castilleja sessiliflora			0.3							0.3								
Cerastium arvense					1			2	1		1	2	3		2		0.3	3
Chrysopsis villosa												0.3						
Cirsium undulatum								0.3	0.3		0.3							
Comandra umbellata		0.3	0.3	0.3	0.3													
Crepis acuminata	0.3	1	0.3		0.3	0.3	0.3	0.3	0.3	0.3	0.3	1			1	2	1	1
Crepis intermedia																		
Crepis occidentalis																		
Cryptantha spiculifera (interrupta)																		
Dalea candida			2	0.3	0.3		0.3		0.3	0.3					3	0.3		
Dalea purpurea			0.3												0.3			
Echinacea angustifolia		0.3	0.3	0.3			0.3			1								
Eriogonum flavum																		
Eriogonum pauciflorum	0.3																	
Euphorbia robusta																		
Fragaria virginiana																		
Fritillaria atropurpurea					0.3													
Gaillardia aristata												0.3						
Gaura coccinea		0.3	0.3						0.3	0.3		0.3						
Geum triflorum				0.3			1				0.3	1	0.3		0.3			
Gilia congesta var. pseudotypica																		
Glycyrrhiza lepidota																		
Gutierrezia sarothrae		1							1	4	0.3			0.3	0.3			
Hedeoma drummondii																		
Hedysarum boreale			3							29								

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	459	460	461	462	463	464	470	471	473	475	476	478	479	481	482	483	484	485
Helianthus maximilianii																		
Helianthus rigidus																		
Heuchera richardsonii																		
Hymenopappus filifolius				0.3					0.3			0.3		0.3				
Iva axillaris																		
Kuhnia eupatorioides																		
Lactuca oblongifolia																		
Lesquerella alpina																		
Leucocrinum montanum																		
Liatris punctata				0.3	0.3						0.3				0.3			
Linum lewisii		0.3	0.3	0.3			0.3	0.3		0.3	0.3		0.3		0.3			
Lithospermum incisum																		
Lomatium foeniculaceum																		
Lomatium orientale																		
Lupinus argenteus			0.3				2				4							
Lygodesmia juncea																		
Machaeranthera grindelioides																		
Mertensia lanceolata																		
Mirabilis linearis																		
Musineon divaricatum			0.3	0.3	0.3			0.3	0.3	0.3	0.3				0.3			
Opuntia polyacantha																		
Oxytropis lambertii			0.3			0.3								2		0.3		2
Oxytropis sericea			1				0.3			0.3	0.3	1			1			
Penstemon nitidus														0.3	0.3			
Phlox alyssifolia																		
Phlox hoodii		0.3								4		1			0.3			
Physaria didymocarpa																		
Polygala alba		0.3	0.3	0.3	0.3		0.3	0.3	0.3	0.3	0.3		0.3		1	0.3		
Psoralea argophylla					4		0.3						3		1	0.3		
Psoralea esculenta							0.3			0.3					1	0.3		
Ratibida columnifera			0.3							0.3								
Senecio canus			0.3	0.3	0.3	0.3					0.3			0.3	0.3			0.3
Senecio plattensis																		
Sisyrinchium angustifolium																		
Smilacina stellata	1											0.3				1		2
Solidago missouriensis		0.3	1	1		0.3			0.3		2							
Solidago mollis																		

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	459	460	461	462	463	464	470	471	473	475	476	478	479	481	482	483	484	485
Solidago nemoralis																		
Solidago rigida													0.3		0.3			
Sphaeralcea coccinea																		
Stephanomeria runcinata														0.3				
Thermopsis rhombifolia												6		2				
Toxicodendron rydbergii																		
Vicia americana		0.3		0.3	0.3			0.3	1		0.3		0.3				0.3	
Viola nuttallii																		
Yucca glauca				6														
Zigadenus venenosus			0.3							0.3					0.3			
TOTAL NPF AND SUBSHRUBS	**1.6**	**11.0**	**14.9**	**13.7**	**10.8**	**5.6**	**14.2**	**11.7**	**11.4**	**52.5**	**13.4**	**22.3**	**10.1**	**14.4**	**21.3**	**5.1**	**1.9**	**12.7**
INTRODUCED PERENNIAL FORBS																		
Cirsium arvense													1					
Medicago sativa									1	1								
Taraxacum laevigatum	0.3		0.3	0.3		0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Taraxacum officinale																		
TOTAL IPF	**0.3**	**0.0**	**0.3**	**0.3**	**0.0**	**0.3**	**0.3**	**0.3**	**1.3**	**1.3**	**0.3**	**0.3**	**1.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**
FERNS AND ALLIES																		
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS																		
Arabis hirsuta												0.3						
Arabis holboellii												0.3	0.3					
Collomia linearis																		
Conyza canadensis								0.3										
Cryptantha celosioides																		
Cryptantha torreyana																		
Descurainia pinnata																		
Descurainia richardsonii								0.3										
Draba reptans																		
Epilobium paniculatum																		
Erysimum asperum																		
Grindelia squarrosa																		
Hedeoma hispidum																		

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	459	460	461	462	463	464	470	471	473	475	476	478	479	481	482	483	484	485
Linum rigidum																		
Orthocarpus luteus										0.3								
Phacelia linearis																		
Plantago patagonica																		
Polygonum douglasii																		
Silene antirrhina																		
TOTAL NAF	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.6**	**0.0**	**0.3**	**0.0**	**0.6**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
INTRODUCED ANNUAL/BIENNIAL FORBS																		
Alyssum alyssoides							0.3											
Alyssum desertorum									0.3									
Camelina microcarpa																		
Draba nemorosa																		
Filago arvensis		0.3							0.3			0.3						
Lactuca serriola				0.3			0.3											
Medicago lupulina									7									
Melilotus alba																		
Melilotus officinalis				0.3					27	2		0.3	0.3		0.3			
Polygonum convolvulus																		
Sisymbrium altissimum																		
Sisymbrium loeselii																		
Tragopogon dubius		0.3		0.3	0.3		0.3	0.3		0.3								
TOTAL IAF	**0.0**	**0.6**	**0.0**	**0.9**	**0.3**	**0.0**	**0.9**	**0.3**	**34.6**	**2.3**	**0.0**	**0.6**	**0.3**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**
SHRUBS																		
Artemisia cana								0.3										
Artemisia tridentata		4	1						2	2					2			
Calylophus serrulatus																		
Ceratoides lanata										0.3	0.3							
Chrysothamnus nauseosus									2					0.3				
Prunus virginiana																		
Rhus aromatica	0.3	0.3				0.3		0.3	1		0.3	1	0.3		0.3			0.3
Rosa arkansana																		
Rosa woodsii		0.3					0.3											
Symphoricarpos occidentalis								0.3	0.3			1						
Symphoricarpos oreophilus																		
TOTAL SHRUBS	**0.3**	**4.6**	**1.0**	**0.0**	**0.0**	**0.3**	**0.3**	**0.9**	**5.3**	**2.3**	**0.6**	**2.0**	**0.3**	**0.3**	**2.3**	**0.0**	**0.0**	**0.3**

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	459	460	461	462	463	464	470	471	473	475	476	478	479	481	482	483	484	485
TREES 0.01-acre																		
Juniperus scopulorum	20	35	37	17	13	8	60	25	17	27	45	4	60	8	19	24	15	32
Pinus ponderosa	35	50	17	21	40	30	18	55	48	2	15	50	25	28	3	42	40	6
TOTAL TREES 0.01-acre	**55.0**	**85.0**	**54.0**	**38.0**	**53.0**	**38.0**	**78.0**	**80.0**	**65.0**	**29.0**	**60.0**	**54.0**	**85.0**	**36.0**	**22.0**	**66.0**	**55.0**	**38.0**
TREES 0.1-acre																		
Juniperus scopulorum	20	20	30	30	25	15	35	30	28	28	42	20	50	16	45	45	15	25
Pinus ponderosa	35	15	18	20	18	45	35	45	40	18	30	45	25	22	25	35	45	30
TOTAL TREES 0.1-acre	**55.0**	**35.0**	**48.0**	**50.0**	**43.0**	**60.0**	**70.0**	**75.0**	**68.0**	**46.0**	**72.0**	**65.0**	**75.0**	**38.0**	**70.0**	**80.0**	**60.0**	**55.0**
TOTAL VEGETATION (Stratified)	**65.1**	**119.5**	**97.5**	**82.9**	**77.1**	**49.1**	**110.0**	**115.1**	**137.9**	**135.0**	**86.6**	**101.1**	**131.6**	**57.9**	**67.0**	**74.7**	**71.8**	**53.9**

Footnotes are presented on cover page B-ii.

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	486	487	488	490	492	493	494	497	498	499	505	506	508	511	512	514	519	524
SITE PARAMETERS*																		
Slope (percent)	20	74	54	66	58	64	82	54	25	20-40	58	5-15	8-28	44	50	45-55	37	54
Aspect (degrees)	270	300	050	100	340	335	355	040	290	350	032	284	056	010	300	004	040	345
Topography	Low-Mid	Upper	Upper	Upper-Sho	Upper	Mid	Low	Upper	Mid-Rid	Upper-Mid	Upper-Swa	Mid	Low-Toe	Mid	Upper	Low-Mid	Upper	Upper
Configuration	X	U	U	S	U(V)	U	X(S)	X	X	U	V	U	U	U	V	U	U	U
Photo # (Digital)	486	240	193/194	197	198	199	266/267	231	449	442	191	445	439	241	512	283	239	179
Investigator	JE/SC	DB/ED	JE/SC	JE/SC	JE/SC	JE/SC	JE/SC	DB/ED	KS/KL	KS/KL	DB	KS/KL	KS/KL	JE/SC	JE/SC	KS/ED	JE/SC	DB
Date	07/14/11	07/16/11	07/11/11	07/11/11	07/11/11	07/11/11	07/16/11	07/15/11	07/16/11	07/15/11	07/13/11	07/15/11	07/15/11	07/14/11	07/14/11	06/29/11	07/14/11	07/12/11
GROUND COVER																		
Bare Ground	20	10	1	3	5	58	30	30	0.3		15	12	1	0.3	30	38	86	20
Rock		10	15	8	3	2	15	8	18		2	0.3	0.3		0.3	3	2	3
Litter	72	61	81	86	79	35	52	43	79	96	70	82	94	96	22	50	9	69
Lichens	2	6	0.3		10	0.3	0.3	2			4	3	0.3	1	5	0.3	0.3	2
Moss	2	10	0.3	1	1	3		12		1	6			0.3	40	7		2
Basal Vegetation	4	3	2	2	2	2	3	5	3	3	3	3	4	2	3	2	3	4
VEGETATION STRUCTURE (nonstratified cover)																		
Total Vegetation	74	92	97	15	34	68	58	84	84	74	75	75	92	70	26	62	62	60
Perennial Graminoids	42	9	2	3	4	4	17	31	26	7	12	24	17	15	10	14	13	27
Annual Graminoids				0.3				0.3		0.3			0.3			0.3		
Perennial Forbs and Subshrubs	18	8	4	0.3	7	9	9	12	23	30	6	24	5	11	11	15	21	11
Annual/Biennial Forbs	1	0.3		0.3				0.3	0.3	1	0.3	0.3	30	1		0.3	0.3	0.3
Shrubs	3		0.3				3	27	1	0.3	3	8	3	2	0.3	1	1	4
Trees 0.01-acre	20	90	95	12	27	64	36	58	74	52	71	56	78	62	9	40	42	28
Trees 0.1-acre	40	85	90	42	48	62	54	66	74	55	68	48	58	74	19	62	52	30

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	486	487	488	490	492	493	494	497	498	499	505	506	508	511	512	514	519	524
CLASS\SPECIES																		
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																		
Agropyron smithii							0.3	0.3					12				0.3	2
Agropyron spicatum	25	2	1	3	2	3	15	10	24	5	10	22	3	15	6	10	5	18
Agropyron trachycaulum																		
Aristida longiseta																0.3		
Carex filifolia		1		0.3	0.3	1	0.3	2		0.3	1	0.3			1	0.3		2
Carex heliophila																		
Carex rossii		2	0.3	0.3	0.3		0.3	1	0.3					0.3		3		
Carex stenophylla																		
Festuca idahoensis																		
Koeleria cristata						0.3			0.3	1	0.3	1	0.3		0.3	0.3		2
Oryzopsis hymenoides																		
Oryzopsis micrantha													0.3					
Poa juncifolia																		
Poa sandbergii					0.3		0.3										0.3	
Poa scabrella						0.3												
Stipa comata							0.3	4									1	
Stipa viridula								6			1						1	
TOTAL NPG(C)	**25.0**	**5.0**	**1.3**	**3.6**	**2.9**	**4.6**	**16.5**	**23.3**	**24.6**	**6.3**	**12.3**	**23.3**	**15.6**	**15.3**	**7.3**	**13.9**	**7.6**	**24.0**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																		
Andropogon gerardii																		
Andropogon scoparius		3			1			10	2				1		2		2	1
Bouteloua curtipendula	20	1							2	1			1		1		3	4
Bouteloua gracilis												2					0.3	
Calamovilfa longifolia					0.3			1									0.3	
Muhlenbergia cuspidata									0.3									
TOTAL NPG(W)	**20.0**	**4.0**	**0.0**	**0.0**	**1.3**	**0.0**	**0.0**	**11.0**	**4.3**	**1.0**	**0.0**	**2.0**	**2.0**	**0.0**	**3.0**	**0.0**	**5.6**	**5.0**
INTRODUCED PERENNIAL GRAMINOIDS																		
Agropyron cristatum																		
Poa pratensis																		
TOTAL IPG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	486	487	488	490	492	493	494	497	498	499	505	506	508	511	512	514	519	524
NATIVE ANNUAL GRAMINOIDS																		
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
INTRODUCED ANNUAL GRAMINOIDS																		
Bromus japonicus				0.3				0.3		0.3			0.3			0.3		
Bromus tectorum				0.3														
TOTAL IAG	**0.0**	**0.0**	**0.0**	**0.6**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.3**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**
NATIVE PERENNIAL FORBS AND SUBSHRUBS																		
Achillea millefolium	0.3					2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1	0.3	0.3		0.3
Agoseris glauca																		
Allium textile									0.3		0.3							
Ambrosia psilostachya																		
Anemone multifida							0.3											
Anemone patens					0.3													
Antennaria dimorpha																		
Antennaria howellii (neglecta)	2	0.3						0.3		0.3			0.3			0.3		0.3
Antennaria microphylla						0.3										1		
Antennaria parvifolia					0.3	0.3	0.3								1			
Apocynum androsaemifolium										1								
Arnica sororia																		
Artemisia campestris																		
Artemisia frigida	0.3					1			0.3			0.3			0.3			0.3
Artemisia ludoviciana							0.3		2		0.3	1			0.3			
Asclepias viridiflora																		
Aster falcatus								0.3				0.3	0.3			0.3		
Aster laevis	0.3									2	0.3	2	1			1		0.3
Aster oblongifolius	1							1						0.3			2	
Aster pansus																		
Astragalus adsurgens	4		1		1	1	2	0.3		16	0.3	1	0.3		0.3	1		
Astragalus agrestis														1			2	
Astragalus crassicarpus									0.3								0.3	
Astragalus drummondii	2									1								
Astragalus flexuosus	0.3	1					0.3								2			
Astragalus gilviflorus												0.3						

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	486	487	488	490	492	493	494	497	498	499	505	506	508	511	512	514	519	524
Astragalus hyalinus																		
Astragalus missouriensis	0.3			0.3											0.3			
Astragalus plattensis																		
Astragalus purshii	0.3								0.3			0.3						
Astragalus spatulatus																		
Astragalus tenellus																2		
Balsamorhiza sagittata										3							6	
Berberis repens		1	1															
Besseya wyomingensis			0.3					0.3	1	1	2			0.3		0.3		0.3
Calochortus nuttallii																		
Campanula rotundifolia		0.3	0.3		0.3	0.3	0.3				0.3		0.3	0.3		2		0.3
Castilleja sessiliflora							0.3					0.3						
Cerastium arvense	0.3	2	0.3		1			4	8		0.3	6		0.3		1	8	1
Chrysopsis villosa					0.3													0.3
Cirsium undulatum	0.3										1	0.3					0.3	
Comandra umbellata							0.3		0.3			0.3	0.3	0.3	0.3	0.3		0.3
Crepis acuminata		0.3	1		0.3			0.3	1	1				0.3	2	0.3	0.3	
Crepis intermedia												0.3						
Crepis occidentalis											0.3							
Cryptantha spiculifera (interrupta)																		
Dalea candida		0.3			1		2			1		2			0.3	0.3		0.3
Dalea purpurea					0.3		0.3		2			2					0.3	0.3
Echinacea angustifolia	3								0.3	0.3		2				0.3	1	0.3
Eriogonum flavum							0.3									0.3		0.3
Eriogonum pauciflorum												0.3						
Euphorbia robusta																		0.3
Fragaria virginiana							0.3			0.3			0.3					
Fritillaria atropurpurea																		
Gaillardia aristata																		
Gaura coccinea	0.3							0.3										
Geum triflorum	0.3									1	0.3	0.3		1	0.3	0.3		0.3
Gilia congesta var. pseudotypica							0.3					0.3						0.3
Glycyrrhiza lepidota																		
Gutierrezia sarothrae	0.3					0.3	0.3			0.3	0.3	0.3	0.3	2		0.3		1
Hedeoma drummondii								0.3	0.3									
Hedysarum boreale																		

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	486	487	488	490	492	493	494	497	498	499	505	506	508	511	512	514	519	524
Helianthus maximilianii																		
Helianthus rigidus									1									
Heuchera richardsonii																		
Hymenopappus filifolius							0.3	0.3							0.3	0.3		0.3
Iva axillaris													1					
Kuhnia eupatorioides																		
Lactuca oblongifolia	0.3						0.3											
Lesquerella alpina									0.3			0.3						0.3
Leucocrinum montanum																		
Liatris punctata	0.3											0.3		0.3				
Linum lewisii	0.3						0.3	0.3	0.3			0.3		0.3		0.3		0.3
Lithospermum incisum																	0.3	
Lomatium foeniculaceum											0.3			0.3				0.3
Lomatium orientale									0.3									
Lupinus argenteus																		
Lygodesmia juncea	0.3														0.3			
Machaeranthera grindelioides																0.3		
Mertensia lanceolata																		
Mirabilis linearis						0.3												
Musineon divaricatum	0.3						0.3					0.3						0.3
Opuntia polyacantha																		
Oxytropis lambertii						0.3	0.3											
Oxytropis sericea		3			0.3	1		1	0.3				0.3					0.3
Penstemon nitidus									1						0.3	0.3		
Phlox alyssifolia												1		0.3				
Phlox hoodii	0.3							1	0.3			1				0.3		
Physaria didymocarpa																		
Polygala alba	1				0.3	0.3	0.3	0.3	0.3			0.3			0.3		1	0.3
Psoralea argophylla					0.3				0.3	2		0.3	0.3					0.3
Psoralea esculenta				0.3	0.3				1							0.3		0.3
Ratibida columnifera	0.3											0.3				0.3		
Senecio canus					0.3													0.3
Senecio plattensis																		0.3
Sisyrinchium angustifolium																		
Smilacina stellata		1	0.3															
Solidago missouriensis					1		0.3	2			0.3			3		0.3		0.3
Solidago mollis																		

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	486	487	488	490	492	493	494	497	498	499	505	506	508	511	512	514	519	524
Solidago nemoralis																2		
Solidago rigida	0.3					2						2						
Sphaeralcea coccinea									0.3								0.3	
Stephanomeria runcinata									0.3									
Thermopsis rhombifolia										4							0.3	
Toxicodendron rydbergii							0.3											
Vicia americana									2			0.3	0.3	0.3				
Viola nuttallii									0.3									
Yucca glauca															3		1	
Zigadenus venenosus								0.3	0.3					0.3		0.3		
TOTAL NPF AND SUBSHRUBS	**18.7**	**9.2**	**4.2**	**0.6**	**7.3**	**9.1**	**10.3**	**12.6**	**24.7**	**34.5**	**6.6**	**26.3**	**5.3**	**11.6**	**11.6**	**16.0**	**23.1**	**10.1**
INTRODUCED PERENNIAL FORBS																		
Cirsium arvense																		0.3
Medicago sativa																0.3		
Taraxacum laevigatum	0.3		0.3		0.3	0.3		0.3	0.3		0.3		0.3	0.3		0.3		0.3
Taraxacum officinale																		
TOTAL IPF	**0.3**	**0.0**	**0.3**	**0.0**	**0.3**	**0.3**	**0.0**	**0.3**	**0.3**	**0.0**	**0.3**	**0.0**	**0.3**	**0.3**	**0.0**	**0.6**	**0.0**	**0.6**
FERNS AND ALLIES																		
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS																		
Arabis hirsuta																		
Arabis holboellii																		
Collomia linearis																		
Conyza canadensis																		
Cryptantha celosioides									0.3									
Cryptantha torreyana																		
Descurainia pinnata																		
Descurainia richardsonii																		
Draba reptans								0.3										
Epilobium paniculatum																		
Erysimum asperum																		
Grindelia squarrosa																		
Hedeoma hispidum																		

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	486	487	488	490	492	493	494	497	498	499	505	506	508	511	512	514	519	524
Linum rigidum																		
Orthocarpus luteus	0.3											0.3						
Phacelia linearis									0.3									
Plantago patagonica																		
Polygonum douglasii																		
Silene antirrhina				0.3														
TOTAL NAF	**0.3**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.3**	**0.6**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
INTRODUCED ANNUAL/BIENNIAL FORBS																		
Alyssum alyssoides								0.3										
Alyssum desertorum	0.3															0.3	0.3	
Camelina microcarpa																		
Draba nemorosa																		
Filago arvensis																		
Lactuca serriola	0.3	0.3											0.3				0.3	
Medicago lupulina																		
Melilotus alba													0.3					
Melilotus officinalis	0.3									1			30	1		0.3		0.3
Polygonum convolvulus																		
Sisymbrium altissimum																		
Sisymbrium loeselii																		
Tragopogon dubius								0.3	0.3		0.3	0.3	0.3	0.3		0.3	0.3	
TOTAL IAF	**0.9**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.6**	**0.3**	**1.0**	**0.3**	**0.3**	**30.9**	**1.3**	**0.0**	**0.9**	**0.9**	**0.3**
SHRUBS																		
Artemisia cana									0.3				3					
Artemisia tridentata	3						1	6			2	7		1	0.3	1		
Calylophus serrulatus																		
Ceratoides lanata								20								0.3		
Chrysothamnus nauseosus							0.3											
Prunus virginiana							0.3											
Rhus aromatica			0.3				0.3	0.3	0.3	0.3	0.3	0.3	0.3	1		0.3	1	2
Rosa arkansana	0.3						0.3			0.3		0.3						2
Rosa woodsii											0.3							
Symphoricarpos occidentalis									0.3		0.3	0.3		0.3				
Symphoricarpos oreophilus			0.3					2										
TOTAL SHRUBS	**3.3**	**0.0**	**0.6**	**0.0**	**0.0**	**0.0**	**2.2**	**28.3**	**0.9**	**0.6**	**2.9**	**7.9**	**3.3**	**2.3**	**0.3**	**1.6**	**1.0**	**4.0**

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
	486	487	488	490	492	493	494	497	498	499	505	506	508	511	512	514	519	524
TREES 0.01-acre																		
Juniperus scopulorum	12	75	60	4	26	60	8	30	32	30	8	5	38	20	9	28	22	5
Pinus ponderosa	10	40	70	8	3	6	30	40	58	24	67	54	54	55		12	30	23
TOTAL TREES 0.01-acre	**22.0**	**115.0**	**130.0**	**12.0**	**29.0**	**66.0**	**38.0**	**70.0**	**90.0**	**54.0**	**75.0**	**59.0**	**92.0**	**75.0**	**9.0**	**40.0**	**52.0**	**28.0**
TREES 0.1-acre																		
Juniperus scopulorum	20	45	45	20	35	45	30	35	42	26	12	4	28	30	7	54	40	3
Pinus ponderosa	25	50	65	27	20	22	27	45	48	34	60	46	34	60	12	8	20	28
TOTAL TREES 0.1-acre	**45.0**	**95.0**	**110.0**	**47.0**	**55.0**	**67.0**	**57.0**	**80.0**	**90.0**	**60.0**	**72.0**	**50.0**	**62.0**	**90.0**	**19.0**	**62.0**	**60.0**	**31.0**
TOTAL VEGETATION (Stratified)	**90.5**	**133.5**	**136.4**	**17.1**	**40.8**	**80.0**	**67.0**	**146.7**	**145.7**	**97.7**	**97.4**	**119.1**	**149.7**	**105.8**	**31.2**	**73.3**	**90.2**	**72.0**

Footnotes are presented on cover page B-ii.

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM															
	PLOT NUMBER															
	526	527	528	529	532	533	535	536	539	540	541	542	543	544	**Mean Cover**	***Con-stancy***
															n=86	
SITE PARAMETERS*																
Slope (percent)	25-35	7-20	12-28	35-45	42	80	50	53	30	10-20	26	32	36	30		
Aspect (degrees)	018	318	040	010	070	042	020	060	028	060	355	050	350	064		
Topography	Mid	Upper	Upper-Mid	Mid	Mid	Upper-Mid	Mid	Sho	Upper	Low-Mid	Upper-Sho	Upper-Sho	Upper	Mid		
Configuration	U	V	V	X(S)	U	U	S	S	U	U	U(V)	X	X	S		
Photo # (Digital)	419/420	423	424	399	212	211	535	237/238	145	364	214	211/212	543	376		
Investigator	KS/ED	KS/ED	KS/ED	KS/ED	DB/KL	DB/KL	JE	SC	DB/KL	KS/ED	JE/SC	JE/SC	JE/SC	KS/ED		
Date	07/14/11	07/14/11	07/14/11	07/13/11	07/14/11	07/14/11	07/13/11	07/13/11	07/11/11	07/10/11	07/12/11	07/12/11	07/12/11	07/11/11		
GROUND COVER																
Bare Ground	16	5		10	19	36	15	26	30	37	3	1	20	3	**19.73**	***97***
Rock	4	0.3	2	12	8	1	0.3	70	4	5		4	0.3	1	**8.40**	***91***
Litter	71	90	94	74	58	56	52	2	50	48	92	93	77	93	**62.03**	***100***
Lichens	1	0.3		0.3	4	3	0.3		4	5	0.3	0.3	0.3		**2.10**	***87***
Moss	4	0.3	0.3		5	1	30		8	0.3	2		0.3		**4.53**	***85***
Basal Vegetation	4	4	4	4	6	3	3	2	4	5	3	2	2	3	**3.27**	***100***
VEGETATION STRUCTURE (nonstratified cover)																
Total Vegetation	92	88	92	86	87	80	78	76	72	78	88	62	80	84	**68.67**	***100***
Perennial Graminoids	23	50	58	36	30	8	15	9	30	43	4	39	0.3	12	**17.92**	***100***
Annual Graminoids	0.3	0.3	0.3	0.3	0.3	0.3		0.3		0.3		1	0.3	0.3	**0.37**	***45***
Perennial Forbs and Subshrubs	50	34	37	34	14	9	11	8	9	17	8	10	3	20	**12.39**	***100***
Annual/Biennial Forbs	52	1	0.3	1	2	60	0.3	0.3	0.3	9	1	0.3	1	38	**3.31**	***79***
Shrubs	12	4	1	20	27	5	4	0.3	0.3	2	1	1	0.3	0.3	**2.54**	***78***
Trees 0.01-acre	44	62	68	70	58	15	60	62	44	38	80	20	82	50	**49.51**	***100***
Trees 0.1-acre	52	74	68	75	31	36	65	75	22	50	88	38	52	52	**49.15**	***100***

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM															
	PLOT NUMBER															
	526	527	528	529	532	533	535	536	539	540	541	542	543	544	**Mean Cover**	***Con-stancy***
															n=86	
CLASS\SPECIES																
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																
Agropyron smithii		3	12		8	1		1	2	12		0.3			**1.21**	***31***
Agropyron spicatum	8	16	16	18	5	2	10	4	5	7	4	5	0.3	7	**7.53**	***100***
Agropyron trachycaulum		1													**0.02**	***2***
Aristida longiseta								1							**0.22**	***8***
Carex filifolia				2	2					3	0.3	0.3			**0.65**	***45***
Carex heliophila		8	8												**0.36**	***12***
Carex rossii							2		2				0.3		**0.31**	***38***
Carex stenophylla															**0.003**	***1***
Festuca idahoensis															**0.01**	***1***
Koeleria cristata	0.3			1		0.3	0.3			2		0.3		0.3	**0.63**	***53***
Oryzopsis hymenoides															**0.01**	***1***
Oryzopsis micrantha															**0.003**	***1***
Poa juncifolia															**0.003**	***1***
Poa sandbergii										0.3					**0.07**	***10***
Poa scabrella															**0.04**	***6***
Stipa comata					2				1	2		21			**0.75**	***21***
Stipa viridula	2	12	16	5	6	1				4					**1.18**	***24***
TOTAL NPG(C)	**10.3**	**40.0**	**52.0**	**26.0**	**23.0**	**4.3**	**12.3**	**6.0**	**10.0**	**30.3**	**4.3**	**26.9**	**0.6**	**7.3**	**13.02**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																
Andropogon gerardii		10	4												**0.24**	***5***
Andropogon scoparius								2	2	4	0.3	3			**1.61**	***51***
Bouteloua curtipendula	14		5	14	3		3	1	14	9		3		0.3	**2.72**	***52***
Bouteloua gracilis								0.3				0.3			**0.56**	***14***
Calamovilfa longifolia										1		10			**0.57**	***22***
Muhlenbergia cuspidata					2				6	2					**0.13**	***7***
TOTAL NPG(W)	**14.0**	**10.0**	**9.0**	**14.0**	**5.0**	**0.0**	**3.0**	**3.3**	**22.0**	**16.0**	**0.3**	**16.3**	**0.0**	**0.3**	**5.83**	***74***
INTRODUCED PERENNIAL GRAMINOIDS																
Agropyron cristatum						4									**0.05**	***2***
Poa pratensis		5	8		5					3				5	**0.58**	***9***
TOTAL IPG	**0.0**	**5.0**	**8.0**	**0.0**	**5.0**	**4.0**	**0.0**	**0.0**	**0.0**	**3.0**	**0.0**	**0.0**	**0.0**	**5.0**	**0.63**	***12***

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM															
	PLOT NUMBER															
	526	527	528	529	532	533	535	536	539	540	541	542	543	544	**Mean Cover**	***Con-stancy***
															n=86	
NATIVE ANNUAL GRAMINOIDS																
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS																
Bromus japonicus	0.3	0.3	0.3	0.3	0.3	0.3		0.3		0.3		1	0.3	0.3	**0.32**	***45***
Bromus tectorum														0.3	**0.10**	***5***
TOTAL IAG	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.0**	**0.3**	**0.0**	**0.3**	**0.0**	**1.0**	**0.3**	**0.6**	**0.42**	***45***
NATIVE PERENNIAL FORBS AND SUBSHRUBS																
Achillea millefolium	0.3	1	1	0.3	0.3	0.3	0.3			1	1		0.3	0.3	**0.39**	***78***
Agoseris glauca														0.3	**0.01**	***2***
Allium textile			0.3	0.3	0.3				0.3			0.3			**0.08**	***28***
Ambrosia psilostachya															**0.02**	***2***
Anemone multifida															**0.02**	***7***
Anemone patens															**0.003**	***1***
Antennaria dimorpha															**0.003**	***1***
Antennaria howellii (neglecta)	0.3		1	0.3	1	0.3	1		1					0.3	**0.27**	***38***
Antennaria microphylla									0.3	0.3	0.3				**0.13**	***22***
Antennaria parvifolia			0.3							0.3	0.3	0.3	0.3		**0.13**	***36***
Apocynum androsaemifolium															**0.01**	***1***
Arnica sororia															**0.01**	***1***
Artemisia campestris												0.3			**0.02**	***5***
Artemisia frigida			0.3		0.3	0.3	0.3		0.3	0.3		1		0.3	**0.17**	***43***
Artemisia ludoviciana		8	7		1						0.3			9	**0.41**	***20***
Asclepias viridiflora			0.3												**0.003**	***1***
Aster falcatus	4	0.3	3		0.3				0.3	5					**0.24**	***30***
Aster laevis	8			9	0.3						0.3		0.3		**0.40**	***36***
Aster oblongifolius		0.3	0.3	0.3	0.3				0.3	0.3					**0.15**	***26***
Aster pansus															**0.003**	***1***
Astragalus adsurgens	0.3			0.3	0.3	0.3	0.3		1	0.3				3	**0.88**	***52***
Astragalus agrestis	7	12	16	3	0.3			2			2				**0.58**	***20***
Astragalus crassicarpus														0.3	**0.02**	***6***
Astragalus drummondii			0.3		0.3		1			0.3		0.3			**0.23**	***19***
Astragalus flexuosus															**0.07**	***10***
Astragalus gilviflorus	0.3							0.3							**0.10**	***9***

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM															
	PLOT NUMBER															
	526	527	528	529	532	533	535	536	539	540	541	542	543	544	**Mean Cover**	***Con-stancy***
															n=86	
Astragalus hyalinus															**0.003**	***1***
Astragalus missouriensis			0.3					0.3							**0.07**	***22***
Astragalus plattensis												0.3			**0.01**	***2***
Astragalus purshii			0.3		0.3		0.3							0.3	**0.05**	***16***
Astragalus spatulatus	0.3														**0.003**	***1***
Astragalus tenellus															**0.06**	***6***
Balsamorhiza sagittata															**0.22**	***9***
Berberis repens															**0.06**	***5***
Besseya wyomingensis	1	1	1		0.3	0.3	1		0.3	1			0.3		**0.27**	***44***
Calochortus nuttallii															**0.01**	***3***
Campanula rotundifolia	0.3			0.3			0.3	0.3	0.3		1		0.3		**0.20**	***58***
Castilleja sessiliflora															**0.02**	***6***
Cerastium arvense	2	0.3	0.3	3	2	1	3	3	1	0.3			1	2	**1.07**	***65***
Chrysopsis villosa															**0.04**	***9***
Cirsium undulatum					0.3						1				**0.08**	***19***
Comandra umbellata	0.3			0.3			0.3		0.3						**0.10**	***33***
Crepis acuminata					0.3	0.3									**0.22**	***37***
Crepis intermedia		0.3	2												**0.03**	***3***
Crepis occidentalis															**0.02**	***7***
Cryptantha spiculifera (interrupta)															**0.003**	***1***
Dalea candida				0.3	0.3		0.3			1	1	1			**0.22**	***30***
Dalea purpurea	0.3		0.3	0.3						1		0.3			**0.13**	***29***
Echinacea angustifolia	2	0.3	4	2	0.3		1		0.3	0.3		0.3			**0.37**	***41***
Eriogonum flavum															**0.02**	***6***
Eriogonum pauciflorum															**0.03**	***9***
Euphorbia robusta															**0.01**	***2***
Fragaria virginiana															**0.01**	***3***
Fritillaria atropurpurea															**0.003**	***1***
Gaillardia aristata															**0.01**	***2***
Gaura coccinea	0.3		0.3	0.3	0.3			0.3		0.3					**0.10**	***26***
Geum triflorum	3		1	0.3	0.3	0.3	0.3	0.3	0.3			0.3			**0.27**	***40***
Gilia congesta var. pseudotypica	0.3														**0.01**	***5***
Glycyrrhiza lepidota															**0.01**	***2***
Gutierrezia sarothrae	2	0.3		2	0.3				1	0.3		1		0.3	**0.55**	***43***
Hedeoma drummondii															**0.02**	***8***
Hedysarum boreale															**0.38**	***3***

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM															
	PLOT NUMBER															
	526	527	528	529	532	533	535	536	539	540	541	542	543	544	**Mean Cover**	***Con-stancy***
															n=86	
Helianthus maximilianii															**0.003**	***1***
Helianthus rigidus										0.3					**0.02**	***2***
Heuchera richardsonii															**0.01**	***2***
Hymenopappus filifolius															**0.04**	***13***
Iva axillaris															**0.01**	***1***
Kuhnia eupatorioides															**0.01**	***1***
Lactuca oblongifolia		2													**0.03**	***3***
Lesquerella alpina															**0.04**	***9***
Leucocrinum montanum															**0.01**	***5***
Liatris punctata				0.3	0.3							0.3			**0.05**	***16***
Linum lewisii	0.3	0.3	0.3	0.3	0.3	0.3			0.3	1		0.3		0.3	**0.17**	***49***
Lithospermum incisum												0.3			**0.01**	***5***
Lomatium foeniculaceum															**0.01**	***5***
Lomatium orientale															**0.01**	***3***
Lupinus argenteus															**0.08**	***5***
Lygodesmia juncea															**0.01**	***3***
Machaeranthera grindelioides															**0.01**	***3***
Mertensia lanceolata															**0.003**	***1***
Mirabilis linearis															**0.01**	***2***
Musineon divaricatum			0.3												**0.08**	***26***
Opuntia polyacantha	0.3														**0.01**	***3***
Oxytropis lambertii							0.3			1	0.3	0.3	0.3		**0.12**	***20***
Oxytropis sericea	0.3			0.3											**0.25**	***35***
Penstemon nitidus															**0.04**	***9***
Phlox alyssifolia	1	0.3													**0.03**	***5***
Phlox hoodii	0.3				1						0.3				**0.20**	***26***
Physaria didymocarpa															**0.003**	***1***
Polygala alba	3			0.3	0.3		1	1	1	2					**0.27**	***53***
Psoralea argophylla	12		0.3					0.3		2		1		2	**0.59**	***34***
Psoralea esculenta	2	0.3		0.3			0.3					0.3			**0.13**	***29***
Ratibida columnifera		0.3	0.3		0.3					0.3					**0.06**	***14***
Senecio canus															**0.06**	***20***
Senecio plattensis															**0.003**	***1***
Sisyrinchium angustifolium							0.3								**0.01**	***3***
Smilacina stellata						1									**0.11**	***13***
Solidago missouriensis			0.3	0.3			0.3	1	1						**0.31**	***37***
Solidago mollis		1													**0.01**	***1***

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM															
	PLOT NUMBER															
	526	527	528	529	532	533	535	536	539	540	541	542	543	544	**Mean Cover**	***Con-stancy***
															n=86	
Solidago nemoralis															**0.05**	***5***
Solidago rigida	1			10	0.3				0.3						**0.29**	***22***
Sphaeralcea coccinea	0.3		0.3		0.3										**0.04**	***8***
Stephanomeria runcinata															**0.01**	***2***
Thermopsis rhombifolia											0.3				**0.31**	***12***
Toxicodendron rydbergii					1	0.3									**0.03**	***5***
Vicia americana					0.3								0.3		**0.12**	***28***
Viola nuttallii															**0.02**	***7***
Yucca glauca				1								2			**0.23**	***10***
Zigadenus venenosus							0.3			0.3					**0.06**	***20***
TOTAL NPF AND SUBSHRUBS	**52.5**	**28.0**	**41.1**	**35.1**	**13.5**	**4.7**	**11.9**	**8.8**	**9.6**	**18.9**	**8.1**	**9.9**	**3.1**	**18.4**	**13.00**	***100***
INTRODUCED PERENNIAL FORBS																
Cirsium arvense															**0.02**	***3***
Medicago sativa	4	2		3	1	5								1	**0.22**	***12***
Taraxacum laevigatum		7	0.3	1	0.3				0.3			0.3	0.3	1	**0.39**	***74***
Taraxacum officinale											0.3				**0.003**	***1***
TOTAL IPF	**4.0**	**9.0**	**0.3**	**4.0**	**1.3**	**5.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.3**	**0.3**	**0.3**	**2.0**	**0.63**	***78***
FERNS AND ALLIES																
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS																
Arabis hirsuta															**0.003**	***1***
Arabis holboellii								0.3	0.3						**0.05**	***15***
Collomia linearis													0.3	0.3	**0.01**	***5***
Conyza canadensis															**0.003**	***1***
Cryptantha celosioides															**0.003**	***1***
Cryptantha torreyana															**0.003**	***1***
Descurainia pinnata												0.3			**0.01**	***3***
Descurainia richardsonii															**0.01**	***2***
Draba reptans															**0.01**	***5***
Epilobium paniculatum													0.3		**0.01**	***2***
Erysimum asperum															**0.003**	***1***
Grindelia squarrosa						0.3									**0.003**	***1***
Hedeoma hispidum															**0.01**	***2***

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM															
	PLOT NUMBER															
	526	527	528	529	532	533	535	536	539	540	541	542	543	544	**Mean Cover**	***Con-stancy***
															n=86	
Linum rigidum									0.3			0.3			**0.01**	***2***
Orthocarpus luteus								0.3		0.3					**0.02**	***7***
Phacelia linearis														0.3	**0.01**	***5***
Plantago patagonica										0.3					**0.007**	***2***
Polygonum douglasii															**0.003**	***1***
Silene antirrhina															**0.02**	***3***
TOTAL NAF	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.6**	**0.6**	**0.6**	**0.0**	**0.6**	**0.6**	**0.6**	**0.20**	***38***
INTRODUCED ANNUAL/BIENNIAL FORBS																
Alyssum alyssoides								0.3		0.3				0.3	**0.02**	***8***
Alyssum desertorum				0.3											**0.05**	***16***
Camelina microcarpa															**0.02**	***6***
Draba nemorosa															**0.003**	***1***
Filago arvensis										0.3					**0.02**	***7***
Lactuca serriola					0.3					0.3					**0.06**	***19***
Medicago lupulina														4	**0.15**	***3***
Melilotus alba														8	**0.10**	***2***
Melilotus officinalis	52	0.3	0.3	1	2	60	0.3			8	1		0.3	28	**2.87**	***42***
Polygonum convolvulus															**0.003**	***1***
Sisymbrium altissimum															**0.02**	***2***
Sisymbrium loeselii														1	**0.03**	***3***
Tragopogon dubius	0.3	0.3	0.3	0.3		0.3						0.3	0.3		**0.13**	***42***
TOTAL IAF	**52.3**	**0.6**	**0.6**	**1.6**	**2.3**	**60.3**	**0.3**	**0.3**	**0.0**	**8.9**	**1.0**	**0.3**	**0.6**	**41.3**	**3.46**	***73***
SHRUBS																
Artemisia cana		1			25	3									**0.49**	***9***
Artemisia tridentata	8	2					4			2				0.3	**1.00**	***34***
Calylophus serrulatus												1			**0.01**	***1***
Ceratoides lanata															**0.27**	***7***
Chrysothamnus nauseosus				1		2					1				**0.08**	***9***
Prunus virginiana				3					0.3						**0.04**	***3***
Rhus aromatica	4		0.3	14	1				0.3		0.3	0.3	0.3		**0.53**	***56***
Rosa arkansana	1			3				0.3		0.3					**0.10**	***14***
Rosa woodsii					0.3	0.3									**0.02**	***8***
Symphoricarpos occidentalis		1	1	0.3	3										**0.10**	***15***
Symphoricarpos oreophilus													0.3		**0.06**	***7***
TOTAL SHRUBS	**13.0**	**4.0**	**1.3**	**21.3**	**29.3**	**5.3**	**4.0**	**0.3**	**0.6**	**2.3**	**1.3**	**1.3**	**0.6**	**0.3**	**2.71**	***78***

Table B28. Percent Canopy Cover by Class and Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM															
	PLOT NUMBER															
	526	527	528	529	532	533	535	536	539	540	541	542	543	544	**Mean Cover**	***Con-stancy***
															n=86	
TREES 0.01-acre																
Juniperus scopulorum			0.3	18	8	9	35	55	40	26	25		65	26	**26.32**	***95***
Pinus ponderosa	44	62	68	58	55	7	30	10	4	12	65	20	45	30	**28.97**	***98***
TOTAL TREES 0.01-acre	**44.0**	**62.0**	**68.3**	**76.0**	**63.0**	**16.0**	**65.0**	**65.0**	**44.0**	**38.0**	**90.0**	**20.0**	**110.0**	**56.0**	**55.28**	***100***
TREES 0.1-acre																
Juniperus scopulorum	14	14	2	10	2	14	40	65	20	42	65		35	9	**25.78**	***99***
Pinus ponderosa	44	66	66	68	30	24	30	23	2	9	45	38	30	50	**28.80**	***100***
TOTAL TREES 0.1-acre	**58.0**	**80.0**	**68.0**	**78.0**	**32.0**	**38.0**	**70.0**	**88.0**	**22.0**	**51.0**	**110.0**	**38.0**	**65.0**	**59.0**	**54.58**	***100***
TOTAL VEGETATION (Stratified)	**190.4**	**158.9**	**180.9**	**178.3**	**142.7**	**100.2**	**96.5**	**84.6**	**87.1**	**118.3**	**105.3**	**76.6**	**116.1**	**131.8**	**95.19**	***100***

Footnotes are presented on cover page B-ii.

Table B29. Percent Canopy Cover by Class and Species for Two *JUNIPERUS SCOPULORUM-PINUS PONDEROSA /ORYZOPSIS MICRANTHA* and Two *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ FESTUCA IDAHOENSIS* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	JUNIPERUS SCOPULORUM-PINUS PONDEROSA/ ORYZOPSIS MICRANTHA				***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ FESTUCA IDAHOENSIS***			
	PLOT NUMBER				**PLOT NUMBER**			
	411	412	**Mean Cover**	***Con-stancy***	442	468	**Mean Cover**	***Con-stancy***
			n=2				**n=2**	
SITE PARAMETERS*								
Slope (percent)	35-45	48			56	8		
Aspect (degrees)	015	350			352	030		
Topography	Mid-Swa	Mid Swa			Low	Sho		
Configuration	S(V)	V			U	S(X)		
Photo # (Digital)	085/086	077/078			038	243		
Investigator	PL/SC	PL/SC			DB/KL	DB/ED		
Date	06/29/11	06/28/11			07/07/11	07/16/11		
GROUND COVER								
Bare Ground	0.3	0.3	**0.30**	***100***	8	20	**14.00**	***100***
Rock	3	3	**3.00**	***100***	3	2	**2.50**	***100***
Litter	33	90	**61.50**	***100***	60	49	**54.50**	***100***
Lichens	0.3	0.3	**0.30**	***100***	10	20	**15.00**	***100***
Moss	60	2	**31.00**	***100***	14	4	**9.00**	***100***
Basal Vegetation	3	5	**4.00**	***100***	5	5	**5.00**	***100***
VEGETATION STRUCTURE (nonstratified cover)								
Total Vegetation	98	88	**93.00**	***100***	84	86	**85.00**	***100***
Perennial Graminoids	24	5	**14.50**	***100***	16	54	**35.00**	***100***
Annual Graminoids			**0.00**	***0***		0.3	**0.15**	***50***
Perennial Forbs and Subshrubs	7	8	**7.50**	***100***	7	23	**15.00**	***100***
Annual/Biennial Forbs	0.3		**0.15**	***50***	0.3	1	**0.65**	***100***
Shrubs	0.3	1	**0.65**	***100***	0.3	2	**1.15**	***100***
Trees 0.01-acre	90	85	**87.50**	***100***	73	35	**54.00**	***100***
Trees 0.1-acre	83	80	**81.50**	***100***	60	28	**44.00**	***100***
CLASS\SPECIES NATIVE PERENNIAL GRAMINOIDS (Cool Season)								
Agropyron spicatum	2	0.3	**1.15**	***100***	1	4	**2.50**	***100***
Carex rossii	0.3	0.3	**0.30**	***100***	1		**0.50**	***50***
Festuca idahoensis					15	25	**20.00**	***100***
Koeleria cristata					0.3	0.3	**0.30**	***100***
Oryzopsis micrantha	22	3	**12.50**	***100***				
Poa sandbergii	0.3		**0.15**	***50***				
Stipa comata						8	**4.00**	***50***
Stipa viridula		2	**1.00**	***50***		12	**6.00**	***50***
TOTAL NPG(C)	**24.6**	**5.6**	**15.10**	***100***	**17.3**	**49.3**	**33.30**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)								
Andropogon scoparius						0.3	**0.15**	***50***
Bouteloua curtipendula						10	**5.00**	***50***
TOTAL NPG(W)	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**10.3**	**5.15**	***50***
INTRODUCED PERENNIAL GRAMINOIDS								
Poa pratensis	1		**0.50**	***50***				
TOTAL IPG	**1.0**	**0.0**	**0.50**	***50***	**0.0**	**0.0**	**0.00**	***0***

Table B29. Percent Canopy Cover by Class and Species for Two *JUNIPERUS SCOPULORUM-PINUS PONDEROSA /ORYZOPSIS MICRANTHA* and Two *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ FESTUCA IDAHOENSIS* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	JUNIPERUS SCOPULORUM-PINUS PONDEROSA/ ORYZOPSIS MICRANTHA				***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ FESTUCA IDAHOENSIS***			
	PLOT NUMBER				**PLOT NUMBER**			
	411	412	**Mean Cover**	***Con-stancy***	442	468	**Mean Cover**	***Con-stancy***
			n=2				**n=2**	
NATIVE ANNUAL GRAMINOIDS								
TOTAL NAG	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS								
Bromus japonicus			**0.00**	***0***		0.3	**0.15**	***50***
TOTAL IAG	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.3**	**0.15**	***50***
NATIVE PERENNIAL FORBS AND SUBSHRUBS								
Achillea millefolium	2	0.3	**1.15**	***100***	0.3	1	**0.65**	***100***
Allium textile					0.3		**0.15**	***50***
Anemone multifida		0.3	**0.15**	***50***				
Antennaria howellii (neglecta)					0.3		**0.15**	***50***
Antennaria parvifolia	0.3	0.3	**0.30**	***100***	0.3	0.3	**0.30**	***100***
Artemisia frigida						0.3	**0.15**	***50***
Aster oblongifolius					0.3		**0.15**	***50***
Astragalus adsurgens	0.3		**0.15**	***50***				
Astragalus agrestis					0.3		**0.15**	***50***
Berberis repens		2	**1.00**	***50***				
Besseya wyomingensis		0.3	**0.15**	***50***	1		**0.50**	***50***
Campanula rotundifolia	1		**0.50**	***50***	0.3		**0.15**	***50***
Cerastium arvense	1	0.3	**0.65**	***100***	3	1	**2.00**	***100***
Crepis acuminata						0.3	**0.15**	***50***
Gaillardia aristata					0.3		**0.15**	***50***
Geum triflorum		0.3	**0.15**	***50***	0.3		**0.15**	***50***
Gutierrezia sarothrae	0.3		**0.15**	***50***		4	**2.00**	***50***
Hedeoma drummondii	0.3		**0.15**	***50***				
Linum lewisii	0.3		**0.15**	***50***	0.3		**0.15**	***50***
Lomatium foeniculaceum						0.3	**0.15**	***50***
Monarda fistulosa		0.3	**0.15**	***50***				
Musineon divaricatum					0.3		**0.15**	***50***
Oxytropis sericea	0.3	0.3	**0.30**	***100***	0.3		**0.15**	***50***
Phlox hoodii						0.3	**0.15**	***50***
Polygala alba						0.3	**0.15**	***50***
Psoralea argophylla						16	**8.00**	***50***
Ratibida columnifera	0.3		**0.15**	***50***				
Senecio canus	0.3	0.3	**0.30**	***100***				
Sisyrinchium angustifolium		0.3	**0.15**	***50***		0.3	**0.15**	***50***
Smilacina stellata		0.3	**0.15**	***50***				
Sphaeralcea coccinea						0.3	**0.15**	***50***
Toxicodendron rydbergii		3	**1.50**	***50***				
Vicia americana		0.3	**0.15**	***50***	0.3		**0.15**	***50***
Viola nuttallii	0.3		**0.15**	***50***				
Zigadenus venenosus					0.3	0.3	**0.30**	***100***
TOTAL NPF AND SUBSHRUBS	**6.7**	**8.6**	**7.65**	***100***	**8.2**	**24.7**	**16.45**	***100***
INTRODUCED PERENNIAL FORBS								
Taraxacum laevigatum	1	0.3	**0.65**	***100***	0.3	0.3	**0.30**	***100***
TOTAL IPF	**1.0**	**0.3**	**0.65**	***100***	**0.3**	**0.3**	**0.30**	***100***
FERNS AND ALLIES								
TOTAL F&A	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.00**	***0***

Table B29. Percent Canopy Cover by Class and Species for Two *JUNIPERUS SCOPULORUM-PINUS PONDEROSA /ORYZOPSIS MICRANTHA* and Two *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ FESTUCA IDAHOENSIS* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	JUNIPERUS SCOPULORUM-PINUS PONDEROSA/ ORYZOPSIS MICRANTHA				***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ FESTUCA IDAHOENSIS***			
	PLOT NUMBER				**PLOT NUMBER**			
	411	412	**Mean Cover**	***Con-stancy***	442	468	**Mean Cover**	***Con-stancy***
			n=2				**n=2**	
NATIVE ANNUAL/BIENNIAL FORBS								
Arabis hirsuta					0.3		**0.15**	***50***
Descurainia pinnata	0.3		**0.15**	***50***				
Linum rigidum						0.3	**0.15**	***50***
Plantago patagonica						0.3	**0.15**	***50***
TOTAL NAF	**0.3**	**0.0**	**0.15**	***50***	**0.3**	**0.6**	**0.45**	***100***
INTRODUCED ANNUAL/BIENNIAL FORBS								
Camelina microcarpa	0.3		**0.15**	***50***				
Tragopogon dubius						0.3	**0.15**	***50***
TOTAL IAF	**0.3**	**0.0**	**0.15**	***50***	**0.0**	**0.3**	**0.15**	***50***
SHRUBS								
Artemisia tridentata						2	**1.00**	***50***
Ceratoides lanata	0.3		**0.15**	***50***				
Rhus aromatica	0.3	0.3	**0.30**	***100***	0.3		**0.15**	***50***
Symphoricarpos occidentalis					0.3		**0.15**	***50***
Symphoricarpos oreophilus		1	**0.50**	***50***				
TOTAL SHRUBS	**0.6**	**1.3**	**0.95**	***100***	**0.6**	**2.0**	**1.30**	***100***
TREES 0.01-acre								
Juniperus scopulorum	90	35	**62.50**	***100***	70	2	**36.00**	***100***
Pinus ponderosa		70	**35.00**	***50***	5	35	**20.00**	***100***
TOTAL TREES 0.01-acre	**90.0**	**105.0**	**97.50**	***100***	**75.0**	**37.0**	**56.00**	***100***
TREES 0.1-acre								
Fraxinus pennsylvanica		0.3	**0.15**	***50***				
Juniperus scopulorum	82	40	**61.00**	***100***	34	10	**22.00**	***100***
Pinus ponderosa	1	55	**28.00**	***100***	30	20	**25.00**	***100***
TOTAL TREES 0.1-acre	**83.0**	**95.3**	**89.15**	***100***	**64.0**	**30.0**	**47.00**	***100***
TOTAL VEGETATION (Stratified)	**124.5**	**120.8**	**122.65**	***100***	**101.7**	**124.8**	**113.25**	***100***

Footnotes are presented on cover page B-ii.

Table B30. Percent Canopy Cover by Class and Species for 28 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM / ANDROPOGON SCOPARIUS* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS																
	PLOT NUMBER																
	394	395	398	407	409	427	428	443	452	466	467	469	474	477	480	489	491
SITE PARAMETERS*																	
Slope (percent)	36	18	40	9	19	22	10	16	18	14	22	48	14	10	18	8-50	50
Aspect (degrees)	335	290	260	176	080	256	042	316	342	140	326	360	270	010	355	220	330
Topography	Mid	Upper-Mid	Upper	Low	Upper	Toe	Mid	Low-Mid	Mid	Upper-Toe	Toe	Mid	Mid	Toe-Swa	Ben	Upper-Sho	Upper-Mid
Configuration	S(U)	S(U)	V	V	V	U(V)	S	X	U	V	V	V	U	V	U	U	U(V)
Photo # (Digital)	016/017	014	398	025	693	994	997	050	060	113	232	129	221	228	272/273	268	491
Investigator	SC	PL/SC	JE	KS/ED	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL	DB/ED	DB/KL	DB/ED	DB/ED	JE/SC	JE/SC	JE/SC
Date	06/24/11	06/24/11	06/26/11	06/22/11	06/22/11	06/29/11	06/29/11	07/08/11	07/08/11	07/10/11	07/16/11	07/10/11	07/15/11	07/15/11	07/16/11	07/16/11	07/11/11
GROUND COVER																	
Bare Ground	10	20	20	5	50	35	40	16	18	38	20	10	28	6	3	50	5
Rock	3	68	30	3	8	2	6	0.3	7	4	2	3	2	10	1	2	0.3
Litter	83	10	47	88	20	52	45	70	60	50	54	76	58	52	53	45	80
Lichens	0.3	0.3	0.3	0.3	18	2	2	4	8	2	8	2	5	16	19	0.3	2
Moss			0.3	0.3	1	4	1	4	3	1	12	4	2	12	21		10
Basal Vegetation	4	2	3	3	3	5	6	6	4	5	4	5	5	4	3	3	3
VEGETATION STRUCTURE (nonstratified cover)																	
Total Vegetation	45	40	66	72	45	76	73	88	85	73	88	80	84	90	72	35	75
Perennial Graminoids	35	20	42	28	31	54	57	34	31	61	40	8	67	46	39	25	29
Annual Graminoids			0.3	0.3	1	0.3			0.3		0.3	0.3	0.3				
Perennial Forbs and Subshrubs	10	10	13	10	12	18	20	25	11	16	16	15	23	30	16	8	17
Annual/Biennial Forbs	0.3	1	1	2	1	3	0.3	0.3	1	1	0.3	0.3	12	4	1		
Shrubs	0.3	0.3	6	0.3		1	0.3	0.3	11		1	1	13	4	0.3		1
Trees 0.01-acre	8	13	20	48	9	12	10	52	53	7	52	72		43	32	5	45
Trees 0.1-acre	24	22	23	19	25	14	19	46	25	15	60	62	21	75	42	22	58

Table B30. Percent Canopy Cover by Class and Species for 28 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM / ANDROPOGON SCOPARIUS* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS																
	PLOT NUMBER																
	394	395	398	407	409	427	428	443	452	466	467	469	474	477	480	489	491
CLASS\SPECIES																	
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																	
Agropyron smithii					1	6	4				1	2	5				1
Agropyron spicatum	1	2	16	5	2		2	0.3	2	4	4	1			0.3	2	3
Aristida longiseta				0.3	2				3	5	3		5				0.3
Carex filifolia	2		1	2	2	9	12		0.3		0.3		3			0.3	
Carex heliophila											1				1		
Carex rossii	0.3							2						2		1	0.3
Carex stenophylla																	
Koeleria cristata			1		2		3		2	3	4		3	1	0.3	0.3	
Oryzopsis micrantha														7			
Poa sandbergii							1				2						
Poa scabrella																	
Stipa comata				3	0.3	6			4				8	4	1		0.3
Stipa occidentalis														1			
Stipa viridula								6	2	2		1	10	5			
TOTAL NPG(C)	**3.3**	**2.0**	**18.0**	**10.3**	**9.3**	**21.0**	**22.0**	**8.3**	**13.3**	**14.0**	**15.3**	**4.0**	**34.0**	**20.0**	**2.6**	**3.6**	**4.9**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																	
Andropogon gerardii											2						
Andropogon scoparius	33	9	20	15	20	12	18	14	5	10	10	4	25	22	35	18	24
Bouteloua curtipendula	1	9	8	4	4	8	25	12	5	30	18		12	4	3	2	0.3
Bouteloua gracilis						12			2	7			3			1	
Calamovilfa longifolia						2	0.3	3					2	7		1	2
Muhlenbergia cuspidata			0.3	1					7				5				
TOTAL NPG(W)	**34.0**	**18.0**	**28.3**	**20.0**	**24.0**	**34.0**	**43.3**	**29.0**	**19.0**	**47.0**	**30.0**	**4.0**	**47.0**	**33.0**	**38.0**	**22.0**	**26.3**
INTRODUCED PERENNIAL GRAMINOIDS																	
Bromus inermis		0.3															
Poa pratensis					1	4			2	8							
TOTAL IPG	**0.0**	**0.3**	**0.0**	**0.0**	**1.0**	**4.0**	**0.0**	**0.0**	**2.0**	**8.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL GRAMINOIDS																	
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Table B30. Percent Canopy Cover by Class and Species for 28 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM / ANDROPOGON SCOPARIUS* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS																
	PLOT NUMBER																
	394	395	398	407	409	427	428	443	452	466	467	469	474	477	480	489	491
INTRODUCED ANNUAL GRAMINOIDS																	
Bromus japonicus			0.3	0.3	1	0.3			0.3		0.3	0.3	0.3				
Bromus tectorum																	
TOTAL IAG	**0.0**	**0.0**	**0.3**	**0.3**	**1.0**	**0.3**	**0.0**	**0.0**	**0.3**	**0.0**	**0.3**	**0.3**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE PERENNIAL FORBS AND SUBSHRUBS																	
Achillea millefolium	0.3	0.3			0.3	0.3	0.3	0.3	1	0.3	1	0.3		0.3	0.3	0.3	1
Allium textile			0.3												0.3		
Ambrosia psilostachya			0.3	0.3													
Anemone multifida																	0.3
Antennaria dimorpha					1		1										
Antennaria howellii (neglecta)			1	0.3		2	3	1		6	1	0.3		2			
Antennaria microphylla					1				0.3					2		0.3	
Antennaria parvifolia	0.3				1	1			1	0.3		1	1		0.3	1	1
Apocynum androsaemifolium														12			
Arnica sororia																	
Artemisia campestris			0.3														1
Artemisia frigida	0.3		0.3	0.3					0.3	1			0.3				
Artemisia ludoviciana					1	5		1			0.3	4	5	3	0.3		
Asclepias verticillata										0.3							
Aster falcatus	0.3			0.3		0.3	0.3	0.3	0.3		0.3	0.3	1		0.3		0.3
Aster laevis	0.3	0.3				0.3											0.3
Aster oblongifolius		0.3	0.3	0.3		0.3	1	1	0.3	0.3		0.3	2		0.3		
Astragalus adsurgens	1		0.3	0.3			0.3							1	1		4
Astragalus agrestis				0.3		0.3		0.3			0.3	1	2	0.3			
Astragalus drummondii						0.3			1								
Astragalus flexuosus											0.3	1					
Astragalus gilviflorus		0.3	0.3														
Astragalus hyalinus																	0.3
Astragalus lotiflorus																0.3	
Astragalus missouriensis				0.3	1		0.3		0.3		0.3				0.3		0.3
Astragalus purshii																	
Astragalus spatulatus																	
Astragalus tenellus									0.3								
Balsamorhiza sagittata								6				1			7		
Berberis repens														4			
Besseya wyomingensis								0.3		0.3	0.3	1	0.3	0.3	0.3		
Campanula rotundifolia		0.3							0.3					0.3	0.3		0.3
Castilleja sessiliflora			0.3				0.3						0.3				

Table B30. Percent Canopy Cover by Class and Species for 28 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM / ANDROPOGON SCOPARIUS* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS																
	PLOT NUMBER																
	394	395	398	407	409	427	428	443	452	466	467	469	474	477	480	489	491
Cerastium arvense	3				1			3	3	1	8	1			1		0.3
Chrysopsis villosa			0.3											0.3			
Cirsium undulatum	0.3	0.3	0.3	0.3		0.3				0.3							
Comandra umbellata			0.3				0.3						0.3				0.3
Crepis acuminata									0.3		0.3	0.3	0.3	0.3	0.3		1
Crepis occidentalis						0.3											
Dalea candida		0.3	0.3	0.3									0.3		0.3	0.3	0.3
Dalea purpurea	0.3	1	0.3	0.3	0.3	0.3	0.3										0.3
Dodecatheon conjugens								0.3									
Echinacea angustifolia		1	1	2			1	0.3	0.3	0.3		0.3	1				
Erigeron pumilus var. pumilus						0.3											
Eriogonum pauciflorum	0.3		0.3														
Fragaria virginiana														1			
Gaura coccinea	0.3			0.3	0.3	0.3	0.3						0.3		0.3		
Geum triflorum					0.3		0.3				0.3			1	0.3		1
Gilia congesta var. pseudotypica		0.3				0.3											
Gutierrezia sarothrae	0.3	2	1		3		0.3	2	1	1	1		4			0.3	
Hedeoma drummondii										0.3							
Hedysarum boreale													0.3				
Helianthus rigidus										1		0.3					
Hymenopappus filifolius			0.3														1
Kuhnia eupatorioides		0.3		0.3													
Lesquerella alpina	0.3																
Leucocrinum montanum																	
Liatris punctata	0.3	0.3			0.3								0.3				
Linum lewisii	0.3	0.3	0.3	0.3				0.3	0.3			0.3	0.3				
Lithospermum incisum				0.3													
Lomatium foeniculaceum																	
Lomatium orientale	0.3																
Lupinus argenteus								0.3				3					
Lychnis drummondii														0.3			
Monarda fistulosa														3			
Musineon divaricatum		0.3			0.3		0.3	0.3			0.3						0.3
Oxytropis lambertii		0.3	2		0.3	0.3	5						0.3				
Oxytropis sericea	1				0.3			1	0.3		1	0.3			0.3		0.3
Penstemon albidus				0.3													0.3
Phlox hoodii		0.3			0.3	1	1	0.3	0.3		2		3				
Polygala alba	0.3	0.3	0.3	0.3			0.3	0.3	0.3	0.3					0.3	1	1
Potentilla pensylvanica	0.3																

Table B30. Percent Canopy Cover by Class and Species for 28 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM / ANDROPOGON SCOPARIUS* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS																
	PLOT NUMBER																
	394	395	398	407	409	427	428	443	452	466	467	469	474	477	480	489	491
Psoralea argophylla	0.3	1	2	1	1	1	4			4	0.3		1		2	0.3	
Psoralea esculenta		0.3		2					0.3	0.3	0.3	0.3	1				
Ratibida columnifera		0.3				1	0.3		0.3	0.3			1	0.3	0.3		
Senecio canus		0.3															
Sisyrinchium angustifolium		0.3							0.3						0.3		
Smilacina stellata	0.3																2
Solidago missouriensis	0.3	0.3	0.3		0.3										0.3	1	0.3
Solidago mollis			1														
Solidago rigida	0.3	0.3				2			0.3			1			0.3		
Sphaeralcea coccinea			0.3							0.3			0.3				
Suaeda moquinii																	
Thermopsis rhombifolia						2		8									1
Townsendia hookeri			0.3														
Toxicodendron rydbergii														1			
Vicia americana						0.3						0.3	0.3		0.3		
Viola nuttallii	0.3																
Yucca glauca			1				1									3	
Zigadenus venenosus	0.3	0.3		0.3		0.3		0.3	0.3	0.3			0.3		0.3		
TOTAL NPF AND SUBSHRUBS	**11.6**	**11.6**	**15.0**	**10.4**	**13.0**	**19.5**	**20.9**	**26.6**	**12.4**	**17.9**	**17.3**	**17.3**	**26.2**	**32.4**	**17.3**	**7.8**	**18.2**
INTRODUCED PERENNIAL FORBS																	
Medicago sativa						1							0.3				
Taraxacum laevigatum	0.3			1	0.3	0.3	0.3	0.3	0.3		0.3		0.3	0.3	0.3	0.3	
TOTAL IPF	**0.3**	**0.0**	**0.0**	**1.0**	**0.3**	**1.3**	**0.3**	**0.3**	**0.3**	**0.0**	**0.3**	**0.0**	**0.6**	**0.3**	**0.3**	**0.3**	**0.0**
FERNS AND ALLIES																	
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS																	
Arabis holboellii									0.3								
Chenopodium fremontii				0.3													
Cryptantha celosioides		0.3											0.3				
Descurainia pinnata				0.3													
Epilobium paniculatum					0.3												
Erigeron strigosus														0.3			
Erysimum asperum	0.3		0.3														
Grindelia squarrosa	0.3					0.3											

Table B30. Percent Canopy Cover by Class and Species for 28 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM / ANDROPOGON SCOPARIUS* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS																
	PLOT NUMBER																
	394	395	398	407	409	427	428	443	452	466	467	469	474	477	480	489	491
Lappula redowskii				0.3													
Linum rigidum									0.3								
Orthocarpus luteus							0.3		0.3								
Phacelia linearis				0.3													
Plantago patagonica					0.3				0.3	0.3			0.3				
TOTAL NAF	**0.6**	**0.3**	**0.3**	**1.2**	**0.6**	**0.3**	**0.3**	**0.0**	**1.2**	**0.3**	**0.0**	**0.0**	**0.6**	**0.3**	**0.0**	**0.0**	**0.0**
INTRODUCED ANNUAL/BIENNIAL FORBS																	
Alyssum alyssoides				0.3		0.3	0.3										
Alyssum desertorum			0.3		0.3					0.3							
Camelina microcarpa	0.3		0.3	0.3													
Lactuca serriola				0.3		0.3											
Medicago lupulina												0.3	1	4			
Melilotus officinalis	0.3	1	0.3	0.3		2					0.3		11		1		
Thlaspi arvense				0.3													
Tragopogon dubius			0.3	0.3	0.3		0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3		
TOTAL IAF	**0.6**	**1.0**	**1.2**	**1.8**	**0.6**	**2.6**	**0.6**	**0.3**	**0.3**	**0.6**	**0.6**	**0.6**	**12.3**	**4.3**	**1.3**	**0.0**	**0.0**
SHRUBS																	
Artemisia cana						1					1						
Artemisia tridentata			6					0.3	11				8				
Calylophus serrulatus							0.3										
Ceratoides lanata									0.3								
Chrysothamnus nauseosus																	
Prunus virginiana			0.3														
Rhus aromatica	0.3	0.3		0.3										0.3			
Rosa arkansana		0.3															
Rosa woodsii							0.3						4				
Symphoricarpos occidentalis													2	4	0.3		
Symphoricarpos oreophilus												1					1
TOTAL SHRUBS	**0.3**	**0.6**	**6.3**	**0.3**	**0.0**	**1.0**	**0.6**	**0.3**	**11.3**	**0.0**	**1.0**	**1.0**	**14.0**	**4.3**	**0.3**	**0.0**	**1.0**
TREES 0.01-acre																	
Fraxinus pennsylvanica														2			
Juniperus scopulorum	7	12		24	9	12	10	3	50	6	48	55		20	30	5	40
Pinus ponderosa	3	1	20	30				51	4	2	7	25		25	2		10
TOTAL TREES 0.01-acre	**10.0**	**13.0**	**20.0**	**54.0**	**9.0**	**12.0**	**10.0**	**54.0**	**54.0**	**8.0**	**55.0**	**80.0**	**0.0**	**47.0**	**32.0**	**5.0**	**50.0**

Table B30. Percent Canopy Cover by Class and Species for 28 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM / ANDROPOGON SCOPARIUS* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS																
	PLOT NUMBER																
	394	395	398	407	409	427	428	443	452	466	467	469	474	477	480	489	491
TREES 0.1-acre																	
Fraxinus pennsylvanica														1			
Juniperus scopulorum	8	10	5	9	20	9	15	12	21	9	25	25	5	35	30	5	45
Pinus ponderosa	18	15	20	12	6	5	5	38	5	7	40	45	18	47	15	18	20
TOTAL TREES 0.1-acre	**26.0**	**25.0**	**25.0**	**21.0**	**26.0**	**14.0**	**20.0**	**50.0**	**26.0**	**16.0**	**65.0**	**70.0**	**23.0**	**83.0**	**45.0**	**23.0**	**65.0**
TOTAL VEGETATION (Stratified)	**60.7**	**46.8**	**89.4**	**99.3**	**58.8**	**96.0**	**98.0**	**118.8**	**114.1**	**95.8**	**119.8**	**107.2**	**135.0**	**141.6**	**91.8**	**38.7**	**100.4**

Footnotes are presented on cover page B-ii.

Table B30. Percent Canopy Cover by Class and Species for 28 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ANDROPOGON SCOPARIUS* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS												
	PLOT NUMBER												
	495	500	501	502	503	509	513	518	523	525	537	**Mean Cover**	***Con-stancy***
												n=28	
SITE PARAMETERS*													
Slope (percent)	52	15	24	18	12	33	17	9	50	40	55		
Aspect (degrees)	320	340	062	294	036	050	350	324	068	358	080		
Topography	Bot-Toe	Upper	Mid	Toe	Upper-Mid	Mid	Sho	Toe-Bot	Upper	Mid	Toe-Bank		
Configuration	V	U	S(U)	V	U(S)	X(U)	S(U)	V	V(S)	X(U)	V		
Photo # (Digital)	495	219	218	217	195	242/243	261	950	178	180/181	537		
Investigator	JE/SC	DB/ED	DB/ED	DB/ED	DB	JE/SC	JE/SC	DB/KL	DB	DB	JE		
Date	07/11/11	07/15/11	07/15/11	07/15/11	07/13/11	07/14/11	07/15/11	06/27/11	07/12/11	07/12/11	07/15/11		
GROUND COVER													
Bare Ground	88	12	17	11	18	3	5	8	30	26	50	**22.93**	***100***
Rock	3				1	0.3	4	45	3	6	10	**8.00**	***89***
Litter	7	73	71	75	66	93	87	41	51	58	38	**57.25**	***100***
Lichens		4	5	3	6	1	1	2	4	3		**4.23**	***93***
Moss		5	3	6	3		0.3	1	7	2		**3.68**	***79***
Basal Vegetation	2	6	4	5	6	3	3	3	5	5	2	**4.00**	***100***
VEGETATION STRUCTURE (nonstratified cover)													
Total Vegetation	50	95	90	90	92	78	38	70	74	80	45	**71.04**	***100***
Perennial Graminoids	14	48	38	17	44	54	20	11	45	45	20	**35.82**	***100***
Annual Graminoids	0.3	0.3	0.3					0.3		1		**0.19**	***46***
Perennial Forbs and Subshrubs	16	29	15	17	14	12	8	10	16	13	7	**15.25**	***100***
Annual/Biennial Forbs	20	2	0.3	6	2		0.3	9	0.3	0.3	1	**2.49**	***89***
Shrubs	2	0.3	3	5		0.3		5	3			**2.09**	***75***
Trees 0.01-acre	9	47	70	78	66	26	12	52	16	45	22	**33.00**	***96***
Trees 0.1-acre	15	51	65	63	53	46	30	40	40	23	17	**36.25**	***100***

Table B30. Percent Canopy Cover by Class and Species for 28 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ANDROPOGON SCOPARIUS* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS												
	PLOT NUMBER												
	495	500	501	502	503	509	513	518	523	525	537	**Mean Cover**	***Con-stancy***
												n=28	
CLASS\SPECIES													
NATIVE PERENNIAL GRAMINOIDS (Cool Season)													
Agropyron smithii		5	2	2		3				2		**1.21**	***43***
Agropyron spicatum	3	3	6	2	5		2	2	3	2		**2.59**	***82***
Aristida longiseta						0.3	2				2	**0.82**	***36***
Carex filifolia			1		3		0.3		4	4		**1.58**	***54***
Carex heliophila			0.3				1		3			**0.23**	***18***
Carex rossii							0.3					**0.21**	***21***
Carex stenophylla										2		**0.07**	***4***
Koeleria cristata	0.3	3	2	0.3	4	0.3	0.3	0.3	3	2		**1.25**	***71***
Oryzopsis micrantha												**0.25**	***4***
Poa sandbergii					3		0.3			1		**0.26**	***18***
Poa scabrella		2	1									**0.11**	***7***
Stipa comata		5	3			0.3			10			**1.60**	***43***
Stipa occidentalis												**0.04**	***4***
Stipa viridula		9			6				3			**1.57**	***32***
TOTAL NPG(C)	**3.3**	**27.0**	**15.3**	**4.3**	**21.0**	**3.9**	**6.2**	**2.3**	**26.0**	**13.0**	**2.0**	**11.79**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)													
Andropogon gerardii			3	7								**0.43**	***11***
Andropogon scoparius	8	5	15	4	12	40	5	8	4	6	8	**14.61**	***100***
Bouteloua curtipendula	3	4	5	2	4	12	10	1	12	21	10	**8.19**	***96***
Bouteloua gracilis		7	2		6					7		**1.68**	***32***
Calamovilfa longifolia						4	0.3		5	1		**0.99**	***39***
Muhlenbergia cuspidata			2						3	2	0.3	**0.74**	***29***
TOTAL NPG(W)	**11.0**	**16.0**	**27.0**	**13.0**	**22.0**	**56.0**	**15.3**	**9.0**	**24.0**	**37.0**	**18.3**	**26.63**	***100***
INTRODUCED PERENNIAL GRAMINOIDS													
Bromus inermis												**0.01**	***4***
Poa pratensis		10			8							**1.18**	***21***
TOTAL IPG	**0.0**	**10.0**	**0.0**	**0.0**	**8.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.19**	***25***
NATIVE ANNUAL GRAMINOIDS													
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***

Table B30. Percent Canopy Cover by Class and Species for 28 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ANDROPOGON SCOPARIUS* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS												
	PLOT NUMBER												
	495	500	501	502	503	509	513	518	523	525	537	**Mean Cover**	***Con-stancy***
												n=28	
INTRODUCED ANNUAL GRAMINOIDS													
Bromus japonicus	0.3	0.3	0.3					0.3		1		**0.19**	***46***
Bromus tectorum			0.3									**0.01**	***4***
TOTAL IAG	**0.3**	**0.3**	**0.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**1.0**	**0.0**	**0.20**	***46***
NATIVE PERENNIAL FORBS AND SUBSHRUBS													
Achillea millefolium	2	1	0.3	0.3	0.3	0.3		1	0.3		0.3	**0.43**	***82***
Allium textile		0.3							0.3			**0.04**	***14***
Ambrosia psilostachya												**0.02**	***7***
Anemone multifida												**0.01**	***4***
Antennaria dimorpha												**0.07**	***7***
Antennaria howellii (neglecta)		1	0.3	0.3	1							**0.69**	***46***
Antennaria microphylla					0.3	0.3						**0.15**	***21***
Antennaria parvifolia	0.3	0.3	0.3	1		0.3			0.3	0.3		**0.38**	***61***
Apocynum androsaemifolium												**0.43**	***4***
Arnica sororia		0.3										**0.01**	***4***
Artemisia campestris										0.3		**0.06**	***11***
Artemisia frigida	1	1	0.3	0.3						1		**0.22**	***39***
Artemisia ludoviciana	0.3		3	1		0.3			12			**1.29**	***46***
Asclepias verticillata												**0.01**	***4***
Aster falcatus		4	0.3	0.3	2	0.3			1	0.3		**0.44**	***64***
Aster laevis		1		1				0.3		0.3		**0.14**	***29***
Aster oblongifolius		1	1	0.3	0.3	0.3				0.3		**0.34**	***61***
Astragalus adsurgens		0.3						1	0.3		2	**0.41**	***39***
Astragalus agrestis		5	0.3	7	1	1						**0.67**	***43***
Astragalus drummondii		0.3		1								**0.09**	***14***
Astragalus flexuosus			0.3									**0.06**	***11***
Astragalus gilviflorus										0.3		**0.03**	***11***
Astragalus hyalinus												**0.01**	***4***
Astragalus lotiflorus												**0.01**	***4***
Astragalus missouriensis							0.3		0.3	0.3		**0.13**	***36***
Astragalus purshii		0.3										**0.01**	***4***
Astragalus spatulatus				0.3							0.3	**0.02**	***7***
Astragalus tenellus												**0.01**	***4***
Balsamorhiza sagittata												**0.50**	***11***
Berberis repens												**0.14**	***4***
Besseya wyomingensis		0.3	0.3		0.3	0.3		0.3		0.3		**0.16**	***46***
Campanula rotundifolia				0.3	0.3			0.3				**0.09**	***29***
Castilleja sessiliflora					0.3					0.3	0.3	**0.06**	***21***

Table B30. Percent Canopy Cover by Class and Species for 28 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ANDROPOGON SCOPARIUS* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS												
	PLOT NUMBER												
	495	500	501	502	503	509	513	518	523	525	537	**Mean Cover**	***Con-stancy***
												n=28	
Cerastium arvense		1	1			3		2	1			**1.05**	***50***
Chrysopsis villosa												**0.02**	***7***
Cirsium undulatum		0.3		0.3	1							**0.12**	***32***
Comandra umbellata	0.3					0.3		0.3				**0.08**	***25***
Crepis acuminata		0.3	0.3	0.3	0.3	0.3			0.3	0.3	0.3	**0.19**	***54***
Crepis occidentalis		0.3										**0.02**	***7***
Dalea candida	2	0.3		0.3								**0.17**	***36***
Dalea purpurea			0.3	0.3	0.3			0.3		0.3		**0.16**	***46***
Dodecatheon conjugens												**0.01**	***4***
Echinacea angustifolia	2	2	0.3	0.3	0.3	1			0.3	2	0.3	**0.56**	***64***
Erigeron pumilus var. pumilus												**0.01**	***4***
Eriogonum pauciflorum												**0.02**	***7***
Fragaria virginiana												**0.04**	***4***
Gaura coccinea			0.3		0.3			0.3	0.3		0.3	**0.13**	***43***
Geum triflorum		2		0.3		0.3		0.3				**0.22**	***36***
Gilia congesta var. pseudotypica												**0.02**	***7***
Gutierrezia sarothrae	2					1		1		0.3	1	**0.76**	***57***
Hedeoma drummondii												**0.01**	***4***
Hedysarum boreale		2										**0.08**	***7***
Helianthus rigidus												**0.05**	***7***
Hymenopappus filifolius	0.3							0.3			0.3	**0.08**	***18***
Kuhnia eupatorioides												**0.02**	***7***
Lesquerella alpina								0.3				**0.02**	***7***
Leucocrinum montanum		0.3						0.3				**0.02**	***7***
Liatris punctata		0.3						0.3				**0.06**	***21***
Linum lewisii	0.3	0.3	0.3	0.3								**0.13**	***43***
Lithospermum incisum												**0.01**	***4***
Lomatium foeniculaceum		0.3			0.3							**0.02**	***7***
Lomatium orientale												**0.01**	***4***
Lupinus argenteus												**0.12**	***7***
Lychnis drummondii												**0.01**	***4***
Monarda fistulosa												**0.11**	***4***
Musineon divaricatum				0.3						0.3		**0.09**	***29***
Oxytropis lambertii	0.3			0.3	0.3	1				0.3	1	**0.41**	***43***
Oxytropis sericea	1		0.3		0.3		2					**0.29**	***43***
Penstemon albidus	0.3											**0.03**	***11***
Phlox hoodii	0.3	0.3	0.3							3		**0.43**	***43***
Polygala alba	1			0.3	0.3	0.3	0.3		0.3	0.3	0.3	**0.28**	***68***
Potentilla pensylvanica												**0.01**	***4***

Table B30. Percent Canopy Cover by Class and Species for 28 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ANDROPOGON SCOPARIUS* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS												
	PLOT NUMBER												
	495	500	501	502	503	509	513	518	523	525	537	**Mean Cover**	***Con-stancy***
												n=28	
Psoralea argophylla		0.3	6	3	3	2			0.3	2		**1.23**	***68***
Psoralea esculenta	0.3	0.3			2					1	0.3	**0.30**	***43***
Ratibida columnifera		0.3	0.3		0.3	0.3					0.3	**0.19**	***46***
Senecio canus	0.3						0.3					**0.03**	***11***
Sisyrinchium angustifolium		0.3	0.3									**0.05**	***18***
Smilacina stellata												**0.08**	***7***
Solidago missouriensis	2						5	2				**0.42**	***36***
Solidago mollis												**0.04**	***4***
Solidago rigida	0.3	4		0.3							0.3	**0.33**	***36***
Sphaeralcea coccinea		0.3										**0.04**	***14***
Suaeda moquinii	1											**0.04**	***4***
Thermopsis rhombifolia												**0.39**	***11***
Townsendia hookeri												**0.01**	***4***
Toxicodendron rydbergii												**0.04**	***4***
Vicia americana								0.3			0.3	**0.06**	***21***
Viola nuttallii												**0.01**	***4***
Yucca glauca									1	1		**0.25**	***18***
Zigadenus venenosus	0.3	0.3	0.3		0.3		0.3	0.3			0.3	**0.17**	***57***
TOTAL NPF AND SUBSHRUBS	**17.6**	**31.6**	**16.4**	**19.4**	**14.8**	**12.6**	**8.2**	**10.9**	**18.0**	**14.5**	**7.9**	**16.69**	***100***
INTRODUCED PERENNIAL FORBS													
Medicago sativa												**0.05**	***7***
Taraxacum laevigatum		1	0.3	0.3	0.3	0.3	0.3	1	0.3	0.3		**0.30**	***75***
TOTAL IPF	**0.0**	**1.0**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**1.0**	**0.3**	**0.3**	**0.0**	**0.35**	***75***
FERNS AND ALLIES													
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS													
Arabis holboellii		0.3										**0.02**	***7***
Chenopodium fremontii												**0.01**	***4***
Cryptantha celosioides											0.3	**0.03**	***11***
Descurainia pinnata												**0.01**	***4***
Epilobium paniculatum												**0.01**	***4***
Erigeron strigosus												**0.01**	***4***
Erysimum asperum			0.3									**0.03**	***11***
Grindelia squarrosa												**0.02**	***7***

Table B30. Percent Canopy Cover by Class and Species for 28 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ANDROPOGON SCOPARIUS* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS												
	PLOT NUMBER												
	495	500	501	502	503	509	513	518	523	525	537	**Mean Cover**	***Con-stancy***
												n=28	
Lappula redowskii												**0.01**	***4***
Linum rigidum												**0.01**	***4***
Orthocarpus luteus					0.3				0.3			**0.04**	***14***
Phacelia linearis												**0.01**	***4***
Plantago patagonica		0.3										**0.05**	***18***
TOTAL NAF	**0.0**	**0.6**	**0.3**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.3**	**0.28**	***57***
INTRODUCED ANNUAL/BIENNIAL FORBS													
Alyssum alyssoides												**0.03**	***11***
Alyssum desertorum												**0.03**	***11***
Camelina microcarpa		0.3								0.3		**0.05**	***18***
Lactuca serriola							0.3					**0.03**	***11***
Medicago lupulina				2								**0.26**	***14***
Melilotus officinalis	20	1		5	2			9		0.3	1	**1.95**	***54***
Thlaspi arvense												**0.01**	***4***
Tragopogon dubius		0.3						0.3	0.3	0.3		**0.17**	***57***
TOTAL IAF	**20.0**	**1.6**	**0.0**	**7.0**	**2.0**	**0.0**	**0.3**	**9.3**	**0.3**	**0.9**	**1.0**	**2.54**	***86***
SHRUBS													
Artemisia cana			2			0.3						**0.15**	***14***
Artemisia tridentata	2	0.3						3	3			**1.20**	***29***
Calylophus serrulatus												**0.01**	***4***
Ceratoides lanata												**0.01**	***4***
Chrysothamnus nauseosus	0.3							1				**0.05**	***7***
Prunus virginiana												**0.01**	***4***
Rhus aromatica			1	3		0.3			0.3			**0.21**	***29***
Rosa arkansana												**0.01**	***4***
Rosa woodsii				2								**0.23**	***11***
Symphoricarpos occidentalis								1				**0.26**	***14***
Symphoricarpos oreophilus												**0.07**	***7***
TOTAL SHRUBS	**2.3**	**0.3**	**3.0**	**5.0**	**0.0**	**0.6**	**0.0**	**5.0**	**3.3**	**0.0**	**0.0**	**2.21**	***75***
TREES 0.01-acre													
Fraxinus pennsylvanica												**0.07**	***4***
Juniperus scopulorum	9	7	40	20	35	12	4	46	9	3	20	**19.14**	***93***
Pinus ponderosa		42	40	65	35	16	10	12	7	44	2	**16.18**	***79***
TOTAL TREES 0.01-acre	**9.0**	**49.0**	**80.0**	**85.0**	**70.0**	**28.0**	**14.0**	**58.0**	**16.0**	**47.0**	**22.0**	**35.39**	***96***

Table B30. Percent Canopy Cover by Class and Species for 28 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ANDROPOGON SCOPARIUS* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS												
	PLOT NUMBER												
	495	500	501	502	503	509	513	518	523	525	537	**Mean Cover**	***Con-stancy***
												n=28	
TREES 0.1-acre													
Fraxinus pennsylvanica												**0.04**	***4***
Juniperus scopulorum	15	9	15	5	4	22	15	38	12	3	15	**15.75**	***100***
Pinus ponderosa		45	55	60	50	28	17	4	32	22	2	**23.18**	***96***
TOTAL TREES 0.1-acre	**15.0**	**54.0**	**70.0**	**65.0**	**54.0**	**50.0**	**32.0**	**42.0**	**44.0**	**25.0**	**17.0**	**38.96**	***100***
TOTAL VEGETATION (Stratified)	**63.5**	**137.4**	**142.9**	**134.0**	**138.4**	**101.4**	**44.3**	**95.8**	**88.2**	**113.7**	**51.5**	**97.26**	***100***

Footnotes are presented on cover page B-ii.

Table B31. Percent Canopy Cover by Class and Species for 11 DRAINAGE *JUNIPERUS SCOPULORUM-PINUS PONDEROSA/ SYMPHORICARPOS OCCIDENTALIS-AGROPYRON SMITHII* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	DRAINAGE *JUNIPERUS SCOPULORUM-PINUS PONDEROSA/ SYMPHORICARPOS OCCIDENTALIS-AGROPYRON SMITHII*												
	PLOT NUMBER												
	389	429	431	432	433	434	435	450	504	510	521	**Mean Cover**	***Con-stancy***
												n=11	
SITE PARAMETERS*													
Slope (percent)	1-2	9	3	3	3-5	1	1	4	4-40	27	4		
Aspect (degrees)	280	274	220	310	340	300	340	336	032	020	288		
Topography	Bot	Bot	Bot	Bot	Bot	Bot	Bot	Bot	Low-Swa	Toe-Low	Bot		
Configuration	V	V	V	V	V	V	V	V	V	V(U)	V		
Photo # (Digital)	018	998	064	066	451	108/109	105/106	040	193	510	972		
Investigator	PL	DB/KL	DB/KL	DB/KL	KS/KL	JE/SC	JE/SC	DB/KL	DB	JE/SC	DB/KL		
Date	06/25/11	06/29/11	07/08/11	07/09/11	07/16/11	06/30/11	06/30/11	07/07/11	07/13/11	07/14/11	06/28/11		
GROUND COVER													
Bare Ground	45	30	5	14	20	60	72	20	10	0.3	30	**27.85**	***100***
Rock		10	3		0.3			2	2		1	**1.66**	***55***
Litter	50	45	85	78	74	20	20	68	77	93	58	**60.73**	***100***
Lichens		5				0.3		1	3	3	2	**1.30**	***55***
Moss	0.3	5			0.3	15	2	3	4	0.3	3	**2.99**	***82***
Basal Vegetation	5	5	7	8	5	5	6	6	4	3	6	**5.45**	***100***
VEGETATION STRUCTURE (nonstratified cover)													
Total Vegetation	95	78	84	90	94	70	94	89	86	97	77	**86.73**	***100***
Perennial Graminoids	50	22	58	45	56	11	34	50	7	38	40	**37.36**	***100***
Annual Graminoids		1	0.3		1		0.3	0.3				**0.26**	***45***
Perennial Forbs and Subshrubs	13	17	8	3	37	20	9	16	9	27	26	**16.82**	***100***
Annual/Biennial Forbs	2	33	7	0.3	7	1	1	4	20	0.3	16	**8.33**	***100***
Shrubs	4	6		70	3	9	17	12	9	5	14	**13.55**	***91***
Trees 0.01-acre	90	37	30	18	66	70	60	23	74	72	18	**50.73**	***100***
Trees 0.1-acre	68	24	9	22	60	60	70	20	66	51	18	**42.55**	***100***

Table B31. Percent Canopy Cover by Class and Species for 11 DRAINAGE *JUNIPERUS SCOPULORUM-PINUS PONDEROSA/ SYMPHORICARPOS OCCIDENTALIS-AGROPYRON SMITHII* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	DRAINAGE *JUNIPERUS SCOPULORUM-PINUS PONDEROSA/ SYMPHORICARPOS OCCIDENTALIS-AGROPYRON SMITHII*												
	PLOT NUMBER												
	389	429	431	432	433	434	435	450	504	510	521	**Mean Cover**	***Con-stancy***
												n=11	
CLASS\SPECIES													
NATIVE PERENNIAL GRAMINOIDS (Cool Season)													
Agropyron smithii	45	5	42	14	12	3	30	4	2	35	3	**17.73**	***100***
Agropyron spicatum						0.3					3	**0.30**	***18***
Agropyron trachycaulum					15							**1.36**	***9***
Carex rossii							0.3				0.3	**0.05**	***18***
Elymus canadensis					0.3		2					**0.21**	***18***
Koeleria cristata		2			1	0.3		2			3	**0.75**	***45***
Oryzopsis micrantha						2						**0.18**	***9***
Stipa comata					6			8				**1.27**	***18***
Stipa viridula	2	7	4	10	14	0.3	1	24	1	5	16	**7.66**	***100***
TOTAL NPG(C)	**47.0**	**14.0**	**46.0**	**24.0**	**48.3**	**5.9**	**33.3**	**38.0**	**3.0**	**40.0**	**25.3**	**29.53**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)													
Andropogon scoparius					2	0.3		3			1	**0.57**	***36***
Bouteloua curtipendula		2			8						6	**1.45**	***27***
Bouteloua gracilis											2	**0.18**	***9***
Calamovilfa longifolia		3			2	1		3			4	**1.18**	***45***
TOTAL NPG(W)	**0.0**	**5.0**	**0.0**	**0.0**	**12.0**	**1.3**	**0.0**	**6.0**	**0.0**	**0.0**	**13.0**	**3.39**	***45***
INTRODUCED PERENNIAL GRAMINOIDS													
Poa compressa		2	2	6								**0.91**	***27***
Poa pratensis	5	3	15	20	5	4	4	12	4		8	**7.27**	***91***
TOTAL IPG	**5.0**	**5.0**	**17.0**	**26.0**	**5.0**	**4.0**	**4.0**	**12.0**	**4.0**	**0.0**	**8.0**	**8.18**	***91***
NATIVE ANNUAL GRAMINOIDS													
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS													
Bromus japonicus		1	0.3		0.3		0.3	0.3				**0.20**	***45***
Bromus tectorum					1							**0.09**	***9***
TOTAL IAG	**0.0**	**1.0**	**0.3**	**0.0**	**1.3**	**0.0**	**0.3**	**0.3**	**0.0**	**0.0**	**0.0**	**0.29**	***45***

Table B31. Percent Canopy Cover by Class and Species for 11 DRAINAGE *JUNIPERUS SCOPULORUM-PINUS PONDEROSA/ SYMPHORICARPOS OCCIDENTALIS-AGROPYRON SMITHII* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	DRAINAGE *JUNIPERUS SCOPULORUM-PINUS PONDEROSA/ SYMPHORICARPOS OCCIDENTALIS-AGROPYRON SMITHII*												
	PLOT NUMBER												
	389	429	431	432	433	434	435	450	504	510	521	**Mean Cover**	***Con-stancy***
												n=11	
NATIVE PERENNIAL FORBS AND SUBSHRUBS													
Achillea millefolium	0.3	0.3		0.3	2	1	0.3	1	0.3	2	1	**0.77**	***91***
Agoseris glauca										0.3		**0.03**	***9***
Ambrosia psilostachya			1				1	0.3				**0.21**	***27***
Anemone multifida						0.3				0.3		**0.05**	***18***
Antennaria howellii (neglecta)		1			1			1	0.3			**0.30**	***36***
Antennaria microphylla		1										**0.09**	***9***
Antennaria parvifolia						0.3	0.3			0.3		**0.08**	***27***
Artemisia campestris						0.3						**0.03**	***9***
Artemisia frigida	0.3	0.3			0.3			0.3				**0.11**	***36***
Artemisia ludoviciana		3	4	2	16	0.3	0.3	3	1	4	4	**3.42**	***91***
Asclepias viridiflora					0.3			0.3				**0.05**	***18***
Aster falcatus	0.3	0.3			4	1	1	1		1	1	**0.87**	***73***
Aster laevis		0.3				1	0.3		4		0.3	**0.54**	***45***
Aster oblongifolius					2	0.3		0.3		1		**0.33**	***36***
Aster pansus			1	0.3			0.3					**0.15**	***27***
Astragalus adsurgens								0.3	0.3	0.3		**0.08**	***27***
Astragalus agrestis	1	0.3				0.3	0.3	0.3	0.3	2	1	**0.50**	***73***
Astragalus crassicarpus										0.3		**0.03**	***9***
Astragalus missouriensis								0.3				**0.03**	***9***
Balsamorhiza sagittata										6		**0.55**	***9***
Besseya wyomingensis		2				2	0.3		0.3	1		**0.51**	***45***
Calochortus nuttallii											0.3	**0.03**	***9***
Campanula rotundifolia		0.3				0.3				0.3		**0.08**	***27***
Cerastium arvense		0.3			0.3	4		0.3			0.3	**0.47**	***45***
Chrysopsis villosa					0.3							**0.03**	***9***
Cirsium undulatum		0.3				0.3		0.3				**0.08**	***27***
Comandra umbellata								0.3		0.3	0.3	**0.08**	***27***
Crepis acuminata										1		**0.09**	***9***
Dalea purpurea		0.3										**0.03**	***9***
Echinacea angustifolia					0.3					0.3	0.3	**0.08**	***27***
Fragaria virginiana		1										**0.09**	***9***
Fritillaria atropurpurea								0.3				**0.03**	***9***
Gaura coccinea		0.3		0.3							0.3	**0.08**	***27***
Geum triflorum						0.3	0.3		0.3	4	0.3	**0.47**	***45***
Glycyrrhiza lepidota								0.3				**0.03**	***9***
Helianthus rigidus								3				**0.27**	***9***

Table B31. Percent Canopy Cover by Class and Species for 11 DRAINAGE *JUNIPERUS SCOPULORUM-PINUS PONDEROSA/ SYMPHORICARPOS OCCIDENTALIS-AGROPYRON SMITHII* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	DRAINAGE *JUNIPERUS SCOPULORUM-PINUS PONDEROSA/ SYMPHORICARPOS OCCIDENTALIS-AGROPYRON SMITHII*												
	PLOT NUMBER												
	389	429	431	432	433	434	435	450	504	510	521	**Mean Cover**	***Con-stancy***
												n=11	
Heuchera richardsonii		0.3										**0.03**	***9***
Kuhnia eupatorioides		0.3										**0.03**	***9***
Lactuca oblongifolia	1		0.3				0.3	0.3				**0.17**	***36***
Linum lewisii	0.3	0.3					0.3	0.3				**0.11**	***36***
Mertensia lanceolata		0.3										**0.03**	***9***
Monarda fistulosa						1						**0.09**	***9***
Opuntia polyacantha		0.3			0.3							**0.05**	***18***
Oxytropis lambertii		0.3									0.3	**0.05**	***18***
Oxytropis sericea								0.3				**0.03**	***9***
Phlox hoodii											0.3	**0.03**	***9***
Polygala alba		0.3						0.3		0.3		**0.08**	***27***
Psoralea argophylla					4			1				**0.45**	***18***
Psoralea esculenta		1										**0.09**	***9***
Ratibida columnifera	0.3	0.3	1	0.3	1			2			1	**0.54**	***64***
Sisyrinchium angustifolium		0.3							0.3			**0.05**	***18***
Smilacina stellata		0.3			0.3	0.3			0.3	0.3		**0.14**	***45***
Solidago missouriensis					0.3	1						**0.12**	***18***
Solidago rigida		1	0.3		0.3	1				0.3	6	**0.81**	***55***
Toxicodendron rydbergii							5				9	**1.27**	***18***
Vicia americana		0.3				0.3		0.3		3	0.3	**0.38**	***45***
Zigadenus venenosus								0.3		0.3	0.3	**0.08**	***27***
TOTAL NPF AND SUBSHRUBS	**3.5**	**16.3**	**7.6**	**3.2**	**32.7**	**15.3**	**10.0**	**17.4**	**7.4**	**28.6**	**26.3**	**15.30**	***100***
INTRODUCED PERENNIAL FORBS													
Medicago sativa					0.3				2			**0.21**	***18***
Taraxacum laevigatum	10	2	0.3	0.3	9	6	0.3		0.3	3	1	**2.93**	***91***
TOTAL IPF	**10.0**	**2.0**	**0.3**	**0.3**	**9.3**	**6.0**	**0.3**	**0.0**	**2.3**	**3.0**	**1.0**	**3.14**	***91***
FERNS AND ALLIES													
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***

Table B31. Percent Canopy Cover by Class and Species for 11 DRAINAGE *JUNIPERUS SCOPULORUM-PINUS PONDEROSA/ SYMPHORICARPOS OCCIDENTALIS-AGROPYRON SMITHII* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	DRAINAGE *JUNIPERUS SCOPULORUM-PINUS PONDEROSA/ SYMPHORICARPOS OCCIDENTALIS-AGROPYRON SMITHII*												
	PLOT NUMBER												
	389	429	431	432	433	434	435	450	504	510	521	**Mean Cover**	***Con-stancy***
												n=11	
NATIVE ANNUAL/BIENNIAL FORBS													
Hedeoma hispidum											0.3	**0.03**	***9***
Iva xanthifolia							0.3					**0.03**	***9***
Linum rigidum								0.3				**0.03**	***9***
Orthocarpus luteus					0.3							**0.03**	***9***
Parietaria pensylvanica	1											**0.09**	***9***
Plantago patagonica					0.3							**0.03**	***9***
Xanthium strumarium				0.3								**0.03**	***9***
TOTAL NAF	**1.0**	**0.0**	**0.0**	**0.3**	**0.6**	**0.0**	**0.3**	**0.3**	**0.0**	**0.0**	**0.3**	**0.25**	***55***
INTRODUCED ANNUAL/BIENNIAL FORBS													
Alyssum alyssoides		0.3									0.3	**0.05**	***18***
Camelina microcarpa		0.3										**0.03**	***9***
Lactuca serriola			0.3	0.3	0.3							**0.08**	***27***
Medicago lupulina		7				0.3		3	13			**2.12**	***36***
Melilotus officinalis	0.3	28	7	0.3	6	1	1		8		16	**6.15**	***82***
Sisymbrium loeselii	0.3											**0.03**	***9***
Tragopogon dubius			0.3		0.3	0.3		0.3		0.3		**0.14**	***45***
TOTAL IAF	**0.6**	**35.6**	**7.6**	**0.6**	**6.6**	**1.6**	**1.0**	**3.3**	**21.0**	**0.3**	**16.3**	**8.59**	***100***
SHRUBS													
Artemisia cana		2		0.3				2			2	**0.57**	***36***
Prunus virginiana	0.3											**0.03**	***9***
Rhus aromatica	0.3			5	1		8	3	1		3	**1.94**	***64***
Rosa arkansana					1					0.3		**0.12**	***18***
Rosa woodsii	0.3	2		4		1	3		2		2	**1.30**	***64***
Symphoricarpos occidentalis	3	3		65	1	8	8	8	6	5	9	**10.55**	***91***
TOTAL SHRUBS	**3.9**	**7.0**	**0.0**	**74.3**	**3.0**	**9.0**	**19.0**	**13.0**	**9.0**	**5.3**	**16.0**	**14.50**	***91***
TREES 0.01-acre													
Fraxinus pennsylvanica							0.3					**0.03**	***9***
Juniperus scopulorum	90	35	30	18	66	70	60	17	9	48	18	**41.91**	***100***
Pinus ponderosa		4					2	6	70	34		**10.55**	***45***
TOTAL TREES 0.01-acre	**90.0**	**39.0**	**30.0**	**18.0**	**66.0**	**70.0**	**62.3**	**23.0**	**79.0**	**82.0**	**18.0**	**52.48**	***100***

Table B31. Percent Canopy Cover by Class and Species for 11 DRAINAGE *JUNIPERUS SCOPULORUM-PINUS PONDEROSA/ SYMPHORICARPOS OCCIDENTALIS-AGROPYRON SMITHII* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	DRAINAGE *JUNIPERUS SCOPULORUM-PINUS PONDEROSA/ SYMPHORICARPOS OCCIDENTALIS-AGROPYRON SMITHII*												
	PLOT NUMBER												
	389	429	431	432	433	434	435	450	504	510	521	**Mean Cover**	***Con-stancy***
												n=11	
TREES 0.1-acre													
Fraxinus pennsylvanica							0.3					**0.03**	***9***
Juniperus scopulorum	68	22	9	22	60	60	70	16	10	30	18	**35.00**	***100***
Pinus ponderosa		3				1	0.3	5	60	25		**8.57**	***55***
TOTAL TREES 0.1-acre	**68.0**	**25.0**	**9.0**	**22.0**	**60.0**	**61.0**	**70.6**	**21.0**	**70.0**	**55.0**	**18.0**	**43.60**	***100***
TOTAL VEGETATION (Stratified)	**161.0**	**124.9**	**108.8**	**146.7**	**184.8**	**113.1**	**130.5**	**113.3**	**125.7**	**159.2**	**124.2**	**135.65**	***100***

Footnotes are presented on cover page B-ii.

Table B32. Percent Canopy Cover by Class and Species for Two *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ PRUNUS VIRGINIANA* ***FOREST AND SAVANNAH*** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ PRUNUS VIRGINIANA			
	PLOT NUMBER			
	496	507	**Mean Cover**	***Con-stancy***
			n=2	
SITE PARAMETERS*				
Slope (percent)	5-70	5		
Aspect (degrees)	004	076		
Topography	Bot	Bot		
Configuration	V	V		
Photo # (Digital)	446-448	438		
Investigator	KS/KL	KS/KL		
Date	07/16/11	07/15/11		
GROUND COVER				
Bare Ground	4		**2.00**	***50***
Rock			**0.00**	***0***
Litter	90	94	**92.00**	***100***
Lichens			**0.00**	***0***
Moss	0.3	0.3	**0.30**	***100***
Basal Vegetation	6	6	**6.00**	***100***
VEGETATION STRUCTURE (nonstratified cover)				
Total Vegetation	93	96	**94.50**	***100***
Perennial Graminoids	55	58	**56.50**	***100***
Annual Graminoids			**0.00**	***0***
Perennial Forbs and Subshrubs	38	42	**40.00**	***100***
Annual/Biennial Forbs	32	7	**19.50**	***100***
Shrubs	26	58	**42.00**	***100***
Trees 0.01-acre	28	46	**37.00**	***100***
Trees 0.1-acre	32	40	**36.00**	***100***
CLASS\SPECIES NATIVE PERENNIAL GRAMINOIDS (Cool Season)				
Agropyron smithii	38	8	**23.00**	***100***
Agropyron spicatum	1		**0.50**	***50***
Agropyron trachycaulum		20	**10.00**	***50***
Elymus canadensis	5	2	**3.50**	***100***
Stipa viridula	10	14	**12.00**	***100***
TOTAL NPG(C)	**54.0**	**44.0**	**49.00**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)				
Andropogon scoparius	3		**1.50**	***50***
Bouteloua curtipendula	4		**2.00**	***50***
Muhlenbergia cuspidata	0.3		**0.15**	***50***
TOTAL NPG(W)	**7.3**	**0.0**	**3.65**	***50***
INTRODUCED PERENNIAL GRAMINOIDS				
Poa pratensis		28	**14.00**	***50***
TOTAL IPG	**0.0**	**28.0**	**14.00**	***50***
NATIVE ANNUAL GRAMINOIDS				
TOTAL NAG	**0.0**	**0.0**	**0.00**	***0***

Table B32. Percent Canopy Cover by Class and Species for Two *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ PRUNUS VIRGINIANA* ***FOREST AND SAVANNAH*** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ PRUNUS VIRGINIANA			
	PLOT NUMBER			
	496	507	**Mean Cover**	***Con-stancy***
			n=2	
INTRODUCED ANNUAL GRAMINOIDS				
TOTAL IAG	**0.0**	**0.0**	**0.00**	***0***
NATIVE PERENNIAL FORBS AND SUBSHRUBS				
Achillea millefolium	0.3	0.3	**0.30**	***100***
Apocynum cannabinum	2		**1.00**	***50***
Artemisia ludoviciana	3	9	**6.00**	***100***
Aster falcatus	4		**2.00**	***50***
Aster laevis	2		**1.00**	***50***
Aster oblongifolius	1		**0.50**	***50***
Berberis repens	2		**1.00**	***50***
Dalea candida	1		**0.50**	***50***
Dalea purpurea	1		**0.50**	***50***
Echinacea angustifolia	0.3		**0.15**	***50***
Gaura coccinea	0.3		**0.15**	***50***
Linum lewisii		0.3	**0.15**	***50***
Lomatium foeniculaceum	0.3		**0.15**	***50***
Monarda fistulosa	2	8	**5.00**	***100***
Psoralea esculenta	1		**0.50**	***50***
Ratibida columnifera		1	**0.50**	***50***
Sisyrinchium angustifolium	0.3		**0.15**	***50***
Smilacina stellata	2	5	**3.50**	***100***
Solidago rigida	3		**1.50**	***50***
Thermopsis rhombifolia	0.3		**0.15**	***50***
Toxicodendron rydbergii	18	24	**21.00**	***100***
Vicia americana	1		**0.50**	***50***
Zigadenus venenosus	0.3		**0.15**	***50***
TOTAL NPF AND SUBSHRUBS	**45.1**	**47.6**	**46.35**	***100***
INTRODUCED PERENNIAL FORBS				
TOTAL IPF	**0.0**	**0.0**	**0.00**	***0***
FERNS AND ALLIES				
TOTAL F&A	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS				
TOTAL NAF	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL/BIENNIAL FORBS				
Medicago lupulina	8		**4.00**	***50***
Melilotus alba	1		**0.50**	***50***
Melilotus officinalis	28	7	**17.50**	***100***
Tragopogon dubius	0.3		**0.15**	***50***
TOTAL IAF	**37.3**	**7.0**	**22.15**	***100***
SHRUBS				
Prunus virginiana	7	38	**22.50**	***100***
Rhus aromatica	6	18	**12.00**	***100***
Ribes aureum		12	**6.00**	***50***
Ribes setosum		4	**2.00**	***50***
Rosa arkansana	5		**2.50**	***50***
Rosa woodsii		6	**3.00**	***50***
Symphoricarpos occidentalis	12	2	**7.00**	***100***
TOTAL SHRUBS	**30.0**	**80.0**	**55.00**	***100***

Table B32. Percent Canopy Cover by Class and Species for Two *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ PRUNUS VIRGINIANA* ***FOREST AND SAVANNAH*** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ PRUNUS VIRGINIANA			
	PLOT NUMBER			
	496	507	**Mean Cover**	***Con-stancy***
			n=2	
TREES 0.01-acre				
Juniperus scopulorum		46	**23.00**	***50***
Pinus ponderosa	28		**14.00**	***50***
TOTAL TREES 0.01-acre	**28.0**	**46.0**	**37.00**	***100***
TREES 0.1-acre				
Juniperus scopulorum	8	40	**24.00**	***100***
Pinus ponderosa	26		**13.00**	***50***
TOTAL TREES 0.1-acre	**34.0**	**40.0**	**37.00**	***100***
TOTAL VEGETATION (Stratified)	**201.7**	**252.6**	**227.15**	***100***

Footnotes are presented on cover page B-ii.

Table B33. Percent Canopy Cover by Class and Species for Six **Mesophytic/Hydrophytic Herbaceous Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	SPOROBOLUS AIROIDES/ AGROPYRON SMITHII	*SPARTINA PECTINATA/ BROMUS INERMIS*				*SPARTINA PECTINATA/ HORDEUM JUBATUM*	*SPARTINA PECTINATA/ PANICUM VIRGATUM*	*SCIRPUS MARITIMUS/ SPOROBOLUS AIROIDES-DISTICHLIS STRICTA*	*ELEOCHARIS PALUSTRIS/ SCIRPUS AMERICANUS-JUNCUS TORREYI*				
	PLOT	**PLOT NUMBER**				**PLOT**	**PLOT**	**PLOT**	**PLOT NUMBER**				
	685	617	658	**Mean Cover**	***Con-stancy***	577	680	688	451	681	686	**Mean Cover**	***Con-stancy***
				n=2								**n=3**	
SITE PARAMETERS*													
Slope (percent)	2-3	0-10	0-3			0-1	2-3	2-3	3-60	1-3	0-1		
Aspect (degrees)	255	064	264			0	070	280	325	036	0		
Topography	Bot	Bot/Bank	Bot			Bot	Bot	Bot	Bot	Bot	Bot		
Configuration	V	V	V			V	V	V	V	V	S(V)		
Photo # (Digital)	352	333	312			348	431/432	353	081	434/436	351		
Investigator	KS/ED	KS/ED	KS/ED			KS/ED	KS/KL	KS/ED	DB/KL	KS/KL	KS/ED		
Date	07/10/11	07/08/11	07/08/11			07/09/11	07/15/11	07/10/11	07/09/11	07/15/11	07/10/11		
GROUND COVER													
Bare Ground	80	2	8	**5.00**	***100***	28	18	52	30	58	70	**52.67**	***100***
Rock													
Litter	16	42	68	**55.00**	***100***	65	62	40	53	23	22	**32.67**	***100***
Lichens							0.3		2			**0.67**	***33***
Moss								0.3					
Water		50	18	**34.00**	***100***		13	2	10	12		**7.33**	***67***
Basal Vegetation	4	6	6	**6.00**	***100***	7	7	6	5	7	8	**6.67**	***100***
VEGETATION STRUCTURE (nonstratified cover)													
Total Vegetation	72	75	85	**80.00**	***100***	95	96	88	70	86	88	**81.33**	***100***
Perennial Graminoids	66	54	82	**68.00**	***100***	88	94	85	40	72	86	**66.00**	***100***
Annual Graminoids	1			**0.00**	***0***		0.3	0.3	8	2		**3.33**	***67***
Perennial Forbs and Subshrubs	5	42	8	**25.00**	***100***	28	8	3	6	56	3	**21.67**	***100***
Annual/Biennial Forbs	6	2		**1.00**	***50***		8	5	2	16		**6.00**	***67***
Shrubs		1	14	**7.50**	***100***		8	1	20	5		**8.33**	***67***
Trees 0.01-acre				**0.00**	***0***					0.3		**0.10**	***33***
Trees 0.1-acre		4		**2.00**	***50***		2			0.3		**0.10**	***33***

Table B33. Percent Canopy Cover by Class and Species for Six **Mesophytic/Hydrophytic Herbaceous Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	SPOROBOLUS AIROIDES/ AGROPYRON SMITHII	*SPARTINA PECTINATA/ BROMUS INERMIS*				*SPARTINA PECTINATA/ HORDEUM JUBATUM*	*SPARTINA PECTINATA/ PANICUM VIRGATUM*	*SCIRPUS MARITIMUS/ SPOROBOLUS AIROIDES-DISTICHLIS STRICTA*	*ELEOCHARIS PALUSTRIS/ SCIRPUS AMERICANUS-JUNCUS TORREYI*				
	PLOT	**PLOT NUMBER**				**PLOT**	**PLOT**	**PLOT**	**PLOT NUMBER**				
	685	617	658	**Mean Cover**	***Con-stancy***	577	680	688	451	681	686	**Mean Cover**	***Con-stancy***
				n=2								**n=3**	
CLASS\SPECIES													
NATIVE PERENNIAL GRAMINOIDS (Cool Season)													
XAgrohordeum macounii						1				0.3		**0.10**	***33***
Agropyron smithii	60					44	14	0.3	5			**1.67**	***33***
Agropyron trachycaulum										3		**1.00**	***33***
Eleocharis palustris						4			3	20	86	**36.33**	***100***
Hordeum caespitosum										3		**1.00**	***33***
Hordeum jubatum						28	4	7	14			**4.67**	***33***
Juncus torreyi										18		**6.00**	***33***
Poa arida	0.3							5					
Poa glaucifolia									1			**0.33**	***33***
Puccinellia nuttalliana		0.3		**0.15**	***50***				1			**0.33**	***33***
Scirpus americanus		12	3	**7.50**	***100***				18	14		**10.67**	***67***
Scirpus maritimus								46					
Scirpus validus											0.3	**0.10**	***33***
Stipa viridula	1									0.3		**0.10**	***33***
TOTAL NPG(C)	**61.3**	**12.3**	**3.0**	**7.65**	***100***	**77.0**	**18.0**	**58.3**	**42.0**	**58.6**	**86.3**	**62.30**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)													
Distichlis stricta						1	1	30					
Panicum virgatum							26			28		**9.33**	***33***
Spartina pectinata		36	24	**30.00**	***100***	16	48						
Sporobolus airoides	8							24					
TOTAL NPG(W)	**8.0**	**36.0**	**24.0**	**30.00**	***100***	**17.0**	**75.0**	**54.0**	**0.0**	**28.0**	**0.0**	**9.33**	***33***
INTRODUCED PERENNIAL GRAMINOIDS													
Agropyron cristatum		2	14	**8.00**	***100***	2							
Agropyron repens			3	**1.50**	***50***								
Bromus inermis		25	58	**41.50**	***100***								
Phleum pratense										1		**0.33**	***33***
Poa compressa						10	1						
Poa pratensis	2		7	**3.50**	***50***	3	30		3	4		**2.33**	***67***
TOTAL IPG	**2.0**	**27.0**	**82.0**	**54.50**	***100***	**15.0**	**31.0**	**0.0**	**3.0**	**5.0**	**0.0**	**2.67**	***67***

Table B33. Percent Canopy Cover by Class and Species for Six **Mesophytic/Hydrophytic Herbaceous Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	SPOROBOLUS AIROIDES/ AGROPYRON SMITHII	*SPARTINA PECTINATA/ BROMUS INERMIS*				*SPARTINA PECTINATA/ HORDEUM JUBATUM*	*SPARTINA PECTINATA/ PANICUM VIRGATUM*	*SCIRPUS MARITIMUS/ SPOROBOLUS AIROIDES-DISTICHLIS STRICTA*	*ELEOCHARIS PALUSTRIS/ SCIRPUS AMERICANUS-JUNCUS TORREYI*				
	PLOT	**PLOT NUMBER**				**PLOT**	**PLOT**	**PLOT**	**PLOT NUMBER**				
	685	617	658	**Mean Cover**	***Con-stancy***	577	680	688	451	681	686	**Mean Cover**	***Con-stancy***
				n=2								**n=3**	
NATIVE ANNUAL GRAMINOIDS													
Juncus bufonius							0.3			2		**0.67**	***33***
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.3**	**0.0**	**0.0**	**2.0**	**0.0**	**0.67**	***33***
INTRODUCED ANNUAL GRAMINOIDS													
Bromus japonicus	1							0.3	5			**1.67**	***33***
Bromus tectorum									4			**1.33**	***33***
TOTAL IAG	**1.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.3**	**9.0**	**0.0**	**0.0**	**3.00**	***33***
NATIVE PERENNIAL FORBS AND SUBSHRUBS													
Achillea millefolium								0.3					
Ambrosia psilostachya							0.3		0.3	0.3		**0.20**	***67***
Apocynum cannabinum										22		**7.33**	***33***
Artemisia ludoviciana			1	**0.50**	***50***		3			1		**0.33**	***33***
Asclepias speciosa		3		**1.50**	***50***					1		**0.33**	***33***
Aster hesperius		3	3	**3.00**	***100***					2		**0.67**	***33***
Aster pansus							2	1	3	4		**2.33**	***67***
Cirsium undulatum							0.3						
Glycyrrhiza lepidota							0.3			2		**0.67**	***33***
Helianthus maximilianii							2			26		**8.67**	***33***
Iva axillaris								2					
Lactuca oblongifolia									2			**0.67**	***33***
Potamogeton foliosus									0.3			**0.10**	***33***
Potamogeton pectinatus		25		**12.50**	***50***								
Ranunculus cymbalaria									0.3			**0.10**	***33***
Ratibida columnifera							0.3						
Rumex salicifolius						24							
Solidago rigida										4		**1.33**	***33***
Typha latifolia											3	**1.00**	***33***
TOTAL NPF AND SUBSHRUBS	**0.0**	**31.0**	**4.0**	**17.50**	***100***	**24.0**	**8.2**	**3.3**	**5.9**	**62.3**	**3.0**	**23.73**	***100***
INTRODUCED PERENNIAL FORBS													
Calystegia sepium		8		**4.00**	***50***								
Cirsium arvense		3	3	**3.00**	***100***								
Medicago sativa			0.3	**0.15**	***50***					2		**0.67**	***33***
Rumex crispus									0.3			**0.10**	***33***

Table B33. Percent Canopy Cover by Class and Species for Six **Mesophytic/Hydrophytic Herbaceous Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	SPOROBOLUS AIROIDES/ AGROPYRON SMITHII	*SPARTINA PECTINATA/ BROMUS INERMIS*				*SPARTINA PECTINATA/ HORDEUM JUBATUM*	*SPARTINA PECTINATA/ PANICUM VIRGATUM*	*SCIRPUS MARITIMUS/ SPOROBOLUS AIROIDES-DISTICHLIS STRICTA*	*ELEOCHARIS PALUSTRIS/ SCIRPUS AMERICANUS-JUNCUS TORREYI*				
	PLOT	**PLOT NUMBER**				**PLOT**	**PLOT**	**PLOT**	**PLOT NUMBER**				
	685	617	658	**Mean Cover**	***Con-stancy***	577	680	688	451	681	686	**Mean Cover**	***Con-stancy***
				n=2								**n=3**	
Rumex patienta			1	**0.50**	***50***								
Taraxacum laevigatum						2							
Taraxacum officinale	5					3							
TOTAL IPF	**5.0**	**11.0**	**4.3**	**7.65**	***100***	**5.0**	**0.0**	**0.0**	**0.3**	**2.0**	**0.0**	**0.77**	***67***
FERNS AND ALLIES													
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS													
Ambrosia trifida		0.3		**0.15**	***50***								
Euphorbia spathulata							0.3						
Orthocarpus luteus							0.3						
Suaeda depressa								3					
Xanthium strumarium	0.3						0.3			0.3		**0.10**	***33***
TOTAL NAF	**0.3**	**0.3**	**0.0**	**0.15**	***50***	**0.0**	**0.9**	**3.0**	**0.0**	**0.3**	**0.0**	**0.10**	***33***
INTRODUCED ANNUAL/BIENNIAL FORBS													
Atriplex heterosperma		1		**0.50**	***50***								
Camelina microcarpa									0.3			**0.10**	***33***
Chenopodium album									0.3			**0.10**	***33***
Lactuca serriola	0.3							0.3	0.3			**0.10**	***33***
Medicago lupulina							3			2		**0.67**	***33***
Melilotus alba										1		**0.33**	***33***
Melilotus officinalis	6						4	2	0.3	14		**4.77**	***67***
Sisymbrium loeselii		0.3		**0.15**	***50***				0.3			**0.10**	***33***
TOTAL IAF	**6.3**	**1.3**	**0.0**	**0.65**	***50***	**0.0**	**7.0**	**2.3**	**1.5**	**17.0**	**0.0**	**6.17**	***67***
SHRUBS													
Artemisia cana							2		5			**1.67**	***33***
Artemisia tridentata								1					
Humulus lupulus		1		**0.50**	***50***								
Rosa woodsii							3		5	1		**2.00**	***67***
Salix exigua										4		**1.33**	***33***
Symphoricarpos occidentalis			14	**7.00**	***50***		3		12	0.3		**4.10**	***67***
TOTAL SHRUBS	**0.0**	**1.0**	**14.0**	**7.50**	***100***	**0.0**	**8.0**	**1.0**	**22.0**	**5.3**	**0.0**	**9.10**	***67***

Table B33. Percent Canopy Cover by Class and Species for Six **Mesophytic/Hydrophytic Herbaceous Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	SPOROBOLUS AIROIDES/ AGROPYRON SMITHII	*SPARTINA PECTINATA/ BROMUS INERMIS*				*SPARTINA PECTINATA/ HORDEUM JUBATUM*	*SPARTINA PECTINATA/ PANICUM VIRGATUM*	*SCIRPUS MARITIMUS/ SPOROBOLUS AIROIDES-DISTICHLIS STRICTA*	*ELEOCHARIS PALUSTRIS/ SCIRPUS AMERICANUS-JUNCUS TORREYI*				
	PLOT	**PLOT NUMBER**				**PLOT**	**PLOT**	**PLOT**	**PLOT NUMBER**				
	685	617	658	**Mean Cover**	***Con-stancy***	577	680	688	451	681	686	**Mean Cover**	***Con-stancy***
				n=2								**n=3**	
TREES 0.01-acre													
Salix amygdaloides										0.3		**0.10**	***33***
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.10**	***33***
TREES 0.1-acre													
Acer negundo		4		**2.00**	***50***								
Juniperus scopulorum							2						
Salix amygdaloides										0.3		**0.10**	***33***
TOTAL TREES 0.1-acre	**0.0**	**4.0**	**0.0**	**2.00**	***50***	**0.0**	**2.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.10**	***33***
TOTAL VEGETATION (Stratified)	**83.9**	**119.9**	**131.3**	**125.60**	***100***	**138.0**	**148.4**	**122.2**	**83.7**	**180.8**	**89.3**	**117.93**	***100***

Footnotes are presented on cover page B-ii.

Table B34. Percent Canopy Cover by Class and Species for Four **Mesophytic/Hydrophytic Herbaceous Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	TYPHA LATIFOLIA/ BROMUS INERMIS				***TYPHA LATIFOLIA/ SPARTINA PECTINATA***	***SCIRPUS VALIDUS/ SPARTINA PECTINATA***				***SCIRPUS VALIDUS- SCIRPUS ACUTUS/ TYPHA LATIFOLIA***			
	PLOT NUMBER				**PLOT**	**PLOT NUMBER**				**PLOT NUMBER**			
	662	666	**Mean Cover**	***Con-stancy***	665	606	618	**Mean Cover**	***Con-stancy***	667	687	**Mean Cover**	***Con-stancy***
			n=2					**n=2**				**n=2**	
SITE PARAMETERS*													
Slope (percent)	0-22	0-15			1-9	0-10	0-15			0	0		
Aspect (degrees)	008	010			124	044	050			340	0		
Topography	Bot/Bank	Bot/Bank			Bot/Bank	Bot/Bank	Bot/Bank			Bot	Pond		
Configuration	V	V			V	V	V			V	S(V)		
Photo # (Digital)	310/311	297			309	345/346	331/332			299	350		
Investigator	KS/ED	KS/ED			KS/ED	KS/ED	KS/ED			KS/ED	KS/ED		
Date	07/08/11	07/07/11			07/07/11	07/09/11	07/08/11			07/07/11	07/10/11		
GROUND COVER													
Bare Ground	15	0.3	**7.65**	***100***	12	1	0.3	**0.65**	***100***	0.3		**0.15**	***50***
Rock													
Litter	53	70	**61.50**	***100***	43	39	73	**56.00**	***100***	12	15	**13.50**	***100***
Lichens													
Moss													
Water	28	23	**25.50**	***100***	38	54	18	**36.00**	***100***	83	76	**79.50**	***100***
Basal Vegetation	4	7	**5.50**	***100***	7	6	9	**7.50**	***100***	5	9	**7.00**	***100***
VEGETATION STRUCTURE (nonstratified cover)													
Total Vegetation	60	76	**68.00**	***100***	90	80	82	**81.00**	***100***	58	92	**75.00**	***100***
Perennial Graminoids	40	70	**55.00**	***100***	27	68	68	**68.00**	***100***	27	48	**37.50**	***100***
Annual Graminoids													
Perennial Forbs and Subshrubs	25	14	**19.50**	***100***	59	7	27	**17.00**	***100***	34	74	**54.00**	***100***
Annual/Biennial Forbs	12	2	**7.00**	***100***	1	0.3	8	**4.15**	***100***				
Shrubs	2		**1.00**	***50***	19	28	4	**16.00**	***100***				
Trees 0.01-acre													
Trees 0.1-acre	3		**1.50**	***50***	6		2	**1.00**	***50***	2		**1.00**	***50***

Table B34. Percent Canopy Cover by Class and Species for Four **Mesophytic/Hydrophytic Herbaceous Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	TYPHA LATIFOLIA/ BROMUS INERMIS				*TYPHA LATIFOLIA/ SPARTINA PECTINATA*	*SCIRPUS VALIDUS/ SPARTINA PECTINATA*				*SCIRPUS VALIDUS- SCIRPUS ACUTUS/ TYPHA LATIFOLIA*			
	PLOT NUMBER				PLOT	PLOT NUMBER				PLOT NUMBER			
	662	666	Mean Cover	Con-stancy	665	606	618	Mean Cover	Con-stancy	667	687	Mean Cover	Con-stancy
			n=2					n=2				n=2	
CLASS\SPECIES													
NATIVE PERENNIAL GRAMINOIDS (Cool Season)													
Carex lanuginosa					5		10	5.00	50				
Eleocharis palustris											0.3	0.15	50
Phalaris arundinacea	0.3		0.15	50									
Scirpus acutus											48	24.00	50
Scirpus americanus		0.3	0.15	50		20		10.00	50	0.3		0.15	50
Scirpus validus						16	28	22.00	100	26		13.00	50
TOTAL NPG(C)	**0.3**	**0.3**	**0.30**	**100**	**5.0**	**36.0**	**38.0**	**37.00**	**100**	**26.3**	**48.3**	**37.30**	**100**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)													
Spartina pectinata		5	2.50	50	8	30	18	24.00	100	1		0.50	50
TOTAL NPG(W)	**0.0**	**5.0**	**2.50**	**50**	**8.0**	**30.0**	**18.0**	**24.00**	**100**	**1.0**	**0.0**	**0.50**	**50**
INTRODUCED PERENNIAL GRAMINOIDS													
Agropyron cristatum		8	4.00	50	2	22		11.00	50				
Agropyron elongatum		26	13.00	50									
Agropyron repens							1	0.50	50				
Bromus inermis	40	34	37.00	100	14		24	12.00	50	0.3		0.15	50
Festuca arundinacea		16	8.00	50									
Poa pratensis		8	4.00	50									
TOTAL IPG	**40.0**	**92.0**	**66.00**	**100**	**16.0**	**22.0**	**25.0**	**23.50**	**100**	**0.3**	**0.0**	**0.15**	**50**
NATIVE ANNUAL GRAMINOIDS													
TOTAL NAG	**0.0**	**0.0**	**0.00**	**0**	**0.0**	**0.0**	**0.0**	**0.00**	**0**	**0.0**	**0.0**	**0.00**	**0**
INTRODUCED ANNUAL GRAMINOIDS													
TOTAL IAG	**0.0**	**0.0**	**0.00**	**0**	**0.0**	**0.0**	**0.0**	**0.00**	**0**	**0.0**	**0.0**	**0.00**	**0**
NATIVE PERENNIAL FORBS AND SUBSHRUBS													
Achillea millefolium						0.3		0.15	50				
Ambrosia psilostachya						2		1.00	50				
Apocynum cannabinum		0.3	0.15	50									
Asclepias speciosa		0.3	0.15	50			3	1.50	50				
Aster hesperius						2	3	2.50	100				
Lactuca oblongifolia					0.3								
Mentha arvensis					1		0.3	0.15	50				

Table B34. Percent Canopy Cover by Class and Species for Four **Mesophytic/Hydrophytic Herbaceous Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	TYPHA LATIFOLIA/ BROMUS INERMIS				*TYPHA LATIFOLIA/ SPARTINA PECTINATA*	*SCIRPUS VALIDUS/ SPARTINA PECTINATA*				*SCIRPUS VALIDUS- SCIRPUS ACUTUS/ TYPHA LATIFOLIA*			
	PLOT NUMBER				PLOT	PLOT NUMBER				PLOT NUMBER			
	662	666	Mean Cover	*Con-stancy*	665	606	618	Mean Cover	*Con-stancy*	667	687	Mean Cover	*Con-stancy*
			n=2					n=2				n=2	
Potamogeton pectinatus							8	4.00	*50*				
Rumex salicifolius					0.3								
Typha latifolia	22	8	15.00	*100*	58		1	0.50	*50*	34	74	54.00	*100*
TOTAL NPF AND SUBSHRUBS	**22.0**	**8.6**	15.30	*100*	**59.6**	**4.3**	**15.3**	9.80	*100*	**34.0**	**74.0**	54.00	*100*
INTRODUCED PERENNIAL FORBS													
Cirsium arvense	2	5	3.50	*100*	0.3	2	2	2.00	*100*				
Rumex crispus						1		0.50	*50*	0.3		0.15	*50*
Rumex patienta					1		12	6.00	*50*				
Taraxacum officinale		0.3	0.15	*50*									
TOTAL IPF	**2.0**	**5.3**	3.65	*100*	**1.3**	**3.0**	**14.0**	8.50	*100*	**0.3**	**0.0**	0.15	*50*
FERNS AND ALLIES													
Equisetum laevigatum	1		0.50	*50*									
TOTAL F&A	**1.0**	**0.0**	0.50	*50*	**0.0**	**0.0**	**0.0**	0.00	*0*	**0.0**	**0.0**	0.00	*0*
NATIVE ANNUAL/BIENNIAL FORBS													
Gaura parviflora						0.3		0.15	*50*				
TOTAL NAF	**0.0**	**0.0**	0.00	*0*	**0.0**	**0.3**	**0.0**	0.15	*50*	**0.0**	**0.0**	0.00	*0*
INTRODUCED ANNUAL/BIENNIAL FORBS													
Arctium minus					0.3								
Atriplex heterosperma	10	0.3	5.15	*100*									
Lactuca serriola		0.3	0.15	*50*									
Melilotus officinalis		0.3	0.15	*50*			0.3	0.15	*50*				
Polygonum convolvulus		0.3	0.15	*50*									
Sisymbrium loeselii	2		1.00	*50*	0.3		3	1.50	*50*				
Sonchus asper					0.3		4	2.00	*50*				
Thlaspi arvense							1	0.50	*50*				
TOTAL IAF	**12.0**	**1.2**	6.60	*100*	**0.9**	**0.0**	**8.3**	4.15	*50*	**0.0**	**0.0**	0.00	*0*
SHRUBS													
Artemisia cana						5		2.50	*50*				
Ribes aureum					0.3	7	4	5.50	*100*				
Rosa woodsii					5	2		1.00	*50*				
Symphoricarpos occidentalis	2		1.00	*50*	15	16		8.00	*50*				
TOTAL SHRUBS	**2.0**	**0.0**	1.00	*50*	**20.3**	**30.0**	**4.0**	17.00	*100*	**0.0**	**0.0**	0.00	*0*

Table B34. Percent Canopy Cover by Class and Species for Four **Mesophytic/Hydrophytic Herbaceous Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	TYPHA LATIFOLIA/ BROMUS INERMIS				*TYPHA LATIFOLIA/ SPARTINA PECTINATA*	*SCIRPUS VALIDUS/ SPARTINA PECTINATA*				*SCIRPUS VALIDUS- SCIRPUS ACUTUS/ TYPHA LATIFOLIA*			
	PLOT NUMBER				**PLOT**	**PLOT NUMBER**				**PLOT NUMBER**			
	662	666	**Mean Cover**	***Con-stancy***	665	606	618	**Mean Cover**	***Con-stancy***	667	687	**Mean Cover**	***Con-stancy***
			n=2					**n=2**				**n=2**	
TREES 0.01-acre													
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.00**	***0***
TREES 0.1-acre													
Acer negundo	3		**1.50**	***50***	4		2	**1.00**	***50***	2		**1.00**	***50***
Fraxinus pennsylvanica					2								
TOTAL TREES 0.1-acre	**3.0**	**0.0**	**1.50**	***50***	**6.0**	**0.0**	**2.0**	**1.00**	***50***	**2.0**	**0.0**	**1.00**	***50***
TOTAL VEGETATION (Stratified)	**79.3**	**112.4**	**95.85**	***100***	**111.1**	**125.6**	**122.6**	**124.10**	***100***	**61.9**	**122.3**	**92.10**	***100***

Footnotes are presented on cover page B-ii.

Table B35. Percent Canopy Cover by Class and Species for Three **Mesophytic Low Shrub Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	SYM OCC-ART TRI-SAR VER/AGR SMI				*ART CAN-ROS WOO/ AGR SMI-POA PRA*	*SYMPHORICARPOS OCCIDENTALIS-ARTEMISIA CANA/ AGROPYRON SMITHII-POA PRATENSIS*						
	PLOT NUMBER				**PLOT NUMBER**	**PLOT NUMBER**						
	649	650	**Mean Cover**	***Con-stancy***	682	610	614	640	646	692	**Mean Cover**	***Con-stancy***
			n=2								**n=5**	
SITE PARAMETERS*												
Slope (percent)	5-80	5			4	1-2	2-5	4	2-3	2-3		
Aspect (degrees)	205	252			346	220	262	324	310	238		
Topography	Bot/Bank	Bot/Bank			Bot-Swa	Bot	Bot	Bot	Bot	Bot		
Configuration	V	V			V	S(V)	V	V	V	V		
Photo # (Digital)	649	948/949			410	099/100	249/250	083	129/130	382/383		
Investigator	JE	DB/KL			KS/ED	SC	KS/ED	DB/KL	SC	KS		
Date	07/15/11	06/27/11			07/13/11	06/29/11	06/25/11	07/09/11	07/07/11	07/12/11		
GROUND COVER												
Bare Ground	55	55	**55.00**	***100***	4	20	4	4	36	23	**17.40**	***100***
Rock	0.3	12	**6.15**	***100***					25		**5.00**	***20***
Litter	40	30	**35.00**	***100***	89	76	90	88	32	70	**71.20**	***100***
Lichens						0.3			0.3		**0.12**	***40***
Moss										0.3	**0.06**	***20***
Water									4		**0.80**	***20***
Basal Vegetation	5	3	**4.00**	***100***	7	4	6	8	3	7	**5.60**	***100***
VEGETATION STRUCTURE (nonstratified cover)												
Total Vegetation	96	42	**69.00**	***100***	94	98	96	95	70	90	**89.80**	***100***
Perennial Graminoids	36	15	**25.50**	***100***	84	41	52	23	46	68	**46.00**	***100***
Annual Graminoids	2	0.3	**1.15**	***100***	0.3	2	6	6		0.3	**2.86**	***80***
Perennial Forbs and Subshrubs		1	**0.50**	***50***	14	18	10	9	26	4	**13.40**	***100***
Annual/Biennial Forbs	80	2	**41.00**	***100***	34	12	10	5	5	3	**7.00**	***100***
Shrubs	20	29	**24.50**	***100***	50	75	92	80	18	58	**64.60**	***100***
Trees 0.01-acre												
Trees 0.1-acre						2		1			**0.60**	***40***

Table B35. Percent Canopy Cover by Class and Species for Three **Mesophytic Low Shrub Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	SYM OCC-ART TRI-SAR VER/AGR SMI				*ART CAN-ROS WOO/ AGR SMI-POA PRA*	*SYMPHORICARPOS OCCIDENTALIS-ARTEMISIA CANA/ AGROPYRON SMITHII-POA PRATENSIS*						
	PLOT NUMBER				**PLOT NUMBER**	**PLOT NUMBER**						
	649	650	**Mean Cover**	***Con-stancy***	682	610	614	640	646	692	**Mean Cover**	***Con-stancy***
			n=2								**n=5**	
CLASS\SPECIES												
NATIVE PERENNIAL GRAMINOIDS (Cool Season)												
Agropyron smithii	15	4	**9.50**	***100***	18	26	8	2	30	8	**14.80**	***100***
Agropyron spicatum		7	**3.50**	***50***								
Agropyron trachycaulum										6	**1.20**	***20***
Agropyron xpseudorepens							3				**0.60**	***20***
Elymus canadensis										1	**0.20**	***20***
Hordeum jubatum										7	**1.40**	***20***
Poa glaucifolia							2				**0.40**	***20***
Sitanion hystrix									1		**0.20**	***20***
Stipa viridula	15		**7.50**	***50***	2	1			7	4	**2.40**	***60***
TOTAL NPG(C)	**30.0**	**11.0**	**20.50**	***100***	**20.0**	**27.0**	**13.0**	**2.0**	**38.0**	**26.0**	**21.20**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)												
Calamovilfa longifolia										1	**0.20**	***20***
Panicum virgatum					22							
Spartina gracilis						2					**0.40**	***20***
TOTAL NPG(W)	**0.0**	**0.0**	**0.00**	***0***	**22.0**	**2.0**	**0.0**	**0.0**	**0.0**	**1.0**	**0.60**	***40***
INTRODUCED PERENNIAL GRAMINOIDS												
Agropyron cristatum						0.3					**0.06**	***20***
Phleum pratense					0.3							
Poa pratensis	10	5	**7.50**	***100***	56	18	44	22	15	48	**29.40**	***100***
TOTAL IPG	**10.0**	**5.0**	**7.50**	***100***	**56.3**	**18.3**	**44.0**	**22.0**	**15.0**	**48.0**	**29.46**	***100***
NATIVE ANNUAL GRAMINOIDS												
TOTAL NAG	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS												
Bromus japonicus	2	0.3	**1.15**	***100***	0.3	2	6	6		0.3	**2.86**	***80***
TOTAL IAG	**2.0**	**0.3**	**1.15**	***100***	**0.3**	**2.0**	**6.0**	**6.0**	**0.0**	**0.3**	**2.86**	***80***

Table B35. Percent Canopy Cover by Class and Species for Three **Mesophytic Low Shrub Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	SYM OCC-ART TRI-SAR VER/AGR SMI				*ART CAN-ROS WOO/ AGR SMI-POA PRA*	*SYMPHORICARPOS OCCIDENTALIS-ARTEMISIA CANA/ AGROPYRON SMITHII-POA PRATENSIS*						
	PLOT NUMBER				PLOT NUMBER	PLOT NUMBER						
	649	650	Mean Cover	Con-stancy	682	610	614	640	646	692	Mean Cover	Con-stancy
			n=2								n=5	
NATIVE PERENNIAL FORBS AND SUBSHRUBS												
Achillea millefolium						8	2	0.3	2	0.3	2.52	100
Artemisia ludoviciana					1		0.3	5	3	1	1.86	80
Aster falcatus					5	5			2	0.3	1.46	60
Astragalus agrestis					0.3							
Erigeron pumilus var. pumilus		0.3	0.15	50								
Gaura coccinea		0.3	0.15	50	0.3	3					0.60	20
Glycyrrhiza lepidota									16		3.20	20
Helianthus maximilianii									4		0.80	20
Lactuca oblongifolia							7	3			2.00	40
Linum lewisii										0.3	0.06	20
Psoralea argophylla					5							
Ratibida columnifera					0.3	1				2	0.60	40
Vicia americana		0.3	0.15	50								
Zigadenus venenosus										0.3	0.06	20
TOTAL NPF AND SUBSHRUBS	**0.0**	**0.9**	**0.45**	**50**	**11.9**	**17.0**	**9.3**	**8.3**	**27.0**	**4.2**	**13.16**	**100**
INTRODUCED PERENNIAL FORBS												
Medicago sativa					2							
Taraxacum laevigatum						2	1		0.3		0.66	60
TOTAL IPF	**0.0**	**0.0**	**0.00**	**0**	**2.0**	**2.0**	**1.0**	**0.0**	**0.3**	**0.0**	**0.66**	**60**
FERNS AND ALLIES												
TOTAL F&A	**0.0**	**0.0**	**0.00**	**0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	**0**
NATIVE ANNUAL/BIENNIAL FORBS												
Collomia linearis						1					0.20	20
Conyza canadensis										0.3	0.06	20
Descurainia richardsonii								1			0.20	20
Galium aparine								0.3			0.06	20
Helianthus annuus									0.3		0.06	20
Xanthium strumarium										3	0.60	20
TOTAL NAF	**0.0**	**0.0**	**0.00**	**0**	**0.0**	**1.0**	**0.0**	**1.3**	**0.3**	**3.3**	**1.18**	**80**
INTRODUCED ANNUAL/BIENNIAL FORBS												
Camelina microcarpa								0.3			0.06	20
Lactuca serriola						3	0.3	1		0.3	0.92	80
Melilotus officinalis	80	2	41.00	100	34	8	2	1	5	0.3	3.26	100
Sisymbrium loeselii						0.3	8	2			2.06	60
Tragopogon dubius		0.3	0.15	50	0.3		0.3	0.3			0.12	40
TOTAL IAF	**80.0**	**2.3**	**41.15**	**100**	**34.3**	**11.3**	**10.6**	**4.6**	**5.0**	**0.6**	**6.42**	**100**

Table B35. Percent Canopy Cover by Class and Species for Three **Mesophytic Low Shrub Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	SYM OCC-ART TRI-SAR VER/AGR SMI				*ART CAN-ROS WOO/ AGR SMI-POA PRA*	*SYMPHORICARPOS OCCIDENTALIS-ARTEMISIA CANA/ AGROPYRON SMITHII-POA PRATENSIS*						
	PLOT NUMBER				PLOT NUMBER	PLOT NUMBER						
	649	650	Mean Cover	*Con-stancy*	682	610	614	640	646	692	Mean Cover	*Con-stancy*
			n=2								n=5	
SHRUBS												
Artemisia cana		10	5.00	*50*	12	40	16	18	12	14	20.00	*100*
Artemisia tridentata	5	10	7.50	*100*	0.3							
Chrysothamnus nauseosus									2		0.40	*20*
Rosa woodsii					40		1			3	0.80	*40*
Sarcobatus vermiculatus	5	5	5.00	*100*								
Symphoricarpos occidentalis	10	7	8.50	*100*	2	45	86	70	7	48	51.20	*100*
TOTAL SHRUBS	**20.0**	**32.0**	**26.00**	***100***	**54.3**	**85.0**	**103.0**	**88.0**	**21.0**	**65.0**	**72.40**	***100***
TREES 0.01-acre												
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TREES 0.1-acre												
Fraxinus pennsylvanica								0.3			0.06	*20*
Juniperus scopulorum						2		0.3			0.46	*40*
Pinus ponderosa								0.3			0.06	*20*
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**2.0**	**0.0**	**0.9**	**0.0**	**0.0**	**0.58**	***40***
TOTAL VEGETATION (Stratified)	**142.0**	**51.5**	**96.75**	***100***	**201.1**	**165.6**	**186.9**	**132.2**	**106.6**	**148.4**	**147.94**	***100***

Footnotes are presented on cover page B-ii.

Table B36. Percent Canopy Cover by Class and Species for One **Mesophytic Low Shrub Bottom** Community Type, Otter Creek Tract 2 Baseline Study Area, 2011.

	SYMPHORICARPOS OCCIDENTALIS-ROSA WOODSII/POA PRATENSIS-AGROPYRON SMITHII																	
	PLOT NUMBER																	
	455	569	601	608	621	631	632	633	637	652	653	654	674	675	676	677	**Mean Cover**	***Con-stancy***
																	n=16	
SITE PARAMETERS*																		
Slope (percent)	3	5	3	4	4	2-3	3	4	5	2-3	2	2	2-4	5-6	4-7	4-12		
Aspect (degrees)	254	192	266	330	256	350	312	166	314	190	275	275	002	300	290	325		
Topography	Bot	Bot	Bot	Bot	Bot	Bot/Toe	Bot	Bot	Bot	Bot	Bot/Bank	Bot	Bot	Bot	Bot	Bot/Toe		
Configuration	V	V	V	V	V	X	V	V	V	V	V	V	V	V	V	V		
Photo # (Digital)	079	964/965	710	251/252	711/712	040	042	065	203	267/268	172-174	058	405-406	427/428	421/422	412/413		
Investigator	DB/KL	DB/KL	DB/KL	KS/ED	DB/KL	KS/ED	DB/KL	DB/KL	DB	KS	SC	SC	KS/ED	KS/ED	KS/ED	KS/ED		
Date	07/09/11	06/28/11	06/23/11	06/25/11	06/23/11	06/24/11	07/07/11	07/08/11	07/13/11	06/27/11	07/10/11	06/27/11	07/13/11	07/14/11	07/14/11	07/14/11		
GROUND COVER																		
Bare Ground	6	10	45	1	45	8	5	2	4	38	1	0.3		24	60	16	**16.58**	***94***
Rock	1	0.3			0.3		0.3										**0.12**	***25***
Litter	70	80	50	92	50	86	88	90	89	25	95	40	93	70	33	75	**70.38**	***100***
Lichens		1														3	**0.25**	***13***
Moss		1				1										0.3	**0.14**	***19***
Water	15									32		55					**6.38**	***19***
Basal Vegetation	8	8	5	7	5	5	7	8	7	5	4	5	7	6	7	6	**6.25**	***100***
VEGETATION STRUCTURE (nonstratified cover)																		
Total Vegetation	93	96	70	92	65	86	96	95	89	84	99	96	99	97	95	90	**90.13**	***100***
Perennial Graminoids	70	33	50	80	40	68	65	50	60	68	40	54	76	68	82	72	**61.00**	***100***
Annual Graminoids		10	2		5	0.3	10	0.3		6	0.3				4	1	**2.43**	***63***
Perennial Forbs and Subshrubs	11	4	9	18	5	17	7	6	23	8	1	14	43	1	33	42	**15.13**	***100***
Annual/Biennial Forbs	4	0.3	9	4	10	1	5	3	2	30		1		0.3	16	6	**5.73**	***88***
Shrubs	19	80	13	74	20	28	32	70	31	16	95	85	68	90	17	32	**48.13**	***100***
Trees 0.01-acre	8				6	2			4						1		**1.31**	***31***
Trees 0.1-acre	6			1	1	3	4		10	1	2	2	8	2	4		**2.75**	***75***

Table B36. Percent Canopy Cover by Class and Species for One **Mesophytic Low Shrub Bottom** Community Type, Otter Creek Tract 2 Baseline Study Area, 2011.

	SYMPHORICARPOS OCCIDENTALIS-ROSA WOODSII/POA PRATENSIS-AGROPYRON SMITHII																	
	PLOT NUMBER																	
	455	569	601	608	621	631	632	633	637	652	653	654	674	675	676	677	Mean Cover	*Con-stancy*
																	n=16	
CLASS\SPECIES																		
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																		
Agropyron smithii	35	8	27	12	30	18	25	10	25	56	22	35	1	3	30	12	21.81	*100*
Agropyron spicatum																1	0.06	*6*
Agropyron trachycaulum				0.3										1	0.3		0.10	*19*
Agropyron xpseudorepens				0.3													0.02	*6*
Elymus canadensis										2							0.13	*6*
Hordeum jubatum	15																0.94	*6*
Koeleria cristata			2		1	1			3			0.3					0.46	*31*
Poa scabrella	3		3														0.38	*13*
Scirpus americanus	3																0.19	*6*
Scirpus maritimus	5																0.31	*6*
Stipa comata																2	0.13	*6*
Stipa viridula		10	1	14	2	0.3	10	7	5	1	3			2	4	14	4.58	*81*
TOTAL NPG(C)	**61.0**	**18.0**	**33.0**	**26.6**	**33.0**	**19.3**	**35.0**	**17.0**	**33.0**	**59.0**	**25.0**	**35.3**	**1.0**	**6.0**	**34.3**	**29.0**	**29.09**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																		
Andropogon gerardii																1	0.06	*6*
Andropogon scoparius						0.3											0.02	*6*
Bouteloua curtipendula						1									2	4	0.44	*19*
Bouteloua gracilis															3		0.19	*6*
Calamovilfa longifolia		1	17	0.3		3		1									1.39	*31*
Muhlenbergia asperifolia	0.3																0.02	*6*
Panicum virgatum															10		0.63	*6*
Spartina pectinata	2											2					0.25	*13*
TOTAL NPG(W)	**2.3**	**1.0**	**17.0**	**0.3**	**0.0**	**4.3**	**0.0**	**1.0**	**0.0**	**0.0**	**0.0**	**2.0**	**0.0**	**0.0**	**15.0**	**5.0**	**2.99**	***56***
INTRODUCED PERENNIAL GRAMINOIDS																		
Agropyron cristatum													5				0.31	*6*
Poa pratensis	20	16	4	60	10	56	40	35	35	12	20	22	74	65	56	60	36.56	*100*
TOTAL IPG	**20.0**	**16.0**	**4.0**	**60.0**	**10.0**	**56.0**	**40.0**	**35.0**	**35.0**	**12.0**	**20.0**	**22.0**	**79.0**	**65.0**	**56.0**	**60.0**	**36.88**	***100***
NATIVE ANNUAL GRAMINOIDS																		
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***

Table B36. Percent Canopy Cover by Class and Species for One **Mesophytic Low Shrub Bottom** Community Type, Otter Creek Tract 2 Baseline Study Area, 2011.

	SYMPHORICARPOS OCCIDENTALIS-ROSA WOODSII/POA PRATENSIS-AGROPYRON SMITHII																	
	PLOT NUMBER																	
	455	569	601	608	621	631	632	633	637	652	653	654	674	675	676	677	Mean Cover	*Con-stancy*
																	n=16	
INTRODUCED ANNUAL GRAMINOIDS																		
Bromus japonicus		10	2		5	0.3	10	0.3		6	0.3				4	1	2.43	*63*
TOTAL IAG	**0.0**	**10.0**	**2.0**	**0.0**	**5.0**	**0.3**	**10.0**	**0.3**	**0.0**	**6.0**	**0.3**	**0.0**	**0.0**	**0.0**	**4.0**	**1.0**	2.43	*63*
NATIVE PERENNIAL FORBS AND SUBSHRUBS																		
Achillea millefolium	0.3			0.3	0.3	0.3			1		1				0.3	0.3	0.24	*50*
Ambrosia psilostachya	0.3						2										0.14	*13*
Antennaria howellii (neglecta)						0.3											0.02	*6*
Apocynum cannabinum										3							0.19	*6*
Artemisia frigida																0.3	0.02	*6*
Artemisia ludoviciana		3	8	14	2	4	4	4	8	1		0.3	9		5	4	4.14	*81*
Aster falcatus		0.3		0.3		3	1		9	0.3		8				16	2.37	*50*
Aster laevis									0.3						0.3		0.04	*13*
Aster oblongifolius																1	0.06	*6*
Aster pansus	8					0.3		2					5		22		2.33	*31*
Astragalus agrestis				1		0.3			3						1	1	0.39	*31*
Astragalus crassicarpus						0.3											0.02	*6*
Astragalus missouriensis																0.3	0.02	*6*
Besseya wyomingensis																0.3	0.02	*6*
Cerastium arvense						4										0.3	0.27	*13*
Cirsium undulatum						0.3											0.02	*6*
Crepis occidentalis						0.3											0.02	*6*
Dalea purpurea															0.3	1	0.08	*13*
Echinacea angustifolia																2	0.13	*6*
Epilobium ciliatum													0.3				0.02	*6*
Gaura coccinea		0.3		0.3	0.3	0.3										0.3	0.09	*31*
Geum triflorum						0.3											0.02	*6*
Glycyrrhiza lepidota										2			22				1.50	*13*
Gutierrezia sarothrae																0.3	0.02	*6*
Helianthus maximilianii					0.3							4					0.27	*13*
Iva axillaris					0.3												0.02	*6*
Lactuca oblongifolia	2						1			2		0.3	3	1			0.58	*38*
Linum lewisii				0.3		1			0.3						0.3	0.3	0.14	*31*
Mertensia lanceolata									0.3								0.02	*6*
Oxytropis lambertii																4	0.25	*6*
Phlox hoodii																0.3	0.02	*6*
Polygala alba						0.3										3	0.21	*13*
Psoralea argophylla				0.3												3	0.21	*13*
Psoralea esculenta															0.3		0.02	*6*
Ratibida columnifera				0.3	0.3	0.3			1					0.3	3	2	0.45	*44*
Solidago missouriensis																0.3	0.02	*6*

Table B36. Percent Canopy Cover by Class and Species for One **Mesophytic Low Shrub Bottom** Community Type, Otter Creek Tract 2 Baseline Study Area, 2011.

	SYMPHORICARPOS OCCIDENTALIS-ROSA WOODSII/POA PRATENSIS-AGROPYRON SMITHII																	
	PLOT NUMBER																	
	455	569	601	608	621	631	632	633	637	652	653	654	674	675	676	677	Mean Cover n=16	*Con-stancy*
Solidago rigida				2		1			2			3			1	3	0.75	*38*
Sphaeralcea coccinea					0.3											0.3	0.04	*13*
Toxicodendron rydbergii																0.3	0.02	*6*
Vicia americana				0.3	0.3	1									0.3	0.3	0.14	*31*
TOTAL NPF AND SUBSHRUBS	**10.6**	**3.6**	**8.0**	**19.1**	**4.1**	**17.3**	**8.0**	**6.0**	**24.9**	**8.3**	**1.0**	**15.6**	**39.3**	**1.3**	**33.8**	**43.9**	**15.30**	***100***
INTRODUCED PERENNIAL FORBS																		
Cirsium arvense													8				0.50	*6*
Medicago sativa					1	0.3									0.3	1	0.16	*25*
Rumex crispus	0.3																0.02	*6*
Taraxacum laevigatum		0.3	1	0.3		0.3			0.3						4	2	0.51	*44*
Taraxacum officinale					1												0.06	*6*
TOTAL IPF	**0.3**	**0.3**	**1.0**	**0.3**	**2.0**	**0.6**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**8.0**	**0.0**	**4.3**	**3.0**	**1.26**	***63***
FERNS AND ALLIES																		
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS																		
Erysimum asperum						0.3											0.02	*6*
Euphorbia spathulata															0.3	0.3	0.04	*13*
Grindelia squarrosa										1							0.06	*6*
Hedeoma hispidum															0.3		0.02	*6*
Helianthus petiolaris			0.3		0.3												0.04	*13*
Linum rigidum																0.3	0.02	*6*
Orthocarpus luteus															0.3	1	0.08	*13*
Plantago patagonica															0.3		0.02	*6*
Silene antirrhina															0.3		0.02	*6*
Xanthium strumarium										16							1.00	*6*
TOTAL NAF	**0.0**	**0.0**	**0.3**	**0.0**	**0.3**	**0.3**	**0.0**	**0.0**	**0.0**	**17.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.5**	**1.6**	**1.31**	***38***
INTRODUCED ANNUAL/BIENNIAL FORBS																		
Alyssum alyssoides															0.3		0.02	*6*
Lactuca serriola	2	0.3					0.3	0.3		0.3				0.3	0.3		0.24	*44*
Medicago lupulina						0.3										1	0.08	*13*
Melilotus alba															3		0.19	*6*
Melilotus officinalis	2		8	4	10		4	3	2	15		1			12	4	4.06	*69*
Sisymbrium altissimum		0.3															0.02	*6*
Sisymbrium loeselii		0.3					0.3										0.04	*13*
Tragopogon dubius		0.3	1		0.3	0.3	0.3		0.3	0.3					0.3	0.3	0.21	*56*
TOTAL IAF	**4.0**	**1.2**	**9.0**	**4.0**	**10.3**	**0.6**	**4.9**	**3.3**	**2.3**	**15.6**	**0.0**	**1.0**	**0.0**	**0.3**	**15.9**	**5.3**	**4.86**	***88***

Table B36. Percent Canopy Cover by Class and Species for One **Mesophytic Low Shrub Bottom** Community Type, Otter Creek Tract 2 Baseline Study Area, 2011.

	SYMPHORICARPOS OCCIDENTALIS-ROSA WOODSII/POA PRATENSIS-AGROPYRON SMITHII																	
	PLOT NUMBER																	
	455	569	601	608	621	631	632	633	637	652	653	654	674	675	676	677	Mean Cover	*Con-stancy*
																	n=16	
SHRUBS																		
Artemisia cana		9		5		3		4	3		1		5		4	2	**2.25**	***56***
Artemisia tridentata					4	1										14	**1.19**	***19***
Rhus aromatica									3							4	**0.44**	***13***
Ribes aureum											2						**0.13**	***6***
Rosa arkansana				2											1	3	**0.38**	***19***
Rosa woodsii	4	2	2		4			0.3	3	0.3		15			2		**2.04**	***56***
Sarcobatus vermiculatus			2														**0.13**	***6***
Symphoricarpos occidentalis	17	75	10	70	14	25	32	68	26	16	95	82	65	90	11	12	**44.25**	***100***
TOTAL SHRUBS	**21.0**	**86.0**	**14.0**	**77.0**	**22.0**	**29.0**	**32.0**	**72.3**	**35.0**	**16.3**	**98.0**	**97.0**	**70.0**	**90.0**	**18.0**	**35.0**	**50.79**	***100***
TREES 0.01-acre																		
Juniperus scopulorum	8				6	2			2								**1.13**	***25***
Pinus ponderosa									2						1		**0.19**	***13***
TOTAL TREES 0.01-acre	**8.0**	**0.0**	**0.0**	**0.0**	**6.0**	**2.0**	**0.0**	**0.0**	**4.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**0.0**	**1.31**	***31***
TREES 0.1-acre																		
Juniperus scopulorum	6			1	1	3	4		7	1	2	2			0.3		**1.71**	***63***
Pinus ponderosa									3					2	4		**0.56**	***19***
Salix amygdaloides													8				**0.50**	***6***
TOTAL TREES 0.1-acre	**6.0**	**0.0**	**0.0**	**1.0**	**1.0**	**3.0**	**4.0**	**0.0**	**10.0**	**1.0**	**2.0**	**2.0**	**8.0**	**2.0**	**4.3**	**0.0**	**2.77**	***75***
TOTAL VEGETATION (Stratified)	**127.2**	**136.1**	**88.3**	**187.3**	**92.7**	**129.7**	**129.9**	**134.9**	**134.5**	**134.2**	**144.3**	**172.9**	**197.3**	**162.6**	**183.8**	**183.8**	**146.22**	***100***

Footnotes are presented on cover page B-ii.

Table B37. Percent Canopy Cover by Class and Species for Two **Mesophytic Tall Shrub Bottom** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PRUNUS VIRGINIANA/ SYMPHORICARPOS OCCIDENTALIS-POA PRATENSIS			
	PLOT NUMBER			
	648	696	**Mean Cover**	***Con-stancy***
			n=2	
SITE PARAMETERS*				
Slope (percent)	4-80	6-70		
Aspect (degrees)	260	360		
Topography	Bot/Bank	Bot/Bank		
Configuration	V	V(U)		
Photo # (Digital)	648	215/216		
Investigator	JE	JE/SC		
Date	07/13/11	07/12/11		
GROUND COVER				
Bare Ground	40		**20.00**	***50***
Rock	5		**2.50**	***50***
Litter	50	93	**71.50**	***100***
Lichens				
Moss		1	**0.50**	***50***
Water				
Basal Vegetation	5	6	**5.50**	***100***
VEGETATION STRUCTURE (nonstratified cover)				
Total Vegetation	85	100	**92.50**	***100***
Perennial Graminoids	14	50	**32.00**	***100***
Annual Graminoids	0.3		**0.15**	***50***
Perennial Forbs and Subshrubs	20	2	**11.00**	***100***
Annual/Biennial Forbs	2	6	**4.00**	***100***
Shrubs	75	98	**86.50**	***100***
Trees 0.01-acre				
Trees 0.1-acre		3	**1.50**	***50***
CLASS\SPECIES				
NATIVE PERENNIAL GRAMINOIDS (Cool Season)				
Agropyron smithii	10	0.3	**5.15**	***100***
TOTAL NPG(C)	**10.0**	**0.3**	**5.15**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)				
TOTAL NPG(W)	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED PERENNIAL GRAMINOIDS				
Poa pratensis	5	50	**27.50**	***100***
TOTAL IPG	**5.0**	**50.0**	**27.50**	***100***
NATIVE ANNUAL GRAMINOIDS				
TOTAL NAG	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS				
Bromus japonicus	0.3		**0.15**	***50***
TOTAL IAG	**0.3**	**0.0**	**0.15**	***50***

Table B37. Percent Canopy Cover by Class and Species for Two **Mesophytic Tall Shrub Bottom** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PRUNUS VIRGINIANA/ SYMPHORICARPOS OCCIDENTALIS-POA PRATENSIS			
	PLOT NUMBER			
	648	696	***Mean Cover***	***Con-stancy***
			n=2	
NATIVE PERENNIAL FORBS AND SUBSHRUBS				
Achillea millefolium	0.3	1	**0.65**	***100***
Artemisia frigida		0.3	**0.15**	***50***
Besseya wyomingensis		0.3	**0.15**	***50***
Lactuca oblongifolia	1	0.3	**0.65**	***100***
Toxicodendron rydbergii	20		**10.00**	***50***
TOTAL NPF AND SUBSHRUBS	**21.3**	**1.9**	**11.60**	***100***
INTRODUCED PERENNIAL FORBS				
Taraxacum laevigatum		0.3	**0.15**	***50***
TOTAL IPF	**0.0**	**0.3**	**0.15**	***50***
FERNS AND ALLIES				
TOTAL F&A	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS				
Erysimum asperum	0.3		**0.15**	***50***
Hedeoma hispidum		0.3	**0.15**	***50***
Helianthus annuus	0.3		**0.15**	***50***
TOTAL NAF	**0.6**	**0.3**	**0.45**	***100***
INTRODUCED ANNUAL/BIENNIAL FORBS				
Melilotus alba		0.3	**0.15**	***50***
Melilotus officinalis	2	5	**3.50**	***100***
Sisymbrium loeselii	0.3	0.3	**0.30**	***100***
Tragopogon dubius		0.3	**0.15**	***50***
TOTAL IAF	**2.3**	**5.9**	**4.10**	***100***
SHRUBS				
Artemisia cana	20	6	**13.00**	***100***
Prunus virginiana	35	35	**35.00**	***100***
Rhus aromatica		1	**0.50**	***50***
Ribes aureum	1		**0.50**	***50***
Ribes setosum	2	5	**3.50**	***100***
Symphoricarpos occidentalis	20	65	**42.50**	***100***
TOTAL SHRUBS	**78.0**	**112.0**	**95.00**	***100***
TREES 0.01-acre				
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.00**	***0***
TREES 0.1-acre				
Juniperus scopulorum		3	**1.50**	***50***
TOTAL TREES 0.1-acre	**0.0**	**3.0**	**1.50**	***50***
TOTAL VEGETATION (Stratified)	**117.5**	**170.7**	**144.10**	***100***

Footnotes are presented on cover page B-ii.

Table B38. Percent Canopy Cover by Class and Species for Six **Mesophytic Deciduous Tree Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	POPULUS DELTOIDES/ BROMUS INERMIS				*POPULUS DELTOIDES-ACER NEGUNDO/ BROMUS INERMIS*				*POP DEL/ SYM OCC-POA PRA*	*POP DEL-FRA PEN-ACE NEG/ SYM OCC*	*POP DEL-SAL AMY/ SAL EXI*	*POP DEL/ PRU VIR*
	PLOT NUMBER				**PLOT NUMBER**				**PLOT**	**PLOT**	**PLOT**	**PLOT**
	671	673	**Mean Cover**	***Con-stancy***	672	698	**Mean Cover**	***Con-stancy***	530	699	522	531
			n=2				**n=2**					
SITE PARAMETERS*												
Slope (percent)	0-6	0-5			0-1	30-60			0-25	6-60	2-3	0-30
Aspect (degrees)	014	026			306	110			010	318	268	0
Topography	Bot	Bot			Bot	Bot/Bank			Bot/Bank	Bot/Bank	Bot	Bot/Bank
Configuration	V	V			V	V			V	V	V(S)	V
Photo # (Digital)	394/395	391			396/397	494-496			400/401	492/493	973	403
Investigator	KS/ED	KS/ED			KS/ED	KS/DCs			KS/ED	KS/DCs	DC/DB	KS/ED
Date	07/13/11	07/12/11			07/13/11	08/20/11			07/13/11	08/20/11	07/07/11	07/13/11
GROUND COVER												
Bare Ground	0.3	0.3	**0.30**	***100***	15	14	**14.50**	***100***	0.3	1	80	
Rock						1	**0.50**	***50***		1		
Litter	75	60	**67.50**	***100***	79	82	**80.50**	***100***	70	92	16	75
Lichens												
Moss												
Water	20	35	**27.50**	***100***					25			18
Basal Vegetation	5	5	**5.00**	***100***	6	3	**4.50**	***100***	5	6	4	7
VEGETATION STRUCTURE (nonstratified cover)												
Total Vegetation	94	97	**95.50**	***100***	98	98	**98.00**	***100***	96	95	76	100
Perennial Graminoids	66	70	**68.00**	***100***	62	25	**43.50**	***100***	42	84	40	72
Annual Graminoids												
Perennial Forbs and Subshrubs	6	4	**5.00**	***100***	3	5	**4.00**	***100***	37	5	20	12
Annual/Biennial Forbs	2	2	**2.00**	***100***	2	6	**4.00**	***100***		1		
Shrubs	4	2	**3.00**	***100***	1	6	**3.50**	***100***	23	40	14	48
Trees 0.01-acre	84	70	**77.00**	***100***	62	92	**77.00**	***100***	44	35	40	95
Trees 0.1-acre	70	60	**65.00**	***100***	45	85	**65.00**	***100***	56	38	45	78

Table B38. Percent Canopy Cover by Class and Species for Six **Mesophytic Deciduous Tree Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	POPULUS DELTOIDES/ BROMUS INERMIS				*POPULUS DELTOIDES-ACER NEGUNDO/ BROMUS INERMIS*				*POP DEL/ SYM OCC-POA PRA*	*POP DEL-FRA PEN-ACE NEG/ SYM OCC*	*POP DEL-SAL AMY/ SAL EXI*	*POP DEL/ PRU VIR*
	PLOT NUMBER				**PLOT NUMBER**				**PLOT**	**PLOT**	**PLOT**	**PLOT**
	671	673	**Mean Cover**	***Con-stancy***	672	698	**Mean Cover**	***Con-stancy***	530	699	522	531
			n=2				**n=2**					
CLASS\SPECIES												
NATIVE PERENNIAL GRAMINOIDS (Cool Season)												
XAgrohordeum macounii	1		**0.50**	***50***							2	
Agropyron smithii						0.3	**0.15**	***50***	3	0.3		
Agropyron trachycaulum						2	**1.00**	***50***		0.3	3	
XAgrositanion saundersii											6	
Eleocharis palustris											6	
Hordeum jubatum	6		**3.00**	***50***							22	
Scirpus maritimus											0.3	
Stipa viridula									3			
TOTAL NPG(C)	**7.0**	**0.0**	**3.50**	***50***	**0.0**	**2.3**	**1.15**	***50***	**6.0**	**0.6**	**39.3**	**0.0**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)												
Spartina pectinata					2		**1.00**	***50***	3	0.3		
TOTAL NPG(W)	**0.0**	**0.0**	**0.00**	***0***	**2.0**	**0.0**	**1.00**	***50***	**3.0**	**0.3**	**0.0**	**0.0**
INTRODUCED PERENNIAL GRAMINOIDS												
Agropyron cristatum	0.3		**0.15**	***50***								72
Alopecurus pratensis	3		**1.50**	***50***								
Bromus inermis	58	62	**60.00**	***100***	62	14	**38.00**	***100***		64		
Phleum pratense						1	**0.50**	***50***		1	1	
Poa pratensis	0.3	18	**9.15**	***100***		10	**5.00**	***50***	38	34	4	
TOTAL IPG	**61.6**	**80.0**	**70.80**	***100***	**62.0**	**25.0**	**43.50**	***100***	**38.0**	**99.0**	**5.0**	**72.0**
NATIVE ANNUAL GRAMINOIDS												
TOTAL NAG	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**
INTRODUCED ANNUAL GRAMINOIDS												
TOTAL IAG	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**

Table B38. Percent Canopy Cover by Class and Species for Six **Mesophytic Deciduous Tree Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	POPULUS DELTOIDES/ BROMUS INERMIS				*POPULUS DELTOIDES-ACER NEGUNDO/ BROMUS INERMIS*				*POP DEL/ SYM OCC-POA PRA*	*POP DEL-FRA PEN-ACE NEG/ SYM OCC*	*POP DEL-SAL AMY/ SAL EXI*	*POP DEL/ PRU VIR*
	PLOT NUMBER				**PLOT NUMBER**				**PLOT**	**PLOT**	**PLOT**	**PLOT**
	671	673	**Mean Cover**	***Con-stancy***	672	698	**Mean Cover**	***Con-stancy***	530	699	522	531
			n=2				**n=2**					
NATIVE PERENNIAL FORBS AND SUBSHRUBS												
Achillea millefolium										0.3		
Apocynum cannabinum									0.3			
Artemisia frigida									0.3			
Artemisia ludoviciana	0.3		**0.15**	***50***		2	**1.00**	***50***	12	0.3		
Aster hesperius		0.3	**0.15**	***50***	0.3		**0.15**	***50***			14	
Aster laevis						1	**0.50**	***50***		0.3		
Aster pansus		2	**1.00**	***50***	0.3		**0.15**	***50***	5	1		
Astragalus agrestis									6			
Cerastium arvense										0.3		
Glycyrrhiza lepidota									1			
Helianthus maximilianii									14			
Lactuca oblongifolia	0.3		**0.15**	***50***	1		**0.50**	***50***				
Psoralea argophylla										1		
Ratibida columnifera						0.3	**0.15**	***50***		1		
Rumex salicifolius	1		**0.50**	***50***							2	
Solidago gigantea										1		
Solidago mollis					1		**0.50**	***50***				
Solidago rigida						0.3	**0.15**	***50***	0.3			
Toxicodendron rydbergii												12
Vicia americana	0.3		**0.15**	***50***								
TOTAL NPF AND SUBSHRUBS	**1.9**	**2.3**	**2.10**	***100***	**2.6**	**3.6**	**3.10**	***100***	**38.9**	**5.2**	**16.0**	**12.0**
INTRODUCED PERENNIAL FORBS												
Cirsium arvense	1		**0.50**	***50***								
Medicago sativa	0.3	1	**0.65**	***100***		1	**0.50**	***50***	1			
Rumex crispus	3		**1.50**	***50***		0.3	**0.15**	***50***			6	
Rumex patienta					1		**0.50**	***50***				
Taraxacum laevigatum	0.3		**0.15**	***50***					1			
Taraxacum officinale		1	**0.50**	***50***								
TOTAL IPF	**4.6**	**2.0**	**3.30**	***100***	**1.0**	**1.3**	**1.15**	***100***	**2.0**	**0.0**	**6.0**	**0.0**
FERNS AND ALLIES												
TOTAL F&A	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**

Table B38. Percent Canopy Cover by Class and Species for Six **Mesophytic Deciduous Tree Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	POPULUS DELTOIDES/ BROMUS INERMIS				*POPULUS DELTOIDES-ACER NEGUNDO/ BROMUS INERMIS*				*POP DEL/ SYM OCC-POA PRA*	*POP DEL-FRA PEN-ACE NEG/ SYM OCC*	*POP DEL-SAL AMY/ SAL EXI*	*POP DEL/ PRU VIR*
	PLOT NUMBER				**PLOT NUMBER**				**PLOT**	**PLOT**	**PLOT**	**PLOT**
	671	673	Mean Cover	Con-stancy	672	698	Mean Cover	Con-stancy	530	699	522	531
			n=2				n=2					
NATIVE ANNUAL/BIENNIAL FORBS												
Ambrosia trifida	1		0.50	50								
Galium aparine						4	2.00	50				
Grindelia squarrosa										0.3		
Parietaria pensylvanica					1		0.50	50				
TOTAL NAF	**1.0**	**0.0**	**0.50**	**50**	**1.0**	**4.0**	**2.50**	**100**	**0.0**	**0.3**	**0.0**	**0.0**
INTRODUCED ANNUAL/BIENNIAL FORBS												
Lactuca serriola	0.3		0.15	50								
Melilotus officinalis		2	1.00	50	0.3		0.15	50		1		
Sisymbrium loeselii	0.3		0.15	50	0.3		0.15	50				
Thlaspi arvense	0.3		0.15	50	0.3	2	1.15	100				
Tragopogon dubius	0.3		0.15	50								
TOTAL IAF	**1.2**	**2.0**	**1.60**	**100**	**0.9**	**2.0**	**1.45**	**100**	**0.0**	**1.0**	**0.0**	**0.0**
SHRUBS												
Artemisia cana									0.3			
Prunus virginiana										3		30
Ribes setosum						1	0.50	50				
Rosa arkansana		0.3	0.15	50					1			
Rosa woodsii											2	8
Salix exigua	4		2.00	50	1		0.50	50	8		12	
Symphoricarpos occidentalis		2	1.00	50		5	2.50	50	14	38		18
TOTAL SHRUBS	**4.0**	**2.3**	**3.15**	**100**	**1.0**	**6.0**	**3.50**	**100**	**23.3**	**41.0**	**14.0**	**56.0**
TREES 0.01-acre												
Acer negundo					25	50	37.50	100				
Fraxinus pennsylvanica										25		
Juniperus scopulorum										2		
Populus deltoides	84	70	77.00	100	45	86	65.50	100	44	15	10	95
Salix amygdaloides					30		15.00	50			35	
TOTAL TREES 0.01-acre	**84.0**	**70.0**	**77.00**	**100**	**100.0**	**136.0**	**118.00**	**100**	**44.0**	**42.0**	**45.0**	**95.0**

Table B38. Percent Canopy Cover by Class and Species for Six **Mesophytic Deciduous Tree Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	POPULUS DELTOIDES/ BROMUS INERMIS				*POPULUS DELTOIDES-ACER NEGUNDO/ BROMUS INERMIS*				*POP DEL/ SYM OCC-POA PRA*	*POP DEL-FRA PEN-ACE NEG/ SYM OCC*	*POP DEL-SAL AMY/ SAL EXI*	*POP DEL/ PRU VIR*
	PLOT NUMBER				**PLOT NUMBER**				**PLOT**	**PLOT**	**PLOT**	**PLOT**
	671	673	**Mean Cover**	***Con-stancy***	672	698	**Mean Cover**	***Con-stancy***	530	699	522	531
			n=2				**n=2**					
TREES 0.1-acre												
Acer negundo					20	38	**29.00**	***100***		2		
Fraxinus pennsylvanica										4		
Juniperus scopulorum										0.3		
Populus deltoides	70	60	**65.00**	***100***	38	55	**46.50**	***100***	56	30	15	78
Salix amygdaloides					10		**5.00**	***50***		6	35	
TOTAL TREES 0.1-acre	**70.0**	**60.0**	**65.00**	***100***	**68.0**	**93.0**	**80.50**	***100***	**56.0**	**42.3**	**50.0**	**78.0**
TOTAL VEGETATION (Stratified)	**165.3**	**158.6**	**161.95**	***100***	**170.5**	**180.2**	**175.35**	***100***	**155.2**	**189.4**	**125.3**	**235.0**

Footnotes are presented on cover page B-ii.

Table B39. Percent Canopy Cover by Class and Species for Three **Mesophytic Deciduous Tree Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	ACER NEGUNDO/BROMUS INERMIS												*ACER NEGUNDO/ SPARTINA PECTINATA*				*FRA PEN/ POA PRA*
	PLOT NUMBER																**PLOT**
	615	616	620	657	659	663	668	669	670	690	**Mean Cover**	***Con-stancy***	619	664	**Mean Cover**	***Con-stancy***	472
											n=10				**n=2**		
SITE PARAMETERS*																	
Slope (percent)	0-4	0-50	0-12	0-8	1-6	0-5	1-5	0-1	0-8	0-10			0-28	0-6			4-12
Aspect (degrees)	300	306	060	300	250	014	328	336	128	300			320	340			358
Topography	Bot/Bank	Bot/Bank	Bot	Bot/Bank	Bot/Bank	Bot/Bank	Bot/Bank	Ter/Bot	Bot/Bank	Bot/Bank			Bot/Bank	Bot/Bank			Toe/Bot
Configuration	V	V	V	V	V	V	V	S/V	V	V			V	V			U
Photo # (Digital)	338	340	325	322/323	292	294	302	303	307/308	305/306			330	295			223
Investigator	KS/ED	KS/ED	KS/ED	KS/ED	KS/ED	KS/ED	KS/ED	KS/ED	KS/ED	KS/ED			KS/ED	KS/ED			DB/ED
Date	07/09/11	07/09/11	07/08/11	07/08/11	06/30/11	06/30/11	07/07/11	07/07/11	07/07/11	07/07/11			07/08/11	06/30/11			07/15/11
GROUND COVER																	
Bare Ground	3	11	11	14	2	8	5	15	12	3	**8.40**	***100***	8	2	**5.00**	***100***	5
Rock																	
Litter	86	78	40	69	54	34	28	78	47	67	**58.10**	***100***	53	50	**51.50**	***100***	86
Lichens																	
Moss						0.3					**0.03**	***10***		0.3	**0.15**	***50***	
Water	2	5	42	10	40	54	64		38	25	**28.00**	***90***	32	44	**38.00**	***100***	
Basal Vegetation	9	6	7	7	4	4	3	7	3	5	**5.50**	***100***	7	4	**5.50**	***100***	9
VEGETATION STRUCTURE (nonstratified cover)																	
Total Vegetation	99	98	58	85	92	76	60	98	95	87	**84.80**	***100***	72	72	**72.00**	***100***	97
Perennial Graminoids	92	82	54	70	44	38	8	86	50	28	**55.20**	***100***	65	56	**60.50**	***100***	72
Annual Graminoids		1									**0.10**	***10***			**0.00**	***0***	0.3
Perennial Forbs and Subshrubs	10		14	17	5	9		1	16	2	**7.40**	***80***	4	2	**3.00**	***100***	30
Annual/Biennial Forbs	14	3	2	4	1		0.3	5	8	15	**5.23**	***90***	0.3		**0.15**	***50***	14
Shrubs	0.3	13		9	3	12				2	**3.93**	***60***	18	5	**11.50**	***100***	
Trees 0.01-acre	55	90	5	8	85	60	56	74	90	85	**60.80**	***100***	8	26	**17.00**	***100***	29
Trees 0.1-acre	44	72	18	28	56	56	38	58	70	65	**50.50**	***100***	24	18	**21.00**	***100***	30

Table B39. Percent Canopy Cover by Class and Species for Three **Mesophytic Deciduous Tree Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	ACER NEGUNDO/BROMUS INERMIS												*ACER NEGUNDO/ SPARTINA PECTINATA*				*FRA PEN/ POA PRA*
	PLOT NUMBER																PLOT
	615	616	620	657	659	663	668	669	670	690	Mean Cover	Con-stancy	619	664	Mean Cover	Con-stancy	472
											n=10				n=2		
CLASS\SPECIES																	
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																	
Agropyron smithii																	23
Koeleria cristata																	1
Phalaris arundinacea							3		3		0.60	20	0.3		0.15	50	
Scirpus americanus			1								0.10	10	1		0.50	50	
Scirpus validus							0.3				0.03	10					
Stipa viridula																	33
TOTAL NPG(C)	**0.0**	**0.0**	**1.0**	**0.0**	**0.0**	**0.0**	**3.3**	**0.0**	**3.0**	**0.0**	**0.73**	**30**	**1.3**	**0.0**	**0.65**	**50**	**57.0**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																	
Spartina pectinata			8	2			1		2		1.30	40	32	22	27.00	100	
TOTAL NPG(W)	**0.0**	**0.0**	**8.0**	**2.0**	**0.0**	**0.0**	**1.0**	**0.0**	**2.0**	**0.0**	**1.30**	**40**	**32.0**	**22.0**	**27.00**	**100**	**0.0**
INTRODUCED PERENNIAL GRAMINOIDS																	
Agropyron cristatum			1		3						0.40	20					
Agropyron elongatum														0.3	0.15	50	
Agropyron repens	1										0.10	10					
Bromus inermis	92	82	46	68	42	38	4	86	46	28	53.20	100	38	36	37.00	100	
Phleum pratense																	7
Poa pratensis				1							0.10	10					25
TOTAL IPG	**93.0**	**82.0**	**47.0**	**69.0**	**45.0**	**38.0**	**4.0**	**86.0**	**46.0**	**28.0**	**53.80**	**100**	**38.0**	**36.3**	**37.15**	**100**	**32.0**
NATIVE ANNUAL GRAMINOIDS																	
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	**0**	**0.0**	**0.0**	**0.00**	**0**	**0.0**
INTRODUCED ANNUAL GRAMINOIDS																	
Bromus japonicus																	0.3
Bromus tectorum		1									0.10	10					
TOTAL IAG	**0.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.10**	**10**	**0.0**	**0.0**	**0.00**	**0**	**0.3**

Table B39. Percent Canopy Cover by Class and Species for Three **Mesophytic Deciduous Tree Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	ACER NEGUNDO/BROMUS INERMIS												*ACER NEGUNDO/ SPARTINA PECTINATA*				*FRA PEN/ POA PRA*
	PLOT NUMBER																PLOT
	615	616	620	657	659	663	668	669	670	690	Mean Cover	Con-stancy	619	664	Mean Cover	Con-stancy	472
											n=10				n=2		
NATIVE PERENNIAL FORBS AND SUBSHRUBS																	
Achillea millefolium																	2
Artemisia ludoviciana																	20
Asclepias speciosa			0.3								0.03	10					
Aster falcatus																	3
Aster hesperius	1										0.10	10					
Astragalus agrestis																	5
Astragalus drummondii																	2
Glycyrrhiza lepidota				0.3							0.03	10					
Lactuca oblongifolia																	2
Mentha arvensis				0.3							0.03	10					
Polygala alba																	0.3
Potamogeton pectinatus	1										0.10	10					
Ratibida columnifera																	1
Sisyrinchium angustifolium																	0.3
Typha latifolia			8	14		9					3.10	30		2	1.00	50	
TOTAL NPF AND SUBSHRUBS	**2.0**	**0.0**	**8.3**	**14.6**	**0.0**	**9.0**	**0.0**	**0.0**	**0.0**	**0.0**	**3.39**	**40**	**0.0**	**2.0**	**1.00**	**50**	**35.6**
INTRODUCED PERENNIAL FORBS																	
Cirsium arvense	8		5	3	3			1		2	2.20	60	4		2.00	50	
Rumex crispus			0.3		2			0.3			0.26	30					
Rumex patienta									3		0.30	10					
Taraxacum laevigatum									14	0.3	1.43	20					0.3
TOTAL IPF	**8.0**	**0.0**	**5.3**	**3.0**	**5.0**	**0.0**	**0.0**	**1.3**	**17.0**	**2.3**	**4.19**	**70**	**4.0**	**0.0**	**2.00**	**50**	**0.3**
FERNS AND ALLIES																	
Equisetum laevigatum														0.3	0.15	50	
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	**0**	**0.0**	**0.3**	**0.15**	**50**	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS																	
Ambrosia trifida				0.3				1	2	0.3	0.36	40					
Galium aparine	4		1					0.3	1	1	0.73	50					
Iva xanthifolia		0.3									0.03	10					
Parietaria pensylvanica										0.3	0.03	10					
TOTAL NAF	**4.0**	**0.3**	**1.0**	**0.3**	**0.0**	**0.0**	**0.0**	**1.3**	**3.0**	**1.6**	**1.15**	**70**	**0.0**	**0.0**	**0.00**	**0**	**0.0**

Table B39. Percent Canopy Cover by Class and Species for Three **Mesophytic Deciduous Tree Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	ACER NEGUNDO/BROMUS INERMIS												*ACER NEGUNDO/ SPARTINA PECTINATA*				*FRA PEN/ POA PRA*
	PLOT NUMBER																**PLOT**
	615	616	620	657	659	663	668	669	670	690	***Mean Cover***	***Con-stancy***	619	664	***Mean Cover***	***Con-stancy***	472
											n=10				**n=2**		
INTRODUCED ANNUAL/BIENNIAL FORBS																	
Arctium minus							0.3	1		9	**1.03**	***30***					
Atriplex heterosperma	2	0.3	1	4				0.3	0.3		**0.79**	***60***					
Descurainia sophia			0.3								**0.03**	***10***					
Lactuca serriola	1		0.3		0.3		0.3	0.3	0.3	2	**0.45**	***70***					0.3
Medicago lupulina								0.3			**0.03**	***10***					10
Melilotus officinalis																	4
Polygonum convolvulus								1	1		**0.20**	***20***					
Sisymbrium loeselii	8	3			0.3			1	3	2	**1.73**	***60***	0.3		**0.15**	***50***	1
Thlaspi arvense					0.3				1		**0.13**	***20***					
Tragopogon dubius																	1
TOTAL IAF	**11.0**	**3.3**	**1.6**	**4.0**	**0.9**	**0.0**	**0.6**	**3.9**	**5.6**	**13.0**	**4.39**	***90***	**0.3**	**0.0**	**0.15**	***50***	**16.3**
SHRUBS																	
Prunus virginiana		1								1	**0.20**	***20***					
Ribes aureum		12		0.3	2					1	**1.53**	***40***					
Rosa woodsii	0.3	0.3		2		8					**1.06**	***40***		3	**1.50**	***50***	
Symphoricarpos occidentalis				7	1	4					**1.20**	***30***	18	2	**10.00**	***100***	
TOTAL SHRUBS	**0.3**	**13.3**	**0.0**	**9.3**	**3.0**	**12.0**	**0.0**	**0.0**	**0.0**	**2.0**	**3.99**	***60***	**18.0**	**5.0**	**11.50**	***100***	**0.0**
TREES 0.01-acre																	
Acer negundo	55	90	5	8	85	60	56	74	90	85	**60.80**	***100***	8	26	**17.00**	***100***	
Fraxinus pennsylvanica																	24
Juniperus scopulorum																	6
TOTAL TREES 0.01-acre	**55.0**	**90.0**	**5.0**	**8.0**	**85.0**	**60.0**	**56.0**	**74.0**	**90.0**	**85.0**	**60.80**	***100***	**8.0**	**26.0**	**17.00**	***100***	**30.0**
TREES 0.1-acre																	
Acer negundo	44	72	18	28	56	56	38	58	70	65	**50.50**	***100***	24	18	**21.00**	***100***	
Fraxinus pennsylvanica																	17
Juniperus scopulorum																	9
Pinus ponderosa																	5
TOTAL TREES 0.1-acre	**44.0**	**72.0**	**18.0**	**28.0**	**56.0**	**56.0**	**38.0**	**58.0**	**70.0**	**65.0**	**50.50**	***100***	**24.0**	**18.0**	**21.00**	***100***	**31.0**
TOTAL VEGETATION (Stratified)	**173.3**	**189.9**	**77.2**	**110.2**	**138.9**	**119.0**	**64.9**	**166.5**	**166.6**	**131.9**	**133.84**	***100***	**101.6**	**91.6**	**96.60**	***100***	**171.5**

Footnotes are presented on cover page B-ii.

APPENDIX C

Shrub Density (Plants Per Acre) by Plot for Community Types Identified in the Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

TABLE	COMMUNITY TYPE[1]	PAGE
	GRASSLAND	
C1	*Agropyron smithii / Bouteloua gracilis*	C-1
C2	*Agropyron smithii / Stipa viridula*	C-2
C3	*Stipa comata / Agropyron smithii*	C-10
C4	*Stipa comata / Carex filifolia*	C-11
	Agropyron spicatum / Stipa comata	
C5	*Agropyron spicatum / Bouteloua curtipendula*	C-12
C6	*Andropogon scoparius / Agropyron spicatum*	C-13
C7	*Andropogon scoparius / Bouteloua curtipendula*	C-14
C8	*Andropogon scoparius / Calamovilfa longifolia*	C-15
	Calamovilfa longifolia / Stipa comata	
	TAME PASTURE	
C9	Hay Cropland and Pastureland	C-16
	SHRUB / GRASSLAND	
C10	*Artemisia cana / Agropyron smithii*	C-17
C11	*Artemisia tridentata / Agropyron smithii*	C-23
C12	*Artemisia tridentata / Agropyron spicatum*	C-31
C13	*Artemisia tridentata / Andropogon scoparius*	C-35
	BREAKS	
C14	**Grass-Dominated Breaks**	
	Agropyron smithii Breaks	C-36
C15	*Agropyron spicatum* Breaks	C-37
	Sporobolus airoides Breaks	
C16	*Calamovilfa longifolia* Breaks	C-38
C17	**Shrub-Dominated Breaks**	
	Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron smithii	C-39
C18	*Rhus aromatica / Agropyron spicatum-Andropogon scoparius*	C-43
C19	*Artemisia tridentata-Rhus aromatica-Chrysothamnus nauseosus / Agropyron spicatum*	C-44
C20	*Artemisia tridentata-Rhus aromatica-Sarcobatus vermiculatus / Agropyron spicatum*	C-46
C21	*Artemisia tridentata-Atriplex confertifolia-Sarcobatus vermiculatus / Agropyron spicatum*	C-47
C22	*Artemisia tridentata-Atriplex confertifolia-Rhus aromatica / Agropyron spicatum*	C-49
C23	**Conifer-Dominated Breaks**	
	Juniperus scopulorum/Agropyron spicatum Breaks	C-50
C24	*Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum* Breaks	C-51
C25	*Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius* Breaks	C-53
C26	*Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata* Breaks	C-55
C27	*Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata-Atriplex confertifolia* Breaks	C-56
	PONDEROSA PINE-JUNIPER FOREST AND SAVANNAH	
C28	**Ponderosa Pine-Juniper / Grass**	
	Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum	C-58
C29	*Juniper scopulorum-Pinus ponderosa / Oryzopsis micrantha*	C-68
	Pinus ponderosa-Juniper scopulorum / Festuca idahoensis	
C30	*Pinus ponderosa-Juniper scopulorum / Andropogon scoparius*	C-69
C31	**Ponderosa Pine-Juniper / Shrub**	
	Drainage *Juniperus scopulorum-Pinus ponderosa / Symphoricarpos occidentalis-Agropyron smithii*	C-73
C32	*Pinus ponderosa-Juniper scopulorum / Prunus virginiana*	C-74

APPENDIX C

Shrub Density (Plants Per Acre) by Plot for Community Types Identified in the Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

TABLE	COMMUNITY TYPE[1]	PAGE
	DRAINAGE BOTTOM	
C33	**Mesophytic/Hydrophytic Herbaceous Bottom**	C-75
	Sporobolus airoides / Agropyron smithii	
	Spartina pectinata / Bromus inermis	
	Spartina pectinata / Hordeum jubatum	
	Spartina pectinata / Panicum virgatum	
	Scirpus maritimus / Sporobolus airoides-Distichlis stricta	
	Eleocharis palustris / Scirpus americanus-Juncus torreyi	
	Typha latifolia / Bromus inermis	
	Typha latifolia / Spartina pectinata	
	Scirpus acutus-Scirpus validus / Spartina pectinata	
	Scirpus acutus-Scirpus validus / Typha latifolia	
C34	**Mesophytic Low Shrub Bottom**	C-79
	Symphoricarpos occidentalis-Artemisia tridentata-Sarcobatus vermiculatus / Agropyron smithii	
	Artemisia cana-Rosa woodsii / Agropyron smithii-Poa pratensis	
	Symphoricarpos occidentalis-Artemisia cana / Agropyron smithii-Poa pratensis	
	Symphoricarpos occidentalis-Rosa woodsii / Poa pratensis-Agropyron smithii	
C35	**Mesophytic Tall Shrub Bottom**	C-83
	Prunus virginiana / Symphoricarpos occidentalis-Poa pratensis	
C36	**Mesophytic Deciduous Tree Bottom**	C-84
	Populus deltoides / Bromus inermis	
	Populus deltoides-Acer negundo / Bromus inermis	
	Populus deltoides / Symphoricarpos occidentalis-Poa pratensis	
	Populus deltoides-Fraxinus pennsylvanica-Acer negundo / Symphoricarpos occidentalis	
	Populus deltoides-Salix amygdaloides / Salix exigua	
	Populus deltoides / Prunus virginiana	
	Acer negundo / Bromus inermis	
	Acer negundo / Spartina pectinata	
	Fraxinus pennsylvanica / Poa pratensis	

[1]In this classification, community types are named according to the following convention:

A slash (/) indicates a separation of species dominating different strata, namely the herbaceous, shrub and/or tree layers.

A hyphen (-) indicates species dominating the same stratum (understory, middle story or overstory) either or both of which may be dominant or codominant at a given sample site.

All plot locations are shown on the vegetation community type map (Plate 1). Plot numbers with an asterisk indicate sites associated with current and recent prairie dog colonies; prairie dogs conspicuously impact vegetation ecology in substantial portions of the study area, significantly affecting plant composition and diversity in the vicinity of their colonies.

Footnotes for the tables in Appendix C:

Binomials follow USDA Forest Service (1987).

Density counts in each 2 x 20-meter belt transect were converted to shrubs per acre using a conversion factor of 101.18.

Table C1. Shrub Density (Plants per Acre) by Species for 13 *AGROPYRON SMITHII / BOUTELOUA GRACILIS* **GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / BOUTELOUA GRACILIS													
	PLOT NUMBER													
	039*	041*	069*	071*	080*	106*	110	188	192	193	209*	210*	645*	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**													**n=13**
Artemisia cana														
immature/mature								1012					304	**101.2**
decadent														
Total live								1012					304	**101.2**
Artemisia tridentata														
immature/mature									101					**7.8**
decadent														
Total live									101					**7.8**
Atriplex nuttallii														
immature/mature									101					**7.8**
decadent														
Total live									101					**7.8**
Ceratoides lanata														
immature/mature									809					**62.3**
decadent														
Total live									809					**62.3**
TOTAL SHRUBS														
IMMATURE/MATURE								1012	1012				304	**179.0**
DECADENT														
TOTAL LIVE								1012	1012				304	**179.0**

Table C2. Shrub Density (Plants per Acre) by Species for 77 AGROPYRON SMITHII / STIPA VIRIDULA GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA																			
	PLOT NUMBER																			
SHRUB SPECIES/AGE CLASS	002	005	013	017	027	028	030	034	053	057	058	059*	061	065*	066	068*	075	087	091	101
	Plants Per Acre																			
Artemisia cana																				
immature/mature						911			708				304							
decadent																				
Total live						911			708				304							
Artemisia tridentata																				
immature/mature			101	1012	304			202	202								506	708		
decadent																				
Total live			101	1012	304			202	202								506	708		
Atriplex nuttallii																				
immature/mature		405																		
decadent																				
Total live		405																		
Ceratoides lanata																				
immature/mature			607		1214													101		
decadent																				
Total live			607		1214													101		
Rhus aromatica																				
immature/mature																				
decadent																				
Total live																				
Rosa arkansana																				
immature/mature																				
decadent																				
Total live																				
Rosa woodsii																				
immature/mature																				
decadent																				
Total live																				
Sarcobatus vermiculatus																				
immature/mature																				
decadent																				
Total live																				

Table C2. Shrub Density (Plants per Acre) by Species for 77 AGROPYRON SMITHII / STIPA VIRIDULA GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA																			
	PLOT NUMBER																			
SHRUB SPECIES/AGE CLASS	002	005	013	017	027	028	030	034	053	057	058	059*	061	065*	066	068*	075	087	091	101
	Plants Per Acre																			
Symphoricarpos occidentalis																				
immature/mature																				
decadent																				
Total live																				
TOTAL SHRUBS																				
IMMATURE/MATURE		**405**	**708**	**1012**	**1518**	**911**		**202**	**911**				**304**				**506**	**809**		
DECADENT																				
TOTAL LIVE		**405**	**708**	**1012**	**1518**	**911**		**202**	**911**				**304**				**506**	**809**		

Table C2. Shrub Density (Plants per Acre) by Species for 77 AGROPYRON SMITHII / STIPA VIRIDULA GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA																			
	PLOT NUMBER																			
SHRUB SPECIES/AGE CLASS	113	124	127	128	130	137	139	140	141	143	152	153	154	155	157	158	159	160	165	171
	Plants Per Acre																			
Artemisia cana																				
immature/mature	202																3541			
decadent																				
Total live	202																3541			
Artemisia tridentata																				
immature/mature						304	708									304	101		809	708
decadent																				101
Total live						304	708									304	101		809	809
Atriplex nuttallii																				
immature/mature																				
decadent																				
Total live																				
Ceratoides lanata																				
immature/mature								708							506	101		405		
decadent																				
Total live								708							506	101		405		
Rhus aromatica																				
immature/mature																				
decadent																				
Total live																				
Rosa arkansana																				
immature/mature																				
decadent																				
Total live																				
Rosa woodsii																				
immature/mature																	101			
decadent																				
Total live																	101			
Sarcobatus vermiculatus																				
immature/mature																				
decadent																				
Total live																				

Table C2. Shrub Density (Plants per Acre) by Species for 77 AGROPYRON SMITHII / STIPA VIRIDULA GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA																			
	PLOT NUMBER																			
SHRUB SPECIES/AGE CLASS	113	124	127	128	130	137	139	140	141	143	152	153	154	155	157	158	159	160	165	171
	Plants Per Acre																			
Symphoricarpos occidentalis																				
immature/mature																				
decadent																				
Total live																				
TOTAL SHRUBS																				
IMMATURE/MATURE	**202**					**304**	**708**	**708**							**506**	**405**	**3744**	**405**	**809**	**708**
DECADENT																				**101**
TOTAL LIVE	**202**					**304**	**708**	**708**							**506**	**405**	**3744**	**405**	**809**	**809**

Table C2. Shrub Density (Plants per Acre) by Species for 77 AGROPYRON SMITHII / STIPA VIRIDULA GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA																			
	PLOT NUMBER																			
SHRUB SPECIES/AGE CLASS	175	184	185*	190	194	202	203	207	208	262	570	575	586	592	593	594	595	596	597	598
	Plants Per Acre																			
Artemisia cana																				
immature/mature						708						304	304		101		304	101		101
decadent												101								
Total live						708						405	304		101		304	101		101
Artemisia tridentata																				
immature/mature	405			202	202					911			202	202	506	101			304	
decadent	202														101					
Total live	607			202	202					911			202	202	607	101			304	
Atriplex nuttallii																				
immature/mature																				
decadent																				
Total live																				
Ceratoides lanata																				
immature/mature					101															
decadent																				
Total live					101															
Rhus aromatica																				
immature/mature																				
decadent																				
Total live																				
Rosa arkansana																				
immature/mature																				
decadent																				
Total live																				
Rosa woodsii																				
immature/mature															9814					202
decadent																				
Total live															9814					202
Sarcobatus vermiculatus																				
immature/mature																		101	101	
decadent																				
Total live																		101	101	

Table C2. Shrub Density (Plants per Acre) by Species for 77 AGROPYRON SMITHII / STIPA VIRIDULA GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA																			
	PLOT NUMBER																			
SHRUB SPECIES/AGE CLASS	175	184	185*	190	194	202	203	207	208	262	570	575	586	592	593	594	595	596	597	598
	Plants Per Acre																			
Symphoricarpos occidentalis																				
immature/mature															5868					
decadent																				
Total live															5868					
TOTAL SHRUBS																				
IMMATURE/MATURE	**405**			**202**	**304**	**708**				**911**		**304**	**506**	**202**	**16290**	**101**	**304**	**202**	**405**	**304**
DECADENT	**202**											**101**			**101**					
TOTAL LIVE	**607**			**202**	**304**	**708**				**911**		**405**	**506**	**202**	**16391**	**101**	**304**	**202**	**405**	**304**

Table C2. Shrub Density (Plants per Acre) by Species for 77 AGROPYRON SMITHII / STIPA VIRIDULA GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA																	
	PLOT NUMBER																	
SHRUB SPECIES/AGE CLASS	599	612	613	627	628	635	636	643*	644*	656*	683	684	689	691	695	697	700	**Mean n=77**
	Plants Per Acre																	
Artemisia cana																		
immature/mature							506		405		101			911				**123.5**
decadent																		**1.3**
Total live							506		405		101			911				**124.8**
Artemisia tridentata																		
immature/mature	101			911	607						506		809					**155.1**
decadent					101													**6.6**
Total live	101			911	708						506		809					**161.6**
Atriplex nuttallii																		
immature/mature																202		**7.9**
decadent																		
Total live																202		**7.9**
Ceratoides lanata																		
immature/mature																202		**51.2**
decadent																		
Total live																202		**51.2**
Rhus aromatica																		
immature/mature							202											**2.6**
decadent																		
Total live							202											**2.6**
Rosa arkansana																		
immature/mature		17201	16998	1417		14266					5666			1821			1214	**760.8**
decadent																		
Total live		17201	16998	1417		14266					5666			1821			1214	**760.8**
Rosa woodsii																		
immature/mature												2833						**168.2**
decadent																		
Total live												2833						**168.2**
Sarcobatus vermiculatus																		
immature/mature																		**2.6**
decadent																		
Total live																		**2.6**

Table C2. Shrub Density (Plants per Acre) by Species for 77 AGROPYRON SMITHII / STIPA VIRIDULA GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SMITHII / STIPA VIRIDULA																	
	PLOT NUMBER																	
SHRUB SPECIES/AGE CLASS	599	612	613	627	628	635	636	643*	644*	656*	683	684	689	691	695	697	700	**Mean n=77**
	Plants Per Acre																	
Symphoricarpos occidentalis																		
immature/mature												202		4250				**134.0**
decadent																		
Total live												202		4250				**134.0**
TOTAL SHRUBS																		
IMMATURE/MATURE	**101**	**17201**	**16998**	**2327**	**607**	**14266**	**708**		**405**		**6273**	**3035**	**809**	**6981**		**405**	**1214**	**1406.0**
DECADENT					**101**													**7.9**
TOTAL LIVE	**101**	**17201**	**16998**	**2327**	**708**	**14266**	**708**		**405**		**6273**	**3035**	**809**	**6981**		**405**	**1214**	**1413.9**

Table C3. Shrub Density (Plants per Acre) by Species for 20 STIPA COMATA / AGROPYRON SMITHII GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	STIPA COMATA / AGROPYRON SMITHII																				
	PLOT NUMBER																				
	020	038	042	050	051	054*	055*	063	072*	076	093	095	109	115	125	166	191	211	234	340	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**																				**n=20**
Artemisia cana																					
immature/mature		809	202											202	101						**65.8**
decadent																					
Total live		809	202											202	101						**65.8**
Artemisia tridentata																					
immature/mature			809				506	304					101			101				1315	**156.8**
decadent								101													**5.1**
Total live			809				506	405					101			101				1315	**161.9**
Ceratoides lanata																					
immature/mature	202							1113						506			202				**101.2**
decadent																					
Total live	202							1113						506			202				**101.2**
TOTAL SHRUBS																					
IMMATURE/MATURE	202	809	1012				506	1417					101	708	101	101	202			1315	**323.8**
DECADENT								101													**5.1**
TOTAL LIVE	202	809	1012				506	1518					101	708	101	101	202			1315	**328.8**

Table C4. Shrub Density (Plants per Acre) by Species for Three STIPA COMATA / CAREX FILIFOLIA and Four AGROPYRON SPICATUM / STIPA COMATA GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	STIPA COMATA / CAREX FILIFOLIA				***AGROPYRON SPICATUM / STIPA COMATA***				
	PLOT NUMBER				**PLOT NUMBER**				
	142	168	226	**Mean**	015	084	189	248	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**			**n=3**	**Plants Per Acre**				**n=4**
Artemisia cana									
immature/mature			405	**134.9**					
decadent									
Total live			405	**134.9**					
Artemisia tridentata									
immature/mature	1518			**505.9**			708	506	**303.5**
decadent	202			**67.5**			202		**50.6**
Total live	1720			**573.4**			911	506	**354.1**
Rhus aromatica									
immature/mature			101	**33.7**					
decadent									
Total live			101	**33.7**					
TOTAL SHRUBS									
IMMATURE/MATURE	**1518**		**506**	**674.5**			**708**	**506**	**303.5**
DECADENT	**202**			**67.5**			**202**		**50.6**
TOTAL LIVE	**1720**		**506**	**742.0**			**911**	**506**	**354.1**

Table C5. Shrub Density (Plants per Acre) by Species for Eight AGROPYRON SPICATUM / BOUTELOUA CURTIPENDULA GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGROPYRON SPICATUM / BOUTELOUA CURTIPENDULA								
	PLOT NUMBER								
	024	074	098	163	266	320	321	332	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**								**n=8**
Artemisia tridentata									
immature/mature	1619	405	607	607	304			911	**556.5**
decadent	405								**50.6**
Total live	2024	405	607	607	304			911	**607.1**
Ceratoides lanata									
immature/mature			202						**25.3**
decadent									
Total live			202						**25.3**
Rhus aromatica									
immature/mature							101		**12.6**
decadent									
Total live							101		**12.6**
Rosa arkansana									
immature/mature		506					202		**88.5**
decadent									
Total live		506					202		**88.5**
TOTAL SHRUBS									
IMMATURE/MATURE	**1619**	**911**	**809**	**607**	**304**		**304**	**911**	**683.0**
DECADENT	**405**								**50.6**
TOTAL LIVE	**2024**	**911**	**809**	**607**	**304**		**304**	**911**	**733.6**

Table C6. Shrub Density (Plants per Acre) by Species for 11 ANDROPOGON SCOPARIUS / AGROPYRON SPICATUM GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ANDROPOGON SCOPARIUS / AGROPYRON SPICATUM											
	PLOT NUMBER											
	178	227	232	247*	264	322	338	339	343	408	611	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**											**n=11**
Artemisia cana												
immature/mature									202		304	**46.0**
decadent												
Total live									202		304	**46.0**
Artemisia tridentata												
immature/mature		101	1113	405	809		405	506				**303.5**
decadent					101							**9.2**
Total live		101	1113	405	911		405	506				**312.7**
Calylophus serrulatus												
immature/mature						405	506	809				**156.4**
decadent												
Total live						405	506	809				**156.4**
Chrysothamnus nauseosus												
immature/mature			202									**18.4**
decadent												
Total live			202									**18.4**
Rhus aromatica												
immature/mature									202	202		**36.8**
decadent												
Total live									202	202		**36.8**
Rosa arkansana												
immature/mature								2833			304	**285.1**
decadent												
Total live								2833			304	**285.1**
Symphoricarpos occidentalis												
immature/mature											1113	**101.2**
decadent												
Total live											1113	**101.2**
TOTAL SHRUBS												
IMMATURE/MATURE		**101**	**1315**	**405**	**809**	**405**	**911**	**4148**	**405**	**202**	**1720**	**947.4**
DECADENT					**101**							**9.2**
TOTAL LIVE		**101**	**1315**	**405**	**911**	**405**	**911**	**4148**	**405**	**202**	**1720**	**956.6**

Table C7. Shrub Density (Plants per Acre) by Species for Seven ANDROPOGON SCOPARIUS / BOUTELOUA CURTIPENDULA GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ANDROPOGON SCOPARIUS / BOUTELOUA CURTIPENDULA							
	PLOT NUMBER							
	007	011	016	036	060	221	299	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**							**n=7**
Artemisia tridentata								
immature/mature		506	1821			2226	405	**708.3**
decadent								
Total live		506	1821			2226	405	**708.3**
Calylophus serrulatus								
immature/mature					304			**43.4**
decadent								
Total live					304			**43.4**
Ceratoides lanata								
immature/mature		202				202	304	**101.2**
decadent								
Total live		202				202	304	**101.2**
Chrysothamnus nauseosus								
immature/mature						405		**57.8**
decadent								
Total live						405		**57.8**
Rosa arkansana								
immature/mature			1619	304		1922		**549.3**
decadent								
Total live			1619	304		1922		**549.3**
TOTAL SHRUBS								
IMMATURE/MATURE		**708**	**3440**	**304**	**304**	**4755**	**708**	**1459.9**
DECADENT								
TOTAL LIVE		**708**	**3440**	**304**	**304**	**4755**	**708**	**1459.9**

Table C8. Shrub Density (Plants per Acre) by Species for Four ANDROPOGON SCOPARIUS / CALAMOVILFA LONGIFOLIA and Five CALAMOVILFA LONGIFOLIA / STIPA COMATA GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ANDROPOGON SCOPARIUS / CALAMOVILFA LONGIFOLIA					***CALAMOVILFA LONGIFOLIA / STIPA COMATA***					
	PLOT NUMBER					**PLOT NUMBER**					
	129	145	290	311	**Mean**	116	121	126	180	197	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**				**n=4**	**Plans Per Acre**					**n=5**
Artemisia cana											
immature/mature							506	202		101	**161.9**
decadent											
Total live							506	202		101	**161.9**
Artemisia tridentata											
immature/mature	101		202	1417	**430.0**				911	202	**222.6**
decadent		101			**25.3**				101		**20.2**
Total live	101	101	202	1417	**455.3**				1012	202	**242.8**
Calylophus serrulatus											
immature/mature			202		**50.6**						
decadent											
Total live			202		**50.6**						
Chrysothamnus nauseosus											
immature/mature				202	**50.6**						
decadent											
Total live				202	**50.6**						
Rosa woodsii											
immature/mature			101		**25.3**						
decadent											
Total live			101		**25.3**						
TOTAL SHRUBS											
IMMATURE/MATURE	**101**		**506**	**1619**	**556.5**		**506**	**202**	**911**	**304**	**384.5**
DECADENT		**101**			**25.3**				**101**		**20.2**
TOTAL LIVE	**101**	**101**	**506**	**1619**	**581.8**		**506**	**202**	**1012**	**304**	**404.7**

Table C9

Shrub Density (Plants per Acre) by Species for 25 HAY CROPLAND and 18 PASTURELAND (TAME PASTURE) Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	HAY CROPLAND (TAME PASTURE)		PASTURELAND (TAME PASTURE)									
	PLOT NUMBER		PLOT NUMBER									
	558	Mean	006	022	023	169	576	578	581	582	655	Mean
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**	**n=25**	**Plants Per Acre**									**n=18**
Artemisia cana												
immature/mature	101	**4.0**			1113		506	405		4148	506	**371.0**
decadent					101							**5.6**
Total live	101	**4.0**			1214		506	405		4148	506	**376.6**
Artemisia tridentata												
immature/mature					1113	1012		202				**129.3**
decadent						304						**16.9**
Total live					1113	1315		202				**146.1**
Atriplex nuttallii												
immature/mature			3035	202								**179.9**
decadent												
Total live			3035	202								**179.9**
Symphoricarpos occidentalis												
immature/mature									1315			**73.1**
decadent												
Total live									1315			**73.1**
TOTAL SHRUBS												
IMMATURE/MATURE	**101**	**4.0**	**3035**	**202**	**2226**	**1012**	**506**	**607**	**1315**	**4148**	**506**	**753.2**
DECADENT					**101**	**304**						**22.5**
TOTAL LIVE	**101**	**4.0**	**3035**	**202**	**2327**	**1315**	**506**	**607**	**1315**	**4148**	**506**	**775.7**

Note: Sample sites (40m^2 belt transects) in which no shrubs were recorded are not included in this table.

Table C10. Shrub Density (Plants per Acre) by Species for 45 ARTEMISIA CANA/AGROPYRON SMITHII SHRUB/GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA CANA/AGROPYRON SMITHII																		
	PLOT NUMBER																		
	044	045	046	064	070	119	148	230	259	571	572	574	579	580	583	584	585	587	589
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**																		
Artemisia cana																			
immature/mature	2226	2024	2428	3035	4755	2226	5868	1214	1619	809	1315	1619	2934	1922	1315	2530	809	1417	5261
decadent				101	101			202							101				
Total live	2226	2024	2428	3137	4857	2226	5868	1417	1619	809	1315	1619	2934	1922	1417	2530	809	1417	5261
Artemisia tridentata																			
immature/mature							1214				304		2631	202			405		
decadent							101						101						
Total live							1315				304		2732	202			405		
Ceratoides lanata																			
immature/mature							1619												
decadent																			
Total live							1619												
Chrysothamnus nauseosus																			
immature/mature																		304	
decadent																			
Total live																		304	
Prunus virginiana																			
immature/mature																		506	
decadent																			
Total live																		506	
Rhus aromatica																			
immature/mature																		708	
decadent																			
Total live																		708	
Rosa woodsii																			
immature/mature			607																
decadent																			
Total live			607																
Symphoricarpos occidentalis																			
immature/mature			1315				3541												
decadent																			
Total live			1315				3541												

Table C10. Shrub Density (Plants per Acre) by Species for 45 ARTEMISIA CANA/AGROPYRON SMITHII SHRUB/GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA CANA/AGROPYRON SMITHII																		
	PLOT NUMBER																		
	044	045	046	064	070	119	148	230	259	571	572	574	579	580	583	584	585	587	589
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**																		
TOTAL SHRUBS																			
IMMATURE/MATURE	**2226**	**2024**	**4351**	**3035**	**4755**	**2226**	**12243**	**1214**	**1619**	**809**	**1619**	**1619**	**5565**	**2125**	**1315**	**2530**	**1214**	**2934**	**5261**
DECADENT				**101**	**101**		**101**	**202**					**101**		**101**				
TOTAL LIVE	**2226**	**2024**	**4351**	**3137**	**4857**	**2226**	**12344**	**1417**	**1619**	**809**	**1619**	**1619**	**5666**	**2125**	**1417**	**2530**	**1214**	**2934**	**5261**

Table C10. Shrub Density (Plants per Acre) by Species for 45 ARTEMISIA CANA/AGROPYRON SMITHII SHRUB/GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA CANA/AGROPYRON SMITHII																		
	PLOT NUMBER																		
	590	591	600	603	604	605	607	609	622	623	624	626	629	630	634	638	639	641	642
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**																		
Artemisia cana																			
immature/mature	1417	2530	506	1518	2833	1518	1720	1417	1113	3440	911	1518	1720	1315	5261	2125	3238	1214	2125
decadent					506	202				607	101	202		202	202	809			
Total live	1417	2530	506	1518	3339	1720	1720	1417	1113	4047	1012	1720	1720	1518	5464	2934	3238	1214	2125
Artemisia tridentata																			
immature/mature	101				1012	506			911	202					607	101		506	
decadent					202														
Total live	101				1214	506			911	202					607	101		506	
Ceratoides lanata																			
immature/mature																			
decadent																			
Total live																			
Chrysothamnus nauseosus																			
immature/mature																			
decadent																			
Total live																			
Prunus virginiana																			
immature/mature																	101		
decadent																			
Total live																	101		
Rhus aromatica																			
immature/mature														1315					
decadent																			
Total live														1315					
Rosa woodsii																			
immature/mature								708											
decadent																			
Total live								708											
Symphoricarpos occidentalis																			
immature/mature			6273	809										15177		1315	2125		
decadent																			
Total live			6273	809										15177		1315	2125		

Table C10. Shrub Density (Plants per Acre) by Species for 45 ARTEMISIA CANA/AGROPYRON SMITHII SHRUB/GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA CANA/AGROPYRON SMITHII																		
	PLOT NUMBER																		
	590	591	600	603	604	605	607	609	622	623	624	626	629	630	634	638	639	641	642
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**																		
TOTAL SHRUBS																			
IMMATURE/MATURE	**1518**	**2530**	**6779**	**2327**	**3845**	**2024**	**1720**	**2125**	**2024**	**3642**	**911**	**1518**	**1720**	**17808**	**5868**	**3541**	**5464**	**1720**	**2125**
DECADENT					**708**	**202**				**607**	**101**	**202**		**202**	**202**	**809**			
TOTAL LIVE	**1518**	**2530**	**6779**	**2327**	**4553**	**2226**	**1720**	**2125**	**2024**	**4250**	**1012**	**1720**	**1720**	**18010**	**6071**	**4351**	**5464**	**1720**	**2125**

Table C10. Shrub Density (Plants per Acre) by Species for 45 ARTEMISIA CANA/AGROPYRON SMITHII SHRUB/GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA CANA/AGROPYRON SMITHII							
	PLOT NUMBER							
	678	679	693	694	701	702	703	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**							**n=45**
Artemisia cana								
immature/mature	304	708	1315	2428	607	2327	1113	**2034.8**
decadent	607		304					**94.4**
Total live	911	708	1619	2428	607	2327	1113	**2129.3**
Artemisia tridentata								
immature/mature				405				**202.4**
decadent								**9.0**
Total live				405				**211.4**
Ceratoides lanata								
immature/mature								**36.0**
decadent								
Total live								**36.0**
Chrysothamnus nauseosus								
immature/mature								**6.7**
decadent								
Total live								**6.7**
Prunus virginiana								
immature/mature								**13.5**
decadent								
Total live								**13.5**
Rhus aromatica								
immature/mature								**45.0**
decadent								
Total live								**45.0**
Rosa woodsii								
immature/mature	708		708					**60.7**
decadent								
Total live	708		708					**60.7**
Symphoricarpos occidentalis								
immature/mature				18314				**1086.0**
decadent								
Total live				18314				**1086.0**

Table C10. Shrub Density (Plants per Acre) by Species for 45 ARTEMISIA CANA/AGROPYRON SMITHII SHRUB/GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA CANA/AGROPYRON SMITHII							
	PLOT NUMBER							
	678	679	693	694	701	702	703	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**							**n=45**
TOTAL SHRUBS								
IMMATURE/MATURE	**1012**	**708**	**2024**	**21147**	**607**	**2327**	**1113**	**3485.1**
DECADENT	**607**		**304**					**103.4**
TOTAL LIVE	**1619**	**708**	**2327**	**21147**	**607**	**2327**	**1113**	**3588.5**

Table C11. Shrub Density (Plants per Acre) by Species for 67 ARTEMISIA TRIDENTATA / AGROPYRON SMITHII SHRUB/GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII																		
	PLOT NUMBER																		
SHRUB SPECIES/AGE CLASS	001	004	008	009	014	018	019	021	025	026	029	032	043	052	062	067	073	078	082
	Plants Per Acre																		
Artemisia cana																			
immature/mature													1518						
decadent													101						
Total live													1619						
Artemisia tridentata																			
immature/mature	1619	2934	2226	5261	1012	607	1720	5363	1012	911	708	6273	1619	1417	2327	1214	1315	2732	1821
decadent	101	101	607	405		405	202	304		304	101	506	304	405	405	405	202	101	
Total live	1720	3035	2833	5666	1012	1012	1922	5666	1012	1214	809	6779	1922	1821	2732	1619	1518	2833	1821
Atriplex nuttallii																			
immature/mature																			
decadent																			
Total live																			
Ceratoides lanata																			
immature/mature				304															911
decadent																			
Total live				304															911
Prunus virginiana																			
immature/mature													101						
decadent																			
Total live													101						
Rhus aromatica																			
immature/mature																			
decadent																			
Total live																			
Rosa arkansana																			
immature/mature																			
decadent																			
Total live																			
Rosa woodsii																			
immature/mature							5565												
decadent																			
Total live							5565												

Table C11. Shrub Density (Plants per Acre) by Species for 67 ARTEMISIA TRIDENTATA / AGROPYRON SMITHII SHRUB/GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII																		
	PLOT NUMBER																		
SHRUB SPECIES/AGE CLASS	001	004	008	009	014	018	019	021	025	026	029	032	043	052	062	067	073	078	082
	Plants Per Acre																		
Sarcobatus vermiculatus																			
immature/mature										405									
decadent																			
Total live										405									
TOTAL SHRUBS																			
IMMATURE/MATURE	**1619**	**2934**	**2226**	**5565**	**1012**	**607**	**7285**	**5363**	**1012**	**1315**	**708**	**6273**	**3238**	**1417**	**2327**	**1214**	**1315**	**2732**	**2732**
DECADENT	**101**	**101**	**607**	**405**		**405**	**202**	**304**		**304**	**101**	**506**	**405**	**405**	**405**	**405**	**202**	**101**	
TOTAL LIVE	**1720**	**3035**	**2833**	**5970**	**1012**	**1012**	**7487**	**5666**	**1012**	**1619**	**809**	**6779**	**3642**	**1821**	**2732**	**1619**	**1518**	**2833**	**2732**

Table C11. Shrub Density (Plants per Acre) by Species for 67 ARTEMISIA TRIDENTATA / AGROPYRON SMITHII SHRUB/GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII																		
	PLOT NUMBER																		
SHRUB SPECIES/AGE CLASS	085	088	089	092	096	100	102	103	105	107	108	111	112	114	117	120	122	123	132
	Plants Per Acre																		
Artemisia cana																			
immature/mature									202							1518			
decadent																			
Total live									202							1518			
Artemisia tridentata																			
immature/mature	2024	3035	506	3440	1214	911	3238	2934	1922	3339	3035	1922	3137	2934	2833	1315	2934	3137	2631
decadent		506		304		202	202	304	101	1214	1315	506	202	607	506	101	101	202	
Total live	2024	3541	506	3744	1214	1113	3440	3238	2024	4553	4351	2428	3339	3541	3339	1417	3035	3339	2631
Atriplex nuttallii																			
immature/mature																			
decadent																			
Total live																			
Ceratoides lanata																			
immature/mature	708																		607
decadent																			
Total live	708																		607
Prunus virginiana																			
immature/mature																			
decadent																			
Total live																			
Rhus aromatica																			
immature/mature																			
decadent																			
Total live																			
Rosa arkansana																			
immature/mature																			
decadent																			
Total live																			
Rosa woodsii																			
immature/mature																			
decadent																			
Total live																			

Table C11. Shrub Density (Plants per Acre) by Species for 67 ARTEMISIA TRIDENTATA / AGROPYRON SMITHII SHRUB/GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII																		
	PLOT NUMBER																		
SHRUB SPECIES/AGE CLASS	085	088	089	092	096	100	102	103	105	107	108	111	112	114	117	120	122	123	132
	Plants Per Acre																		
Sarcobatus vermiculatus																			
immature/mature				101															
decadent																			
Total live				101															
TOTAL SHRUBS																			
IMMATURE/MATURE	**2732**	**3035**	**506**	**3541**	**1214**	**911**	**3238**	**2934**	**2125**	**3339**	**3035**	**1922**	**3137**	**2934**	**2833**	**2833**	**2934**	**3137**	**3238**
DECADENT		**506**		**304**		**202**	**202**	**304**	**101**	**1214**	**1315**	**506**	**202**	**607**	**506**	**101**	**101**	**202**	
TOTAL LIVE	**2732**	**3541**	**506**	**3845**	**1214**	**1113**	**3440**	**3238**	**2226**	**4553**	**4351**	**2428**	**3339**	**3541**	**3339**	**2934**	**3035**	**3339**	**3238**

Table C11. Shrub Density (Plants per Acre) by Species for 67 ARTEMISIA TRIDENTATA / AGROPYRON SMITHII SHRUB/GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII																		
	PLOT NUMBER																		
SHRUB SPECIES/AGE CLASS	133	134	136	138	146	147	150	151	156	162	164	167	170	173	177	181	182	186	195
	Plants Per Acre																		
Artemisia cana																			
immature/mature	101						1619											405	
decadent																			
Total live	101						1619											405	
Artemisia tridentata																			
immature/mature	1922	1417	1619	2428	3744	4857	809	1518	2631	1518	2428	1214	4148	2125	1821	1012	3238	809	2833
decadent		101		708	304	202	202	202	101	101	607		202	708		304		202	
Total live	1922	1518	1619	3137	4047	5059	1012	1720	2732	1619	3035	1214	4351	2833	1821	1315	3238	1012	2833
Atriplex nuttallii																			
immature/mature									202								405		
decadent																			
Total live									202								405		
Ceratoides lanata																			
immature/mature						202	506					911					911		
decadent																			
Total live						202	506					911					911		
Prunus virginiana																			
immature/mature																			
decadent																			
Total live																			
Rhus aromatica																			
immature/mature																			
decadent																			
Total live																			
Rosa arkansana																			
immature/mature																			
decadent																			
Total live																			
Rosa woodsii																			
immature/mature																			
decadent																			
Total live																			

Table C11. Shrub Density (Plants per Acre) by Species for 67 ARTEMISIA TRIDENTATA / AGROPYRON SMITHII SHRUB/GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII																		
	PLOT NUMBER																		
SHRUB SPECIES/AGE CLASS	133	134	136	138	146	147	150	151	156	162	164	167	170	173	177	181	182	186	195
	Plants Per Acre																		
Sarcobatus vermiculatus																			
immature/mature																			
decadent																			
Total live																			
TOTAL SHRUBS																			
IMMATURE/MATURE	**2024**	**1417**	**1619**	**2428**	**3744**	**5059**	**2934**	**1518**	**2833**	**1518**	**2428**	**2125**	**4148**	**2125**	**1821**	**1012**	**4553**	**1214**	**2833**
DECADENT		**101**		**708**	**304**	**202**	**202**	**202**	**101**	**101**	**607**		**202**	**708**		**304**		**202**	
TOTAL LIVE	**2024**	**1518**	**1619**	**3137**	**4047**	**5261**	**3137**	**1720**	**2934**	**1619**	**3035**	**2125**	**4351**	**2833**	**1821**	**1315**	**4553**	**1417**	**2833**

Table C11.

Shrub Density (Plants per Acre) by Species for 67 ARTEMISIA TRIDENTATA / AGROPYRON SMITHII SHRUB/GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII										
	PLOT NUMBER										
SHRUB SPECIES/AGE CLASS	198	205	206	218	312	341	602	625	647	651	**Mean n=67**
	Plants Per Acre										
Artemisia cana											
immature/mature			708				101				**92.1**
decadent											**1.5**
Total live			708				101				**93.6**
Artemisia tridentata											
immature/mature	4755	1315	1821	809	2631	3946	911	405	809	1922	**2238.0**
decadent	304	202	202	506	405	809					**262.8**
Total live	5059	1518	2024	1315	3035	4755	911	405	809	1922	**2500.8**
Atriplex nuttallii											
immature/mature											**9.1**
decadent											
Total live											**9.1**
Ceratoides lanata											
immature/mature											**75.5**
decadent											
Total live											**75.5**
Prunus virginiana											
immature/mature											**1.5**
decadent											
Total live											**1.5**
Rhus aromatica											
immature/mature										1113	**16.6**
decadent											
Total live										1113	**16.6**
Rosa arkansana											
immature/mature					4452						**66.4**
decadent											
Total live					4452						**66.4**
Rosa woodsii											
immature/mature											**83.1**
decadent											
Total live											**83.1**

Table C11.

Shrub Density (Plants per Acre) by Species for 67 ARTEMISIA TRIDENTATA / AGROPYRON SMITHII SHRUB/GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII										
	PLOT NUMBER										
SHRUB SPECIES/AGE CLASS	198	205	206	218	312	341	602	625	647	651	**Mean n=67**
	Plants Per Acre										
Sarcobatus vermiculatus											
immature/mature											**7.6**
decadent											
Total live											**7.6**
TOTAL SHRUBS											
IMMATURE/MATURE	**4755**	**1315**	**2530**	**809**	**7083**	**3946**	**1012**	**405**	**809**	**3035**	**2589.9**
DECADENT	**304**	**202**	**202**	**506**	**405**	**809**					**264.3**
TOTAL LIVE	**5059**	**1518**	**2732**	**1315**	**7487**	**4755**	**1012**	**405**	**809**	**3035**	**2854.2**

Table C12. Shrub Density (Plants per Acre) by Species for 27 ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM **SHRUB/ GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM																		
	PLOT NUMBER																		
	003	012	037	079	086	090	097	099	118	135	161	172	179	183	187	196	199	201	228
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**																		
Artemisia cana																			
immature/mature									101										
decadent																			
Total live									101										
Artemisia tridentata																			
immature/mature	1012	6273	708	4452	1012	3845	4553	1518	3440	1518	1417	1417	3946	1113	2428	1518	1720	4755	7892
decadent	304			304	101	304		202	405		202	506	607	101	304	202	202	405	101
Total live	1315	6273	708	4755	1113	4148	4553	1720	3845	1518	1619	1922	4553	1214	2732	1720	1922	5160	7993
Atriplex nuttallii																			
immature/mature																			
decadent																			
Total live																			
Ceratoides lanata																			
immature/mature			506				708												
decadent																			
Total live			506				708												
Chrysothamnus nauseosus																			
immature/mature											202								
decadent																			
Total live											202								
Rhus aromatica																			
immature/mature																		101	
decadent																			
Total live																		101	
Rosa arkansana																			
immature/mature																			
decadent																			
Total live																			
Rosa woodsii																			
immature/mature											101							304	
decadent																			
Total live											101							304	

Table C12. Shrub Density (Plants per Acre) by Species for 27 ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM **SHRUB/ GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM																		
	PLOT NUMBER																		
	003	012	037	079	086	090	097	099	118	135	161	172	179	183	187	196	199	201	228
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**																		
Sarcobatus vermiculatus																			
immature/mature																			
decadent																			
Total live																			
TOTAL SHRUBS																			
IMMATURE/MATURE	**1012**	**6273**	**1214**	**4452**	**1012**	**3845**	**5261**	**1518**	**3541**	**1518**	**1720**	**1417**	**3946**	**1113**	**2428**	**1518**	**1720**	**5160**	**7892**
DECADENT	**304**			**304**	**101**	**304**		**202**	**405**		**202**	**506**	**607**	**101**	**304**	**202**	**202**	**405**	**101**
TOTAL LIVE	**1315**	**6273**	**1214**	**4755**	**1113**	**4148**	**5261**	**1720**	**3946**	**1518**	**1922**	**1922**	**4553**	**1214**	**2732**	**1720**	**1922**	**5565**	**7993**

Table C12. Shrub Density (Plants per Acre) by Species for 27 ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM								
	PLOT NUMBER								
	229	252	260	327	342	344	345	588	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**								**n=27**
Artemisia cana									
immature/mature									**3.7**
decadent									
Total live									**3.7**
Artemisia tridentata									
immature/mature	5261	911	5059	2226	1214	1619	1214	911	**2701.9**
decadent	202	304	405			101	202	202	**209.9**
Total live	5464	1214	5464	2226	1214	1720	1417	1113	**2911.7**
Atriplex nuttallii									
immature/mature						708			**26.2**
decadent									
Total live						708			**26.2**
Ceratoides lanata									
immature/mature						2327			**131.2**
decadent									
Total live						2327			**131.2**
Chrysothamnus nauseosus									
immature/mature		101			202				**18.7**
decadent									
Total live		101			202				**18.7**
Rhus aromatica									
immature/mature									**3.7**
decadent									
Total live									**3.7**
Rosa arkansana									
immature/mature				1113					**41.2**
decadent									
Total live				1113					**41.2**
Rosa woodsii									
immature/mature									**15.0**
decadent									
Total live									**15.0**

Table C12. Shrub Density (Plants per Acre) by Species for 27 ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM **SHRUB/GRASSLAND** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA / AGROPYRON SPICATUM								
	PLOT NUMBER								
	229	252	260	327	342	344	345	588	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**								**n=27**
Sarcobatus vermiculatus									
immature/mature							101		**3.7**
decadent									
Total live							101		**3.7**
TOTAL SHRUBS									
IMMATURE/MATURE	**5261**	**1012**	**5059**	**3339**	**1417**	**4654**	**1315**	**911**	**2945.5**
DECADENT	**202**	**304**	**405**			**101**	**202**	**202**	**209.9**
TOTAL LIVE	**5464**	**1315**	**5464**	**3339**	**1417**	**4755**	**1518**	**1113**	**3155.3**

Table C13. Shrub Density (Plants per Acre) by Species for 10 ARTEMISIA TRIDENTATA/ ANDROPOGON SCOPARIUS SHRUB/GRASSLAND Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	ARTEMISIA TRIDENTATA/ANDROPOGON SCOPARIUS										
	PLOT NUMBER										
	010	031	081	083	094	144	149	200	220	313	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**										**n=10**
Artemisia cana											
immature/mature					202						**20.2**
decadent											
Total live					202						**20.2**
Artemisia tridentata											
immature/mature	708	1821	809	1214	2631	911	1518	1417	1821	1619	**1446.9**
decadent		202	101		911	202	405	809		202	**283.3**
Total live	708	2024	911	1214	3541	1113	1922	2226	1821	1821	**1730.2**
Chrysothamnus nauseosus											
immature/mature									202		**20.2**
decadent											
Total live									202		**20.2**
Rosa arkansana											
immature/mature		101									**10.1**
decadent											
Total live		101									**10.1**
TOTAL SHRUBS											
IMMATURE/MATURE	**708**	**1922**	**809**	**1214**	**2833**	**911**	**1518**	**1417**	**2024**	**1619**	**1497.5**
DECADENT		**202**	**101**		**911**	**202**	**405**	**809**		**202**	**283.3**
TOTAL LIVE	**708**	**2125**	**911**	**1214**	**3744**	**1113**	**1922**	**2226**	**2024**	**1821**	**1780.8**

C14. Shrub Density (Plants per Acre) by Species for Nine *AGROPYRON SMITHII* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***AGROPYRON SMITHII* BREAKS**									
	PLOT NUMBER									
	245	256	283	300	302	303	307	325	331	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**									**n=9**
Artemisia tridentata										
immature/mature		607		506	101	506		101	101	**213.6**
decadent				101						**11.2**
Total live		607		607	101	506		101	101	**224.8**
Atriplex confertifolia										
immature/mature									202	**22.5**
decadent										
Total live									202	**22.5**
Atriplex nuttallii										
immature/mature	3137									**348.5**
decadent										
Total live	3137									**348.5**
Ceratoides lanata										
immature/mature	405									**45.0**
decadent										
Total live	405									**45.0**
Chrysothamnus nauseosus										
immature/mature				101		304	304		202	**101.2**
decadent										
Total live				101		304	304		202	**101.2**
Sarcobatus vermiculatus										
immature/mature								202		**22.5**
decadent										
Total live								202		**22.5**
TOTAL SHRUBS										
IMMATURE/MATURE	**3541**	**607**		**607**	**101**	**809**	**304**	**304**	**506**	**753.2**
DECADENT				**101**						**11.2**
TOTAL LIVE	**3541**	**607**		**708**	**101**	**809**	**304**	**304**	**506**	**764.5**

C15. Shrub Density (Plants per Acre) by Species for Four *AGROPYRON SPICATUM* **BREAKS** and Four *SPOROBOLUS AIROIDES* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***AGROPYRON SPICATUM* BREAKS**					***SPOROBOLUS AIROIDES* BREAKS**				
	PLOT NUMBER					**PLOT NUMBER**				
	217	287	292	346	**Mean**	215	223	236	347	**Mean**
SHRUB SPECIES/AGE CLASS					**n=4**					**n=4**
Artemisia tridentata										
immature/mature		101	405	809	**328.8**			101	405	**126.5**
decadent			101		**25.3**					
Total live		101	506	809	**354.1**			101	405	**126.5**
Atriplex confertifolia										
immature/mature				202	**50.6**					
decadent										
Total live				202	**50.6**					
Ceratoides lanata										
immature/mature									101	**25.3**
decadent										
Total live									101	**25.3**
Chrysothamnus nauseosus										
immature/mature	304	506	506		**328.8**				304	**75.9**
decadent			202		**50.6**					
Total live	304	506	708		**379.4**				304	**75.9**
Rhus aromatica										
immature/mature			202		**50.6**					
decadent										
Total live			202		**50.6**					
Rosa arkansana										
immature/mature	506				**126.5**					
decadent										
Total live	506				**126.5**					
TOTAL SHRUBS										
IMMATURE/MATURE	**809**	**607**	**1113**	**1012**	**885.3**			**101**	**809**	**227.7**
DECADENT			**304**		**75.9**					
TOTAL LIVE	**809**	**607**	**1417**	**1012**	**961.2**			**101**	**809**	**227.7**

C16. Shrub Density (Plants per Acre) by Species for Five *CALAMOVILFA LONGIFOLIA* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***CALAMOVILFA LONGIFOLIA* BREAKS**					
	PLOT NUMBER					
	288	328	335	336	410	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**					**n=5**
Artemisia cana						
immature/mature	911					**182.1**
decadent						
Total live	911					**182.1**
Artemisia tridentata						
immature/mature	607	101		405		**222.6**
decadent			101	304		**80.9**
Total live	607	101	101	708		**303.5**
Chrysothamnus nauseosus						
immature/mature	304		202	708		**242.8**
decadent						
Total live	304		202	708		**242.8**
Rhus aromatica						
immature/mature					607	**121.4**
decadent						
Total live					607	**121.4**
TOTAL SHRUBS						
IMMATURE/MATURE	**1821**	**101**	**202**	**1113**	**607**	**769.0**
DECADENT			**101**	**304**		**80.9**
TOTAL LIVE	**1821**	**101**	**304**	**1417**	**607**	**849.9**

Table C17. Shrub Density (Plants per Acre) by Species for 25 *ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/ AGROPYRON SMITHII* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* BREAKS**																	
	PLOT NUMBER																	
	077	104	131	212	233	235	238	240	244	246	251	258	261	263	265	271	276	296
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**																	
Artemisia cana																		
immature/mature				1214					202									
decadent																		
Total live				1214					202									
Artemisia tridentata																		
immature/mature	607	101	2226		1012	1214	2024	1214	1113	101	911	304	1417	1417	911	1821	1922	
decadent							101	202		101			202					
Total live	607	101	2226		1012	1214	2125	1417	1113	202	911	304	1619	1417	911	1821	1922	
Atriplex confertifolia																		
immature/mature																		
decadent																		
Total live																		
Atriplex nuttallii																		
immature/mature						101			911									
decadent																		
Total live						101			911									
Ceratoides lanata																		
immature/mature									405									
decadent																		
Total live									405									
Chrysothamnus nauseosus																		
immature/mature				405		101	304	3642	607	708	405	101	101	1518	202			3642
decadent				101														
Total live				506		101	304	3642	607	708	405	101	101	1518	202			3642
Rhus aromatica																		
immature/mature							202											
decadent																		
Total live							202											
Sarcobatus vermiculatus																		
immature/mature	202	2732	405		202						708		101		304	2631		911
decadent																		
Total live	202	2732	405		202						708		101		304	2631		911

Table C17. Shrub Density (Plants per Acre) by Species for 25 *ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/ AGROPYRON SMITHII* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* BREAKS**																	
	PLOT NUMBER																	
	077	104	131	212	233	235	238	240	244	246	251	258	261	263	265	271	276	296
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**																	
TOTAL SHRUBS																		
IMMATURE/MATURE	**809**	**2833**	**2631**	**1619**	**1214**	**1417**	**2530**	**4857**	**3238**	**809**	**2024**	**405**	**1619**	**2934**	**1417**	**4452**	**1922**	**4553**
DECADENT				**101**			**101**	**202**		**101**			**202**					
TOTAL LIVE	**809**	**2833**	**2631**	**1720**	**1214**	**1417**	**2631**	**5059**	**3238**	**911**	**2024**	**405**	**1821**	**2934**	**1417**	**4452**	**1922**	**4553**

Table C17. Shrub Density (Plants per Acre) by Species for 25 *ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/ AGROPYRON SMITHII* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* BREAKS**							
	PLOT NUMBER							
	301	308	310	314	326	334	337	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**							**n=25**
Artemisia cana								
immature/mature								**56.7**
decadent								
Total live								**56.7**
Artemisia tridentata								
immature/mature	4553	304	1315	2125	1417	809	304	**1165.6**
decadent							405	**40.5**
Total live	4553	304	1315	2125	1417	809	708	**1206.1**
Atriplex confertifolia								
immature/mature	101							**4.0**
decadent								
Total live	101							**4.0**
Atriplex nuttallii								
immature/mature								**40.5**
decadent								
Total live								**40.5**
Ceratoides lanata								
immature/mature								**16.2**
decadent								
Total live								**16.2**
Chrysothamnus nauseosus								
immature/mature	101	101		202	809		911	**554.5**
decadent							101	**8.1**
Total live	101	101		202	809		1012	**562.6**
Rhus aromatica								
immature/mature								**8.1**
decadent								
Total live								**8.1**
Sarcobatus vermiculatus								
immature/mature	1012	202	607			809		**433.1**
decadent								
Total live	1012	202	607			809		**433.1**

Table C17. Shrub Density (Plants per Acre) by Species for 25 *ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/ AGROPYRON SMITHII* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SMITHII* BREAKS**							
	PLOT NUMBER							
	301	308	310	314	326	334	337	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**							**n=25**
TOTAL SHRUBS								
IMMATURE/MATURE	**5767**	**607**	**1922**	**2327**	**2226**	**1619**	**1214**	**2278.6**
DECADENT							**506**	**48.6**
TOTAL LIVE	**5767**	**607**	**1922**	**2327**	**2226**	**1619**	**1720**	**2327.1**

Table C18. Shrub Density (Plants per Acre) by Species for Four *RHUS AROMATICA/ AGROPYRON SPICATUM-ANDROPOGON SCOPARIUS* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***RHUS AROMATICA/AGROPYRON SPICATUM-ANDROPOGON SCOPARIUS* BREAKS**				
	PLOT NUMBER				
	047	048	049	388	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**				**n=4**
Prunus virginiana					
immature/mature		9309			**2327.1**
decadent					
Total live		9309			**2327.1**
Rhus aromatica					
immature/mature	708	3137	607	911	**1340.6**
decadent	101	304	101	304	**202.4**
Total live	809	3440	708	1214	**1543.0**
Ribes cereum					
immature/mature	202	506	304		**253.0**
decadent					
Total live	202	506	304		**253.0**
TOTAL SHRUBS					
IMMATURE/MATURE	**911**	**12951**	**911**	**911**	**3920.7**
DECADENT	**101**	**304**	**101**	**304**	**202.4**
TOTAL LIVE	**1012**	**13255**	**1012**	**1214**	**4123.1**

Table C19. Shrub Density (Plants per Acre) by Species for 15 ARTEMISIA TRIDENTATA-RHUS AROMATICA-CHRYSOTHAMNUS NAUSEOSUS/ AGROPYRON SPICATUM BREAKS Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-RHUS AROMATICA-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SPICATUM* BREAKS**															
	PLOT NUMBER															
	213	219	222	224	225	231	241	242	243	255	268	272	289	309	315	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**															**n=15**
Artemisia cana																
immature/mature		101				809										**60.7**
decadent																
Total live		101				809										**60.7**
Artemisia tridentata																
immature/mature	708	506	202	809	101	202	708	1619	2226	1922		1012	2327	2125	1821	**1086.0**
decadent									202	405			405	202	304	**101.2**
Total live	708	506	202	809	101	202	708	1619	2428	2327		1012	2732	2327	2125	**1187.2**
Chrysothamnus nauseosus																
immature/mature	911	304	5261		101		6981	405	2530	405			1012	101		**1200.7**
decadent	101												101			**13.5**
Total live	1012	304	5261		101		6981	405	2530	405			1113	101		**1214.2**
Rhus aromatica																
immature/mature	101	506		304	1012	1012		202			405	708	101	101		**296.8**
decadent											101					**6.7**
Total live	101	506		304	1012	1012		202			506	708	101	101		**303.5**
Rosa arkansana																
immature/mature	1113					101		5261						4553		**735.2**
decadent																
Total live	1113					101		5261						4553		**735.2**
Rosa woodsii																
immature/mature					2833									607		**229.3**
decadent																
Total live					2833									607		**229.3**
Sarcobatus vermiculatus																
immature/mature							202									**13.5**
decadent																
Total live							202									**13.5**

Table C19. Shrub Density (Plants per Acre) by Species for 15 ARTEMISIA TRIDENTATA-RHUS AROMATICA-CHRYSOTHAMNUS NAUSEOSUS/ AGROPYRON SPICATUM BREAKS Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-RHUS AROMATICA-CHRYSOTHAMNUS NAUSEOSUS/AGROPYRON SPICATUM* BREAKS**															
	PLOT NUMBER															
	213	219	222	224	225	231	241	242	243	255	268	272	289	309	315	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**															**n=15**
TOTAL SHRUBS																
IMMATURE/MATURE	**2833**	**1417**	**5464**	**1113**	**4047**	**2125**	**7892**	**7487**	**4755**	**2327**	**405**	**1720**	**3440**	**7487**	**1821**	**3622.2**
DECADENT	**101**								**202**	**405**	**101**		**506**	**202**	**304**	**121.4**
TOTAL LIVE	**2934**	**1417**	**5464**	**1113**	**4047**	**2125**	**7892**	**7487**	**4958**	**2732**	**506**	**1720**	**3946**	**7690**	**2125**	**3743.7**

Table C20. Shrub Density (Plants per Acre) by Species for Six *ARTEMISIA TRIDENTATA-RHUS AROMATICA-SARCOBATUS VERMICULATUS/ AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek, Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-RHUS AROMATICA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* BREAKS**						
	PLOT NUMBER						
	214	239	285	295	324	360	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**						**n=6**
Artemisia tridentata							
immature/mature	1113	2024	1720	1922	607	1619	**1500.8**
decadent	405					101	**84.3**
Total live	1518	2024	1720	1922	607	1720	**1585.2**
Chrysothamnus nauseosus							
immature/mature			101		607	101	**134.9**
decadent							
Total live			101		607	101	**134.9**
Rhus aromatica							
immature/mature	708		506		304		**253.0**
decadent							
Total live	708		506		304		**253.0**
Sarcobatus vermiculatus							
immature/mature	101	101	202	1214	202		**303.5**
decadent							
Total live	101	101	202	1214	202		**303.5**
TOTAL SHRUBS							
IMMATURE/MATURE	**1922**	**2125**	**2530**	**3137**	**1720**	**1720**	**2192.2**
DECADENT	**405**					**101**	**84.3**
TOTAL LIVE	**2327**	**2125**	**2530**	**3137**	**1720**	**1821**	**2276.6**

Table C21. Shrub Density (Plants per Acre) by Species for 26 *ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-SARCOBATUS VERMICULATUS/ AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* BREAKS**																	
	PLOT NUMBER																	
SHRUB SPECIES/AGE CLASS	237	249	250	253	254	257	269	270	273	274	275	277	278	279	280	281	282	284
	Plants Per Acre																	
Artemisia tridentata																		
immature/mature	1113	202	1922	708	101	2934	405	708	2024	2934	1619	1214	3339	3137	101	1214	1821	4553
decadent			607	101		101				506			101			101		304
Total live	1113	202	2530	809	101	3035	405	708	2024	3440	1619	1214	3440	3137	101	1315	1821	4857
Atriplex confertifolia																		
immature/mature		101	304	1315	202	405	304	304	101		607	1720	202	1012	405	911	101	911
decadent			101	101														
Total live		101	405	1417	202	405	304	304	101		607	1720	202	1012	405	911	101	911
Ceratoides lanata																		
immature/mature												1518				506		
decadent																		
Total live												1518				506		
Chrysothamnus nauseosus																		
immature/mature		708														304		
decadent																		
Total live		708														304		
Rosa arkansana																		
immature/mature																		
decadent																		
Total live																		
Sarcobatus vermiculatus																		
immature/mature	101	101	101	506	405			101	405				911		607			1619
decadent																		
Total live	101	101	101	506	405			101	405				911		607			1619
TOTAL SHRUBS																		
IMMATURE/MATURE	**1214**	**1113**	**2327**	**2530**	**708**	**3339**	**708**	**1113**	**2530**	**2934**	**2226**	**4452**	**4452**	**4148**	**1113**	**2934**	**1922**	**7083**
DECADENT			**708**	**202**		**101**				**506**			**101**			**101**		**304**
TOTAL LIVE	**1214**	**1113**	**3035**	**2732**	**708**	**3440**	**708**	**1113**	**2530**	**3440**	**2226**	**4452**	**4553**	**4148**	**1113**	**3035**	**1922**	**7386**

Table C21. Shrub Density (Plants per Acre) by Species for 26 *ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-SARCOBATUS VERMICULATUS/AGROPYRON SPICATUM* BREAKS**								
	PLOT NUMBER								
SHRUB SPECIES/AGE CLASS	286	291	306	323	329	330	333	517	**Mean n=26**
	Plants Per Acre								
Artemisia tridentata									
immature/mature	2226	2428	2934	911	304	1214	4148	506	**1720.1**
decadent		101	101						**77.8**
Total live	2226	2530	3035	911	304	1214	4148	506	**1797.9**
Atriplex confertifolia									
immature/mature	607		607		101		607		**416.4**
decadent									**7.8**
Total live	607		607		101		607		**424.2**
Ceratoides lanata									
immature/mature					506		202	304	**116.7**
decadent									
Total live					506		202	304	**116.7**
Chrysothamnus nauseosus									
immature/mature	304	202		1214	202	101		1214	**163.4**
decadent									
Total live	304	202		1214	202	101		1214	**163.4**
Rosa arkansana									
immature/mature				4148					**159.6**
decadent									
Total live				4148					**159.6**
Sarcobatus vermiculatus									
immature/mature		1315	304						**249.1**
decadent									
Total live		1315	304						**249.1**
TOTAL SHRUBS									
IMMATURE/MATURE	**3137**	**3946**	**3845**	**6273**	**1113**	**1315**	**4958**	**2024**	**2825.3**
DECADENT		**101**	**101**						**85.6**
TOTAL LIVE	**3137**	**4047**	**3946**	**6273**	**1113**	**1315**	**4958**	**2024**	**2910.9**

Table C22. Shrub Density (Plants per Acre) by Species for 13 *ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA- RHUS AROMATICA/AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA-RHUS AROMATICA/AGROPYRON SPICATUM* BREAKS**													
	PLOT NUMBER													
	216	267	293	294	297	298	304	305	317	318	319	363	379	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**													**n=13**
Artemisia tridentata														
immature/mature	3137	1315	506	405	1113	708	809	2226	1012	101	1315	1214	304	**1089.6**
decadent					101		304							**31.1**
Total live	3137	1315	506	405	1214	708	1113	2226	1012	101	1315	1214	304	**1120.8**
Atriplex confertifolia														
immature/mature	304	304		2428	506	1821	809	101	607	2833	101	1619	1821	**1019.6**
decadent						101				101			101	**23.3**
Total live	304	304	0	2428	506	1922	809	101	607	2934	101	1619	1922	**1042.9**
Chrysothamnus nauseosus														
immature/mature			101		101	101			202		202		607	**101.2**
decadent														
Total live			101		101	101			202		202		607	**101.2**
Rhus aromatica														
immature/mature		809	101		101			304						**101.2**
decadent														
Total live		809	101		101			304						**101.2**
Rosa arkansana														
immature/mature			1518											**116.7**
decadent														
Total live			1518											**116.7**
TOTAL SHRUBS														
IMMATURE/MATURE	**3440**	**2428**	**2226**	**2833**	**1821**	**2631**	**1619**	**2631**	**1821**	**2934**	**1619**	**2833**	**2732**	**2428.3**
DECADENT					**101**	**101**	**304**			**101**			**101**	**54.5**
TOTAL LIVE	**3440**	**2428**	**2226**	**2833**	**1922**	**2732**	**1922**	**2631**	**1821**	**3035**	**1619**	**2833**	**2833**	**2482.8**

Table C23. Shrub Density (Plants per Acre) by Species for 11 *JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* BREAKS**											
	PLOT NUMBER											
	361	381	387	390	402	416	430	515	516	520	538	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**											**n=11**
Artemisia tridentata												
immature/mature	405			101			202		202		506	**128.8**
decadent							405	101				**46.0**
Total live	405			101			607	101	202		506	**174.8**
Calylophus serrulatus												
immature/mature								101				**9.2**
decadent												
Total live								101				**9.2**
Chrysothamnus nauseosus												
immature/mature	202					607			304			**101.2**
decadent						101						**9.2**
Total live	202					708			304			**110.4**
Rhus aromatica												
immature/mature		101				101		1518			202	**174.8**
decadent												
Total live		101				101		1518			202	**174.8**
Rosa arkansana												
immature/mature	809							202				**92.0**
decadent												
Total live	809							202				**92.0**
Symphoricarpos occidentalis												
immature/mature											1619	**147.2**
decadent												
Total live											1619	**147.2**
TOTAL SHRUBS												
IMMATURE/MATURE	**1417**	**101**		**101**		**708**	**202**	**1821**	**506**		**2327**	**653.1**
DECADENT						**101**	**405**	**101**				**55.2**
TOTAL LIVE	**1417**	**101**		**101**		**809**	**607**	**1922**	**506**		**2327**	**708.3**

Table C24. Shrub Density (Plants per Acre) by Species for 17 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* BREAKS**																	
	PLOT NUMBER																	
	348	349	351	353	356	364	368	371	372	373	380	382	383	384	403	415	425	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**																	**n=17**
Artemisia cana																		
immature/mature	101																	**6.0**
decadent																		
Total live	101																	**6.0**
Artemisia tridentata																		
immature/mature			304	405			2631	304			101		202			506		**261.9**
decadent							607									101		**41.7**
Total live			304	405			3238	304			101		202			607		**303.5**
Chrysothamnus nauseosus																		
immature/mature	1720	809	101	809				101					304					**226.2**
decadent	101													101				**11.9**
Total live	1821	809	101	809				101					304	101				**238.1**
Rhus aromatica																		
immature/mature	202			101	1821		101	101	202	202	101		304		202	506		**226.2**
decadent																		
Total live	202			101	1821		101	101	202	202	101		304		202	506		**226.2**
Ribes cereum																		
immature/mature					101					304								**23.8**
decadent																		
Total live					101					304								**23.8**
Rosa arkansana																		
immature/mature	1214												1518					**160.7**
decadent																		
Total live	1214												1518					**160.7**
Sarcobatus vermiculatus																		
immature/mature							101											**6.0**
decadent																		
Total live							101											**6.0**

Table C24. Shrub Density (Plants per Acre) by Species for 17 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* BREAKS**																	
	PLOT NUMBER																	
	348	349	351	353	356	364	368	371	372	373	380	382	383	384	403	415	425	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**																	**n=17**
Shepherdia argentea																		
immature/mature				202														**11.9**
decadent																		
Total live				202														**11.9**
TOTAL SHRUBS																		
IMMATURE/MATURE	**3238**	**809**	**405**	**1518**	**1922**		**2833**	**506**	**202**	**506**	**202**		**2327**		**202**	**1012**		**922.5**
DECADENT	**101**						**607**							**101**		**101**		**53.6**
TOTAL LIVE	**3339**	**809**	**405**	**1518**	**1922**		**3440**	**506**	**202**	**506**	**202**		**2327**	**101**	**202**	**1113**		**976.1**

Table C25. Shrub Density (Plants per Acre) by Species for 15 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ANDROPOGON SCOPARIUS* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS* BREAKS**															
	PLOT NUMBER															
	350	355	357	359	362	365	366	369	370	374	375	378	437	449	465	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**															**n=15**
Artemisia cana																
immature/mature										809						**54.0**
decadent																
Total live										809						**54.0**
Artemisia tridentata																
immature/mature	2024	202	304		809			101			202		405		101	**276.6**
decadent																
Total live	2024	202	304		809			101			202		405		101	**276.6**
Calylophus serrulatus																
immature/mature							1214									**80.9**
decadent																
Total live							1214									**80.9**
Ceratoides lanata																
immature/mature			202													**13.5**
decadent																
Total live			202													**13.5**
Chrysothamnus nauseosus																
immature/mature	911				708							202	101	405		**155.1**
decadent												101				**6.7**
Total live	911				708							304	101	405		**161.9**
Rhus aromatica																
immature/mature	101	506		708		506			101	809	708		202	101		**249.6**
decadent				101												**6.7**
Total live	101	506		809		506			101	809	708		202	101		**256.3**
Rosa arkansana																
immature/mature	304										202					**33.7**
decadent																
Total live	304										202					**33.7**

Table C25. Shrub Density (Plants per Acre) by Species for 15 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ANDROPOGON SCOPARIUS* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS* BREAKS**															
	PLOT NUMBER															
	350	355	357	359	362	365	366	369	370	374	375	378	437	449	465	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**															**n=15**
Symphoricarpos occidentalis																
immature/mature											1214					**80.9**
decadent																
Total live											1214					**80.9**
TOTAL SHRUBS																
IMMATURE/MATURE	**3339**	**708**	**506**	**708**	**1518**	**506**	**1214**	**101**	**101**	**1619**	**2327**	**202**	**708**	**506**	**101**	**944.3**
DECADENT				**101**								**101**				**13.5**
TOTAL LIVE	**3339**	**708**	**506**	**809**	**1518**	**506**	**1214**	**101**	**101**	**1619**	**2327**	**304**	**708**	**506**	**101**	**957.8**

Table C26. Shrub Density (Plants per Acre) by Species for Four *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ARTEMISIA TRIDENTATA* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ARTEMISIA TRIDENTATA* BREAKS**				
	PLOT NUMBER				
	358	367	376	377	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**				**n=4**
Artemisia tridentata					
immature/mature	1315	1214	1417	1012	**1239.5**
decadent	405	101	405	202	**278.2**
Total live	1720	1315	1821	1214	**1517.7**
Atriplex confertifolia					
immature/mature	304	101			**101.2**
decadent					
Total live	304	101			**101.2**
Ceratoides lanata					
immature/mature	304	202			**126.5**
decadent					
Total live	304	202			**126.5**
Chrysothamnus nauseosus					
immature/mature	101	1821	202	506	**657.7**
decadent			101		**25.3**
Total live	101	1821	304	506	**683.0**
Rhus aromatica					
immature/mature				101	**25.3**
decadent					
Total live				101	**25.3**
Rosa arkansana					
immature/mature				405	**101.2**
decadent					
Total live				405	**101.2**
Symphoricarpos oreophilus					
immature/mature				4857	**1214.2**
decadent					
Total live				4857	**1214.2**
TOTAL SHRUBS					
IMMATURE/MATURE	**2024**	**3339**	**1619**	**6880**	**3465.4**
DECADENT	**405**	**101**	**506**	**202**	**303.5**
TOTAL LIVE	**2428**	**3440**	**2125**	**7083**	**3769.0**

Table C27. Shrub Density (Plants per Acre) by Species for Seven *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA* BREAKS**							
	PLOT NUMBER							
	316	352	354	385	386	404	534	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**							**n=7**
Artemisia tridentata								
immature/mature	1518	1619	506	809	708	1214	3642	**1431.0**
decadent			202					**28.9**
Total live	1518	1619	708	809	708	1214	3642	**1459.9**
Atriplex confertifolia								
immature/mature	405	2125	607	405	101		1012	**664.9**
decadent					101			**14.5**
Total live	405	2125	607	405	202		1012	**679.4**
Ceratoides lanata								
immature/mature			1012					**144.5**
decadent								
Total live			1012					**144.5**
Chrysothamnus nauseosus								
immature/mature	202		202	506		101	304	**187.9**
decadent								
Total live	202		202	506		101	304	**187.9**
Rhus aromatica								
immature/mature	304		506	304		101	304	**216.8**
decadent								
Total live	304		506	304		101	304	**216.8**
Rosa woodsii								
immature/mature			1417					**202.4**
decadent								
Total live			1417					**202.4**
Sarcobatus vermiculatus								
immature/mature						1012		**144.5**
decadent								
Total live						1012		**144.5**
Symphoricarpos occidentalis								
immature/mature			2833					**404.7**
decadent								
Total live			2833					**404.7**

Table C27. Shrub Density (Plants per Acre) by Species for Seven *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA* **BREAKS** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ARTEMISIA TRIDENTATA-ATRIPLEX CONFERTIFOLIA* BREAKS**							
	PLOT NUMBER							
	316	352	354	385	386	404	534	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**							**n=7**
TOTAL SHRUBS								
IMMATURE/MATURE	**2428**	**3744**	**7083**	**2024**	**809**	**2428**	**5261**	**3396.8**
DECADENT			**202**		**101**			**43.4**
TOTAL LIVE	**2428**	**3744**	**7285**	**2024**	**911**	**2428**	**5261**	**3440.1**

Table C28. Shrub Density (Plants per Acre) by Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
SHRUB SPECIES/AGE CLASS	391	392	393	396	397	399	400	401	405	406	413	414	417	418	419	420	421	422
	Plants Per Acre																	
Artemisia cana																		
immature/mature						101	1214											
decadent																		
Total live						101	1214											
Artemisia tridentata																		
immature/mature	202			101		911								202				
decadent						101		405										
Total live	202			101		1012		405						202				
Ceratoides lanata																		
immature/mature																		
decadent																		
Total live																		
Chrysothamnus nauseosus																		
immature/mature																		
decadent																		
Total live																		
Prunus virginiana																		
immature/mature																		
decadent																		
Total live																		
Rhus aromatica																		
immature/mature	101	101	101	202	607		607	101			101		809			101		
decadent																		
Total live	101	101	101	202	607		607	101			101		809			101		
Rosa arkansana																		
immature/mature		2833					1012											
decadent																		
Total live		2833					1012											
Rosa woodsii																		
immature/mature					202													
decadent																		
Total live					202													

Table C28. Shrub Density (Plants per Acre) by Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
SHRUB SPECIES/AGE CLASS	391	392	393	396	397	399	400	401	405	406	413	414	417	418	419	420	421	422
	Plants Per Acre																	
Symphoricarpos occidentalis																		
immature/mature																		
decadent																		
Total live																		
Symphoricarpos oreophilus																		
immature/mature																		
decadent																		
Total live																		
TOTAL SHRUBS																		
IMMATURE/MATURE	**304**	**2934**	**101**	**304**	**809**	**1012**	**2833**	**101**			**101**		**809**	**202**		**101**		
DECADENT						**101**		**405**										
TOTAL LIVE	**304**	**2934**	**101**	**304**	**809**	**1113**	**2833**	**506**			**101**		**809**	**202**		**101**		

Table C28. Shrub Density (Plants per Acre) by Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
SHRUB SPECIES/AGE CLASS	423	424	426	436	438	439	440	441	444	445	446	447	448	453	454	456	457	458
	Plants Per Acre																	
Artemisia cana																		
immature/mature													1113					
decadent																		
Total live													1113					
Artemisia tridentata																		
immature/mature							506		202	101	101	1417	202	1012	1720			
decadent											202	101			101			
Total live							506		202	101	304	1518	202	1012	1821			
Ceratoides lanata																		
immature/mature													809					
decadent																		
Total live													809					
Chrysothamnus nauseosus																		
immature/mature																		
decadent																		
Total live																		
Prunus virginiana																		
immature/mature																		
decadent																		
Total live																		
Rhus aromatica																		
immature/mature			101		202	101						911	101			304		
decadent																		
Total live			101		202	101						911	101			304		
Rosa arkansana																		
immature/mature																		
decadent																		
Total live																		
Rosa woodsii																		
immature/mature																		
decadent																		
Total live																		

Table C28. Shrub Density (Plants per Acre) by Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
SHRUB SPECIES/AGE CLASS	423	424	426	436	438	439	440	441	444	445	446	447	448	453	454	456	457	458
	Plants Per Acre																	
Symphoricarpos occidentalis																		
immature/mature						304						4047			304			
decadent																		
Total live						304						4047			304			
Symphoricarpos oreophilus																		
immature/mature																		
decadent																		
Total live																		
TOTAL SHRUBS																		
IMMATURE/MATURE			**101**		**202**	**405**	**506**		**202**	**101**	**101**	**6374**	**2226**	**1012**	**2024**	**304**		
DECADENT											**202**	**101**			**101**			
TOTAL LIVE			**101**		**202**	**405**	**506**		**202**	**101**	**304**	**6476**	**2226**	**1012**	**2125**	**304**		

Table C28. Shrub Density (Plants per Acre) by Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
SHRUB SPECIES/AGE CLASS	459	460	461	462	463	464	470	471	473	475	476	478	479	481	482	483	484	485
	Plants Per Acre																	
Artemisia cana																		
immature/mature																		
decadent																		
Total live																		
Artemisia tridentata																		
immature/mature		1113	101				304		607	304					101			
decadent		405					101		304	202								
Total live		1518	101				405		911	506					101			
Ceratoides lanata																		
immature/mature											101				304			
decadent																		
Total live											101				304			
Chrysothamnus nauseosus																		
immature/mature									101									
decadent																		
Total live									101									
Prunus virginiana																		
immature/mature																		
decadent																		
Total live																		
Rhus aromatica																		
immature/mature	101	202					101	101			304	101						
decadent																		
Total live	101	202					101	101			304	101						
Rosa arkansana																		
immature/mature										2226	405				202			
decadent																		
Total live										2226	405				202			
Rosa woodsii																		
immature/mature		101																
decadent																		
Total live		101																

Table C28. Shrub Density (Plants per Acre) by Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
SHRUB SPECIES/AGE CLASS	459	460	461	462	463	464	470	471	473	475	476	478	479	481	482	483	484	485
	Plants Per Acre																	
Symphoricarpos occidentalis																		
immature/mature								506	304			607						
decadent																		
Total live								506	304			607						
Symphoricarpos oreophilus																		
immature/mature																	506	
decadent																		
Total live																	506	
TOTAL SHRUBS																		
IMMATURE/MATURE	**101**	**1417**	**101**				**405**	**607**	**1012**	**2530**	**809**	**708**			**607**		**506**	
DECADENT		**405**					**101**		**304**	**202**								
TOTAL LIVE	**101**	**1821**	**101**				**506**	**607**	**1315**	**2732**	**809**	**708**			**607**		**506**	

Table C28. Shrub Density (Plants per Acre) by Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
SHRUB SPECIES/AGE CLASS	486	487	488	490	492	493	494	497	498	499	505	506	508	511	512	514	519	524
	Plants Per Acre																	
Artemisia cana																		
immature/mature																101		101
decadent																		
Total live																101		101
Artemisia tridentata																		
immature/mature	506							1619	101		202	1417			101	506	101	101
decadent	202							202				202						
Total live	708							1821	101		202	1619			101	506	101	101
Ceratoides lanata																		
immature/mature	506							2226										
decadent																		
Total live	506							2226										
Chrysothamnus nauseosus																		
immature/mature																		
decadent																		
Total live																		
Prunus virginiana																		
immature/mature											405							
decadent																		
Total live											405							
Rhus aromatica																		
immature/mature		101					607			405	506	405		405		202	101	809
decadent																		
Total live		101					607			405	506	405		405		202	101	809
Rosa arkansana																		
immature/mature							1012	304		202		2631	101					2125
decadent																		
Total live							1012	304		202		2631	101					2125
Rosa woodsii																		
immature/mature											911							
decadent																		
Total live											911							

Table C28. Shrub Density (Plants per Acre) by Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
SHRUB SPECIES/AGE CLASS	486	487	488	490	492	493	494	497	498	499	505	506	508	511	512	514	519	524
	Plants Per Acre																	
Symphoricarpos occidentalis																		
immature/mature							2226	2732			1113			101				
decadent																		
Total live							2226	2732			1113			101				
Symphoricarpos oreophilus																		
immature/mature			304															
decadent																		
Total live			304															
TOTAL SHRUBS																		
IMMATURE/MATURE	**1012**	**101**	**304**				**3845**	**6880**	**101**	**607**	**3137**	**4452**	**101**	**506**	**101**	**809**	**202**	**3137**
DECADENT	**202**							**202**				**202**						
TOTAL LIVE	**1214**	**101**	**304**				**3845**	**7083**	**101**	**607**	**3137**	**4654**	**101**	**506**	**101**	**809**	**202**	**3137**

Table C28. Shrub Density (Plants per Acre) by Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM														
	PLOT NUMBER														
SHRUB SPECIES/AGE CLASS	526	527	528	529	532	533	535	536	539	540	541	542	543	544	**Mean n=86**
	Plants Per Acre														
Artemisia cana															
immature/mature		607	202		2226	607									**72.9**
decadent		101													**1.2**
Total live		708	202		2226	607									**74.1**
Artemisia tridentata															
immature/mature	607	101					202			1315					**187.1**
decadent	405	101								809					**44.7**
Total live	1012	202					202			2125					**231.8**
Ceratoides lanata															
immature/mature															**45.9**
decadent															
Total live															**45.9**
Chrysothamnus nauseosus															
immature/mature				101		304					202				**8.2**
decadent															
Total live				101		304					202				**8.2**
Prunus virginiana															
immature/mature				607					101						**12.9**
decadent															
Total live				607					101						**12.9**
Rhus aromatica															
immature/mature	809		405	809	405				101		304		202	101	**141.2**
decadent	202														**2.4**
Total live	1012		405	809	405				101		304		202	101	**143.5**
Rosa arkansana															
immature/mature	1720			1214						4351			304		**240.0**
decadent															
Total live	1720			1214						4351			304		**240.0**
Rosa woodsii															
immature/mature					304	405									**22.4**
decadent															
Total live					304	405									**22.4**

Table C28. Shrub Density (Plants per Acre) by Species for 86 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ AGROPYRON SPICATUM* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM														
	PLOT NUMBER														
SHRUB SPECIES/AGE CLASS	526	527	528	529	532	533	535	536	539	540	541	542	543	544	**Mean n=86**
	Plants Per Acre														
Symphoricarpos occidentalis															
immature/mature	607	3035	405												**189.4**
decadent															
Total live	607	3035	405												**189.4**
Symphoricarpos oreophilus															
immature/mature													607		**16.5**
decadent															
Total live													607		**16.5**
TOTAL SHRUBS															
IMMATURE/MATURE	**3744**	**3744**	**1012**	**2732**	**2934**	**1315**	**202**		**202**	**5666**	**506**		**1113**	**101**	**936.5**
DECADENT	**607**	**202**								**809**					**48.2**
TOTAL LIVE	**4351**	**3946**	**1012**	**2732**	**2934**	**1315**	**202**		**202**	**6476**	**506**		**1113**	**101**	**984.7**

Table C29. Shrub Density (Plants per Acre) by Species for Two *JUNIPERUS SCOPULORUM-PINUS PONDEROSA/ORYZOPSIS MICRANTHA* and Two *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/FESTUCA IDAHOENSIS* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	JUNIPERUS SCOPULORUM-PINUS PONDEROSA/ ORYZOPSIS MICRANTHA			***PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ FESTUCA IDAHOENSIS***		
	PLOT NUMBER			**PLOT NUMBER**		
	411	412	**Mean**	442	468	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**		**n=2**	**Plants Per Acre**		**n=2**
Artemisia cana						
immature/mature					202	**101.2**
decadent					101	**50.6**
Total live					304	**151.8**
Artemisia tridentata						
immature/mature					101	**50.6**
decadent						
Total live					101	**50.6**
Prunus virginiana						
immature/mature		101	**50.6**			
decadent						
Total live		101	**50.6**			
Rhus aromatica						
immature/mature	101		**50.6**		405	**202.4**
decadent						
Total live	101		**50.6**		405	**202.4**
Symphoricarpos oreophilus						
immature/mature		1315	**657.7**			
decadent						
Total live		1315	**657.7**			
TOTAL SHRUBS						
IMMATURE/MATURE	**101**	**1417**	**758.9**		**708**	**354.1**
DECADENT					**101**	**50.6**
TOTAL LIVE	**101**	**1417**	**758.9**		**809**	**404.7**

Table C30. Shrub Density (Plants per Acre) by Species for 28 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM / ANDROPOGON SCOPARIUS* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS																		
	PLOT NUMBER																		
	394	395	398	407	409	427	428	443	452	466	467	469	474	477	480	489	491	495	500
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**																		
Artemisia cana																			
immature/mature						405					101		202						
decadent																			
Total live						405					101		202						
Artemisia tridentata																			
immature/mature			202				304		809				708					1417	202
decadent							202	101	101				304					304	101
Total live			202				506	101	911				1012					1720	304
Ceratoides lanata																			
immature/mature									405		202								
decadent																			
Total live									405		202								
Chrysothamnus nauseosus																			
immature/mature																		101	
decadent																			
Total live																		101	
Rhus aromatica																			
immature/mature	708	101		101								506	405						
decadent				101															
Total live	708	101		202								506	405						
Ribes aureum																			
immature/mature																		101	
decadent																			
Total live																		101	
Ribes cereum																			
immature/mature														101					
decadent																			
Total live														101					
Rosa arkansana																			
immature/mature		202											202	202					
decadent																			
Total live		202											202	202					

Table C30. Shrub Density (Plants per Acre) by Species for 28 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM / ANDROPOGON SCOPARIUS* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS																		
	PLOT NUMBER																		
	394	395	398	407	409	427	428	443	452	466	467	469	474	477	480	489	491	495	500
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**																		
Symphoricarpos occidentalis																			
immature/mature						607							1012	2226					
decadent																			
Total live						607							1012	2226					
Symphoricarpos oreophilus																			
immature/mature												405					3440		
decadent																			
Total live												405					3440		
TOTAL SHRUBS																			
IMMATURE/MATURE	**708**	**304**	**202**	**101**		**1012**	**304**		**1214**		**304**	**911**	**2530**	**2530**			**3440**	**1619**	**202**
DECADENT				**101**			**202**	**101**	**101**				**304**					**304**	**101**
TOTAL LIVE	**708**	**304**	**202**	**202**		**1012**	**506**	**101**	**1315**		**304**	**911**	**2833**	**2530**			**3440**	**1922**	**304**

Table C30. Shrub Density (Plants per Acre) by Species for 28 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM / ANDROPOGON SCOPARIUS* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ANDROPOGON SCOPARIUS									
	PLOT NUMBER									
	501	502	503	509	513	518	523	525	537	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**									**n=28**
Artemisia cana										
immature/mature				911						**57.8**
decadent										
Total live				911						**57.8**
Artemisia tridentata										
immature/mature	101		607			304	202			**173.5**
decadent						101				**43.4**
Total live	101		607			405	202			**216.8**
Ceratoides lanata										
immature/mature										**21.7**
decadent										
Total live										**21.7**
Chrysothamnus nauseosus										
immature/mature										**3.6**
decadent										
Total live										**3.6**
Rhus aromatica										
immature/mature				607						**86.7**
decadent										**3.6**
Total live				607						**90.3**
Ribes aureum										
immature/mature										**3.6**
decadent										
Total live										**3.6**
Ribes cereum										
immature/mature										**3.6**
decadent										
Total live										**3.6**
Rosa arkansana										
immature/mature		1417								**72.3**
decadent										
Total live		1417								**72.3**

Table C30. Shrub Density (Plants per Acre) by Species for 28 *PINUS PONDEROSA-JUNIPERUS SCOPULORUM / ANDROPOGON SCOPARIUS* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ANDROPOGON SCOPARIUS									
	PLOT NUMBER									
	501	502	503	509	513	518	523	525	537	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**									**n=28**
Symphoricarpos occidentalis										
immature/mature						1113				**177.1**
decadent										
Total live						1113				**177.1**
Symphoricarpos oreophilus										
immature/mature										**137.3**
decadent										
Total live										**137.3**
TOTAL SHRUBS										
IMMATURE/MATURE	**101**	**1417**	**607**	**1518**		**1417**	**202**			**737.2**
DECADENT						**101**				**47.0**
TOTAL LIVE	**101**	**1417**	**607**	**1518**		**1518**	**202**			**784.1**

Table C31. Shrub Density (Plants per Acre) by Species for 11 *DRAINAGE JUNIPERUS SCOPULORUM-PINUS PONDEROSA/ SYMPHORICARPOS OCCIDENTALIS-AGROPYRON SMITHII* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	DRAINAGE *JUNIPERUS SCOPULORUM-PINUS PONDEROSA/ SYMPHORICARPOS OCCIDENTALIS-AGROPYRON SMITHII*											
	PLOT NUMBER											
	389	429	431	432	433	434	435	450	504	510	521	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**											**n=11**
Artemisia cana												
immature/mature	101	304		304		202		202			202	**119.6**
decadent								101				**9.2**
Total live	101	304		304		202		304			202	**128.8**
Prunus virginiana												
immature/mature						101			202			**27.6**
decadent												
Total live						101			202			**27.6**
Rhus aromatica												
immature/mature	202	809	506	607		101	304	405	202		1214	**395.5**
decadent												
Total live	202	809	506	607		101	304	405	202		1214	**395.5**
Rosa arkansana												
immature/mature										2226		**202.4**
decadent												
Total live										2226		**202.4**
Rosa woodsii												
immature/mature	809	1720	1619	1619		607	506	708	911		1214	**883.0**
decadent												
Total live	809	1720	1619	1619		607	506	708	911		1214	**883.0**
Symphoricarpos occidentalis												
immature/mature	14368	3035	911	56661	607	3238	5767	4654	4351	6577	4553	**9520.1**
decadent												
Total live	14368	3035	911	56661	607	3238	5767	4654	4351	6577	4553	**9520.1**
TOTAL SHRUBS												
IMMATURE/MATURE	**15481**	**5868**	**3035**	**59190**	**607**	**4250**	**6577**	**5970**	**5666**	**8803**	**7184**	**11148.2**
DECADENT								**101**				**9.2**
TOTAL LIVE	**15481**	**5868**	**3035**	**59190**	**607**	**4250**	**6577**	**6071**	**5666**	**8803**	**7184**	**11157.4**

Table C32. Shrub Density (Plants per Acre) by Species for Two *PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ PRUNUS VIRGINIANA* **FOREST AND SAVANNAH** Sample Sites, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ PRUNUS VIRGINIANA		
	PLOT NUMBER		
	496	507	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**		**n=2**
Prunus virginiana			
immature/mature	911	3238	**2074.2**
decadent			
Total live	911	3238	**2074.2**
Rhus aromatica			
immature/mature	607	809	**708.3**
decadent			
Total live	607	809	**708.3**
Ribes aureum			
immature/mature		3035	**1517.7**
decadent			
Total live		3035	**1517.7**
Ribes setosum			
immature/mature		405	**202.4**
decadent			
Total live		405	**202.4**
Rosa arkansana			
immature/mature	4654		**2327.1**
decadent			
Total live	4654		**2327.1**
Rosa woodsii			
immature/mature		1922	**961.2**
decadent			
Total live		1922	**961.2**
Symphoricarpos occidentalis			
immature/mature	6273	1821	**4047.2**
decadent			
Total live	6273	1821	**4047.2**
TOTAL SHRUBS			
IMMATURE/MATURE	**12445**	**11231**	**11838.1**
DECADENT			
TOTAL LIVE	**12445**	**11231**	**11838.1**

Table C33. Shrub Density (Plants per Acre) by Species for Ten **Mesophytic/Hydrophytic Herbaceous Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	SPO AIR/ AGR SMI	SPA PEC/BRO INE			SPA PEC/ HOR JUB	SPA PEC/ PAN VIR	SCI MAR/ SPO AIR-DIS STR	ELE PAL/ SCI AME-JUN TOR				TYP LAT/BRO INE			TYP LAT/ SPA PEC
	PLOT	PLOT NUMBER			PLOT	PLOT	PLOT	PLOT NUMBER				PLOT NUMBER			PLOT
	685	617	658	Mean	577	680	688	451	681	686	Mean	662	666	Mean	665
SHRUB SPECIES/AGE CLASS	n=1	Plants per Acre		n=2	n=1	n=1	n=1	Plants per Acre			n=3	Plants per Acre		n=2	n=1
Artemisia cana															
immature/mature						101		607			202.36				
decadent															
Total live						**101**		**607**			202.36				
Artemisia tridentata															
immature/mature	202						101								
decadent															
Total live	**202**						**101**								
Humulus lupulus															
immature/mature		4250		2124.78											
decadent															
Total live		**4250**		2124.78											
Prunus virginiana															
immature/mature															
decadent															
Total live															
Rhus aromatica															
immature/mature									101		33.73				
decadent															
Total live									**101**		33.73				
Ribes aureum															
immature/mature															1417
decadent															101
Total live															**1518**

Table C33. Shrub Density (Plants per Acre) by Species for Ten **Mesophytic/Hydrophytic Herbaceous Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	SPO AIR/ AGR SMI	SPA PEC/BRO INE			SPA PEC/ HOR JUB	SPA PEC/ PAN VIR	SCI MAR/ SPO AIR-DIS STR	ELE PAL/ SCI AME-JUN TOR				TYP LAT/BRO INE			TYP LAT/ SPA PEC
	PLOT	PLOT NUMBER			PLOT	PLOT	PLOT	PLOT NUMBER				PLOT NUMBER			PLOT
	685	617	658	Mean	577	680	688	451	681	686	Mean	662	666	Mean	665
SHRUB SPECIES/AGE CLASS	**n=1**	**Plants per Acre**		**n=2**	**n=1**	**n=1**	**n=1**	**Plants per Acre**			**n=3**	**Plants per Acre**		**n=2**	**n=1**
Rosa woodsii															
immature/mature			506	252.95		7386		202			67.45		101	50.59	911
decadent			607	303.54											202
Total live			**1113**	**556.49**		**7386**		**202**			**67.45**		**101**	**50.59**	**1113**
Salix exigua															
immature/mature									1113		370.99				
decadent															
Total live									**1113**		**370.99**				
Symphoricarpos occidentalis															
immature/mature			21248	10623.90		11838		1214	2833		1349.07	1821		910.62	8094
decadent			506	252.95											607
Total live			**21754**	**10876.85**		**11838**		**1214**	**2833**		**1349.07**	**1821**		**910.62**	**8701**
TOTAL SHRUBS															
IMMATURE/MATURE	202	4250	21754	13001.63		19325	101	2024	4047		2023.60	1821	101	961.21	10422
DECADENT			1113	556.49											911
TOTAL LIVE	**202**	**4250**	**22867**	**13558.12**	**0**	**19325**	**101**	**2024**	**4047**	**0**	**2023.60**	**1821**	**101**	**961.21**	**11332**

Table C33. Shrub Density (Plants per Acre) by Species for Ten **Mesophytic/ Hydrophytic Herbaceous Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	SCI VAL/SPA PEC			SCI VAL-SCI ACU/ TYP LAT			MESOPHYTIC/ HYDROPHYTIC HERBACEOUS BOTTOM COMPOSITE
	PLOT NUMBER			PLOT NUMBER			
	606	618	Mean	667	687	Mean	Mean
SHRUB SPECIES/AGE CLASS	Plants per Acre		n=2	Plants per Acre		n=2	n=16
Artemisia cana							
immature/mature	607		303.54				82.21
decadent							
Total live	**607**		**303.54**				**82.21**
Artemisia tridentata							
immature/mature							18.97
decadent							
Total live							**18.97**
Humulus lupulus							
immature/mature							265.60
decadent							
Total live							**265.60**
Prunus virginiana							
immature/mature							
decadent		101	50.59				6.32
Total live		**101**	**50.59**				**6.32**
Rhus aromatica							
immature/mature							6.32
decadent							
Total live							**6.32**
Ribes aureum							
immature/mature	1821	1113	1467.11				271.92
decadent							6.32
Total live	**1821**	**1113**	**1467.11**				**278.25**

Table C33. Shrub Density (Plants per Acre) by Species for Ten **Mesophytic/ Hydrophytic Herbaceous Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	SCI VAL/SPA PEC			SCI VAL-SCI ACU/ TYP LAT			MESOPHYTIC/ HYDROPHYTIC HERBACEOUS BOTTOM COMPOSITE
	PLOT NUMBER			PLOT NUMBER			
	606	618	Mean	667	687	Mean	Mean
SHRUB SPECIES/AGE CLASS	Plants per Acre		n=2	Plants per Acre		n=2	n=16
Rosa woodsii							
immature/mature	708	809	758.85				663.99
decadent							50.59
Total live	**708**	**809**	758.85				714.58
Salix exigua							
immature/mature							69.56
decadent							
Total live							69.56
Symphoricarpos occidentalis							
immature/mature	21248		10623.90				4268.53
decadent							69.56
Total live	**21248**		10623.90				4338.09
TOTAL SHRUBS							
IMMATURE/MATURE	24384	1922	13153.40				5647.11
DECADENT		101	50.59				132.80
TOTAL LIVE	**24384**	**2024**	13203.99	**0**	**0**	**0**	5779.91

Table C34. Shrub Density (Plants per Acre) by Species for Four **Mesophytic Low Shrub Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	SYM OCC-ART TRI-SAR VER/AGR SMI			*ART CAN-ROS WOO/ AGR SMI-POA PRA*	*SYMPHORICARPOS OCCIDENTALIS-ARTEMISIA CANA/ AGROPYRON SMITHII-POA PRATENSIS*					
	PLOT NUMBER			**PLOT**	**PLOT NUMBER**					
	649	650	**Mean**	682	610	614	640	646	692	**Mean**
SHRUB SPECIES/AGE CLASS			**n=2**	**n=1**						**n=5**
Artemisia cana										
immature/mature		506	**252.95**	304	2125	2732	1720	607	304	**1497.46**
decadent				304		101				**20.24**
Total live		**506**	**252.95**	**607**	**2125**	**2833**	**1720**	**607**	**304**	**1517.70**
Artemisia tridentata										
immature/mature	708	911	**809.44**							
decadent		101	**50.59**							
Total live	**708**	**1012**	**860.03**							
Chrysothamnus nauseosus										
immature/mature								202		**40.47**
decadent										
Total live								**202**		**40.47**
Rhus aromatica										
immature/mature										
decadent										
Total live										
Ribes aureum										
immature/mature										
decadent										
Total live										
Rosa arkansana										
immature/mature										
decadent										
Total live										
Rosa woodsii										
immature/mature		304	**151.77**	32580					1619	**323.78**
decadent										
Total live		**304**	**151.77**	**32580**					**1619**	**323.78**

Table C34. Shrub Density (Plants per Acre) by Species for Four **Mesophytic Low Shrub Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	SYM OCC-ART TRI-SAR VER/AGR SMI			*ART CAN-ROS WOO/ AGR SMI-POA PRA*	*SYMPHORICARPOS OCCIDENTALIS-ARTEMISIA CANA/ AGROPYRON SMITHII-POA PRATENSIS*					
	PLOT NUMBER			**PLOT**	**PLOT NUMBER**					
	649	650	**Mean**	682	610	614	640	646	692	**Mean**
SHRUB SPECIES/AGE CLASS			**n=2**	**n=1**						**n=5**
Sarcobatus vermiculatus										
immature/mature	405	405	**404.72**							
decadent										
Total live	**405**	**405**	**404.72**							
Symphoricarpos occidentalis										
immature/mature	4250	607	**2428.32**	2934	56256	77909	76391	46543	29342	**57288.12**
decadent						202				**40.47**
Total live	**4250**	**607**	**2428.32**	**2934**	**56256**	**78111**	**76391**	**46543**	**29342**	**57328.59**
TOTAL SHRUBS										
IMMATURE/MATURE	**5363**	**2732**	**4047.20**	**35818**	**58381**	**80640**	**78111**	**47352**	**31265**	**59149.83**
DECADENT		**101**	**50.59**	**304**		**304**				**60.71**
TOTAL LIVE	**5363**	**2833**	**4097.79**	**36121**	**58381**	**80944**	**78111**	**47352**	**31265**	**59210.54**

Table C34. Shrub Density (Plants per Acre) by Species for Four **Mesophytic Low Shrub Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	SYMPHORICARPOS OCCIDENTALIS-ROSA WOODSII/POA PRATENSIS-AGROPYRON SMITHII																	MESOPHYTIC LOW SHRUB BOTTOM COMPOSITE
	PLOT NUMBER																	
	455	569	601	608	621	631	632	633	637	652	653	654	674	675	676	677	Mean n=16	Mean n=24
SHRUB SPECIES/AGE CLASS																		
Artemisia cana																		
immature/mature		4958	1315	304		304		405	202	202	607		304	304	304	1113	645.02	775.71
decadent		1113		101		202			202						607	405	164.42	126.48
Total live		**6071**	**1315**	**405**		**506**		**405**	**405**	**202**	**607**		**304**	**304**	**911**	**1518**	**809.44**	**902.19**
Artemisia tridentata																		
immature/mature			101		101	101										101	25.30	84.32
decadent																		4.22
Total live			**101**		**101**	**101**										**101**	**25.30**	**88.53**
Chrysothamnus nauseosus																		
immature/mature																		8.43
decadent																		
Total live																		**8.43**
Rhus aromatica																		
immature/mature				101												101	12.65	8.43
decadent																		
Total live				**101**												**101**	**12.65**	**8.43**
Ribes aureum																		
immature/mature											1720						107.50	71.67
decadent																		
Total live											**1720**						**107.50**	**71.67**
Rosa arkansana																		
immature/mature				2327										607	1619	1113	354.13	236.09
decadent																		
Total live				**2327**										**607**	**1619**	**1113**	**354.13**	**236.09**
Rosa woodsii																		
immature/mature	809		3845	607	2428		202	202	405	202		15784	202		607		1580.94	2491.56
decadent																		
Total live	**809**		**3845**	**607**	**2428**		**202**	**202**	**405**	**202**		**15784**	**202**		**607**		**1580.94**	**2491.56**

Table C34. Shrub Density (Plants per Acre) by Species for Four **Mesophytic Low Shrub Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	SYMPHORICARPOS OCCIDENTALIS-ROSA WOODSII/POA PRATENSIS-AGROPYRON SMITHII																	MESOPHYTIC LOW SHRUB BOTTOM COMPOSITE
	PLOT NUMBER																	
	455	569	601	608	621	631	632	633	637	652	653	654	674	675	676	677	Mean n=16	Mean n=24
SHRUB SPECIES/AGE CLASS																		
Sarcobatus vermiculatus																		
immature/mature			101														6.32	37.94
decadent																		
Total live			**101**														6.32	37.94
Symphoricarpos occidentalis																		
immature/mature	9207	68802	33895	52614	7791	24081	55143	107757	22766	11636	141652	57673	78920	55649	5261	19224	47004.43	43595.93
decadent				1012									708	607			145.45	105.40
Total live	**9207**	**68802**	**33895**	**53625**	**7791**	**24081**	**55143**	**107757**	**22766**	**11636**	**141652**	**57673**	**79629**	**56256**	**5261**	**19224**	47149.88	43701.33
TOTAL SHRUBS																		
IMMATURE/MATURE	**10017**	**73760**	**39258**	**55953**	**10320**	**24486**	**55345**	**108364**	**23373**	**12040**	**143979**	**73457**	**79426**	**56560**	**7791**	**21653**	49736.29	47310.08
DECADENT		**1113**		**1113**		**202**			**202**				**708**	**607**	**607**	**405**	309.86	236.09
TOTAL LIVE	**10017**	**74873**	**39258**	**57066**	**10320**	**24688**	**55345**	**108364**	**23575**	**12040**	**143979**	**73457**	**80135**	**57167**	**8398**	**22057**	50046.16	47546.17

Table C35. Shrub Density (Plants per Acre) by Species for the **Prunus virginiana/Symphoricarpos occidentalis-Poa pratensis Community Typ**e, Otter Creek Tract 2 Baseline Study Area, 2011.

	PRU VIR/ SYM OCC-POA PRA		
	PLOT NUMBER		
	648	696	**Mean**
SHRUB SPECIES/AGE CLASS			**n=2**
Artemisia cana			
immature/mature	911	708	**809.44**
decadent			
Total live	911	708	**809.44**
Prunus virginiana			
immature/mature	809	1315	**1062.39**
decadent	1012		**505.90**
Total live	1821	1315	**1568.29**
Rhus aromatica			
immature/mature		708	**354.13**
decadent			
Total live		708	**354.13**
Ribes setosum			
immature/mature	405	809	**607.08**
decadent			
Total live	405	809	**607.08**
Symphoricarpos occidentalis			
immature/mature	5565	8094	**6829.65**
decadent			
Total live	5565	8094	**6829.65**
TOTAL SHRUBS			
IMMATURE/MATURE	**7690**	**11636**	**9662.69**
DECADENT	**1012**		**505.90**
TOTAL LIVE	**8701**	**11636**	**10168.59**

Table C36. Shrub Density (Plants per Acre) by Species for Nine **Mesophytic Deciduous Tree Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	POP DEL/ BRO INE			*POP DEL-ACE NEG/ BRO INE*			*POP DEL/ SYM OCC-POA PRA*	*POP DEL-FRA PEN-ACE NEG/ SYM OCC*	*POP DEL-SAL AMY/ SAL EXI*	*POP DEL/ PRU VIR*
	PLOT NUMBER			**PLOT NUMBER**			**PLOT**	**PLOT**	**PLOT**	**PLOT**
	671	673	**Mean**	672	698	**Mean**	530	699	522	531
SHRUB SPECIES/AGE CLASS			**n=2**			**n=2**	**n=1**	**n=1**	**n=1**	**n=1**
Artemisia cana										
immature/mature							101			
decadent										
Total live							**101**			
Artemisia tridentata										
immature/mature										
decadent										
Total live										
Prunus virginiana										
immature/mature					202	**101.18**		1821		3238
decadent										1113
Total live					**202**	**101.18**		**1821**		**4351**
Rhus aromatica										
immature/mature										
decadent										
Total live										
Ribes aureum										
immature/mature										
decadent										
Total live										
Rosa arkansana										
immature/mature		405	**202.36**				911			
decadent										
Total live		**405**	**202.36**				**911**			
Rosa woodsii										
immature/mature									405	2226
decadent										
Total live									**405**	**2226**

Table C36. Shrub Density (Plants per Acre) by Species for Nine **Mesophytic Deciduous Tree Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	POP DEL/ BRO INE			*POP DEL-ACE NEG/ BRO INE*			*POP DEL/ SYM OCC-POA PRA*	*POP DEL-FRA PEN-ACE NEG/ SYM OCC*	*POP DEL-SAL AMY/ SAL EXI*	*POP DEL/ PRU VIR*
	PLOT NUMBER			**PLOT NUMBER**			**PLOT**	**PLOT**	**PLOT**	**PLOT**
	671	673	**Mean**	672	698	**Mean**	530	699	522	531
SHRUB SPECIES/AGE CLASS			**n=2**			**n=2**	**n=1**	**n=1**	**n=1**	**n=1**
Salix exigua										
immature/mature	304		**151.77**						304	
decadent										
Total live	**304**		**151.77**						**304**	
Symphoricarpos occidentalis										
immature/mature	911	3238	**2074.19**		1821	**910.62**	18617	9309	708	22260
decadent		101	**50.59**				2226			708
Total live	**911**	**3339**	**2124.78**		**1821**	**910.62**	**20843**	**9309**	**708**	**22968**
TOTAL SHRUBS										
IMMATURE/MATURE	**1214**	**3642**	**2428.32**		**2024**	**1011.80**	**19629**	**11130**	**1417**	**27723**
DECADENT		**101**	**50.59**				**2226**			**1821**
TOTAL LIVE	**1214**	**3744**	**2478.91**	**0**	**2024**	**1011.80**	**21855**	**11130**	**1417**	**29545**

Table C36. Shrub Density (Plants per Acre) by Species for Nine **Mesophytic Deciduous Tree Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	ACER NEGUNDO/BROMUS INERMIS											*ACE NEG/ SPA PEC*			*FRA PEN/ POA PRA*	MESOPHYTIC DECIDUOUS TREE BOTTOM COMPOSITE
	PLOT NUMBER											PLOT NUMBER			PLOT	
	615	616	620	657	659	663	668	669	670	690	Mean	619	664	Mean	472	Mean
SHRUB SPECIES/AGE CLASS											n=10			n=2	n=1	n=21
Artemisia cana																
immature/mature																4.82
decadent																
Total live																4.82
Artemisia tridentata																
immature/mature															101	4.82
decadent																
Total live															**101**	4.82
Prunus virginiana																
immature/mature		202								101	30.35					265.00
decadent																53.00
Total live		202								101	30.35					317.99
Rhus aromatica																
immature/mature															101	4.82
decadent																
Total live															**101**	4.82
Ribes aureum																
immature/mature		1619			405					202	222.60					106.00
decadent																
Total live		1619			405					202	222.60					106.00
Rosa arkansana																
immature/mature																62.64
decadent																
Total live																62.64
Rosa woodsii																
immature/mature		202		1214		11130					1254.63		809	404.72		761.26
decadent				304		202					50.59					24.09
Total live		**202**		**1518**		**11332**					1305.22		809	404.72		785.35

Table C36. Shrub Density (Plants per Acre) by Species for Nine **Mesophytic Deciduous Tree Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	ACER NEGUNDO/BROMUS INERMIS											*ACE NEG/ SPA PEC*			*FRA PEN/ POA PRA*	MESOPHYTIC DECIDUOUS TREE BOTTOM COMPOSITE
	PLOT NUMBER											PLOT NUMBER			PLOT	
	615	616	620	657	659	663	668	669	670	690	Mean	619	664	Mean	472	Mean
SHRUB SPECIES/AGE CLASS											n=10			n=2	n=1	n=21
Salix exigua																
immature/mature																28.91
decadent																
Total live																28.91
Symphoricarpos occidentalis																
immature/mature				12749		8094					2084.31	15177	1214	8195.58	809	4519.37
decadent				809		506					131.53	708		354.13		240.90
Total live				**13558**		**8600**					2215.84	**15885**	**1214**	8549.71	**809**	4760.28
TOTAL SHRUBS																
IMMATURE/MATURE		**2023.6**		**13963**	**405**	**19224**				**304**	3591.89	**15177**	**2024**	8600.3	**1012**	5757.62
DECADENT				**1113**		**708**					182.12	**708**		354.1		317.99
TOTAL LIVE	**0**	**2023.6**	**0**	**15076**	**405**	**19932**	**0**	**0**	**0**	**304**	3774.01	**15885**	**2024**	8954.4	**1012**	6075.62

APPENDIX D

Live Tree Density (Stems Per Acre) by Plot for Community Types in the Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

TABLE	COMMUNITY TYPE	PAGE
	GRASSLAND	
D1	*Agropyron smithii / Bouteloua gracilis*	D-1
	Agropyron smithii / Stipa viridula	
	Stipa comata / Agropyron smithii	
	Stipa comata / Carex filifolia	
	Agropyron spicatum / Stipa comata	
	Agropyron spicatum / Bouteloua curtipendula	
	Andropogon scoparius / Agropyron spicatum	
	Andropogon scoparius / Bouteloua curtipendula	D-2
	Andropogon scoparius / Calamovilfa longifolia	
	Calamovilfa longifolia / Stipa comata	
	TAME PASTURE[1]	
	SHRUB / GRASSLAND	
D2	*Artemisia cana / Agropyron smithii*	D-3
	Artemisia tridentata / Agropyron smithii	
	Artemisia tridentata / Agropyron spicatum	
	Artemisia tridentata / Andropogon scoparius	D-4
	BREAKS	
D3	**Grass-Dominated Breaks**	D-5
	Agropyron smithii Breaks	
	Agropyron spicatum Breaks	
	Sporobolus airoides Breaks	
	Calamovilfa longifolia Breaks	
D4	**Shrub-Dominated Breaks**	D-6
	Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron smithii	
	Rhus aromatica / Agropyron spicatum-Andropogon scoparius	
	Artemisia tridentata-Rhus aromatica-Chrysothamnus nauseosus / Agropyron spicatum	
	Artemisia tridentata-Rhus aromatica-Sarcobatus vermiculatus / Agropyron spicatum	
	Artemisia tridentata-Atriplex confertifolia-Sarcobatus vermiculatus / Agropyron spicatum	
	Artemisia tridentata-Atriplex confertifolia-Rhus aromatica / Agropyron spicatum	D-7
D5	**Conifer-Dominated Breaks**	
	Juniperus scopulorum/Agropyron spicatum Breaks	D-8
D6	*Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum* Breaks	D-9
D7	*Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius* Breaks	D-10
D8	*Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata* Breaks	D-11
	Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata-Atriplex confertifolia Breaks	
	PONDEROSA PINE-JUNIPER FOREST AND SAVANNAH	
D9	**Ponderosa Pine-Juniper / Grass**	
	Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum	D-12
D10	*Juniper scopulorum-Pinus ponderosa / Oryzopsis micrantha*	D-16
	Pinus ponderosa-Juniper scopulorum / Festuca idahoensis	
B11	*Pinus ponderosa-Juniper scopulorum / Andropogon scoparius*	D-17
D12	**Ponderosa Pine-Juniper / Shrub**	
	Drainage *Juniperus scopulorum-Pinus ponderosa / Symphoricarpos occidentalis-Agropyron smithii*	D-21
	Pinus ponderosa-Juniper scopulorum / Prunus virginiana	

APPENDIX D

Live Tree Density (Stems Per Acre) by Plot for Community Types in the Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

TABLE	COMMUNITY TYPE	PAGE
	DRAINAGE BOTTOM	
D13	**Mesophytic/Hydrophytic Herbaceous Bottom**	D-23
	Sporobolus airoides / Agropyron smithii	
	Spartina pectinata / Bromus inermis	
	Spartina pectinata / Hordeum jubatum	
	Spartina pectinata / Panicum virgatum	
	Scirpus maritimus / Sporobolus airoides-Distichlis stricta	
	Eleocharis palustris / Scirpus americanus-Juncus torreyi	
	Typha latifolia / Bromus inermis	
	Typha latifolia / Spartina pectinata	
	Scirpus acutus-Scirpus validus / Spartina pectinata	
	Scirpus acutus-Scirpus validus / Typha latifolia	
D14	**Mesophytic Low Shrub Bottom**	D-27
	Symphoricarpos occidentalis-Artemisia tridentata-Sarcobatus vermiculatus / Agropyron smithii	
	Artemisia cana-Rosa woodsii / Agropyron smithii-Poa pratensis	
	Symphoricarpos occidentalis-Artemisia cana / Agropyron smithii-Poa pratensis	
	Symphoricarpos occidentalis-Rosa woodsii / Poa pratensis-Agropyron smithii	
D15	**Mesophytic Tall Shrub Bottom**	D-29
	Prunus virginiana / Symphoricarpos occidentalis-Poa pratensis	
D16	**Mesophytic Deciduous Tree Bottom**	D-30
	Populus deltoides / Bromus inermis	
	Populus deltoides-Acer negundo / Bromus inermis	
	Populus deltoides / Symphoricarpos occidentalis-Poa pratensis	
	Populus deltoides-Fraxinus pennsylvanica-Acer negundo / Symphoricarpos occidentalis	
	Populus deltoides-Salix amygdaloides / Salix exigua	
	Populus deltoides / Prunus virginiana	
	Acer negundo / Bromus inermis	
	Acer negundo / Spartina pectinata	
	Fraxinus pennsylvanica / Poa pratensis	

Footnotes for the tables in Appendix D:

All plot locations are shown on the vegetation community type map (Plate 1).

Binomials primarily follow USDA Forest Service (1987).

Density counts in each 0.1-acre circular plot were converted to trees per acre using a conversion factor of 10.

[1]No trees occurred in the forty-three 0.1-acre density plots sampled in Tame Pasture.

Table D1. Tree Density (Live Trees Per Acre) by Plot for Ten **GRASSLAND** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

TREE SPECIES	*AGR SMI/ BOU GRA*	*AGR SMI/ STI VIR*				*STI COM/ AGR SMI*	*STI COM/ CAR FIL*	*AGR SPI/ STI COM*	*AGR SPI/ BOU CUR*			*AND SCO/ AGR SPI*			
		PLOT NUMBER							PLOT NUMBER			PLOT NUMBER			
		087	636	691	Mean				024	266	Mean	227	322	408	Mean
DBH CLASS - LIVE TREES	**n=13**				**n=77**	**n=20**	**n=3**	**n=4**			**n=8**				**n=11**
Juniperus scopulorum															
<1"									10	10	**2.50**	40		20	**5.45**
1-4"		10	10		**0.26**				20	30	**6.25**	10	10	60	**7.27**
4-8"				20	**0.26**										
8-12"															
TOTAL LIVE TREES	**0**	**10**	**10**	**20**	**0.52**	**0**	**0**	**0**	**30**	**40**	**8.75**	**50**	**10**	**80**	**12.73**
Pinus ponderosa															
<1"													120		**10.91**
1-4"													10		**0.91**
4-8"															
8-12"														10	**0.91**
TOTAL LIVE TREES	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**130**	**10**	**12.73**
TOTAL TREE SPECIES - LIVE															
<1"									10	10	**2.50**	40	120	20	**16.36**
1-4"		10	10		0.26				20	30	**6.25**	10	20	60	**8.18**
4-8"				20	0.26										
8-12"														10	**0.91**
TOTAL LIVE TREES	**0**	**10**	**10**	**20**	**0.52**	**0**	**0**	**0**	**30**	**40**	**8.75**	**50**	**140**	**90**	**25.45**

Table D1. Tree Density (Live Trees Per Acre) by Plot for Ten **GRASSLAND** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

TREE SPECIES	*AND SCO/ BOU CUR*		*AND SCO/ CAL LON*				*CAL LON/ STI COM*		GRASSLAND COMPOSITE
	PLOT		PLOT NUMBER				PLOT		
	299	Mean	129	145	311	Mean	116	Mean	Mean
DBH CLASS - LIVE TREES		n=7				n=4		n=5	n=152
Juniperus scopulorum									
<1"				70		17.50			0.99
1-4"	10	1.43	30	50		20.00			1.58
4-8"									0.13
8-12"									
TOTAL LIVE TREES	**10**	**1.43**	**30**	**120**	**0**	**37.50**	**0**	**0.00**	**2.70**
Pinus ponderosa									
<1"					10	2.50	20	4.00	0.99
1-4"					10	2.50	10	2.00	0.20
4-8"									
8-12"									0.07
TOTAL LIVE TREES	**0**	**0**	**0**	**0**	**20**	**5.00**	**30**	**6.00**	**1.25**
TOTAL TREE SPECIES - LIVE									
<1"				70	10	20.00	20	4.00	1.97
1-4"	10	1.43	30	50	10	22.50	10	2.00	1.78
4-8"									0.13
8-12"									0.07
TOTAL LIVE TREES	**10**	**1.43**	**30**	**120**	**20**	**42.50**	**30**	**6.00**	**3.95**

Table D2. Tree Density (Live Trees Per Acre) by Plot for Four **SHRUB/GRASSLAND** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

TREE SPECIES	*ART CAN / AGR SMI*						*ART TRI / AGR SMI*									*ART TRI / AGR SPI*						
	PLOT NUMBER						PLOT NUMBER									PLOT NUMBER						
	148	572	634	638	639	Mean	032	088	102	103	114	122	167	651	Mean	012	090	097	099	161	344	Mean
DBH CLASS - LIVE TREES						n=45									n=67							n=27
Juniperus scopulorum																						
<1"	20				10	0.67	10	20			10				0.60	30	10					1.48
1-4"	20		10	10	30	1.56			10	20					0.45		20	20	10	30	10	3.33
4-8"	20	10				0.67						20		10	0.45		10					0.37
8-12"													10		0.15							
TOTAL LIVE TREES	**60**	**10**	**10**	**10**	**40**	2.89	**10**	**20**	**10**	**20**	**10**	**20**	**10**	**10**	1.64	**30**	**40**	**20**	**10**	**30**	**10**	5.19
Pinus ponderosa																						
<1"					10	0.22																
1-4"				10		0.22																
4-8"																						
8-12"																						
TOTAL LIVE TREES	**0**	**0**	**0**	**10**	**10**	0.44	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0.00	**0**	**0**	**0**	**0**	**0**	**0**	0.00
TOTAL TREE SPECIES - LIVE																						
<1"	20				20	0.89	10	20			10				0.60	30	10					1.48
1-4"	20		10	20	30	1.78			10	20					0.45		20	20	10	30	10	3.33
4-8"	20	10				0.67						20		10	0.45		10					0.37
8-12"													10		0.15							
TOTAL LIVE TREES	**60**	**10**	**10**	**20**	**50**	3.33	**10**	**20**	**10**	**20**	**10**	**20**	**10**	**10**	1.64	**30**	**40**	**20**	**10**	**30**	**10**	5.19

Table D2. Tree Density (Live Trees Per Acre) by Plot for Four **SHRUB/GRASSLAND** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

TREE SPECIES	ART TRI/ AND SCO				SHRUB/ GRASSLAND COMPOSITE
	PLOT NUMBER				
	031	094	149	Mean	Mean
DBH CLASS - LIVE TREES				n=10	n=149
Juniperus scopulorum					
<1"		10	40	5.00	1.07
1-4"	20		10	3.00	1.48
4-8"		20	30	5.00	0.81
8-12"					0.07
TOTAL LIVE TREES	**20**	**30**	**80**	**13.00**	**3.42**
Pinus ponderosa					
<1"					0.07
1-4"					0.07
4-8"					
8-12"					
TOTAL LIVE TREES	**0**	**0**	**0**	**0.00**	**0.13**
TOTAL TREE SPECIES - LIVE					
<1"		10	40	5.00	1.14
1-4"	20		10	3.00	1.54
4-8"		20	30	5.00	0.81
8-12"					0.07
TOTAL LIVE TREES	**20**	**30**	**80**	**13.00**	**3.56**

Table D3. Tree Density (Live Trees Per Acre) by Plot for Four **GRASS-DOMINATED BREAKS** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

TREE SPECIES	*AGR SMI-* Breaks		*AGR SPI* Breaks	*SPO AIR* Breaks		*CAL LON* Breaks	GRASS-DOMINATED BREAKS COMPOSITE
	PLOT 283	Mean n=9		PLOT 223	Mean n=4		Mean n=22
DBH CLASS - LIVE TREES			n=4			n=5	
Juniperus scopulorum							
<1"	10	1.11		10	2.5		0.91
1-4"	20	2.22					0.91
TOTAL LIVE TREES	**30**	3.33	**0**	**10**	2.5	**0**	1.82
Pinus ponderosa							
<1"							
1-4"							
TOTAL LIVE TREES	**0**	0.00	**0**	**0**	0.00	**0**	0.00
TOTAL TREE SPECIES - LIVE							
<1"	10	1.11		10	2.5		0.91
1-4"	20	2.22					0.91
TOTAL LIVE TREES	**30**	3.33	**0**	**10**	2.5	**0**	1.82

Table D4. Tree Density (Live Trees Per Acre) by Plot for Six **SHRUB-DOMINATED BREAKS** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

TREE SPECIES	*ART TRI-SAR VER-CHR NAU/AGR SMI*		*RHU ARO/AGR SPI-AND SCO*	*ART TRI-RHU ARO-CHR NAU/AGR SPI*					*ART TRI-RHU ARO-SAR VER/AGR SPI*				*ART TRI-ATR CON-SAR VER/AGR SPI*				
	PLOT NUMBER			PLOT NUMBER					PLOT NUMBER				PLOT NUMBER				
	240	Mean		213	242	268	289	Mean	239	324	360	Mean	237	249	284	323	Mean
DBH CLASS - LIVE TREES		n=25	n=4					n=15				n=6					n=26
Juniperus scopulorum																	
<1"	30	1.20					10	0.67	10			1.67				10	0.38
1-4"				10	50	10		4.67			10	1.67	10	10			0.77
4-8"						10		0.67			10	1.67					
8-12"																	
TOTAL LIVE TREES	**30**	**1.20**	**0**	**10**	**50**	**20**	**10**	**6.00**	**10**	**0**	**20**	**5.00**	**10**	**10**	**0**	**10**	**1.15**
Pinus ponderosa																	
<1"				10		10	10	2.00	10	20	10	6.67				20	0.77
1-4"				20		50		4.67		10		1.67			10		0.38
4-8"																	
8-12"						10		0.67									
TOTAL LIVE TREES		0.00	0	**30**	**0**	**70**	**10**	7.33	**10**	**30**	**10**	8.33	**0**	**0**	**10**	**20**	1.15
TOTAL TREE SPECIES - LIVE																	
<1"	30	1.20		10		10	20	2.67	20	20	10	8.33				30	1.15
1-4"				30	50	60		9.33		10	10	3.33	10	10	10		1.15
4-8"						10		0.67			10	1.67					
8-12"						10		0.67									
TOTAL LIVE TREES	**30**	1.20	**0**	**40**	**50**	**90**	**20**	13.33	**20**	**30**	**30**	13.33	**10**	**10**	**10**	**30**	2.31

Table D4. Tree Density (Live Trees Per Acre) by Plot for Six **SHRUB-DOMINATED BREAKS** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

TREE SPECIES	*ART TRI-ATR CON-RHU ARO/AGR SPI*							SHRUB-DOMINATED BREAKS COMPOSITE
	PLOT NUMBER							
	293	294	297	319	363	379	Mean	Mean
DBH CLASS - LIVE TREES							n=13	n=89
Juniperus scopulorum								
<1"					20		1.54	0.90
1-4"	10		10		10		2.31	1.46
4-8"	20						1.54	0.45
8-12"								
TOTAL LIVE TREES	**30**	**0**	**10**	**0**	**30**	**0**	**5.38**	**2.81**
Pinus ponderosa								
<1"								1.01
1-4"	40	20	90	10	10		13.08	2.92
4-8"								
8-12"						20	1.54	0.34
TOTAL LIVE TREES	**40**	**20**	**90**	**10**	**10**	**20**	**14.62**	**4.27**
TOTAL TREE SPECIES - LIVE								
<1"					20		1.54	1.91
1-4"	50	20	100	10	20		15.38	4.38
4-8"	20						1.54	0.45
8-12"						20	1.54	0.34
TOTAL LIVE TREES	**70**	**20**	**100**	**10**	**40**	**20**	**20.00**	**7.08**

Table D5. Tree Density (Live Trees Per Acre) by Plot for the *Juniperus scopulorum/ Agropyron spicatum* **BREAKS** Community Type, Otter Creek Tract 2 Baseline Study Area, 2011.

	***JUN SCO /AGR SPI* BREAKS**											
	PLOT NUMBER											
	361	381	387	390	402	416	430	515	516	520	538	**Mean**
TREE SPECIES												**n=11**
DBH CLASS - LIVE TREES												
Juniperus scopulorum												
<1"	150	10	30	60	10	20	20	110	20	180	90	**63.64**
1-4"	40	210	170	50	30	20	110	120	220	140	60	**106.36**
4-8"	50	90	190	110	40	90	100	70	100	90	60	**90.00**
8-12"		10	40	50	20	20	30	40	10			**20.00**
12-16"												
16-20"												
TOTAL LIVE TREES	**240**	**320**	**430**	**270**	**100**	**150**	**260**	**340**	**350**	**410**	**210**	**280.00**
Pinus ponderosa												
<1"		10		40		30	50	60	20			**19.09**
1-4"		10		10		60	80	10	30			**18.18**
4-8"							10					**0.91**
8-12"												
12-16"												
16-20"												
TOTAL LIVE TREES	**0**	**20**	**0**	**50**	**0**	**90**	**140**	**70**	**50**	**0**	**0**	**38.18**
TOTAL TREE SPECIES - LIVE												
<1"	150	20	30	100	10	50	70	170	40	180	90	**82.73**
1-4"	40	220	170	60	30	80	190	130	250	140	60	**124.55**
4-8"	50	90	190	110	40	90	110	70	100	90	60	**90.91**
8-12"		10	40	50	20	20	30	40	10			**20.00**
12-16"												
16-20"												
TOTAL LIVE TREES	**240**	**340**	**430**	**320**	**100**	**240**	**400**	**410**	**400**	**410**	**210**	**318.18**

Table D6. Tree Density (Live Trees Per Acre) by Plot for the *Pinus ponderosa-Juniperus scopulorum/Agropyron spicatum* **BREAKS** Community Type, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PIN PON -JUN SCO /AGR SPI* BREAKS**																	
	PLOT NUMBER																	
	348	349	351	353	356	364	368	371	372	373	380	382	383	384	403	415	425	**Mean**
TREE SPECIES																		**n=17**
DBH CLASS - LIVE TREES																		
Juniperus scopulorum																		
<1"	20		20	120	50	10	40	10		20	30	20	90		40		10	**28.24**
1-4"		10	20		90		240	100	50	20	90	30	40		60	30	110	**52.35**
4-8"			20		30	10	40	10			50	30	10	10	80	40	10	**20.00**
8-12"																10		**0.59**
12-16"																		
16-20"																		
TOTAL LIVE TREES	**20**	**10**	**60**	**120**	**170**	**20**	**320**	**120**	**50**	**40**	**170**	**80**	**140**	**10**	**180**	**80**	**130**	**101.18**
Pinus ponderosa																		
<1"	10	70		60	30		30		40	40		10	60			30	50	**25.29**
1-4"	40	60			40		20	90	60	50	30		10	10		30	10	**26.47**
4-8"			10		20	10		20		10		20		40			20	**8.82**
8-12"			10	20		20				10	10	10		10	30		10	**7.65**
12-16"		10				20	20	10	10	10	10				10		20	**7.06**
16-20"																		
TOTAL LIVE TREES	**50**	**140**	**20**	**80**	**90**	**50**	**70**	**120**	**110**	**120**	**50**	**40**	**70**	**60**	**40**	**60**	**110**	**75.29**
TOTAL TREE SPECIES - LIVE																		
<1"	30	70	20	180	80	10	70	10	40	60	30	30	150		40	30	60	**53.53**
1-4"	40	70	20		130		260	190	110	70	120	30	50	10	60	60	120	**78.82**
4-8"			30		50	20	40	30		10	50	50	10	50	80	40	30	**28.82**
8-12"			10	20		20				10	10	10		10	30	10	10	**8.24**
12-16"		10				20	20	10	10	10	10				10		20	**7.06**
16-20"																		
TOTAL LIVE TREES	**70**	**150**	**80**	**200**	**260**	**70**	**390**	**240**	**160**	**160**	**220**	**120**	**210**	**70**	**220**	**140**	**240**	**176.47**

Table D7. Tree Density (Live Trees Per Acre) by Plot for the *Pinus ponderosa-Juniperus scopulorum/Andropogon scoparius* **BREAKS** Community Type, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PIN PON-JUN SCO/AND SCO* BREAKS**															
	PLOT NUMBER															
	350	355	357	359	362	365	366	369	370	374	375	378	437	449	465	**Mean**
TREE SPECIES																**n=15**
DBH CLASS - LIVE TREES																
Juniperus scopulorum																
<1"		30	30	60	60	30	30	20	170		10	10		30	10	**32.67**
1-4"	10	30		60	10	10	50		30		10	50	60	40	40	**26.67**
4-8"		10		10	10	20	30	40		10		20	20	60	40	**18.00**
8-12"													10		10	**1.33**
12-16"								20								**1.33**
16-20"																
TOTAL LIVE TREES	**10**	**70**	**30**	**130**	**80**	**60**	**110**	**80**	**200**	**10**	**20**	**80**	**90**	**130**	**100**	**80.00**
Pinus ponderosa																
<1"	100	20	50	70	70		40	10	30	10	30			110	60	**40.00**
1-4"	80		40	80		30	60	20	50	20	100	40	60	130		**47.33**
4-8"						20	10	30	90	10	70	20		10		**17.33**
8-12"		20	40	10	10		10					10				**6.67**
12-16"				10			20	10						10	20	**4.67**
16-20"				10												**0.67**
TOTAL LIVE TREES	**180**	**40**	**130**	**180**	**80**	**50**	**140**	**70**	**170**	**40**	**200**	**70**	**60**	**260**	**80**	**116.67**
TOTAL TREE SPECIES - LIVE																
<1"	100	50	80	130	130	30	70	30	200	10	40	10		140	70	**72.67**
1-4"	90	30	40	140	10	40	110	20	80	20	110	90	120	170	40	**74.00**
4-8"		10		10	10	40	40	70	90	20	70	40	20	70	40	**35.30**
8-12"		20	40	10	10		10					10	10		10	**8.00**
12-16"				10			20	30						10	20	**6.00**
16-20"				10												
TOTAL LIVE TREES	**190**	**110**	**160**	**310**	**160**	**110**	**250**	**150**	**370**	**50**	**220**	**150**	**150**	**390**	**180**	**196.67**

Table D8.

Tree Density (Live Trees Per Acre) by Plot for the *Pinus ponderosa-Juniperus scopulorum/Artemisia tridentata* **BREAKS** and *Pinus ponderosa-Juniperus scopulorum/Artemisia tridentata-Atriplex confertifolia* **BREAKS** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	***PIN PON-JUN SCO/ ART TRI* BREAKS**					***PIN PON-JUN SCO/ ART TRI-ATR CON* BREAKS**								**CONIFER-DOMINATED BREAKS COMPOSITE**
	PLOT NUMBER					**PLOT NUMBER**								
	358	367	376	377	**Mean**	316	352	354	385	386	404	534	**Mean**	**Mean**
TREE SPECIES					**n=4**								**n=7**	**n=54**
DBH CLASS - LIVE TREES														
Juniperus scopulorum														
<1"	30		10	40	**20.00**	20	10	150			20	50	**35.71**	**37.04**
1-4"	60	30	70	110	**67.50**	50	10	20	30		50	20	**25.71**	**53.89**
4-8"	70		40	10	**30.00**	10	20	10	20	30	140		**32.86**	**36.11**
8-12"								10	10		30		**7.14**	**5.56**
12-16"														**0.37**
16-20"														
TOTAL LIVE TREES	**160**	**30**	**120**	**160**	**117.5**	**80**	**40**	**190**	**60**	**30**	**240**	**70**	**101.43**	**132.96**
Pinus ponderosa														
<1"	70	160		20	**62.50**	10		40		10	20	10	**12.86**	**29.26**
1-4"	60	180		40	**70.00**			60			10	30	**14.29**	**32.22**
4-8"				30	**7.50**			30					**4.29**	**8.89**
8-12"		10		10	**5.00**			20				10	**4.29**	**5.19**
12-16"														**3.52**
16-20"														**0.19**
TOTAL LIVE TREES	**130**	**350**	**0**	**100**	**145.00**	**10**	**0**	**150**	**0**	**10**	**30**	**50**	**35.71**	**79.26**
TOTAL TREE SPECIES - LIVE														
<1"	100	160	10	60	**82.50**	30	10	190		10	40	60	**48.57**	**66.30**
1-4"	120	210	70	150	**137.50**	50	10	80	30		60	50	**40.00**	**86.11**
4-8"	70		40	40	**37.50**	10	20	40	20	30	140		**37.14**	**44.99**
8-12"		10		10	**5.00**			30	10		30	10	**11.43**	**10.74**
12-16"														**3.89**
16-20"														**0.19**
TOTAL LIVE TREES	**290**	**380**	**120**	**260**	**262.50**	**90**	**40**	**340**	**60**	**40**	**270**	**120**	**137.14**	**212.22**

Table D9. Tree Density (Live Trees Per Acre) by Plot for the *Pinus ponderosa-Juniperus scopulorum/Agropyron spicatum* Community Type, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																						
	PLOT NUMBER																						
TREE SPECIES	391	392	393	396	397	399	400	401	405	406	413	414	417	418	419	420	421	422	423	424	426	436	438
DBH CLASS - LIVE TREES																							
Juniperus scopulorum																							
<1"	100	40	290	480	70	30	90	130	40	100	260	30	20	70	210	20	90	40	40	110	120	20	140
1-4"	90	10	150	220	210	30	20	140	30	160	140	120	20	250	110	230	320	140	670	530	270	90	250
4-8"	50	40	20	30	10	10			10	30	20	70	20	70	20	30	80	80	40	130	10	60	40
8-12"	50	10										20				10	10		10				
12-16"					20							10											
16-20"																							
20-24"																							
24-28"																							
TOTAL LIVE TREES	**290**	**100**	**460**	**730**	**310**	**70**	**110**	**270**	**80**	**290**	**420**	**250**	**60**	**390**	**340**	**290**	**500**	**260**	**760**	**770**	**400**	**170**	**430**
Pinus ponderosa																							
<1"		40	40	40					160	250	20		30		10			20			10	50	20
1-4"		20	60	10	60	40		10	250	140	10		50	20	20	40	40	60		10	40	60	50
4-8"			50	40	60	60	60	50	120	10	40			30	10	20	40	10		20	10	20	70
8-12"	10			70	40	30	50	40	80	10	40		20	70		10	10	10		30	20		20
12-16"	10			20		10						10	10	10	10			10	30	30			10
16-20"			10																10				10
20-24"																							
24-28"																							
TOTAL LIVE TREES	**20**	**60**	**160**	**180**	**160**	**140**	**110**	**100**	**610**	**410**	**110**	**10**	**110**	**130**	**50**	**70**	**90**	**110**	**40**	**90**	**80**	**130**	**180**
TOTAL TREE SPECIES - LIVE																							
<1"	100	80	330	520	70	30	90	130	200	350	280	30	50	70	220	20	90	60	40	110	130	70	160
1-4"	90	30	210	230	270	70	20	150	280	300	150	120	70	270	130	270	360	200	670	540	310	150	300
4-8"	50	40	70	70	70	70	60	50	130	40	60	70	20	100	30	50	120	90	40	150	20	80	110
8-12"	60	10		70	40	30	50	40	80	10	40		20	70		20	20	10		30	20		20
12-16"	10			20	20	10						20	10	10	10			10	30	30			10
16-20"			10																10				10
20-24"																							
24-28"																							
TOTAL LIVE TREES	**310**	**160**	**620**	**910**	**470**	**210**	**220**	**370**	**690**	**700**	**530**	**260**	**170**	**520**	**390**	**360**	**590**	**370**	**800**	**860**	**480**	**300**	**610**

Table D9. Tree Density (Live Trees Per Acre) by Plot for the *Pinus ponderosa-Juniperus scopulorum/Agropyron spicatum* Community Type, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																						
	PLOT NUMBER																						
TREE SPECIES	439	440	441	444	445	446	447	448	453	454	456	457	458	459	460	461	462	463	464	470	471	473	475
DBH CLASS - LIVE TREES																							
Juniperus scopulorum																							
<1"	30	70	10	160	110	120		40	70	240	90	170	110	50	130	120	260	270	190	200	90	120	60
1-4"	60	150	100	220	170	170	120	100	210	140	190	140	320	150	110	420	170	320	130	90	130	160	120
4-8"	20	40	20	100	40	10	30	50	30	40		20		40	40	30	50	50	30	50	30	20	30
8-12"	10			30	20					10		20			10		10	30					
12-16"																							
16-20"																							
20-24"																							
24-28"																							
TOTAL LIVE TREES	**120**	**260**	**130**	**510**	**340**	**300**	**150**	**190**	**310**	**430**	**280**	**350**	**430**	**240**	**290**	**570**	**490**	**670**	**350**	**340**	**250**	**300**	**210**
Pinus ponderosa																							
<1"	30	10		10	40	40	10	90	250	200		80	90	10	420	180	640	270	20	760	70	620	110
1-4"	20	90	10	20	200	170	110	230	260	220	20	240	100		160	330	210	50	50	20	90	380	80
4-8"		40		10	40	30		50	30	70	40	80	30	10	80	30	50	90	20	40	60		
8-12"		20	30			10	10	10		10	30	20	50	20			20	10	80	70	20	20	
12-16"		20	30			10			10		10	20	10	50			20	10		10	50	10	20
16-20"			20		10		10				10			20	10								
20-24"													10										
24-28"																							
TOTAL LIVE TREES	**50**	**180**	**90**	**40**	**290**	**260**	**140**	**380**	**550**	**500**	**110**	**440**	**290**	**110**	**670**	**540**	**940**	**430**	**170**	**900**	**290**	**1030**	**210**
TOTAL TREE SPECIES - LIVE																							
<1"	60	80	10	170	150	160	10	130	320	440	90	250	200	60	550	300	900	540	210	960	160	740	170
1-4"	80	240	110	240	370	340	230	330	470	360	210	380	420	150	270	750	380	370	180	110	220	540	200
4-8"	20	80	20	110	80	40	30	100	60	110	40	100	30	50	120	60	100	140	50	90	90	20	30
8-12"	10	20	30	30	20	10	10	10		20	30	40	50	20	10		30	40	80	70	20	20	
12-16"		20	30			10			10		10	20	10	50			20	10		10	50	10	20
16-20"			20		10		10				10			20	10								
20-24"													10										
24-28"																							
TOTAL LIVE TREES	**170**	**440**	**220**	**550**	**630**	**560**	**290**	**570**	**860**	**930**	**390**	**790**	**720**	**350**	**960**	**1110**	**1430**	**1100**	**520**	**1240**	**540**	**1330**	**420**

Table D9. Tree Density (Live Trees Per Acre) by Plot for the *Pinus ponderosa-Juniperus scopulorum/Agropyron spicatum* Community Type, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																						
	PLOT NUMBER																						
TREE SPECIES	476	478	479	481	482	483	484	485	486	487	488	490	492	493	494	497	498	499	505	506	508	511	512
DBH CLASS - LIVE TREES																							
Juniperus scopulorum																							
<1"	80	270	180	90	100	190	120	310	40	330	420		30	80	390	260	80	250	60	40	190	160	30
1-4"	390	250	60	70	110	250	220	120	30	70	220	110	260	100	70	140	280	220	110	90	190	300	40
4-8"	70		80	10	90		40		20	80	10	60	40	80	100	50	40		30	10	40	30	20
8-12"	10		10	10	40	10								10	40							20	10
12-16"					10																		
16-20"																							
20-24"																							
24-28"																							
TOTAL LIVE TREES	**550**	**520**	**330**	**180**	**350**	**450**	**380**	**430**	**90**	**480**	**650**	**170**	**330**	**270**	**600**	**450**	**400**	**470**	**200**	**140**	**420**	**510**	**100**
Pinus ponderosa																							
<1"	770	430	80		20			130	200	230		10		100	100	480	230	20	560	210	160	350	30
1-4"	330	190	50		140			70	160	50				20	150	310	280	20	210	110	290	620	10
4-8"	30	10	30	70	10	30	20	60	20	30	10	10	60	40	90	50	30	10	60	30	30	10	10
8-12"		40	30	40	10	60	40	30		10	50		20	30	70	10	20	30	50		10		40
12-16"	20	20	20			30	60	20	20	20	10	30	10		10	10	20	10	20		10	10	10
16-20"	10										10												10
20-24"										10													
24-28"										10													
TOTAL LIVE TREES	**1160**	**690**	**210**	**110**	**180**	**120**	**120**	**310**	**400**	**360**	**80**	**50**	**90**	**190**	**420**	**860**	**580**	**90**	**900**	**350**	**500**	**990**	**110**
TOTAL TREE SPECIES - LIVE																							
<1"	850	700	260	90	120	190	120	440	240	560	420	10	30	180	490	740	310	270	620	250	350	510	60
1-4"	720	440	110	70	250	250	220	190	190	120	220	110	260	120	220	450	560	240	320	200	480	920	50
4-8"	100	10	110	80	100	30	60	60	40	110	20	70	100	120	190	100	70	10	90	40	70	40	30
8-12"	10	40	40	50	50	70	40	30		10	50		20	40	110	10	20	30	50		10	20	50
12-16"	20	20	20		10	30	60	20	20	20	10	30	10		10	10	20	10	20		10	10	10
16-20"											10												10
20-24"										10													
24-28"										10													
TOTAL LIVE TREES	**1710**	**1210**	**540**	**290**	**530**	**570**	**500**	**740**	**490**	**840**	**730**	**220**	**420**	**460**	**1020**	**1310**	**980**	**560**	**1100**	**490**	**920**	**1500**	**210**

Table D9. Tree Density (Live Trees Per Acre) by Plot for the *Pinus ponderosa-Juniperus scopulorum/Agropyron spicatum* Community Type, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/AGROPYRON SPICATUM																	
	PLOT NUMBER																	
TREE SPECIES	514	519	524	526	527	528	529	532	533	535	536	539	540	541	542	543	544	**Mean**
DBH CLASS - LIVE TREES																		**n=86**
Juniperus scopulorum																		
<1"	180	20	60	30		20	110	110	50	110	190	20	100	80		70	240	**120.23**
1-4"	230	100	30	110	20	10	70	60	40	110	330	190	120	160		90	60	**157.21**
4-8"	160	70		10	10				20	160	40	50	110	50		20	10	**37.79**
8-12"							10							40				**5.35**
12-16"																		**0.47**
16-20"																		
20-24"																		
24-28"																		
TOTAL LIVE TREES	**570**	**190**	**90**	**150**	**30**	**30**	**190**	**170**	**110**	**380**	**560**	**260**	**330**	**330**	**0**	**180**	**310**	**321.05**
Pinus ponderosa																		
<1"	310	170	210	450	630	280	480	230	80		90			110	90		10	**138.26**
1-4"	130	120	480	290	230	490	660	350	80	220	140	40	60	320	50	40	40	**125.58**
4-8"	30	30	10	20	30	20	70	50	30	50	70		10	60	40	50	90	**34.07**
8-12"	10				10		10		10					30	40	40	50	**20.70**
12-16"		10			10			10								20	30	**10.23**
16-20"					10	10												**1.86**
20-24"			10															**0.35**
24-28"																		**0.12**
TOTAL LIVE TREES	**480**	**330**	**710**	**760**	**920**	**800**	**1220**	**640**	**200**	**270**	**300**	**40**	**70**	**520**	**220**	**150**	**220**	**331.16**
TOTAL TREE SPECIES - LIVE																		
<1"	490	190	270	480	630	300	590	340	130	110	280	20	100	190	90	70	250	**258.49**
1-4"	360	220	510	400	250	500	730	410	120	330	470	230	180	480	50	130	100	**282.79**
4-8"	190	100	10	30	40	20	70	50	50	210	110	50	120	110	40	70	100	**71.86**
8-12"	10				10		20		10					70	40	40	50	**26.05**
12-16"		10			10											20	30	**10.70**
16-20"					10	10												**1.86**
20-24"			10															**0.35**
24-28"																		**0.12**
TOTAL LIVE TREES	**1050**	**520**	**800**	**910**	**950**	**830**	**1410**	**810**	**310**	**650**	**860**	**300**	**400**	**850**	**220**	**330**	**530**	**652.21**

Table D10.

Tree Density (Live Trees Per Acre) by Plot for the *Juniperus scopulorum-Pinus ponderosa/Oryzopsis micrantha* and the *Pinus ponderosa-Juniperus scopulorum/Festuca idahoensis* Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	JUN SCO-PIN PON/ ORY MIC			***PIN PON-JUN SCO/ FES IDA***		
	PLOT NUMBER			**PLOT NUMBER**		
TREE SPECIES	411	412	**Mean**	442	468	**Mean**
DBH CLASS - LIVE TREES			**n=2**			**n=2**
Fraxinus pennsylvanica						
<1"		10	**5.00**			
1-4"						
4-8"						
8-12"						
12-16"						
16-20"						
20-24"						
24-28"						
TOTAL LIVE TREES	**0**	**10**	**5.00**	**0**	**0**	**0.00**
Juniperus scopulorum						
<1"	30	240	**135.00**	110	50	**80.00**
1-4"	240	250	**245.00**	300	60	**180.00**
4-8"	110	30	**70.00**	40	10	**25.00**
8-12"	20	10	**15.00**	10		**5.00**
12-16"	10		**5.00**		10	**5.00**
16-20"						
20-24"						
24-28"						
TOTAL LIVE TREES	**410**	**530**	**470.00**	**460**	**130**	**295.00**
Pinus ponderosa						
<1"				10	70	**40.00**
1-4"	10	30	**20.00**	60	140	**100.00**
4-8"		70	**35.00**	40	100	**70.00**
8-12"		30	**15.00**	30	10	**20.00**
12-16"				10	10	**10.00**
16-20"				10		**5.00**
20-24"						
24-28"						
TOTAL LIVE TREES	**10**	**130**	**70.00**	**160**	**330**	**245.00**
TOTAL TREE SPECIES - LIVE						
<1"	30	250	**140.00**	120	120	**120.00**
1-4"	250	280	**265.00**	360	200	**280.00**
4-8"	110	100	**105.00**	80	110	**95.00**
8-12"	20	40	**30.00**	40	10	**25.00**
12-16"	10		**5.00**	10	20	**15.00**
16-20"				10		**5.00**
20-24"						
24-28"						
TOTAL LIVE TREES	420	670	**545.00**	620	460	**540.00**

Table D11. Tree Density (Live Trees Per Acre) by Plot for the *Pinus ponderosa-Juniperus scopulorum/Andropogon scoparius* Community Type, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS																				
	PLOT NUMBER																				
TREE SPECIES	394	395	398	407	409	427	428	443	452	466	467	469	474	477	480	489	491	495	500	501	502
DBH CLASS - LIVE TREES																					
Fraxinus pennsylvanica																					
<1"														40							
1-4"														20							
4-8"																					
8-12"																					
12-16"																					
16-20"																					
20-24"																					
24-28"																					
TOTAL LIVE TREES	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**60**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Juniperus scopulorum																					
<1"	100	20	20	50	60	20	90	40	60	40	170	150	90	80	60	40	540	50	210	30	180
1-4"	50	30	30	20	170	50	160	130	110	90	190	180	20	100	120	50		40	90	70	60
4-8"	30	10		20	130	20	40	60	20	10	20	40		50	150	20	70	20		10	20
8-12"					30	10		10	10					20	10			10			
12-16"																					
16-20"																					
20-24"																					
24-28"																					
TOTAL LIVE TREES	**180**	**60**	**50**	**90**	**390**	**100**	**290**	**240**	**200**	**140**	**380**	**370**	**110**	**250**	**340**	**110**	**610**	**120**	**300**	**110**	**260**
Pinus ponderosa																					
<1"	30	80		50	70	10		50	10		380	70	470	150	30		150		170	660	890
1-4"	10	100	10	40	80	110	60	550	120	10	200	60	110	240	80	30	10		180	390	610
4-8"	20	30	10		10		10	30		10	20	50	40	70		80	20		140	10	100
8-12"	40	30	10					10			20	20	20			30				10	10
12-16"					10	10				10	20	20			10	40				20	20
16-20"				20										10	10		40				10
20-24"			10								10			10							
24-28"																					
TOTAL LIVE TREES	**100**	**240**	**40**	**110**	**170**	**130**	**70**	**640**	**130**	**30**	**650**	**220**	**640**	**480**	**130**	**180**	**220**	**0**	**490**	**1090**	**1640**

Table D11. Tree Density (Live Trees Per Acre) by Plot for the *Pinus ponderosa-Juniperus scopulorum/Andropogon scoparius* Community Type, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ANDROPOGON SCOPARIUS																				
	PLOT NUMBER																				
TREE SPECIES	394	395	398	407	409	427	428	443	452	466	467	469	474	477	480	489	491	495	500	501	502
DBH CLASS - LIVE TREES																					
TOTAL TREE SPECIES - LIVE																					
<1"	130	100	20	100	130	30	90	90	70	40	550	220	560	270	90	40	690	50	380	690	1070
1-4"	60	130	40	60	250	160	220	680	230	100	390	240	130	360	200	80	10	40	270	460	670
4-8"	50	40	10	20	140	20	50	90	20	20	40	90	40	120	150	100	90	20	140	20	120
8-12"	40	30	10		30	10		20	10		20	20	20	20	10	30		10		10	10
12-16"					10	10				10	20	20			10	40				20	20
16-20"				20										10	10		40				10
20-24"			10								10			10							
24-28"																					
TOTAL LIVE TREES	**280**	**300**	**90**	**200**	**560**	**230**	**360**	**880**	**330**	**170**	**1030**	**590**	**750**	**790**	**470**	**290**	**830**	**120**	**790**	**1200**	**1900**

Table D11.

Tree Density (Live Trees Per Acre) by Plot for the *Pinus ponderosa-Juniperus scopulorum/Andropogon scoparius* Community Type, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ANDROPOGON SCOPARIUS								**PIN PON-JUN SCO/ GRASS COMPOSITE**
	PLOT NUMBER								
TREE SPECIES	503	509	513	518	523	525	537	**Mean**	**Mean**
DBH CLASS - LIVE TREES								**n=28**	**118**
Fraxinus pennsylvanica									
<1"								**1.43**	**0.42**
1-4"								**0.71**	**0.17**
4-8"									
8-12"									
12-16"									
16-20"									
20-24"									
24-28"									
TOTAL LIVE TREES	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2.14**	**0.59**
Juniperus scopulorum									
<1"		10	80	60	70	60	40	**86.43**	**111.78**
1-4"	30	150	30	210	70	20	20	**81.79**	**141.19**
4-8"	20	20	60	120	10		50	**36.43**	**37.80**
8-12"				30				**4.64**	**5.34**
12-16"									**0.51**
16-20"									
20-24"									
24-28"									
TOTAL LIVE TREES	**50**	**180**	**170**	**420**	**150**	**80**	**110**	**209.29**	**296.61**
Pinus ponderosa									
<1"	10	350		60	230	390	70	**156.43**	**138.56**
1-4"	470	220		100	250	190		**151.07**	**129.41**
4-8"	220	10	20	10	60	50		**36.43**	**35.25**
8-12"			30		10	30		**9.64**	**17.97**
12-16"		10	20		10	10		**7.50**	**9.41**
16-20"								**3.21**	**2.20**
20-24"								**1.07**	**0.51**
24-28"									**0.08**
TOTAL LIVE TREES	**700**	**590**	**70**	**170**	**560**	**670**	**70**	**365.36**	**333.39**

Table D11. Tree Density (Live Trees Per Acre) by Plot for the *Pinus ponderosa-Juniperus scopulorum/Andropogon scoparius* Community Type, Otter Creek Tract 2 Baseline Study Area, 2011.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM/ ANDROPOGON SCOPARIUS								**PIN PON-JUN SCO/ GRASS COMPOSITE**
	PLOT NUMBER								
TREE SPECIES	503	509	513	518	523	525	537	**Mean**	**Mean**
DBH CLASS - LIVE TREES								**n=28**	**118**
TOTAL TREE SPECIES - LIVE									
<1"	10	360	80	120	300	450	110	**244.29**	**250.76**
1-4"	500	370	30	310	320	210	20	**233.57**	**270.76**
4-8"	240	30	80	130	70	50	50	**72.86**	**73.05**
8-12"			30	30	10	30		**14.29**	**23.31**
12-16"		10	20		10	10		**7.50**	**9.92**
16-20"								**3.21**	**2.20**
20-24"								**1.07**	**0.51**
24-28"									**0.08**
TOTAL LIVE TREES	**750**	**770**	**240**	**590**	**710**	**750**	**180**	**576.79**	**630.59**

Table D12. Tree Density (Live Trees Per Acre) by Plot for Two *Pinus ponderosa-Juniperus scopulorum/* Shrub Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	DRAINAGE *JUNIPERUS SCOPULORUM-PINUS PONDEROSA/ SYMPHORICARPOS OCCIDENTALIS-AGROPYRON SMITHII*												*PIN PON-JUN SCO/ PRU VIR*			PINE-JUNIPER/ SHRUB COMPOSITE
	PLOT NUMBER												PLOT NUMBER			
TREE SPECIES	389	429	431	432	433	434	435	450	504	510	521	**Mean**	496	507	**Mean**	**Mean**
DBH CLASS - LIVE TREES												**n=11**			**n=2**	**n=13**
Fraxinus pennsylvanica																
<1"							10					**0.91**				**0.77**
1-4"																
4-8"																
8-12"																
12-16"																
16-20"																
TOTAL LIVE TREES							**10**					**0.91**			**0.00**	**0.77**
Juniperus scopulorum																
<1"		40	20	30		180	80		290	130	40	**73.64**	30	10	**20.00**	**65.38**
1-4"	70	20	20	60	140	180	210	90	50	80	110	**93.64**	100	10	**55.00**	**87.69**
4-8"	130	30	30	100	50	100	90	20	20	30	30	**57.27**	20	20	**20.00**	**51.54**
8-12"	30	10		20	10	50	10		10		10	**13.64**		10	**5.00**	**12.31**
12-16"																
16-20"							10					**0.91**				**0.77**
TOTAL LIVE TREES	**230**	**100**	**70**	**210**	**200**	**510**	**400**	**110**	**370**	**240**	**190**	**239.09**	**150**	**50**	**100.00**	**217.69**
Pinus ponderosa																
<1"		20							230	80		**30.00**	120		**60.00**	**34.62**
1-4"		10				10	10	150	570	170		**83.64**	200		**100.00**	**86.15**
4-8"									180	140		**29.09**	30		**15.00**	**26.92**
8-12"									10	20		**2.73**				**2.31**
12-16"																
16-20"																
TOTAL LIVE TREES		**30**				**10**	**10**	**150**	**990**	**410**		**145.45**	**350**		**175.00**	**150.00**

Table D12. Tree Density (Live Trees Per Acre) by Plot for Two *Pinus ponderosa-Juniperus scopulorum/* Shrub Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	DRAINAGE *JUNIPERUS SCOPULORUM-PINUS PONDEROSA/ SYMPHORICARPOS OCCIDENTALIS-AGROPYRON SMITHII*												*PIN PON-JUN SCO/ PRU VIR*			PINE-JUNIPER/ SHRUB COMPOSITE
	PLOT NUMBER												PLOT NUMBER			
TREE SPECIES	389	429	431	432	433	434	435	450	504	510	521	**Mean**	496	507	**Mean**	**Mean**
DBH CLASS - LIVE TREES												**n=11**			**n=2**	**n=13**
TOTAL TREE SPECIES - LIVE																
<1"		60	20	30		180	90		520	210	40	**104.55**	150	10	**80.00**	**100.77**
1-4"	70	30	20	60	140	190	220	240	620	250	110	**177.27**	300	10	**155.00**	**173.85**
4-8"	130	30	30	100	50	100	90	20	200	170	30	**86.36**	50	20	**35.00**	**78.46**
8-12"	30	10		20	10	50	10		20	20	10	**16.36**		10	**5.00**	**14.62**
12-16"																
16-20"							10					**0.91**				**0.77**
TOTAL LIVE TREES	**230**	**130**	**70**	**210**	**200**	**520**	**420**	**260**	**1360**	**650**	**190**	**385.45**	**500**	**50**	**275.00**	**368.46**

Table D13. Tree Density (Live Trees Per Acre) by Plot for Ten **Mesophytic/Hydrophytic Herbaceous Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	SPO AIR/ AGR SMI	SPA PEC/ BRO INE			SPA PEC/ HOR JUB	SPA PEC/ PAN VIR	SCI MAR/ SPO AIR- DIS STR	ELE PAL/SCI AME- JUN TOR				TYP LAT/ BRO INE			TYP LAT/ SPA PEC
		PLOT NUMBER				PLOT		PLOT NUMBER				PLOT NUMBER			PLOT
TREE SPECIES		617	658	**Mean**		680		451	681	686	**Mean**	662	666	**Mean**	665
DBH CLASS - LIVE TREES	**n=1**			**n=2**	**n=1**	**n=1**	**n=1**				**n=3**			**n=2**	**n=1**
Acer negundo															
<1"															40
1-4"		10		**5.00**								30		**15.00**	
4-8"															10
8-12"															
12-16"		10		**5.00**											
16-20"															
TOTAL LIVE TREES	**0**	**20**	**0**	**10.00**	**0**	**0**	**0**	**0**	**0**	**0**	**0.00**	**30**	**0**	**15.00**	**50**
Fraxinus pennsylvanica															
<1"															20
1-4"															
4-8"															
8-12"															
12-16"															
16-20"															
TOTAL LIVE TREES	**0**	**0**	**0**	**0.00**	**0**	**0**	**0**	**0**	**0**	**0**	**0.00**	**0**	**0**	**0.00**	**20**
Juniperus scopulorum															
<1"															
1-4"						10									
4-8"															
8-12"															
12-16"															
16-20"															
TOTAL LIVE TREES	**0**	**0**	**0**	**0.00**	**0**	**10**	**0**	**0**	**0**	**0**	**0.00**	**0**	**0**	**0.00**	**0**

Table D13. Tree Density (Live Trees Per Acre) by Plot for Ten **Mesophytic/Hydrophytic Herbaceous Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	SPO AIR/ AGR SMI	SPA PEC/ BRO INE			SPA PEC/ HOR JUB	SPA PEC/ PAN VIR	SCI MAR/ SPO AIR- DIS STR	ELE PAL/SCI AME- JUN TOR				TYP LAT/ BRO INE			TYP LAT/ SPA PEC
		PLOT NUMBER				PLOT		PLOT NUMBER				PLOT NUMBER			PLOT
TREE SPECIES		617	658	**Mean**		680		451	681	686	**Mean**	662	666	**Mean**	665
DBH CLASS - LIVE TREES	**n=1**			**n=2**	**n=1**	**n=1**	**n=1**				**n=3**			**n=2**	**n=1**
Salix amygdaloides															
<1"									10		**3.33**				
1-4"															
4-8"															
8-12"															
12-16"															
16-20"															
TOTAL LIVE TREES	**0**	**0**	**0**	**0.00**	**0**	**0**	**0**	**0**	**10**	**0**	**3.33**	**0**	**0**	**0.00**	**0**
TOTAL TREE SPECIES - LIVE															
<1"									10		**3.33**				60
1-4"		10		**5.00**		10						30		**15.00**	
4-8"															10
8-12"															
12-16"		10		**5.00**											
16-20"															
TOTAL LIVE TREES	**0**	**20**	**0**	**10.00**	**0**	**10**	**0**	**0**	**10**	**0**	**3.33**	**30**	**0**	**15.00**	**70**

Table D13.

Tree Density (Live Trees Per Acre) by Plot for Ten **Mesophytic/Hydrophytic Herbaceous Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	SCI VAL/ SPA PEC			SCI VAL- SAL ACU/ TYP LAT			MESO/HYDRO HERBACEOUS BOTTOM COMPOSITE
	PLOT NUMBER			PLOT NUMBER			
TREE SPECIES	606	618	Mean	667	687	Mean	Mean
DBH CLASS - LIVE TREES			n=2			n=2	n=16
Acer negundo							
<1"							2.50
1-4"							2.50
4-8"				10		5.00	1.25
8-12"							
12-16"							0.63
16-20"		10	5.00				0.63
TOTAL LIVE TREES	**0**	**10**	**5.00**	**10**	**0**	**5.00**	**7.50**
Fraxinus pennsylvanica							
<1"							1.25
1-4"							
4-8"							
8-12"							
12-16"							
16-20"							
TOTAL LIVE TREES	**0**	**0**	**0.00**	**0**	**0**	**0.00**	**1.25**
Juniperus scopulorum							
<1"							
1-4"							0.63
4-8"							
8-12"							
12-16"							
16-20"							
TOTAL LIVE TREES	**0**	**0**	**0.00**	**0**	**0**	**0.00**	**0.63**

Table D13.

Tree Density (Live Trees Per Acre) by Plot for Ten **Mesophytic/Hydrophytic Herbaceous Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	SCI VAL/ SPA PEC			SCI VAL- SAL ACU/ TYP LAT			MESO/HYDRO HERBACEOUS BOTTOM COMPOSITE
	PLOT NUMBER			PLOT NUMBER			
TREE SPECIES	606	618	**Mean**	667	687	**Mean**	**Mean**
DBH CLASS - LIVE TREES			**n=2**			**n=2**	**n=16**
Salix amygdaloides							
<1"							**0.63**
1-4"							
4-8"							
8-12"							
12-16"							
16-20"							
TOTAL LIVE TREES	**0**	**0**	**0.00**	**0**	**0**	**0.00**	**0.63**
TOTAL TREE SPECIES - LIVE							
<1"							**4.38**
1-4"							**3.13**
4-8"				10		**5.00**	**1.25**
8-12"							
12-16"							**0.63**
16-20"		10	**5.00**				**0.63**
TOTAL LIVE TREES	**0**	**10**	**5.00**	**10**	**0**	**5.00**	**10.00**

Table D14. Tree Density (Live Trees Per Acre) by Plot for Four **Mesophytic Low Shrub Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	SYM OCC-ART TRI-SAR VER/AGR SMI			*ART CAN-ROS WOO/ AGR SMI-POA PRA*	*SYMPHORICARPOS OCCIDENTALIS-ARTEMISIA CANA/ AGROPYRON SMITHII-POA PRATENSIS*					
	PLOT NUMBER				**PLOT NUMBER**					
TREE SPECIES	649	650	**Mean**		610	614	640	646	692	**Mean**
DBH CLASS - LIVE TREES			**n=2**	**n=1**						**n=5**
Fraxinus pennsylvanica										
<1"							20			**4.00**
1-4"					10					**2.00**
4-8"										
8-12"										
TOTAL LIVE TREES	**0**	**0**	**0**	**0**	**10**	**0**	**20**	**0**	**0**	**6.00**
Juniperus scopulorum										
<1"							10			**2.00**
1-4"										
4-8"										
8-12"										
TOTAL LIVE TREES	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**0**	**2.00**
Pinus ponderosa										
<1"							20			**4.00**
1-4"										
4-8"										
8-12"										
TOTAL LIVE TREES	**0**	**0**	**0**	**0**	**0**	**0**	**20**	**0**	**0**	**4.00**
Salix amygdaloides										
<1"										
1-4"										
4-8"										
8-12"										
TOTAL LIVE TREES	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.00**
TOTAL TREE SPECIES - LIVE										
<1"							50			**10.00**
1-4"					10					**2.00**
4-8"										
8-12"										
TOTAL LIVE TREES	**0**	**0**	**0**	**0**	**10**	**0**	**50**	**0**	**0**	**12.00**

Table D14. Tree Density (Live Trees Per Acre) by Plot for Four **Mesophytic Low Shrub Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	SYMPHORICARPOS OCCIDENTALIS-ROSA WOODSII/POA PRATENSIS-AGROPYRON SMITHII-																	MESOPHYTIC LOW SHRUB BOTTOM COMPOSITE
	PLOT NUMBER																	
TREE SPECIES	455	569	601	608	621	631	632	633	637	652	653	654	674	675	676	677	Mean	Mean
DBH CLASS - LIVE TREES																	n=16	n=24
Fraxinus pennsylvanica																		
<1"																		0.83
1-4"																		0.42
4-8"																		
8-12"																		
TOTAL LIVE TREES	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.00**	**1.25**
Juniperus scopulorum																		
<1"				10		10				10		10			10		3.13	2.50
1-4"	40			10	10	10			20		10	10					6.88	4.58
4-8"					10	10	10					10					2.50	1.67
8-12"																		
TOTAL LIVE TREES	**40**	**0**	**0**	**20**	**20**	**30**	**10**	**0**	**20**	**10**	**10**	**30**	**0**	**0**	**10**	**0**	**12.50**	**8.75**
Pinus ponderosa																		
<1"									20					30			3.13	2.92
1-4"														20	20		2.50	1.67
4-8"															10		0.63	0.42
8-12"																		
TOTAL LIVE TREES	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**20**	**0**	**0**	**0**	**0**	**50**	**30**	**0**	**6.25**	**5.00**
Salix amygdaloides																		
<1"													10				0.63	0.42
1-4"																		
4-8"																		
8-12"																		
TOTAL LIVE TREES	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**0**	**0**	**0.63**	**0.42**
TOTAL TREE SPECIES - LIVE																		
<1"				10		10			20	10		10	10	30	10		6.88	6.67
1-4"	40			10	10	10			20		10	10		20	20		9.38	6.67
4-8"					10	10	10					10			10		3.13	2.08
8-12"																		
TOTAL LIVE TREES	**40**	**0**	**0**	**20**	**20**	**30**	**10**	**0**	**40**	**10**	**10**	**30**	**10**	**50**	**40**	**0**	**19.38**	**15.42**

Table D15.

Tree Density (Live Trees Per Acre) by Plot for the *Prunus virginiana/Symphoricarpos occidentalis-Poa pratensis* **Mesophytic Tall Shrub Bottom** Community Type, Otter Creek Tract 2 Baseline Study Area, 2011.

	PRU VIR/ SYM OCC-POA PRA		
	PLOT		
TREE SPECIES	648	696	**Mean**
DBH CLASS - LIVE TREES			**n=2**
Juniperus scopulorum			
<1"			
1-4"		10	**5.00**
4-8"		10	**5.00**
8-12"			
12-16"			
16-20"			
20-24"			
24-28"			
TOTAL LIVE TREES		**20**	**10.00**
TOTAL TREE SPECIES - LIVE			
<1"			
1-4"		10	**5.00**
4-8"		10	**5.00**
8-12"			
12-16"			
16-20"			
20-24"			
24-28"			
TOTAL LIVE TREES		**20**	**10.00**

Table D16. Tree Density (Live Trees Per Acre) by Plot for Nine **Mesophytic Deciduous Tree Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	POP DEL/ BRO INE			*POP DEL-ACE NEG/ BRO INE*			*POP DEL/ SYM OCC-POA PRA*	*POP DEL-FRA PEN-ACE NEG/ SYM OCC*	*POP DEL-SAL AMY/ SAL EXI*	*POP DEL/ PRU VIR*
	PLOT NUMBER			**PLOT NUMBER**			**PLOT**	**PLOT**	**PLOT**	**PLOT**
TREE SPECIES	671	673	**Mean**	672	698	**Mean**	530	699	522	531
DBH CLASS - LIVE TREES			**n=2**			**n=2**	**n=1**	**n=1**	**n=1**	**n=1**
Acer negundo										
<1"					40	**20.00**				
1-4"				20	40	**30.00**				
4-8"				20	40	**30.00**		10		
8-12"				10	20	**15.00**				
12-16"										
16-20"										
20-24"										
24-28"										
28-32"										
32-36"										
40-44"										
TOTAL LIVE TREES	**0**	**0**	**0.00**	**50**	**140**	**95.00**	**0**	**10**	**0**	**0**
Fraxinus pennsylvanica										
<1"										
1-4"								10		
4-8"								10		
8-12"										
12-16"										
16-20"										
20-24"										
24-28"										
28-32"										
32-36"										
40-44"										
TOTAL LIVE TREES	**0**	**0**	**0.00**	**0**	**0**	**0.00**	**0**	**20**	**0**	**0**

Table D16. Tree Density (Live Trees Per Acre) by Plot for Nine **Mesophytic Deciduous Tree Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	POP DEL/ BRO INE			*POP DEL-ACE NEG/ BRO INE*			*POP DEL/ SYM OCC-POA PRA*	*POP DEL-FRA PEN-ACE NEG/ SYM OCC*	*POP DEL-SAL AMY/ SAL EXI*	*POP DEL/ PRU VIR*
	PLOT NUMBER			**PLOT NUMBER**			**PLOT**	**PLOT**	**PLOT**	**PLOT**
TREE SPECIES	671	673	**Mean**	672	698	**Mean**	530	699	522	531
DBH CLASS - LIVE TREES			**n=2**			**n=2**	**n=1**	**n=1**	**n=1**	**n=1**
Juniperus scopulorum										
<1"										
1-4"								10		
4-8"										
8-12"										
12-16"										
16-20"										
20-24"										
24-28"										
28-32"										
32-36"										
40-44"										
TOTAL LIVE TREES	**0**	**0**	**0.00**	**0**	**0**	**0.00**	**0**	**10**	**0**	**0**
Pinus ponderosa										
<1"										
1-4"										
4-8"										
8-12"										
12-16"										
16-20"										
20-24"										
24-28"										
28-32"										
32-36"										
40-44"										
TOTAL LIVE TREES	**0**	**0**	**0.00**	**0**	**0**	**0.00**	**0**	**0**	**0**	**0**

Table D16. Tree Density (Live Trees Per Acre) by Plot for Nine **Mesophytic Deciduous Tree Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	POP DEL/ BRO INE			*POP DEL-ACE NEG/ BRO INE*			*POP DEL/ SYM OCC-POA PRA*	*POP DEL-FRA PEN-ACE NEG/ SYM OCC*	*POP DEL-SAL AMY/ SAL EXI*	*POP DEL/ PRU VIR*
	PLOT NUMBER			**PLOT NUMBER**			**PLOT**	**PLOT**	**PLOT**	**PLOT**
TREE SPECIES	671	673	**Mean**	672	698	**Mean**	530	699	522	531
DBH CLASS - LIVE TREES			**n=2**			**n=2**	**n=1**	**n=1**	**n=1**	**n=1**
Populus deltoides										
<1"	10		**5.00**							
1-4"							10			
4-8"		20	**10.00**				60			
8-12"					10	**5.00**	40			
12-16"					30	**15.00**	20			
16-20"									10	20
20-24"	10	10	**10.00**		10	**5.00**				
24-28"		20	**10.00**		10	**5.00**				
28-32"		30	**15.00**							30
32-36"		10	**5.00**	10		**5.00**		10		
40-44"	10		**5.00**					10		
TOTAL LIVE TREES	**30**	**90**	**60.00**	**10**	**60**	**35.00**	**130**	**20**	**10**	**50**
Salix amygdaloides										
<1"	20		**10.00**							
1-4"				70		**35.00**				
4-8"				30		**15.00**		10		
8-12"	10		**5.00**						80	
12-16"									20	
16-20"										
20-24"										
24-28"										
28-32"								10		
32-36"										
40-44"										
TOTAL LIVE TREES	**30**	**0**	**15.00**	**100**	**0**	**50.00**	**0**	**20**	**100**	**0**

Table D16. Tree Density (Live Trees Per Acre) by Plot for Nine **Mesophytic Deciduous Tree Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	POP DEL/ BRO INE			*POP DEL-ACE NEG/ BRO INE*			*POP DEL/ SYM OCC-POA PRA*	*POP DEL-FRA PEN-ACE NEG/ SYM OCC*	*POP DEL-SAL AMY/ SAL EXI*	*POP DEL/ PRU VIR*
	PLOT NUMBER			**PLOT NUMBER**			**PLOT**	**PLOT**	**PLOT**	**PLOT**
TREE SPECIES	671	673	**Mean**	672	698	**Mean**	530	699	522	531
DBH CLASS - LIVE TREES			**n=2**			**n=2**	**n=1**	**n=1**	**n=1**	**n=1**
TOTAL TREE SPECIES - LIVE										
<1"	30		**15.00**		40	**20.00**				
1-4"				90	40	**65.00**	10	20		
4-8"		20	**10.00**	50	40	**45.00**	60	30		
8-12"	10		**5.00**	10	30	**20.00**	40		80	
12-16"					30	**15.00**	20		20	
16-20"									10	20
20-24"	10	10	**10.00**		10	**5.00**				
24-28"		20	**10.00**		10	**5.00**				
28-32"		30	**15.00**					10		30
32-36"		10	**5.00**	10		**5.00**		10		
40-44"	10		**5.00**					10		
TOTAL LIVE TREES	**60**	**90**	**75.00**	**160**	**200**	**180.00**	**130**	**80**	**110**	**50**

Table D16. Tree Density (Live Trees Per Acre) by Plot for Nine **Mesophytic Deciduous Tree Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	ACE NEG/BRO INE											*ACE NEG/ SPA PEC*			*FRA PEN/ POA PRA*	MESOPHYTIC DECIDUOUS TREE BOTTOM COMPOSITE
	PLOT NUMBER											PLOT			PLOT	
TREE SPECIES	615	616	620	657	659	663	668	669	670	690	Mean	619	664	Mean	472	Mean
DBH CLASS - LIVE TREES											n=10			n=2	n=1	n=21
Acer negundo																
<1"		10	10			30			30	40	12.00		20	10.00		8.57
1-4"	50	20	20	40	40	50		60	70	70	42.00		50	25.00		25.24
4-8"	80		20	30		40	20	40	40	50	32.00		30	15.00		20.00
8-12"	60	30	10	20		50	30	30	40	40	31.00		10	5.00		16.67
12-16"		40		20	20	20	10		30		14.00					6.67
16-20"					40		30				7.00	20		10.00		4.29
20-24"																
24-28"																
28-32"																
32-36"																
40-44"																
TOTAL LIVE TREES	**190**	**100**	**60**	**110**	**100**	**190**	**90**	**130**	**210**	**200**	**138.00**	**20**	**110**	**65.00**	**0**	**81.43**
Fraxinus pennsylvanica																
<1"																
1-4"																0.48
4-8"																0.48
8-12"															20	0.95
12-16"															20	0.95
16-20"																
20-24"																
24-28"																
28-32"																
32-36"																
40-44"																
TOTAL LIVE TREES	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.00**	**0**	**0**	**0.00**	**40**	**2.86**

Table D16. Tree Density (Live Trees Per Acre) by Plot for Nine **Mesophytic Deciduous Tree Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	ACE NEG/BRO INE											*ACE NEG/ SPA PEC*			*FRA PEN/ POA PRA*	MESOPHYTIC DECIDUOUS TREE BOTTOM COMPOSITE
	PLOT NUMBER											PLOT			PLOT	
TREE SPECIES	615	616	620	657	659	663	668	669	670	690	Mean	619	664	Mean	472	Mean
DBH CLASS - LIVE TREES											n=10			n=2	n=1	n=21
Juniperus scopulorum																
<1"															40	1.90
1-4"															20	1.43
4-8"															40	1.90
8-12"																
12-16"																
16-20"																
20-24"																
24-28"																
28-32"																
32-36"																
40-44"																
TOTAL LIVE TREES	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.00**	**0**	**0**	**0.00**	**100**	**5.24**
Pinus ponderosa																
<1"															10	0.48
1-4"															80	3.81
4-8"															10	0.48
8-12"																
12-16"																
16-20"																
20-24"																
24-28"																
28-32"																
32-36"																
40-44"																
TOTAL LIVE TREES	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.00**	**0**	**0**	**0.00**	**100**	**4.76**

Table D16. Tree Density (Live Trees Per Acre) by Plot for Nine **Mesophytic Deciduous Tree Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	ACE NEG/BRO INE											*ACE NEG/ SPA PEC*			*FRA PEN/ POA PRA*	MESOPHYTIC DECIDUOUS TREE BOTTOM COMPOSITE
	PLOT NUMBER											PLOT			PLOT	
TREE SPECIES	615	616	620	657	659	663	668	669	670	690	Mean	619	664	Mean	472	Mean
DBH CLASS - LIVE TREES											n=10			n=2	n=1	n=21
Populus deltoides																
<1"																0.48
1-4"																0.48
4-8"																3.81
8-12"																2.38
12-16"																2.38
16-20"																1.43
20-24"																1.43
24-28"																1.43
28-32"																2.86
32-36"																1.43
40-44"																0.95
TOTAL LIVE TREES	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.00**	**0**	**0**	**0.00**	**0**	**19.05**
Salix amygdaloides																
<1"																0.95
1-4"																3.33
4-8"																1.90
8-12"																4.29
12-16"																0.95
16-20"																
20-24"																
24-28"																
28-32"																0.48
32-36"																
40-44"																
TOTAL LIVE TREES	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.00**	**0**	**0**	**0.00**	**0**	**11.90**

Table D16. Tree Density (Live Trees Per Acre) by Plot for Nine **Mesophytic Deciduous Tree Bottom** Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	ACE NEG/BRO INE											*ACE NEG/ SPA PEC*			*FRA PEN/ POA PRA*	MESOPHYTIC DECIDUOUS TREE BOTTOM COMPOSITE
	PLOT NUMBER											PLOT			PLOT	
TREE SPECIES	615	616	620	657	659	663	668	669	670	690	Mean	619	664	Mean	472	Mean
DBH CLASS - LIVE TREES											n=10			n=2	n=1	n=21
TOTAL TREE SPECIES - LIVE																
<1"		10	10			30			30	40	12.00		20	10.00	50	12.38
1-4"	50	20	20	40	40	50		60	70	70	42.00		50	25.00	100	34.76
4-8"	80		20	30		40	20	40	40	50	32.00		30	15.00	50	28.57
8-12"	60	30	10	20		50	30	30	40	40	31.00		10	5.00	20	24.29
12-16"		40		20	20	20	10		30		14.00				20	10.95
16-20"					40		30				7.00	20		10.00		5.71
20-24"																1.43
24-28"																1.43
28-32"																3.33
32-36"																1.43
40-44"																0.95
TOTAL LIVE TREES	**190**	**100**	**60**	**110**	**100**	**190**	**90**	**130**	**210**	**200**	**138.00**	**20**	**110**	**65.00**	**240**	**125.24**

APPENDIX E

Soil Type and Ecological Site by Plot for Community Types in the Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

PHYSIOGNOMIC TYPE	PAGE
GRASSLAND	E-1
TAME PASTURE	E-4
SHRUB / GRASSLAND	E-5
BREAKS	E-8
PONDEROSA PINE FOREST AND SAVANNAH	E-12
DRAINAGE BOTTOM	E-14

Map Symbol[1]	Soil Mapping Unit[1]
Av	Arvada clay loam, 0-10%
BCC	Blacksheep-Cabba-Cabbart Complex, 15-60%
BCT	Blacksheep-Cabba-Twilight Complex, 10-30%
BL-RO	Badlands-Rock Outcrop, 25-70%
CC	Cabbart-Cabba shallow loams, 20-70%
Cu	Cushman silt loam, 0-5%
DL	Disturbed Land, 0-5%
Fa	Farland silt loam, 0-10%
FtD	Fort Collins-Delpoint silt loams, 5-30%
FtHp	Fort Collins-Hesper silt loams, 5-15%
H	Haverson silty clay, 0-5%
H-S	Haverson silty clay - Saline, 0-5%
He	Heldt silty clay loam, 0-5%
He-S	Heldt silty clay loam - Saline, 0-5%
Hp	Hesper silty clay loam, 5-15%
Hy	Hydro clay loam, 0-10%
HyHp	Hydro-Hesper silty clay loams, 0-15%
McR	McRae silt loam, 0-15%
McR-S	McRae silt loam - Saline, 0-15%
Md-E	Midway clay loam - Eroded, 10-30%
MiCa	Midway-Cabbart shallow loams, 5-15%
MiDe	Midway-Delpoint silty clay loams, 5-15%
NiHa	Nihill-Havre outwash areas, 5-15%
Re	Relan loam, 5-15%
Ri	Ringling loam, 0-15%
RmT	Remmit-Twilight sandy loams, 5-20%
RTB	Ringling-Twilight-Barvon Complex, 5-30%
TwB	Twilight-Blacksheep sandy loams, 0-20%
W	Water/Riparian Fringe

[1]Soils mapping units are identified, classified and delineated in the baseline soils report and map (Baker 2014).
n=number of sample sites

Site Code[2]	Ecological Site[2]
Cy	Clayey
CyT	Clayey Terrace
DC	Dense Clay
LyT	Loamy Terrace
Ov	Overflow
RWM	Riparian Wet Meadow
Sb	Subirrigated
Si	Silty
SiStp	Silty Steep
SL	Saline Lowland
Sw	Shallow
SwC	Shallow Clay
Sy	Sandy
SyStp	Sandy Steep
VSw	Very Shallow
Water	Water

[2]Ecological sites were determined using the baseline soils study (Baker 2014), descriptions in the Powder River County Soil Survey (USDA Natural Resources Conservation Service 1971, 2012) and technical guides for evaluating ecological site condition in NRCS (2003, 2006, 2012).

All plot locations are shown on the vegetation community type map (Plate 1). Plot numbers with an asterisk indicate sites associated with current and recent prairie dog colonies; prairie dogs conspicuously impact vegetation ecology in substantial portions of the study area, significantly affecting plant composition and diversity in the vicinity of their colonies.

Appendix E

Soil Type and Ecological Site by Vegetation Sample Plot,
Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

COMMUNITY TYPE	Vegetation Plot Number	Soil Mapping Unit[1]	Ecological Site[2]
GRASSLAND (n=152)			
Agropyron smithii / Bouteloua gracilis (n=13)	188	BCC	Shallow
	069*	FtD	Silty
	071*		
	080*		
	110		
	209*		
	210*		
	645*	Hp	Clayey (Overflow)
	193	H-S	Saline Lowland
	106*	Hy	Clayey
	039*	McR-S	Saline Lowland
	041*		
	192	MiDe	Shallow Clay-Silty
Agropyron smithii / Stipa viridula (n=77)	124	Av	Dense Clay
	635		
	057	FtD	Silty
	058		
	065*		
	066		
	068*		
	075		
	091		
	101		
	130		
	208		
	262		
	113	FtHp	Silty-Clayey
	127		
	137		
	154		
	061	H	Loamy Terrace (Silty)
	184		
	575		
	592		
	593		
	597		
	598		
	599		
	643*	Hp	Clayey (Overflow)
	644*		
	059*	Hy	Clayey
	612		
	613		
	656*		

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Soil Type and Ecological Site by Vegetation Sample Plot,
Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

COMMUNITY TYPE	Vegetation Plot Number	Soil Mapping Unit[1]	Ecological Site[2]
Agropyron smithii / Stipa viridula (n=77) (continued)	128	HyHp	Clayey
	139		
	140		
	141		
	143		
	152		
	153		
	155		
	157		
	158		
	159		
	207		
	570		
	627		
	628		
	005	McR	Silty
	171		
	175		
	185*		
	594		
	595		
	028	McR-S	Saline Lowland
	030		
	034		
	697		
	013	MiCa	Shallow Clay-Shallow
	165		
	002	MiDe	Shallow Clay-Silty
	017		
	027		
	087		
	160		
	190		
	194		
	202		
	203		
	586		
	596		
	683		
	689		
	636	NiHa	Overflow (Silty)
	684		
	691		
	695		
	700	Ri	Very Shallow
	053	RTB	Very Shallow-Sandy Steep-Silty Steep

Appendix E

Soil Type and Ecological Site by Vegetation Sample Plot,
Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

COMMUNITY TYPE	Vegetation Plot Number	Soil Mapping Unit[1]	Ecological Site[2]
Stipa comata / Agropyron smithii (n=20)	072*	FtD	Silty
	076		
	093		
	234		
	125	FtHp	Silty-Clayey
	109	Hp	Clayey (Overflow)
	063	MiCa	Shallow Clay-Shallow
	166	MiDe	Shallow Clay-Silty
	191		
	340		
	042	Ri	Very Shallow
	050		
	051		
	211		
	115	RmT	Sandy
	038	RTB	Very Shallow-Sandy Steep-Silty Steep
	054*		
	055*		
	020	TwB	Sandy-Shallow
	095		
Stipa comata / Carex filifolia (n=3)	142	FtHp	Silty-Clayey
	168	Re	Silty
	226	RTB	Very Shallow-Sandy Steep-Silty Steep
Agropyron spicatum / Stipa comata (n=4)	248	FtD	Silty
	189	H	Loamy Terrace (Silty)
	015	MiDe	Shallow Clay-Silty
	084	TwB	Sandy-Shallow
Agropyron spicatum / Bouteloua curtipendula (n=8)	098	FtD	Silty
	024	MiDe	Shallow Clay-Silty
	074		
	163		
	266		
	332		
	320	Re	Silty
	321		
Andropogon scoparius / Agropyron spicatum (n=11)	178	BCT	Shallow-Sandy Steep
	322		
	232	Md-E	Shallow Clay
	343	MiCa	Shallow Clay-Shallow
	264	MiDe	Shallow Clay-Silty
	611	NiHa	Overflow (Silty)
	338	Re	Silty
	339		
	247*	Ri	Very Shallow
	227	RTB	Very Shallow-Sandy Steep-Silty Steep
	408		
Andropogon scoparius / Bouteloua curtipendula (n=7)	221	BCT	Shallow-Sandy Steep
	060	FtD	Silty
	007	MiCa	Shallow Clay-Shallow
	011		
	016	MiDe	Shallow Clay-Silty
	299		
	036	Ri	Very Shallow

Appendix E

Soil Type and Ecological Site by Vegetation Sample Plot,
Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

COMMUNITY TYPE	Vegetation Plot Number	Soil Mapping Unit[1]	Ecological Site[2]
Andropogon scoparius / Calamovilfa longifolia (n=4)	290	BCT	Shallow-Sandy Steep
	145	FtHp	Silty-Clayey
	129	HyHp	Clayey
	311	MiCa	Shallow Clay-Shallow
Calamovilfa longifolia / Stipa comata (n=5)	197	BCT	Shallow-Sandy Steep
	126	FtHp	Silty-Clayey
	180	McR	Silty
	116	RmT	Sandy
	121	RTB	Very Shallow-Sandy Steep-Silty Steep
TAME PASTURE (n=43)			
Hay Cropland - Farmed (n=25)	660	Fa	Silty (Overflow)
	561	H	Loamy Terrace (Silty)
	546	He	Clayey Terrace (Clayey)
	564		
	565		
	566		
	567		
	568		
	555	He-S	Saline Lowland
	556		
	557		
	558		
	559		
	560		
	562		
	661		
	549	H-S	
	550		
	551		
	552		
	553		
	545	McR	Silty
	547		
	548		
	554		
Pastureland - Grazed / Go-Back (n=18)	563	H	Loamy Terrace (Silty)
	581		
	582		
	056*	He	Clayey Terrace (Clayey)
	006	McR	Silty
	022		
	023		
	174		
	176		
	576		
	578		
	655		
	033*	McR-S	Saline Lowland
	035*		
	040*		
	204	MiCa	Shallow Clay-Shallow
	573	NiHa	Overflow (Silty)
	169	TwB	Sandy-Shallow

Appendix E

Soil Type and Ecological Site by Vegetation Sample Plot,
Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

COMMUNITY TYPE	Vegetation Plot Number	Soil Mapping Unit[1]	Ecological Site[2]
SHRUB / GRASSLAND (n=149)			
Artemisia cana / Agropyron smithii (n=45)	604	BCT	Shallow-Sandy Steep
	064	FtD	Silty
	259		
	642		
	148	FtHp	Silty-Clayey
	605		
	607		
	624		
	045	H	Loamy Terrace (Silty)
	571		
	574		
	583		
	589		
	590		
	591		
	070	He	Clayey Terrace (Clayey)
	580	H-S	Saline Lowland
	584		
	585		
	622	HyHp	Clayey
	623		
	600	McR	Silty
	678	MiCa	Shallow Clay-Shallow
	679		
	230	MiDe	Shallow Clay-Silty
	579		
	587		
	572	NiHa	Overflow (Silty)
	603		
	609		
	626		
	629		
	630		
	634		
	638		
	639		
	641		
	693		
	694		
	044	Re	Silty
	046		
	701		
	702		
	703		
	119	RmT	Sandy

Appendix E

Soil Type and Ecological Site by Vegetation Sample Plot,
Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

COMMUNITY TYPE	Vegetation Plot Number	Soil Mapping Unit[1]	Ecological Site[2]
Artemisia tridentata / Agropyron smithii (n=67)	150	BCC	Shallow
	018	BCT	Shallow-Sandy Steep
	122		
	123		
	195		
	205		
	218		
	008	Cu	Silty
	067	FtD	
	078		
	092		
	096		
	100		
	102		
	103		
	107		
	651		
	111	FtHp	Silty-Clayey
	114		
	120		
	134		
	136		
	138		
	146		
	147		
	206		
	625		
	173	H	Loamy Terrace (Silty)
	105	Hp	Clayey (Overflow)
	108		
	117	HyHp	Clayey
	151		
	156		
	164		
	170	McR	Silty
	181		
	186		
	004	McR-S	Saline Lowland
	032		
	001	MiCa	Shallow Clay-Shallow
	009		
	014		
	062		
	085		
	341		

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Soil Type and Ecological Site by Vegetation Sample Plot,
Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

COMMUNITY TYPE	Vegetation Plot Number	Soil Mapping Unit[1]	Ecological Site[2]
Artemisia tridentata / Agropyron smithii n=67 (continued)	025	MiDe	Shallow Clay-Silty
	026		
	029		
	073		
	082		
	088		
	089		
	132		
	133		
	162		
	177		
	182		
	198		
	312		
	602		
	647		
	043	Re	Silty
	112	RmT	Sandy
	052	RTB	Very Shallow-Sandy Steep-Silty Steep
	019	TwB	Sandy-Shallow
	021		
	167		
Artemisia tridentata / Agropyron spicatum (n=27)	097	BCC	Shallow
	079	FtD	Silty
	090		
	099		
	135	FtHp	Silty-Clayey
	118	HyHp	Clayey
	179	McR	Silty
	183		
	187		
	003	McR-S	Saline Lowland
	012	MiCa	Shallow Clay-Shallow
	252		
	260		
	342		
	345		
	037	MiDe	Shallow Clay-Silty
	086		
	161		
	196		
	199		
	201		
	228		
	229		
	327		
	344		
	588		
	172	Re	Silty

Appendix E

Soil Type and Ecological Site by Vegetation Sample Plot,
Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

COMMUNITY TYPE	Vegetation Plot Number	Soil Mapping Unit[1]	Ecological Site[2]
Artemisia tridentata / Andropogon scoparius (n=10)	031	BCT	Shallow-Sandy Steep
	220		
	081	FtD	Silty
	149	FtHp	Silty-Clayey
	144	HyHp	Clayey
	010	MiCa	Shallow Clay-Shallow
	083		
	313		
	200	MiDe	Shallow Clay-Silty
	094	TwB	Sandy-Shallow
BREAKS (n=165)			
Agropyron smithii Breaks (n=9)	256	FtD	Silty
	300		
	302	HyHp	Clayey
	303		
	283	MiCa	Shallow Clay-Shallow
	307		
	331		
	325	MiDe	Shallow Clay-Silty
	245	NiHa	Overflow (Silty)
Agropyron spicatum Breaks (n=4)	217	MiCa	Shallow Clay-Shallow
	287		
	292		
	346	MiDe	Shallow Clay-Silty
Sporobolus airoides Breaks (n=4)	215	BCC	Shallow
	223	Md-E	Shallow Clay
	347		
	236	MiDe	Shallow Clay-Silty
Calamovilfa longifolia Breaks (n=5)	410	BCT	Shallow-Sandy Steep
	288	MiCa	Shallow Clay-Shallow
	328		
	335		
	336	MiDe	Shallow Clay-Silty

Appendix E

Soil Type and Ecological Site by Vegetation Sample Plot,
Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

COMMUNITY TYPE	Vegetation Plot Number	Soil Mapping Unit[1]	Ecological Site[2]
Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron smithii (n=25)	104	Av	Dense Clay
	212	BCT	Shallow-Sandy Steep
	246		
	077	FtD	Silty
	296	FtHp	Silty-Clayey
	244	McR-S	Saline Lowland
	238	Md-E	Shallow Clay
	235	MiCa	Shallow Clay-Shallow
	251		
	263		
	265		
	301		
	308		
	310		
	314		
	337		
	131	MiDe	Shallow Clay-Silty
	233		
	258		
	261		
	271		
	276		
	326		
	334		
	240	RTB	Very Shallow-Sandy Steep-Silty Steep
Rhus aromatica / Agropyron spicatum-Andropogon scoparius (n=4)	388	BCC	Shallow
	047	Ri	Very Shallow
	048		
	049		
Artemisia tridentata-Rhus aromatica-Chrysothamnus nauseosus / Agropyron spicatum (n=15)	268	BCC	Shallow
	219	BCT	Shallow-Sandy Steep
	222		
	225		
	241		
	242		
	243		
	289		
	255	FtD	Silty
	213	MiCa	Shallow Clay-Shallow
	224		
	309		
	315		
	231	MiDe	Shallow Clay-Silty
	272		
Artemisia tridentata-Rhus aromatica-Sarcobatus vermiculatus / Agropyron spicatum (n=6)	295	BCC	Shallow
	324		
	239	Md-E	Shallow Clay
	214	MiCa	Shallow Clay-Shallow
	285		
	360		

Appendix E

Soil Type and Ecological Site by Vegetation Sample Plot,
Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

COMMUNITY TYPE	Vegetation Plot Number	Soil Mapping Unit[1]	Ecological Site[2]
Artemisia tridentata-Atriplex confertifolia-Sarcobatus vermiculatus / Agropyron spicatum (n=26)	269	BCC	Shallow
	270		
	281		
	282		
	306		
	323		
	254	BL-RO	Badlands (Very Shallow)
	291		
	237	Md-E	Shallow Clay
	249	MiCa	Shallow Clay-Shallow
	250		
	253		
	278		
	284		
	286		
	329		
	333		
	517		
	257	MiDe	Shallow Clay-Silty
	273		
	274		
	275		
	277		
	279		
	280		
	330		
Artemisia tridentata-Atriplex confertifolia-Rhus aromatica / Agropyron spicatum (n=13)	216	BCC	Shallow
	267		
	293		
	294		
	297		
	298		
	363		
	379		
	317	CC	
	318		
	319		
	304	MiCa	Shallow Clay-Shallow
	305		
Juniperus scopulorum/Agropyron spicatum Breaks (n=11)	381	BCC	Shallow
	387		
	402		
	390	BCT	Shallow-Sandy Steep
	416	CC	Shallow
	361	FtD	Silty
	430	MiCa	Shallow Clay-Shallow
	516		
	538	MiDe	Shallow Clay-Silty
	515	NiHa	Overflow (Silty)
	520		

Appendix E

Soil Type and Ecological Site by Vegetation Sample Plot,
Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

COMMUNITY TYPE	Vegetation Plot Number	Soil Mapping Unit[1]	Ecological Site[2]
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum Breaks (n=17)	356	BCC	Shallow
	364		
	368		
	371		
	372		
	425		
	348	BCT	Shallow-Sandy Steep
	349		
	373		
	380	CC	Shallow
	382		
	383		
	384		
	403		
	415		
	351	MiCa	Shallow Clay-Shallow
	353		
Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius Breaks (n=15)	355	BCC	Shallow
	357		
	359		
	365		
	366		
	369		
	370		
	378		
	437		
	449		
	465		
	375	BCT	Shallow-Sandy Steep
	362	MiDe	Shallow Clay-Silty
	350	RTB	Very Shallow-Sandy Steep-Silty Steep
	374		
Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata Breaks (n=4)	358	BCC	Shallow
	367		
	377		
	376	FtHp	Silty-Clayey
Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata-Atriplex confertifolia Breaks (n=7)	354	BCC	Shallow
	316	CC	
	385		
	386		
	404		
	352	MiCa	Shallow Clay-Shallow
	534		

Appendix E

Soil Type and Ecological Site by Vegetation Sample Plot,
Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

COMMUNITY TYPE	Vegetation Plot Number	Soil Mapping Unit[1]	Ecological Site[2]
PONDEROSA PINE-JUNIPER FOREST AND SAVANNAH (n=131)			
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum (n=86)	392	BCC	Shallow
	399		
	400		
	401		
	413		
	414		
	417		
	418		
	419		
	420		
	421		
	422		
	423		
	424		
	426		
	438		
	439		
	440		
	441		
	444		
	445		
	446		
	447		
	448		
	453		
	454		
	456		
	457		
	458		
	459		
	460		
	461		
	462		
	463		
	464		
	470		
	471		
	473		
	475		
	476		
	478		
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	481		
	482		
	483		
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	486		
	487		
	488		
	490		
	492		
	493		

Appendix E

Soil Type and Ecological Site by Vegetation Sample Plot,
Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

COMMUNITY TYPE	Vegetation Plot Number	Soil Mapping Unit[1]	Ecological Site[2]
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum n=86 (continued)	497	BCC (continued)	Shallow (continued)
	498		
	499		
	505		
	506		
	508		
	511		
	512		
	514		
	391	BCT	Shallow-Sandy Steep
	393		
	396		
	397		
	524		
	527		
	528		
	529		
	532		
	533		
	539		
	436	FtHp	Silty-Clayey
	535	Md-E	Shallow Clay
	536		
	519	MiCa	Shallow Clay-Shallow
	526		
	494	NiHa	Overflow (Silty)
	405	RTB	Very Shallow-Sandy Steep-Silty Steep
	406		
	540		
	541		
	542		
	543		
	544		
Juniper scopulorum-Pinus ponderosa / Oryzopsis micrantha (n=2)	411	BCC	Shallow
	412		
Pinus ponderosa-Juniper scopulorum / Festuca idahoensis (n=2)	442	BCC	Shallow
	468	TwB	Sandy-Shallow

Appendix E

Soil Type and Ecological Site by Vegetation Sample Plot,
Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

COMMUNITY TYPE	Vegetation Plot Number	Soil Mapping Unit[1]	Ecological Site[2]
Pinus ponderosa-Juniper scopulorum / Andropogon scoparius (n=28)	395	BCC	Shallow
	427		
	443		
	452		
	466		
	467		
	469		
	474		
	477		
	480		
	489		
	491		
	500		
	501		
	502		
	509		
	513		
	523		
	394	BCT	Shallow-Sandy Steep
	409		
	525		
	428	FtHp	Silty-Clayey
	537	Md-E	Shallow Clay
	398	MiCa	Shallow Clay-Shallow
	503		
	518		
	495	MiDe	Shallow Clay-Silty
	407	RTB	Very Shallow-Sandy Steep-Silty Steep
Drainage *Juniperus scopulorum-Pinus ponderosa / Symphoricarpos occidentalis-Agropyron smithii* (n=11)	450	BCC	Shallow
	504		
	510		
	389	NiHa	Overflow (Silty)
	429		
	431		
	432		
	433		
	434		
	435		
	521		
Pinus ponderosa-Juniper scopulorum / Prunus virginiana (n=2)	496	BCC	Shallow
	507		
DRAINAGE BOTTOM (n=83)			
Distichlis stricta/Agropyron smithii (n=1)	WL 27	NiHa	Overflow (Silty)
Distichlis stricta/Hordeum jubatum (n=2)	WL 03	NiHa	Overflow (Silty)
	WL 09	MiCa	Shallow Clay-Shallow
Sporobolus airoides/Agropyron smithii (n=1)	685	Md-E	Shallow Clay

Appendix E

Soil Type and Ecological Site by Vegetation Sample Plot,
Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

COMMUNITY TYPE	Vegetation Plot Number	Soil Mapping Unit[1]	Ecological Site[2]
Sporobolus airoides/Distichlis stricta *(n=6)*	WL 07	BCC	Shallow
	WL 08	FtHp	Silty-Clayey
	WL 21	MiCa	Shallow Clay-Shallow
	WL 22	BCC	Shallow
	WL 23	MiCa	Shallow Clay-Shallow
	WL 31	Md-E	Shallow Clay
Spartina gracilis/Distichlis stricta *(n=1)*	WL 29	NiHa	Overflow (Silty)
Spartina pectinata/Bromus inermis (n=2)	617	W	Water/Riparian Wet Meadow/ Subirrigated
	658		
Spartina pectinata/Poa pratensis (n=1)	WL 19	He	Clayey Terrace (Clayey)
Spartina pectinata/Hordeum jubatum (n=2)	577	He	Clayey Terrace (Clayey)
	WL 20	NiHa	Overflow (Silty)
Spartina pectinata/Panicum virgatum (n=1)	680	NiHa	Overflow (Silty)
Spartina pectinata/Scirpus americanus (n=5)	WL 05	W	Water/Riparian Wet Meadow/ Subirrigated
	WL 06		
	WL 36		
	WL 46		
	WL 47		
Scirpus maritimus/Sporobolus airoides-Distichlis stricta (n=1)	688	NiHa	Overflow (Silty)
Scirpus maritimus/Scirpus americanus-Eleocharis palustris (n=1)	WL 45	W	Water/Riparian Wet Meadow/ Subirrigated
Eleocharis palustris/Scirpus americanus-Juncus torreyi (n=3)	451	NiHa	Overflow (Silty)
	681		
	686	W	Water/Riparian Wet Meadow/ Subirrigated
Typha latifolia/Bromus inermis (n=2)	662	W	Water/Riparian Wet Meadow/ Subirrigated
	666		
Typha latifolia/Spartina pectinata (n=1)	665	W	Water/Riparian Wet Meadow/ Subirrigated
Scirpus validus/Spartina pectinata (n=2)	606	W	Water/Riparian Wet Meadow/ Subirrigated
	618		
Scirpus validus-Scirpus acutus/Typha latifolia (n=2)	667	W	Water/Riparian Wet Meadow/ Subirrigated
	687		
Symphoricarpos occidentalis-Artemisia tridentata-Sarcobatus vermiculatus/Agropyron smithii (n=2)	649	MiDe	Shallow Clay-Silty
	650		

Appendix E

Soil Type and Ecological Site by Vegetation Sample Plot,
Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

COMMUNITY TYPE	Vegetation Plot Number	Soil Mapping Unit[1]	Ecological Site[2]
Artemisia cana-Rosa woodsii/ Agropyron smithii-Poa pratensis (n=1)	682	MiDe	Shallow Clay-Silty
Symphoricarpos occidentalis-Artemisia cana/ Agropyron smithii-Poa pratensis (n=5)	646	Hp	Clayey (Overflow)
	610	NiHa	Overflow (Silty)
	614		
	640		
	692		
Symphoricarpos occidentalis-Rosa woodsii/ Poa pratensis-Agropyron smithii (n=16)	601	MiDe	Shallow Clay-Silty
	621		
	455	NiHa	Overflow (Silty)
	569		
	608		
	631		
	632		
	633		
	637		
	652		
	653		
	654		
	674		
	675		
	676		
	677		
Prunus virginiana/Symphoricarpos occidentalis- Poa pratensis (n=2)	648	MiDe	Shallow Clay-Silty
	696	NiHa	Overflow (Silty)
Salix exigua/Scirpus americanus-Juncus torreyi (n=1)	WL 26	NiHa	Overflow (Silty)
Populus deltoides/Bromus inermis (n=2)	671	He	Clayey Terrace (Clayey)
	673		
Populus deltoides-Acer negundo/Bromus inermis (n=2)	672	He	Clayey Terrace (Clayey)
	698	H	Loamy Terrace (Silty)
Populus deltoides/Symphoricarpos occidentalis- Poa pratensis (n=2)	530	NiHa	Overflow (Silty)
	WL 25		
Populus deltoides-Fraxinus pennsylvanica- Acer negundo/Symphoricarpos occidentalis (n=1)	699	H	Loamy Terrace (Silty)
Populus deltoides-Salix amygdaloides/Salix exigua (n=1)	522	NiHa	Overflow (Silty)
Populus deltoides/Prunus virginiana (n=1)	531	W	Water/Riparian Wet Meadow/ Subirrigated

Appendix E

Soil Type and Ecological Site by Vegetation Sample Plot,
Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

COMMUNITY TYPE	Vegetation Plot Number	Soil Mapping Unit[1]	Ecological Site[2]
Acer negundo/Bromus inermis (n=10)	615	W	Water/Riparian Wet Meadow/ Subirrigated
	616		
	620		
	657		
	659		
	663		
	668		
	669		
	670		
	690		
Acer negundo/Spartina pectinata (n=2)	619	W	Water/Riparian Wet Meadow/ Subirrigated
	664		
Fraxinus pennsylvanica/Poa pratensis (n=1)	472	BCC	Shallow

Footnotes are presented on cover page E-i

APPENDIX F

Relative Cover and Range Condition for Community Types in the Otter Creek Tract 2 Baseline Study Area, Powder River County, Montana, 2011.

PHYSIOGNOMIC TYPE	TABLE	PAGE
GRASSLAND	F1	F-1
TAME PASTURE	F2	F-4
SHRUB / GRASSLAND	F3	F-6
GRASS-DOMINATED BREAKS	F4	F-8
SHRUB-DOMINATED BREAKS	F5	F-10
CONIFER-DOMINATED BREAKS	F6	F-12
PONDEROSA PINE FOREST AND SAVANNAH	F7	F-14
HERBACEOUS BOTTOM	F8	F-16
LOW SHRUB BOTTOM	F9	F-18
TALL SHRUB BOTTOM		
DECIDUOUS TREE BOTTOM	F10	F-20

Footnotes for the tables in Appendix F:

Relative cover values in this Appendix were derived from the absolute cover data presented in Appendix B.

[1]ECOLOGICAL SITE CONDITION RATING (SIMILARITY INDEX) is derived from percent composition of cover data using the maximum percent composition values allowed by NRCS technical guides for the relevant ecological sites in MLRA 58AE – Sedimentary Plains East, Northern Rolling High Plains, North Part, 10 to 14-inch precipitation zone (NRCS 2003, 2012). Composition values occasionally were adjusted upward for "decreaser" species to better evaluate condition.

WEIGHTED ABUNDANCE is a numerical expression of the relative abundance of each ecological site in a community type.

[2]ECOLOGICAL SITE CONDITION CLASS is a verbal description of the numerical condition rating, where:

E = Excellent (76-100 percent)
G = Good (51-75 percent)
F = Fair (26-50 percent)
P = Poor (0-25 percent)

and "+" or "-" indicates higher or lower condition within each range.

Table F1. Relative Cover (Percent) and Range Condition for Ten GRASSLAND Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

CLASS\SPECIES	*AGR SMI / BOU GRA* n=13	*AGR SMI/ STI VIR* n=77	*STI COM/ AGR SMI* n=20	*STI COM/ CAR FIL* n=3	*AGR SPI/ STI COM* n=4	*AGR SPI/ BOU CUR* n=8	*AND SCO/ AGR SPI* n=11	*AND SCO/ BOU CUR* n=7	*AND SCO/ CAL LON* n=4	*CAL LON/ STI COM* n=5
NATIVE PERENNIAL GRAMINOIDS (Cool Season)										
XAgrohordeum macounii		0.03								
Agropyron dasystachyum var. dasy.		0.19			0.52	2.12				
Agropyron dasystachyum var. riparium			0.18							
Agropyron smithii	50.33	32.00	19.33	4.48	3.46	3.89	1.34	4.49	0.09	3.39
Agropyron spicatum		0.25	0.14	1.40	10.13	16.15	10.12	2.21	1.53	1.11
Agropyron trachycaulum		0.01								
Aristida longiseta	0.02	0.81	1.18	0.79	0.34	1.34	1.30	1.35	0.95	0.51
Calamagrostis montanensis						0.06				
Carex filifolia	0.32	0.32	2.61	25.57	8.31	2.55	4.07	3.75	9.24	12.64
Carex heliophila		0.39	0.91			1.91		0.37		0.44
Carex stenophylla				0.08						
Hordeum jubatum		0.14								
Koeleria cristata	0.89	1.00	0.93	3.95	3.38	3.46	1.55	1.40	4.33	2.95
Oryzopsis hymenoides						0.06				
Poa arida		0.06								
Poa glaucifolia							0.04			
Poa juncifolia		0.02								
Poa sandbergii	0.32	0.37	0.90	1.32	0.34	1.34	0.04	0.11	0.38	0.73
Poa scabrella	0.56	0.14	0.23			0.21	0.25		0.58	0.07
Scirpus maritimus		0.01								
Stipa comata	0.21	2.24	15.93	17.66	13.25	0.70	4.45	5.54	2.31	27.93
Stipa viridula	0.19	13.47	0.68	0.08	2.86	3.04		2.03	1.53	1.33
TOTAL NPG(C)	**52.84**	**51.43**	**43.02**	**55.34**	**42.58**	**36.84**	**23.16**	**21.24**	**20.92**	**51.10**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)										
Andropogon gerardii								0.74		
Andropogon scoparius		0.03			1.04	0.42	29.00	14.21	31.17	1.77
Bouteloua curtipendula	0.16	0.25	0.25	0.34		9.35	1.55	14.40	2.31	0.44
Bouteloua gracilis	12.23	5.27	8.47	1.32	2.42	3.61	2.52	8.49	0.09	3.61
Calamovilfa longifolia		0.07			0.08	0.42	0.29	0.37	5.77	12.86
Distichlis stricta		0.01								
Muhlenbergia cuspidata		0.11	0.45		1.30	3.25	0.20	2.95	2.31	0.89
Schedonnardus paniculatus		0.12								
Spartina gracilis							0.04			
Sporobolus cryptandrus	0.02	0.01								
TOTAL NPG(W)	**12.41**	**5.87**	**9.18**	**1.66**	**4.83**	**17.06**	**33.60**	**41.16**	**41.65**	**19.57**

Table F1. Relative Cover (Percent) and Range Condition for Ten GRASSLAND Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGR SMI / BOU GRA n=13	*AGR SMI/ STI VIR* n=77	*STI COM/ AGR SMI* n=20	*STI COM/ CAR FIL* n=3	*AGR SPI/ STI COM* n=4	*AGR SPI/ BOU CUR* n=8	*AND SCO/ AGR SPI* n=11	*AND SCO/ BOU CUR* n=7	*AND SCO/ CAL LON* n=4	*CAL LON/ STI COM* n=5
NATIVE PERENNIAL GRAMINOIDS	65.26	57.30	52.20	57.00	47.41	53.90	56.76	62.40	62.57	70.67
INTRODUCED PERENNIAL GRAMINOIDS	3.17	9.71	0.77	0.26	0.52	1.76	0.08	0.18	1.44	0.95
TOTAL PERENNIAL GRASS	68.42	67.01	52.96	57.26	47.93	55.66	56.84	62.59	64.01	71.62
NATIVE ANNUAL GRAMINOIDS	0.10	0.05	0.20	0.08	0.08	0.00	0.04	0.24	0.00	0.07
INTRODUCED ANNUAL GRAMINOIDS	9.91	6.14	15.06	7.38	5.35	1.47	1.63	4.54	0.17	2.35
TOTAL ANNUAL GRASS	10.02	6.19	15.26	7.46	5.43	1.47	1.66	4.78	0.17	2.42
NATIVE PERENNIAL FORBS AND SUBSHRUBS	6.44	10.26	17.41	16.72	24.63	22.67	29.88	23.29	21.65	19.15
INTRODUCED PERENNIAL FORBS	4.48	3.79	2.31	0.34	1.27	0.19	0.16	0.78	0.26	1.46
FERNS AND ALLIES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL PERENNIAL FORBS	10.93	14.05	19.72	17.06	25.90	22.86	30.05	24.07	21.90	20.62
NATIVE ANNUAL/BIENNIAL FORBS	2.22	0.87	0.96	0.74	2.78	0.66	0.45	2.93	0.35	0.86
INTRODUCED ANNUAL/BIENNIAL FORBS	7.80	9.61	10.33	16.69	16.39	10.88	7.04	2.53	2.83	1.97
TOTAL ANNUAL/BIENNIAL FORBS	10.02	10.48	11.30	17.43	19.17	11.54	7.49	5.46	3.17	2.84
TOTAL HERBACEOUS	**99.39**	**97.74**	**99.24**	**99.21**	**98.44**	**91.52**	**96.04**	**96.90**	**89.26**	**97.50**
SHRUBS										
Artemisia cana	0.02	0.67	0.06				0.38			1.17
Artemisia tridentata	0.24	0.72	0.50	0.79	1.30	4.46	1.30	1.40	1.53	1.33
Atriplex nuttallii	0.10									
Calylophus serrulatus							0.11	0.06	0.09	
Ceratoides lanata	0.24	0.23	0.20			0.42		0.61	0.09	
Chrysothamnus nauseosus						0.06		0.74		
Rhus aromatica						1.13	0.29			
Ribes aureum										
Rosa arkansana		0.47			0.26	0.28	0.45	0.24	0.09	
Rosa woodsii		0.09						0.06		
Symphoricarpos occidentalis		0.08					0.54			
TOTAL SHRUBS	**0.61**	**2.26**	**0.76**	**0.79**	**1.56**	**6.35**	**3.08**	**3.10**	**1.79**	**2.50**
TREES 0.01-acre										
Juniperus scopulorum						2.12	0.50		8.95	
Pinus ponderosa							0.38			
TOTAL TREES 0.01-acre	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**2.12**	**0.88**	**0.00**	**8.95**	**0.00**
TOTAL VEGETATION (Stratified)	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Table F1. Relative Cover (Percent) and Range Condition for Ten GRASSLAND Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGR SMI / BOU GRA **n=13**	***AGR SMI/ STI VIR*** **n=77**	***STI COM/ AGR SMI*** **n=20**	***STI COM/ CAR FIL*** **n=3**	***AGR SPI/ STI COM*** **n=4**	***AGR SPI/ BOU CUR*** **n=8**	***AND SCO/ AGR SPI*** **n=11**	***AND SCO/ BOU CUR*** **n=7**	***AND SCO/ CAL LON*** **n=4**	***CAL LON/ STI COM*** **n=5**
ECOLOGICAL SITE CONDITION RATING (Weighted Abundance)[1]										
Clayey		61.7 (.333)								
Saline Lowland	32.0 (.300)									
Silty	37.6 (.700)	57.7 (.450)	62.3 (.313)	47.9 (1.000)	60.9 (1.000)	64.6 (.375)	57.1 (.334)		50.0 (.500)	51.7 (.500)
Shallow									71.8 (.500)	
Shallow Clay		69.0 (.217)	42.3 (.250)			63.1 (.625)	47.6 (.333)	51.0 (1.000)		
Sandy Steep										71.3 (.500)
Very Shallow			27.1 (.437)				67.6 (.333)			
WEIGHTED MEAN CONDITION	35.9	61.5	41.9	47.9	60.9	63.7	57.4	51.0	60.9	61.5
ECOLOGICAL SITE CONDITION CLASS[2]	F	G	F	F+	G	G	G-	G-	G	G

Footnotes are presented on cover page F-i.

Table F2. Relative Cover (Percent) and Range Condition for the TAME PASTURE Community Type, Otter Creek Tract 2 Baseline Study Area, 2011.

	TAME PASTURE n=43
CLASS\SPECIES	
NATIVE PERENNIAL GRAMINOIDS (Cool Season)	
Agropyron dasystachyum var. dasy.	0.02
Agropyron smithii	3.86
Aristida longiseta	0.01
Carex filifolia	0.09
Hordeum jubatum	0.65
Koeleria cristata	0.08
Poa glaucifolia	0.07
Poa juncifolia	0.04
Poa sandbergii	0.02
Stipa comata	0.07
Stipa viridula	0.69
TOTAL NPG(C)	**5.59**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)	
Bouteloua gracilis	0.20
Distichlis stricta	0.36
Spartina pectinata	0.07
TOTAL NPG(W)	0.63
NATIVE PERENNIAL GRAMINOIDS	6.22
INTRODUCED PERENNIAL GRAMINOIDS	59.01
TOTAL PERENNIAL GRASS	65.23
NATIVE ANNUAL GRAMINOIDS	0.00
INTRODUCED ANNUAL GRAMINOIDS	1.54
TOTAL ANNUAL GRASS	1.54
NATIVE PERENNIAL FORBS AND SUBSHRUBS	1.07
INTRODUCED PERENNIAL FORBS	21.31
FERNS AND ALLIES	0.00
TOTAL PERENNIAL FORBS	22.38
NATIVE ANNUAL/BIENNIAL FORBS	0.40
INTRODUCED ANNUAL/BIENNIAL FORBS	9.00
TOTAL ANNUAL/BIENNIAL FORBS	9.40
TOTAL HERBACEOUS	**98.54**
SHRUBS	
Artemisia cana	0.88
Artemisia tridentata	0.36
Atriplex nuttallii	0.11
Ceratoides lanata	0.04
Rosa arkansana	0.01
Rosa woodsii	0.01
Symphoricarpos occidentalis	0.05
TOTAL SHRUBS	**1.46**
TREES 0.01-acre	
TOTAL TREES 0.01-acre	**0.00**
TOTAL VEGETATION (Stratified)	**100.00**

Table F2. Relative Cover (Percent) and Range Condition for the TAME PASTURE Community Type, Otter Creek Tract 2 Baseline Study Area, 2011.

	TAME PASTURE n=43
ECOLOGICAL SITE CONDITION RATING (Weighted Abundance)[1]	
Clayey	8.8 (.171)
Saline Lowland	8.8 (.390)
Silty	8.8 (.439)
WEIGHTED MEAN CONDITION	8.8
ECOLOGICAL SITE CONDITION CLASS[2]	P

Footnotes are presented on cover page F-i.

Table F3. Relative Cover (Percent) and Range Condition for Four SHRUB/GRASSLAND Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

CLASS\SPECIES	*ART CAN/ AGR SMI* n=45	*ART TRI/ AGR SMI* n=67	*ART TRI / AGR SPI* n=27	*ART TRI/ AND SCO* n=10
NATIVE PERENNIAL GRAMINOIDS (Cool Season)				
Agropyron dasystachyum var. dasy.		0.41	1.64	0.29
Agropyron dasystachyum var. riparium		0.03		
Agropyron smithii	25.18	18.24	4.85	3.98
Agropyron spicatum	0.09	0.73	12.17	5.63
Agropyron trachycaulum		0.01		
Aristida longiseta	0.10	0.48	0.29	0.32
Calamagrostis montanensis				0.10
Carex filifolia	0.20	2.38	2.65	4.76
Carex heliophila	0.12		1.27	
Carex stenophylla		0.02	0.01	
Elymus canadensis		0.004		
Festuca idahoensis				1.17
Hordeum jubatum	0.02			
Koeleria cristata	0.77	2.30	3.97	4.17
Oryzopsis hymenoides		0.06		
Poa glaucifolia		0.03		
Poa sandbergii	0.11	0.54	0.60	0.06
Poa scabrella	0.20	0.40	0.43	
Scirpus maritimus	0.005			
Sitanion hystrix		0.004		
Stipa comata	3.22	8.92	6.72	7.21
Stipa viridula	9.56	9.16	3.35	5.92
TOTAL NPG(C)	**39.58**	**43.72**	**37.96**	**33.61**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)				
Andropogon scoparius	0.02	0.06	0.33	5.44
Bouteloua curtipendula	0.15	0.20	1.42	5.24
Bouteloua gracilis	1.25	6.83	5.14	5.05
Calamovilfa longifolia	0.08	0.28	0.53	0.58
Distichlis stricta	0.17	0.03		
Muhlenbergia cuspidata		0.12	2.70	0.51
Panicum virgatum		0.01		
Schedonnardus paniculatus	0.005	0.12		
Sporobolus airoides		0.02		
Sporobolus cryptandrus			0.09	
TOTAL NPG(W)	**1.67**	**7.65**	**10.21**	**16.83**
NATIVE PERENNIAL GRAMINOIDS	41.25	51.37	48.18	50.44
INTRODUCED PERENNIAL GRAMINOIDS	14.99	2.56	0.37	2.14
TOTAL PERENNIAL GRASS	56.25	53.93	48.55	52.57
NATIVE ANNUAL GRAMINOIDS	0.01	0.09	0.15	0.03
INTRODUCED ANNUAL GRAMINOIDS	4.02	6.60	2.48	2.25
TOTAL ANNUAL GRASS	4.03	6.69	2.63	2.28
NATIVE PERENNIAL FORBS AND SUBSHRUBS	6.96	12.54	19.02	19.60
INTRODUCED PERENNIAL FORBS	3.70	1.64	0.64	0.50
FERNS AND ALLIES	0.00	0.00	0.00	0.00
TOTAL PERENNIAL FORBS	10.66	14.19	19.66	20.10

Table F3. Relative Cover (Percent) and Range Condition for Four SHRUB/GRASSLAND Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	ART CAN/ AGR SMI n=45	*ART TRI/ AGR SMI* n=67	*ART TRI / AGR SPI* n=27	*ART TRI/ AND SCO* n=10
NATIVE ANNUAL/BIENNIAL FORBS	0.33	1.27	1.20	0.78
INTRODUCED ANNUAL/BIENNIAL FORBS	12.61	3.53	7.11	9.81
TOTAL ANNUAL/BIENNIAL FORBS	12.94	4.81	8.31	10.58
TOTAL HERBACEOUS	**83.88**	**79.61**	**79.14**	**85.53**
SHRUBS				
Artemisia cana	14.56	0.48		0.10
Artemisia tridentata	0.87	19.42	20.32	10.49
Atriplex nuttallii		0.04	0.13	
Ceratoides lanata	0.02	0.28	0.28	
Chrysothamnus nauseosus		0.004	0.13	
Rhus aromatica	0.03	0.01		
Rosa arkansana	0.03	0.04		0.10
Rosa woodsii	0.08			
Sarcobatus vermiculatus		0.07		
Symphoricarpos occidentalis	0.49			
TOTAL SHRUBS	16.09	20.35	20.86	10.68
TREES 0.01-acre				
Juniperus scopulorum	0.03	0.05		3.79
TOTAL TREES 0.01-acre	0.03	0.05		3.79
TOTAL VEGETATION (Stratified)	100.00	100.00	100.00	100.00

ECOLOGICAL SITE CONDITION RATING (Absolute Abundance)[1]				
Clayey		54.7 (.161)		
Overflow	44.6 (.300)			
Silty	48.1 (.500)	65.4 (.387)	63.2 (.417)	63.9 (.300)
Shallow		51.3 (.161)		57.6 (.300)
Shallow Clay	59.8 (.200)	60.0 (.291)	57.1 (.583)	60.7 (.400)
WEIGHTED MEAN CONDITION	49.4	59.8	59.6	60.7
ECOLOGICAL SITE CONDITION CLASS[2]	F+	G	G	G

Footnotes are presented on cover page F-i.

Table F4. Relative Cover (Percent) and Range Condition for Four GRASS-DOMINATED BREAKS Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGR SMI **BREAKS** **n=9**	***AGR SPI*** **BREAKS** **n=4**	***SPO AIR*** **BREAKS** **n=4**	***CAL LON*** **BREAKS** **n=5**
CLASS\SPECIES				
NATIVE PERENNIAL GRAMINOIDS (Cool Season)				
Agropyron dasystachyum var. dasy.	8.36	3.54	2.73	5.54
Agropyron smithii	25.07	4.43	9.46	4.43
Agropyron spicatum	1.62	15.94	2.19	10.14
Aristida longiseta	0.32		2.73	0.50
Carex filifolia	0.07		1.09	1.83
Hordeum jubatum			0.16	
Koeleria cristata	1.94	0.89	0.87	1.61
Oryzopsis hymenoides		0.27		
Poa glaucifolia	0.25			
Poa sandbergii	1.79		0.16	0.17
Poa scabrella	0.25	2.66		0.17
Scirpus americanus			0.55	
Sitanion hystrix	0.07			
Stipa comata		1.77		1.99
Stipa viridula	0.25	0.27	1.09	0.55
TOTAL NPG(C)	**40.00**	**29.76**	**21.05**	**26.93**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)				
Andropogon scoparius	0.25	3.19	2.73	7.76
Bouteloua curtipendula	0.25	2.04	1.09	0.17
Bouteloua gracilis	1.97		3.83	4.99
Calamovilfa longifolia	0.49	0.89	0.55	11.08
Distichlis stricta	2.95	12.40	2.73	
Muhlenbergia cuspidata	0.57		1.64	5.71
Schedonnardus paniculatus	0.74			
Sporobolus airoides			26.24	
Sporobolus cryptandrus	0.07	0.27		
TOTAL NPG(W)	**7.28**	**18.78**	**38.82**	**29.70**
NATIVE PERENNIAL GRAMINOIDS	47.27	48.54	59.87	56.62
INTRODUCED PERENNIAL GRAMINOIDS	0.07	0.00	0.00	0.17
TOTAL PERENNIAL GRASS	47.35	48.54	59.87	56.79
NATIVE ANNUAL GRAMINOIDS	0.37	0.00	0.00	0.17
INTRODUCED ANNUAL GRAMINOIDS	3.66	0.00	3.06	0.66
TOTAL ANNUAL GRASS	4.03	0.00	3.06	0.83
NATIVE PERENNIAL FORBS AND SUBSHRUBS	26.62	40.48	23.95	35.07
INTRODUCED PERENNIAL FORBS	1.35	0.00	0.16	0.50
FERNS AND ALLIES	0.00	0.00	0.00	0.00
TOTAL PERENNIAL FORBS	27.97	40.48	24.11	35.57
NATIVE ANNUAL/BIENNIAL FORBS	10.99	0.53	0.98	2.77
INTRODUCED ANNUAL/BIENNIAL FORBS	7.23	4.69	1.59	1.16
TOTAL ANNUAL/BIENNIAL FORBS	18.22	5.23	2.57	3.93
TOTAL HERBACEOUS	**97.57**	**94.24**	**89.61**	**97.12**

Table F4. Relative Cover (Percent) and Range Condition for Four GRASS-DOMINATED BREAKS Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	AGR SMI **BREAKS** **n=9**	***AGR SPI*** **BREAKS** **n=4**	***SPO AIR*** **BREAKS** **n=4**	***CAL LON*** **BREAKS** **n=5**
SHRUBS				
Artemisia tridentata	1.30	1.77	3.28	1.83
Atriplex confertifolia		0.89		
Atriplex nuttallii	0.07			
Ceratoides lanata	0.25		1.09	
Chrysothamnus nauseosus	0.57	2.57	0.55	0.50
Rhus aromatica				0.55
Rosa arkansana		0.53		
Sarcobatus vermiculatus	0.25			
TOTAL SHRUBS	**2.43**	**5.76**	**4.92**	**2.88**
TREES 0.01-acre				
Juniperus scopulorum			5.47	
TOTAL TREES 0.01-acre	**0.00**	**0.00**	**5.47**	**0.00**
TOTAL VEGETATION (Stratified)	**100.00**	**100.00**	**100.00**	**100.00**

ECOLOGICAL SITE CONDITION RATING (Weighted Abundance)[1]				
Clayey	58.4 (.222)			
Silty	50.6 (.333)			
Saline Upland			71.0 (1.000)	
Shallow				66.5 (1.000)
Shallow Clay	59.0 (.445)	55.2 (1.000)		
WEIGHTED MEAN CONDITION	56.1	55.2	71.0	66.5
ECOLOGICAL SITE CONDITION CLASS[2]	G-	G-	G+	G

Footnotes are presented on cover page F-i.

Table F5. Relative Cover (Percent) and Range Condition for Six SHRUB-DOMINATED BREAKS Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	ART TRI-SAR VER-CHR NAU/ AGR SMI **BREAKS** **n=25**	***RHU ARO/ AGR SPI-AND SCO*** **BREAKS** **n=4**	***ART TRI-RHU ARO-CHR NAU/ AGR SPI*** **BREAKS** **n=15**	***ART TRI-RHU ARO-SAR VER/ AGR SPI*** **BREAKS** **n=6**	***ART TRI-ATR CON-SAR VER/ AGR SPI*** **BREAKS** **n=26**	***ART TRI-ATR CON-RHU ARO/ AGR SPI*** **BREAKS** **n=13**
CLASS\SPECIES						
NATIVE PERENNIAL GRAMINOIDS (Cool Season)						
Agropyron albicans var. griffithsii			0.62			
Agropyron dasystachyum var. dasy.	5.73		1.99	0.59	7.32	1.14
Agropyron dasystachyum var. riparium					0.75	
Agropyron smithii	15.28	0.13	1.40	7.72	2.91	3.79
Agropyron spicatum	1.30	7.93	14.99	14.54	12.76	12.76
Agropyron trachycaulum			0.04			
Aristida longiseta	0.20	0.43	0.62		0.17	0.95
Carex filifolia	0.38	1.35	0.12		0.22	0.19
Carex heliophila		0.43				
Koeleria cristata	0.84	0.13	1.27		0.49	0.06
Oryzopsis hymenoides			1.40		0.45	2.71
Poa glaucifolia	0.29					
Poa juncifolia	1.47				0.02	
Poa sandbergii	0.17	0.13			0.09	0.11
Poa scabrella	0.47		0.11		0.57	
Sitanion hystrix			0.04		0.79	0.57
Stipa comata	0.90	12.43	1.20	2.37	1.37	1.14
Stipa viridula	1.30		0.58	3.74	2.54	1.14
TOTAL NPG(C)	**28.32**	**22.95**	**24.38**	**28.96**	**30.44**	**24.55**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)						
Andropogon scoparius		4.71	3.51	0.89	0.77	0.19
Bouteloua curtipendula	0.80	1.50	3.39	2.37	1.61	1.52
Bouteloua gracilis	6.38	1.56	0.12	1.48	0.52	1.14
Calamovilfa longifolia	0.38	0.06	1.55		0.45	
Distichlis stricta	3.42		0.35	1.48	1.07	
Muhlenbergia cuspidata	0.23	0.86	1.05		0.22	0.19
Sporobolus airoides	0.15				0.32	1.52
Sporobolus cryptandrus			0.15		0.02	
TOTAL NPG(W)	**11.35**	**8.70**	**10.12**	**6.23**	**4.98**	**4.55**
NATIVE PERENNIAL GRAMINOIDS	39.66	31.65	34.50	35.19	35.42	29.09
INTRODUCED PERENNIAL GRAMINOIDS	0.23	0.92	0.04	0.00	0.00	0.00
TOTAL PERENNIAL GRASS	39.89	32.58	34.53	35.19	35.42	29.09
NATIVE ANNUAL GRAMINOIDS	0.09	0.06	0.07	0.00	0.00	0.00
INTRODUCED ANNUAL GRAMINOIDS	3.07	8.42	4.14	1.16	3.92	1.72
TOTAL ANNUAL GRASS	3.16	8.49	4.21	1.16	3.92	1.72
NATIVE PERENNIAL FORBS AND SUBSHRUBS	14.98	20.38	22.93	15.01	18.53	19.09
INTRODUCED PERENNIAL FORBS	1.01	0.13	0.26	0.47	0.19	0.06
FERNS AND ALLIES	0.00	0.47	0.00	0.00	0.00	0.00
TOTAL PERENNIAL FORBS	15.98	20.98	23.19	15.49	18.71	19.14
NATIVE ANNUAL/BIENNIAL FORBS	3.48	2.79	1.02	0.53	2.70	1.35
INTRODUCED ANNUAL/BIENNIAL FORBS	14.91	10.09	16.96	10.09	4.62	1.46
TOTAL ANNUAL/BIENNIAL FORBS	18.39	12.88	17.97	10.62	7.32	2.81
TOTAL HERBACEOUS	**77.42**	**74.92**	**79.90**	**62.46**	**65.38**	**52.77**

Table F5. Relative Cover (Percent) and Range Condition for Six SHRUB-DOMINATED BREAKS Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	ART TRI-SAR VER-CHR NAU/ AGR SMI **BREAKS** **n=25**	***RHU ARO/ AGR SPI-AND SCO*** **BREAKS** **n=4**	***ART TRI-RHU ARO-CHR NAU/ AGR SPI*** **BREAKS** **n=15**	***ART TRI-RHU ARO-SAR VER/ AGR SPI*** **BREAKS** **n=6**	***ART TRI-ATR CON-SAR VER/ AGR SPI*** **BREAKS** **n=26**	***ART TRI-ATR CON-RHU ARO/ AGR SPI*** **BREAKS** **n=13**
SHRUBS						
Artemisia cana	0.45	0.86	1.29			
Artemisia tridentata	11.80		10.55	27.30	23.37	22.23
Atriplex confertifolia					5.09	16.30
Atriplex nuttallii	0.40					
Ceratoides lanata	0.05		0.04		0.69	
Chrysothamnus nauseosus	4.04		3.38	1.87	0.57	2.90
Prunus virginiana		4.07				
Rhus aromatica	0.02	18.65	3.42	2.76	0.07	4.09
Ribes cereum		1.50				
Rosa arkansana	0.02		0.62	0.18	0.22	0.38
Rosa woodsii	0.02		0.15			
Sarcobatus vermiculatus	5.77		0.04	5.34	4.50	
Symphoricarpos occidentalis			0.04			
TOTAL SHRUBS	**22.58**	**25.08**	**19.52**	**37.45**	**34.53**	**45.91**
TREES 0.01-acre						
Juniperus scopulorum			0.35	0.09	0.02	0.76
Pinus ponderosa			0.23		0.07	0.57
TOTAL TREES 0.01-acre	**0.00**	**0.00**	**0.58**	**0.09**	**0.10**	**1.33**
TOTAL VEGETATION (Stratified)	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

ECOLOGICAL SITE CONDITION RATING (Weighted Abundance)[1]						
Shallow			58.8 (.615)	61.1 (.500)	57.9 (.333)	59.3 (.846)
Shallow Clay	60.1 (1.000)		59.5 (.385)	60.2 (.500)	61.1 (.667)	54.1 (.154)
Very Shallow		50.7 (1.000)				
WEIGHTED MEAN CONDITION	60.1	50.7	59.1	60.7	60.0	58.5
ECOLOGICAL SITE CONDITION CLASS[2]	G	G-	G-	G	G	G-

Footnotes are presented on cover page F-i.

Table F6. Relative Cover (Percent) and Range Condition for Five CONIFER-DOMINATED BREAKS Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	JUN SCO / AGR SPI BREAKS n=11	PIN PON-JUN SCO/ AGR SPI BREAKS n=17	PIN PON-JUN SCO/ AND SCO BREAKS n=15	PIN PON-JUN SCO/ ART TRI BREAKS n=4	PIN PON-JUN SCO/ ART TRI-ATR CON BREAKS n=7
CLASS\SPECIES					
NATIVE PERENNIAL GRAMINOIDS (Cool Season)					
Agropyron dasystachyum var. dasy.		0.33	0.09	4.25	
Agropyron smithii	0.70	0.59	2.61	3.03	5.74
Agropyron spicatum	12.55	17.16	4.50	5.77	20.96
Aristida longiseta	0.11	0.14	0.45	0.61	0.07
Carex filifolia	0.53	2.61	2.39	2.12	
Carex heliophila	0.04				
Carex rossii	0.50				
Koeleria cristata	0.82	0.80	1.04	1.52	0.87
Oryzopsis hymenoides	0.12	0.40	0.27		0.87
Poa sandbergii	0.07		0.03		
Poa scabrella	0.04			0.30	
Stipa comata	0.50	1.25	3.27	3.64	0.22
Stipa viridula	0.12	0.33	0.18	3.03	3.12
TOTAL NPG(C)	**16.11**	**23.61**	**14.83**	**24.28**	**31.86**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)					
Andropogon scoparius	3.02	2.55	14.40	5.16	0.44
Bouteloua curtipendula	2.98	1.22	6.12	5.46	0.44
Bouteloua gracilis	0.29	0.25	1.74	1.52	
Calamovilfa longifolia		1.14	2.37	0.61	0.22
Distichlis stricta				1.21	
Muhlenbergia cuspidata	0.25		0.68		0.44
Sporobolus cryptandrus		0.11	0.09		
TOTAL NPG(W)	**6.54**	**5.27**	**25.39**	**13.96**	**1.53**
NATIVE PERENNIAL GRAMINOIDS	22.64	28.88	40.22	38.24	33.38
INTRODUCED PERENNIAL GRAMINOIDS	0.04	0.03	0.03	0.00	1.97
TOTAL PERENNIAL GRASS	22.68	28.92	40.25	38.24	35.35
NATIVE ANNUAL GRAMINOIDS	0.00	0.03	0.03	0.00	0.00
INTRODUCED ANNUAL GRAMINOIDS	0.26	0.60	1.30	0.88	0.26
TOTAL ANUAL GRASS	0.26	0.63	1.32	0.88	0.26
NATIVE PERENNIAL FORBS AND SUBSHRUBS	17.60	27.76	20.83	24.34	11.64
INTRODUCED PERENNIAL FORBS	0.76	0.31	0.51	0.70	0.20
FERNS AND ALLIES	0.04	0.00	0.00	0.00	0.00
TOTAL PERENNIAL FORBS	18.39	28.07	21.34	25.04	11.83
NATIVE ANNUAL/BIENNIAL FORBS	0.48	0.60	0.46	0.97	0.52
INTRODUCED ANNUAL/BIENNIAL FORBS	3.63	11.66	7.69	3.43	0.66
TOTAL ANNUAL/BIENNIAL FORBS	4.11	12.26	8.15	4.40	1.18
TOTAL HERBACEOUS	**45.45**	**69.88**	**71.06**	**68.56**	**48.62**

Table F6. Relative Cover (Percent) and Range Condition for Five CONIFER-DOMINATED BREAKS Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	JUN SCO / AGR SPI BREAKS n=11	PIN PON-JUN SCO/ AGR SPI BREAKS n=17	PIN PON-JUN SCO/ AND SCO BREAKS n=15	PIN PON-JUN SCO/ ART TRI BREAKS n=4	PIN PON-JUN SCO/ ART TRI-ATR CON BREAKS n=7
SHRUBS					
Artemisia cana		0.03	0.63		
Artemisia tridentata	1.90	1.06	0.59	11.84	25.55
Atriplex confertifolia					13.76
Atriplex nuttallii				0.30	
Calylophus serrulatus			0.27		
Ceratoides lanata			0.27	0.39	0.66
Chrysothamnus nauseosus	0.41	1.17	1.22	5.16	1.75
Rhus aromatica	0.24	1.86	1.21		0.72
Ribes aureum	0.12				
Ribes cereum	0.04	0.03			
Rosa arkansana	0.11	0.13	0.05	0.61	
Rosa woodsii				0.09	0.44
Sarcobatus vermiculatus					1.53
Shepherdia argentea		0.11			
Symphoricarpos occidentalis	0.12				0.87
Symphoricarpos oreophilus				1.21	
TOTAL SHRUBS	**2.95**	**4.41**	**4.26**	**19.61**	**45.26**
TREES 0.01-acre					
Juniperus scopulorum	50.95	5.01	11.90	6.07	6.11
Pinus ponderosa	0.66	20.70	12.78	5.77	
TOTAL TREES 0.01-acre	**51.61**	**25.72**	**24.68**	**11.84**	**6.11**
TOTAL VEGETATION (Stratified)	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

ECOLOGICAL SITE CONDITION RATING (Weighted Abundance)[1]					
Silty	42.6 (.364)				
Shallow	40.8 (.636)	52.2 (1.000)	63.0 (1.000)	62.3 (1.000)	64.8 (1.000)
WEIGHTED MEAN CONDITION	41.5	52.2	63.0	62.3	64.8
ECOLOGICAL SITE CONDITION CLASS[2]	F	G-	G	G	G

Footnotes are presented on cover page F-i.

Table F7. Relative Cover (Percent) and Range Condition for Four FOREST AND SAVANNAH/ GRASS and Two FOREST AND SAVANNAH/SHRUB Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	PIN PON-JUN SCO/ AGR SPI n=86	*JUN SCO-PIN PON/ ORY MIC* n=2	*PIN PON-JUN SCO/ FES IDA* n=2	*PIN PON-JUN SCO/ AND SCO* n=28	DRAINAGE *JUN SCO-PIN PON/ SYM OCC-AGR SMI* n=11	*PIN PON-JUN SCO/ PRU VIR* n=2
CLASS\SPECIES						
NATIVE PERENNIAL GRAMINOIDS (Cool Season)						
Agropyron smithii	1.27			1.25	13.07	10.13
Agropyron spicatum	7.91	0.94	2.21	2.67	0.22	0.22
Agropyron trachycaulum	0.02				1.01	4.40
Aristida longiseta	0.24			0.84		
Carex filifolia	0.69			1.62		
Carex heliophila	0.38			0.23		
Carex rossii	0.33	0.24	0.44	0.22	0.04	
Carex stenophylla	0.004			0.07		
Elymus canadensis					0.15	1.54
Festuca idahoensis	0.01		17.66			
Koeleria cristata	0.67		0.26	1.29	0.56	
Oryzopsis hymenoides	0.01					
Oryzopsis micrantha	0.004	10.19		0.26	0.13	
Poa juncifolia	0.004					
Poa sandbergii	0.07	0.12		0.27		
Poa scabrella	0.04			0.11		
Stipa comata	0.79		3.53	1.65	0.94	
Stipa occidentalis				0.04		
Stipa viridula	1.24	0.82	5.30	1.62	5.65	5.28
TOTAL NPG(C)	**13.68**	**12.31**	**29.40**	**12.12**	**21.77**	**21.57**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)						
Andropogon gerardii	0.26			0.44		
Andropogon scoparius	1.69		0.13	15.02	0.42	0.66
Bouteloua curtipendula	2.86		4.42	8.42	1.07	0.88
Bouteloua gracilis	0.58			1.73	0.13	
Calamovilfa longifolia	0.60			1.01	0.87	
Muhlenbergia cuspidata	0.14			0.76		0.07
TOTAL NPG(W)	**6.13**	**0.00**	**4.55**	**27.37**	**2.50**	**1.61**
NATIVE PERENNIAL GRAMINOIDS	19.81	12.31	33.95	39.50	24.27	23.18
INTRODUCED PERENNIAL GRAMINOIDS	0.67	0.41	0.00	1.22	6.03	6.16
TOTAL PERENNIAL GRASS	20.47	12.72	33.95	40.72	30.30	29.34
NATIVE ANNUAL GRAMINOIDS	0.00	0.00	0.00	0.00	0.00	0.00
INTRODUCED ANNUAL GRAMINOIDS	0.44	0.00	0.13	0.21	0.21	0.00
TOTAL ANNUAL GRASS	0.44	0.00	0.13	0.21	0.21	0.00
NATIVE PERENNIAL FORBS AND SUBSHRUBS	13.66	6.24	14.53	17.16	11.28	20.41
INTRODUCED PERENNIAL FORBS	0.67	0.53	0.26	0.36	2.31	0.00
FERNS AND ALLIES	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL PERENNIAL FORBS	14.32	6.77	14.79	17.52	13.59	20.41
NATIVE ANNUAL/BIENNIAL FORBS	0.21	0.12	0.40	0.29	0.19	0.00
INTRODUCED ANNUAL/BIENNIAL FORBS	3.63	0.12	0.13	2.61	6.33	9.75
TOTAL ANNUAL/BIENNIAL FORBS	3.84	0.24	0.53	2.90	6.52	9.75
TOTAL HERBACEOUS	**39.08**	**19.73**	**49.40**	**61.34**	**50.62**	**59.50**

Table F7. Relative Cover (Percent) and Range Condition for Four FOREST AND SAVANNAH/ GRASS and Two FOREST AND SAVANNAH/SHRUB Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	PIN PON-JUN SCO/ AGR SPI n=86	*JUN SCO-PIN PON/ ORY MIC* n=2	*PIN PON-JUN SCO/ FES IDA* n=2	*PIN PON-JUN SCO/ AND SCO* n=28	DRAINAGE *JUN SCO-PIN PON/ SYM OCC-AGR SMI* n=11	*PIN PON-JUN SCO/ PRU VIR* n=2
SHRUBS						
Artemisia cana	0.51			0.16	0.42	
Artemisia tridentata	1.05		0.88	1.23		
Calylophus serrulatus	0.01			0.01		
Ceratoides lanata	0.28	0.12		0.01		
Chrysothamnus nauseosus	0.09			0.05		
Prunus virginiana	0.04			0.01	0.02	9.91
Rhus aromatica	0.56	0.24	0.13	0.21	1.43	5.28
Ribes aureum						2.64
Ribes setosum						0.88
Rosa arkansana	0.11			0.01	0.09	1.10
Rosa woodsii	0.03			0.23	0.96	1.32
Symphoricarpos occidentalis	0.11		0.13	0.27	7.77	3.08
Symphoricarpos oreophilus	0.06	0.41		0.07		
TOTAL SHRUBS	**2.85**	**0.77**	**1.15**	**2.27**	**10.69**	**24.21**
TREES 0.01-acre						
Fraxinus pennsylvanica				0.07	0.02	
Juniperus scopulorum	27.65	50.96	31.79	19.68	30.90	10.13
Pinus ponderosa	30.43	28.54	17.66	16.63	7.77	6.16
TOTAL TREES 0.01-acre	**58.08**	**79.49**	**49.45**	**36.39**	**38.69**	**16.29**
TOTAL VEGETATION (Stratified)	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

ECOLOGICAL SITE CONDITION RATING (Weighted Abundance)[1]						
Overflow					47.2 (.727)	
Shallow	37.9 (.877)	22.9 (1.000)	50.2 (1.000)	57.1 (.852)	47.2 (.273)	57.3 (1.000)
Shallow Clay				53.1 (.148)		
Sandy Steep	41.3 (.049)					
Very Shallow	38.1 (.074)					
WEIGHTED MEAN CONDITION	38.1	22.9	50.2	56.5	47.2	57.3
ECOLOGICAL SITE CONDITION CLASS[2]	F	P+	F+	G-	F+	G-

Footnotes are presented on cover page F-i.

Table F8. Relative Cover (Percent) and Range Condition for Eight MESOPHYTIC/ HYDROPHYTIC HERBACEOUS BOTTOM SERIES, Otter Creek Tract 2 Baseline Study Area, 2011.

CLASS\SPECIES	*DIS STR* SERIES n=3	*SPO AIR* SERIES n=7	*SPA GRA* SERIES n=1	*SPA PEC* SERIES n=10	*SCI MAR* SERIES n=2	*ELE PAL* SERIES n=3	*TYP LAT* SERIES n=3	*SCI VAL* SERIES n=4
NATIVE PERENNIAL GRAMINOIDS (Cool Season)								
XAgrohordeum macounii				0.10		0.08		
Agropyron smithii	7.15	18.94	4.05	5.65	0.15	1.41		
Agropyron trachycaulum		0.33				0.85		
Carex lanuginosa							1.65	2.31
Eleocharis palustris				0.49	0.49	30.81		0.07
Hordeum caespitosum						0.85		
Hordeum jubatum	14.90	1.02		3.93	3.61	3.96		
Juncus torreyi		0.08				5.09		
Phalaris arundinacea							0.10	
Poa arida		0.08			2.47			
Poa glaucifolia		2.89	4.05			0.28		
Poa juncifolia	5.96							
Puccinellia nuttalliana				0.03		0.28		
Scirpus acutus				0.29				11.10
Scirpus americanus	7.15	4.86		14.61		9.04	0.10	4.69
Scirpus maritimus		1.02		1.17	57.40			
Scirpus validus					0.49	0.08		16.19
Stipa viridula		0.26				0.08		
TOTAL NPG(C)	**35.16**	**29.48**	**8.11**	**26.26**	**64.62**	**52.83**	**1.85**	**34.37**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)								
Calamovilfa longifolia	0.18							
Distichlis stricta	50.06	18.42	6.76	0.19	14.84			
Panicum virgatum				2.53		7.91		
Spartina gracilis			81.08	0.00				
Spartina pectinata		1.28		33.99	1.98		4.29	11.33
Sporobolus airoides		39.15			11.88			
TOTAL NPG(W)	**50.24**	**58.85**	**87.84**	**36.72**	**28.70**	**7.91**	**4.29**	**11.33**
NATIVE PERENNIAL GRAMINOIDS	85.40	88.33	95.95	62.98	93.32	60.74	6.14	45.70
INTRODUCED PERENNIAL GRAMINOIDS	2.38	1.02	0.00	18.44	0.15	2.26	48.88	10.94
TOTAL PERENNIAL GRASS	**87.78**	**89.36**	**95.95**	**81.42**	**93.47**	**63.00**	**55.02**	**56.64**
NATIVE ANNUAL GRAMINOIDS	0.00	0.00	0.00	0.03	0.00	0.57	0.00	0.00
INTRODUCED ANNUAL GRAMINOIDS	0.00	0.51	0.00	0.00	0.15	2.54	0.00	0.00
TOTAL ANNUAL GRASS	**0.00**	**0.51**	**0.00**	**0.03**	**0.15**	**3.11**	**0.00**	**0.00**
NATIVE PERENNIAL FORBS AND SUBSHRUBS	6.32	4.66	4.05	10.46	2.62	20.12	29.79	29.51
INTRODUCED PERENNIAL FORBS	0.00	1.28	0.00	2.79	0.15	0.65	2.84	4.00
FERNS AND ALLIES	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00
TOTAL PERENNIAL FORBS	**6.32**	**5.94**	**4.05**	**13.25**	**2.77**	**20.77**	**32.96**	**33.51**
NATIVE ANNUAL/BIENNIAL FORBS	0.77	1.15	0.00	0.12	1.48	0.08	0.00	0.07
INTRODUCED ANNUAL/BIENNIAL FORBS	2.98	1.69	0.00	1.59	1.63	5.23	4.66	1.92
TOTAL ANNUAL/BIENNIAL FORBS	**3.75**	**2.84**	**0.00**	**1.70**	**3.12**	**5.31**	**4.66**	**1.99**
TOTAL HERBACEOUS	**97.85**	**98.64**	**100.00**	**96.40**	**99.51**	**92.20**	**92.64**	**92.14**

Table F8. Relative Cover (Percent) and Range Condition for Eight MESOPHYTIC/ HYDROPHYTIC HERBACEOUS BOTTOM SERIES, Otter Creek Tract 2 Baseline Study Area, 2011.

	DIS STR SERIES n=3	*SPO AIR* SERIES n=7	*SPA GRA* SERIES n=1	*SPA PEC* SERIES n=10	*SCI MAR* SERIES n=2	*ELE PAL* SERIES n=3	*TYP LAT* SERIES n=3	*SCI VAL* SERIES n=4
SHRUBS								
Artemisia cana				0.19		1.41		1.16
Artemisia tridentata	0.18	0.51			0.49			
Chrysothamnus nauseosus		0.08						
Humulus lupulus				0.10				
Ribes aureum				0.10			0.10	2.54
Rosa arkansana	0.18							
Rosa woodsii				0.29		1.70	1.65	0.46
Salix exigua						1.13		
Sarcobatus vermiculatus	1.19	0.77						
Symphoricarpos occidentalis				1.95		3.48	5.61	3.70
TOTAL SHRUBS	**1.55**	**1.36**	**0.00**	**2.63**	**0.49**	**7.72**	**7.36**	**7.86**
TREES 0.01-acre								
Juniperus scopulorum	0.60							
Populus deltoides				0.97				
Salix amygdaloides						0.08		
TOTAL TREES 0.01-acre	**0.60**	**0.00**	**0.00**	**0.97**	**0.00**	**0.08**	**0.00**	**0.00**
TOTAL VEGETATION (Stratified)	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

ECOLOGICAL SITE CONDITION RATING (Weighted Abundance)[1]								
Saline Lowland	35.7 (1.000)	62.7 (.571)	43.9 (1.000)					
Saline Upland		86.0 (.429)						
Subirrigated				45.1 (.500)	10.1 (.500)	33.9 (.500)	21.1 (.500)	33.6 (.500)
Wet Meadow				48.0 (.500)	10.3 (.500)	27.9 (.500)	16.6 (.500)	29.1 (.500)
WEIGHTED MEAN CONDITION	35.7	72.7	43.9	46.6	10.2	30.9	18.9	31.4
ECOLOGICAL SITE CONDITION CLASS[2]	F	G+	F+	F+	P	F-	P+	F-

Footnotes are presented on cover page F-i.

Table F9. Relative Cover (Percent) and Range Condition for One MESOPHYTIC LOW SHRUB BOTTOM SERIES and TWO MESOPHYTIC TALL SHRUB BOTTOM Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

CLASS\SPECIES	SYM OCC SERIES n=24	PRU VIR/ SYM OCC-POA PRA n=2	SAL EXI/ SCI AME-JUN TOR n=1
NATIVE PERENNIAL GRAMINOIDS (Cool Season)			
Agropyron smithii	13.24	3.57	
Agropyron spicatum	0.23		
Agropyron trachycaulum	0.22		
Agropyron xpseudorepens	0.09		
Eleocharis palustris			5.46
Elymus canadensis	0.09		
Hordeum jubatum	0.63		
Juncus torreyi			7.79
Koeleria cristata	0.21		
Poa glaucifolia	0.06		
Poa scabrella	0.17		
Scirpus americanus	0.09		11.69
Scirpus maritimus	0.14		
Sitanion hystrix	0.03		
Stipa comata	0.06		
Stipa viridula	2.94		
TOTAL NPG(C)	**18.21**	**3.57**	**24.94**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)			
Andropogon gerardii	0.03		
Andropogon scoparius	0.01		
Bouteloua curtipendula	0.20		
Bouteloua gracilis	0.09		
Calamovilfa longifolia	0.67		
Muhlenbergia asperifolia	0.01		
Panicum virgatum	0.92		1.56
Spartina gracilis	0.06		
Spartina pectinata	0.12		
TOTAL NPG(W)	**2.10**	**0.00**	**1.56**
NATIVE PERENNIAL GRAMINOIDS	20.31	3.57	26.50
INTRODUCED PERENNIAL GRAMINOIDS	23.28	19.08	3.90
TOTAL PERENNIAL GRASS	**43.58**	**22.66**	**30.40**
NATIVE ANNUAL GRAMINOIDS	0.00	0.00	0.00
INTRODUCED ANNUAL GRAMINOIDS	1.61	0.10	0.00
TOTAL ANNUAL GRASS	**1.61**	**0.10**	**0.00**
NATIVE PERENNIAL FORBS AND SUBSHRUBS	9.31	8.05	9.35
INTRODUCED PERENNIAL FORBS	0.73	0.10	0.00
FERNS AND ALLIES	0.00	0.00	0.00
TOTAL PERENNIAL FORBS	**10.04**	**8.15**	**9.35**
NATIVE ANNUAL/BIENNIAL FORBS	0.77	0.31	0.00
INTRODUCED ANNUAL/BIENNIAL FORBS	6.52	2.85	0.00
TOTAL ANNUAL/BIENNIAL FORBS	**7.29**	**3.16**	**0.00**
TOTAL HERBACEOUS	**62.52**	**34.07**	**39.75**

Table F9. Relative Cover (Percent) and Range Condition for One MESOPHYTIC LOW SHRUB BOTTOM SERIES and TWO MESOPHYTIC TALL SHRUB BOTTOM Community Types, Otter Creek Tract 2 Baseline Study Area, 2011.

	***SYM OCC* SERIES** n=24	***PRU VIR/ SYM OCC-POA PRA*** n=2	**SAL EXI/ SCI AME-JUN TOR** n=1
SHRUBS			
Artemisia cana	4.55	9.02	
Artemisia tridentata	0.99		
Chrysothamnus nauseosus	0.06		
Prunus virginiana		24.29	
Rhus aromatica	0.20	0.35	
Ribes aureum	0.06	0.35	0.23
Ribes setosum		2.43	
Rosa arkansana	0.17		
Rosa woodsii	2.21		
Salix exigua			58.46
Sarcobatus vermiculatus	0.35		
Symphoricarpos occidentalis	28.30	29.49	1.56
TOTAL SHRUBS	**36.87**	**65.93**	**60.25**
TREES 0.01-acre			
Juniperus scopulorum	0.52		
Pinus ponderosa	0.09		
TOTAL TREES 0.01-acre	**0.60**	**0.00**	**0.00**
TOTAL VEGETATION (Stratified)	100.00	100.00	100.00
ECOLOGICAL SITE CONDITION RATING (Weighted Abundance)[1]			
Overflow	43.2 (1.000)	26.7 (1.000)	
Subirrigated			28.8 (.500)
Wet Meadow			24.3 (.500)
WEIGHTED MEAN CONDITION	43.2	26.7	26.6
ECOLOGICAL SITE CONDITION CLASS[2]	F+	F-	F-

Footnotes are presented on cover page F-i.

Table F10. Relative Cover (Percent) and Range Condition for Three MESOPHYTIC DECIDUOUS TREE BOTTOM SERIES, Otter Creek Tract 2 Baseline Study Area, 2011.

	***POP DEL* SERIES**	***ACE NEG* SERIES**	***FRA PEN* SERIES**
	n=8	**n=12**	**n=1**
CLASS\SPECIES			
NATIVE PERENNIAL GRAMINOIDS (Cool Season)			
XAgrohordeum macounii	0.22		
Agropyron smithii	0.26		13.41
Agropyron trachycaulum	0.38		
XAgrositanion saundersii	0.43		
Eleocharis palustris	0.43		
Hordeum jubatum	2.03		
Koeleria cristata			0.58
Phalaris arundinacea		0.41	
Scirpus americanus		0.13	
Scirpus maritimus	0.02		
Scirpus validus		0.02	
Stipa viridula	0.22		19.24
TOTAL NPG(C)	**4.00**	**0.56**	**33.24**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)			
Spartina pectinata	0.38	4.37	
TOTAL NPG(W)	**0.38**	**4.37**	**0.00**
NATIVE PERENNIAL GRAMINOIDS	4.39	4.94	33.24
INTRODUCED PERENNIAL GRAMINOIDS	32.08	39.98	18.66
TOTAL PERENNIAL GRASS	**36.47**	**44.91**	**51.90**
NATIVE ANNUAL GRAMINOIDS	0.00	0.00	0.00
INTRODUCED ANNUAL GRAMINOIDS	0.00	0.07	0.17
TOTAL ANNUAL GRASS	**0.00**	**0.07**	**0.17**
NATIVE PERENNIAL FORBS AND SUBSHRUBS	5.98	2.34	20.76
INTRODUCED PERENNIAL FORBS	1.23	3.00	0.17
FERNS AND ALLIES	0.00	0.02	0.00
TOTAL PERENNIAL FORBS GRASS	**7.21**	**5.36**	**20.93**
NATIVE ANNUAL/BIENNIAL FORBS	0.46	0.75	0.00
INTRODUCED ANNUAL/BIENNIAL FORBS	0.51	2.89	9.50
TOTAL ANNUAL/BIENNIAL FORBS	**0.97**	**3.64**	**9.50**
TOTAL HERBACEOUS	**44.65**	**53.98**	**82.51**
SHRUBS			
Artemisia cana	0.02		
Prunus virginiana	2.39	0.13	
Ribes aureum		1.00	
Ribes setosum	0.07		
Rosa arkansana	0.09		
Rosa woodsii	0.72	0.89	
Salix exigua	1.81		
Symphoricarpos occidentalis	5.58	2.09	
TOTAL SHRUBS	**10.70**	**4.11**	**0.00**

Table F10. Relative Cover (Percent) and Range Condition for Three MESOPHYTIC DECIDUOUS TREE BOTTOM SERIES, Otter Creek Tract 2 Baseline Study Area, 2011.

	***POP DEL* SERIES**	***ACE NEG* SERIES**	***FRA PEN* SERIES**
	n=8	**n=12**	**n=1**
TREES 0.01-acre			
Acer negundo	5.44	41.92	
Fraxinus pennsylvanica	1.81		13.99
Juniperus scopulorum	0.14		3.50
Populus deltoides	32.55		
Salix amygdaloides	4.71		
TOTAL TREES 0.01-acre	**44.65**	**41.92**	**17.49**
TOTAL VEGETATION (Stratified)	**100.00**	**100.00**	**100.00**

ECOLOGICAL SITE CONDITION RATING (Weighted Abundance)[1]			
Overflow	20.5 (1.000)	11.4 (.500)	42.5 (1.000)
Subirrigated		11.4 (.500)	
WEIGHTED MEAN CONDITION	20.5	11.4	42.5
ECOLOGICAL SITE CONDITION CLASS[2]	P+	P	F

Footnotes are presented on cover page F-i.

APPENDIX G

Percent Canopy Cover and Constancy by Plot for Community Types Identified in the Otter Creek Facilities Baseline Study Area, Powder River County, Montana, 2012.

TABLE	COMMUNITY TYPE[1]	PAGE
	GRASSLAND	
G1	*Agropyron smithii / Bouteloua gracilis*	G-1
	Stipa comata / Carex filifolia	
G2	*Agropyron spicatum / Stipa comata*	G-5
	Agropyron spicatum / Bouteloua curtipendula	
G3	*Andropogon scoparius / Carex filifolia*	G-9
	Andropogon scoparius / Bouteloua curtipendula	
	Andropogon scoparius / Andropogon gerardii	
G4	*Andropogon scoparius / Calamovilfa longifolia*	G-13
	Calamovilfa longifolia / Stipa comata	
	TAME PASTURE	
G5	Hay Cropland – Farmed	G-17
G6	Pastureland – Grazed/Go-Back	G-26
	SHRUB / GRASSLAND	
G7	*Artemisia cana / Agropyron smithii*	G-34
G8	*Artemisia tridentata / Agropyron smithii*	G-37
G9	*Artemisia tridentata / Agropyron spicatum*	G-40
	Artemisia tridentata / Andropogon scoparius	
	BREAKS	
G10	**Grass-Dominated Breaks**	G-45
	Agropyron smithii Breaks	
	Shrub-Dominated Breaks	
	Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron smithii	
	Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron spicatum	
	Rhus aromatica / Agropyron spicatum	
	Conifer-Dominated Breaks	
	Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum Breaks	
	PONDEROSA PINE-JUNIPER FOREST AND SAVANNAH	
G11	**Ponderosa Pine-Juniper / Grass**	G-50
	Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum	
	Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius	
	DRAINAGE BOTTOM[3]	
G12	**Mesophytic/Hydrophytic Herbaceous Bottom**	G-55
	Spartina pectinata /Bromus inermis	
	Spartina pectinata / Puccinellia nuttalliana	
	Spartina pectinata/Scirpus americanus	
G13	*Typha latifolia / Spartina pectinata*	G-58
	Scirpus acutus-Scirpus validus / Spartina pectinata	
	Scirpus acutus-Scirpus validus / Typha latifolia	
G14	**Mesophytic Low Shrub Bottom**	G-61
	Symphoricarpos occidentalis-Artemisia cana / Agropyron smithii-Poa pratensis	
	Symphoricarpos occidentalis-Rosa woodsii / Poa pratensis-Agropyron smithii	

APPENDIX G

Percent Canopy Cover and Constancy by Plot for Community Types Identified in the Otter Creek Facilities Baseline Study Area, Powder River County, Montana, 2012.

TABLE	COMMUNITY TYPE[1]	PAGE
G15	**Mesophytic Deciduous Tree Bottom**	G-65
	Populus deltoides-Fraxinus pennsylvanica-Acer negundo / Poa pratensis	
	Populus deltoides-Salix amygdaloides / Poa pratensis	
	Populus deltoides-Fraxinus pennsylvanica-Acer negundo / Prunus virginiana	
G16	*Acer negundo / Bromus inermis*	G-69
	Acer negundo / Spartina pectinata	
	Acer negundo / Prunus virginiana	

[1]In this classification, community types are named according to the following convention:

A slash (/) indicates a separation of species dominating different strata, namely the herbaceous, shrub and/or tree layers.

A hyphen (-) indicates species dominating the same stratum (understory, middle story or overstory) either or both of which may be dominant or codominant at a given sample site.

All plot locations are shown on the vegetation community type map (Plate 1). Plot numbers with an asterisk indicate sites associated with current and recent prairie dog colonies; prairie dogs conspicuously impact vegetation ecology in substantial portions of the study area, significantly affecting plant composition and diversity in the vicinity of their colonies.

Footnotes for the tables in Appendix G:

Trace cover values were assigned 0.3 percent for each 0.01-acre canopy cover estimation plot.
Constancy values apply only to species recorded in the 0.01-acre plots; constancy is not given where n=1.
Binomials primarily follow USDA Forest Service (1987).

***Site Parameters:**

Topography codes:

Ben = Bench	Low, Lower = Lower slope	Swa = Swale
Bnk = Bank	Mid = Mid slope	Ter = Terrace
Bot = Bottom	Plat = Plateau	Toe = Toeslope
Brk = Breaks	Rid = Ridge	Upper = Upper slope
Flo = Floodplain	Sho = Shoulder	

Configuration codes:

S = Straight	V = Concave
U = Undulating	X = Convex

Table G1
Percent Canopy Cover by Class and Species for Two GRASSLAND Community Types in the *Agropyron smithii* and *Stipa comata* Series, Otter Creek Facilities Baseline Study Area, 2012.

	AGROPYRON SMITHII/ BOUTELOUA GRACILIS				STIPA COMATA/CAREX FILIFOLIA										
	PLOT NUMBER		Mean	*Con-*	PLOT NUMBER									Mean	*Con-*
	744	810	Cover	*stancy*	751	754	798	854	857	858*	861	863	866	Cover	*stancy*
			n=2											n=9	
SITE PARAMETERS															
Slope (percent)	5-8	8			8	8	18	12	8	5	6	7	4		
Aspect (degrees)	052	SE			NNE	N	190	040	290	240	290	230	090		
Topography	Mid	Mid			Sho	Ben	Low-Toe	Upper	Lower	Ridge	Mid	Upper	Ben		
Configuration	V	S			X	V	X	Und	S	S	S	S	S		
Photo # (Digital)	555	431-32			469	471	770-71	743-44	739-40	750-51	719-21	722-23	729		
Investigator	KS	DB/KL			DB/KL	DB/KL	SC	SC	SC	SC	SC	SC	SC		
Date	07/03/12	07/06/12			07/07/12	07/07/12	07/05/12	07/03/12	07/03/12	07/03/12	07/02/12	07/02/12	07/02/12		
GROUND COVER															
Bare Ground	2	26	**14.00**	*100*	30	34	50	44	36	34	38	18	15	**33.22**	***100***
Rock		0.3	**0.15**	*50*	4	2	27	4	2	2	15	3	0.3	**6.59**	***100***
Litter	93	60	**76.50**	*100*	56	56	20	33	56	57	41	74	81	**52.67**	***100***
Lichens	0.3	5	**2.65**	*100*	4	3	0.3	13	0.3	2	0.3		0.3	**2.58**	***89***
Moss		4	**2.00**	*50*	2	1		2						**0.56**	***33***
Basal Vegetation	5	5	**5.00**	*100*	4	4	3	4	6	5	6	5	4	**4.56**	***100***
VEGETATION STRUCTURE (nonstratified cover)															
Total Vegetation	69	70	**69.50**	*100*	63	67	45	58	78	76	67	80	66	**66.67**	***100***
Perennial Graminoids	68	60	**64.00**	*100*	52	59	38	38	63	68	62	30	36	**49.56**	***100***
Annual Graminoids	2	15	**8.50**	*100*	11	8	7	14	22	13	4	60	30	**18.78**	***100***
Perennial Forbs	2	4	**3.00**	*100*	10	10	4	13	3	15	7	4	5	**7.89**	***100***
Annual/Biennial Forbs	0.3	1	**0.65**	*100*	0.3	0.3	0.3	0.3	0.3	1		0.3	1	**0.42**	***89***
Shrubs													5	**0.56**	***11***
Trees 0.01-acre															
Trees 0.1-acre															

Table G1
Percent Canopy Cover by Class and Species for Two GRASSLAND Community Types in the *Agropyron smithii* and *Stipa comata* Series, Otter Creek Facilities Baseline Study Area, 2012.

	AGROPYRON SMITHII/ BOUTELOUA GRACILIS				STIPA COMATA/CAREX FILIFOLIA										
	PLOT NUMBER		Mean	*Con-*	PLOT NUMBER									Mean	*Con-*
	744	810	Cover	*stancy*	751	754	798	854	857	858*	861	863	866	Cover	*stancy*
			n=2											n=9	
CLASS\SPECIES															
NATIVE PERENNIAL GRAMINOIDS (Cool Season)															
Agropyron smithii	38	34	**36.00**	*100*	1				1					**0.22**	***22***
Agropyron spicatum							1	1		0.3				**0.26**	***33***
Aristida longiseta							1	1		1			2	**0.56**	***44***
Carex filifolia		6	**3.00**	*50*	2	14	17	5	3	32	2	1	5	**9.00**	***100***
Carex heliophila								6		4	10		12	**3.56**	***44***
Koeleria cristata		4	**2.00**	*50*		4		2						**0.67**	***22***
Poa sandbergii	14	9	**11.50**	*100*	2	2	0.3	2	2		1	1		**1.14**	***78***
Stipa comata					27	33	16	14	18	16	12	14	16	**18.44**	***100***
TOTAL NPG(C)	**52.0**	**53.0**	**52.50**	***100***	**32.0**	**53.0**	**35.3**	**31.0**	**24.0**	**53.3**	**25.0**	**16.0**	**35.0**	**33.84**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)															
Andropogon scoparius							0.3	1					1	**0.26**	***33***
Bouteloua curtipendula							3			0.3			0.3	**0.40**	***33***
Bouteloua gracilis	16	15	**15.50**	*100*	7	7	1	5	45	22	45	16	3	**16.78**	***100***
Calamovilfa longifolia							0.3	0.3						**0.07**	***22***
Muhlenbergia cuspidata						1								**0.11**	***11***
TOTAL NPG(W)	**16.0**	**15.0**	**15.50**	***100***	**7.0**	**8.0**	**4.6**	**6.3**	**45.0**	**22.3**	**45.0**	**16.0**	**4.3**	**17.61**	***100***
INTRODUCED PERENNIAL GRAMINOIDS															
Agropyron cristatum	18		**9.00**	*50*	18	5		4					1	**3.11**	***44***
Bromus inermis						1								**0.11**	***11***
Poa pratensis								0.3						**0.03**	***11***
TOTAL IPG	**18.0**	**0.0**	**9.00**	***50***	**18.0**	**6.0**	**0.0**	**4.3**	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**3.26**	***44***
NATIVE ANNUAL GRAMINOIDS															
TOTAL NAG	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS															
Bromus japonicus	2	15	**8.50**	*100*	11	8	6	14	20	10	4	60	30	**18.11**	***100***
Bromus tectorum							1		2	3				**0.67**	***33***
TOTAL IAG	**2.0**	**15.0**	**8.50**	***100***	**11.0**	**8.0**	**7.0**	**14.0**	**22.0**	**13.0**	**4.0**	**60.0**	**30.0**	**18.78**	***100***

Table G1
Percent Canopy Cover by Class and Species for Two GRASSLAND Community Types in the *Agropyron smithii* and *Stipa comata* Series, Otter Creek Facilities Baseline Study Area, 2012.

	AGROPYRON SMITHII/ BOUTELOUA GRACILIS				STIPA COMATA/CAREX FILIFOLIA										
	PLOT NUMBER		Mean	*Con-*	PLOT NUMBER									Mean	*Con-*
	744	810	Cover	*stancy*	751	754	798	854	857	858*	861	863	866	Cover	*stancy*
			n=2											n=9	
NATIVE PERENNIAL FORBS AND SUBSHRUBS															
Achillea millefolium		1	**0.50**	*50*											
Ambrosia psilostachya							0.3							**0.03**	***11***
Antennaria parvifolia		1	**0.50**	*50*				3	0.3					**0.37**	***22***
Artemisia dracunculus					8	2	1	2	1	11	2	1	4	**3.56**	***100***
Artemisia frigida	0.3		**0.15**	*50*		1	1	0.3	0.3	1	2			**0.62**	***67***
Artemisia ludoviciana							0.3	1						**0.14**	***22***
Aster falcatus		0.3	**0.15**	*50*							0.3			**0.03**	***11***
Astragalus agrestis												0.3		**0.03**	***11***
Astragalus gilviflorus											0.3			**0.03**	***11***
Astragalus missouriensis							0.3							**0.03**	***11***
Cerastium arvense												1		**0.11**	***11***
Chrysopsis villosa										1			0.3	**0.14**	***22***
Cirsium undulatum					1	0.3				0.3				**0.18**	***33***
Comandra umbellata											0.3			**0.03**	***11***
Dalea candida							0.3							**0.03**	***11***
Echinacea angustifolia						0.3		0.3						**0.07**	***22***
Erigeron pumilus var. pumilus								0.3			0.3			**0.07**	***22***
Evolvulus nuttallianus								0.3						**0.03**	***11***
Gaura coccinea						0.3	0.3	0.3		0.3	0.3	0.3		**0.20**	***67***
Gutierrezia sarothrae		0.3	**0.15**	*50*							0.3			**0.03**	***11***
Haplopappus spinulosus						0.3								**0.03**	***11***
Kuhnia eupatorioides						3								**0.33**	***11***
Liatris punctata						0.3								**0.03**	***11***
Linum lewisii								0.3						**0.03**	***11***
Lithospermum incisum										0.3	0.3	0.3		**0.10**	***33***
Lomatium orientale		0.3	**0.15**	*50*											
Lygodesmia juncea								0.3			0.3		0.3	**0.10**	***33***
Mirabilis linearis		0.3	**0.15**	*50*											
Opuntia fragilis										0.3				**0.03**	***11***
Opuntia polyacantha		0.3	**0.15**	*50*	1	0.3		0.3						**0.18**	***33***
Phlox hoodii						2		5	1	1				**1.00**	***44***
Sphaeralcea coccinea		0.3	**0.15**	*50*		0.3	1	0.3	1		0.3	0.3	0.3	**0.39**	***78***
TOTAL NPF AND SUBSHRUBS	**0.3**	**3.8**	**2.05**	***100***	**10.0**	**10.1**	**4.5**	**13.7**	**3.6**	**15.2**	**6.7**	**3.2**	**4.9**	**7.99**	***100***

Table G1
Percent Canopy Cover by Class and Species for Two GRASSLAND Community Types in the *Agropyron smithii* and *Stipa comata* Series, Otter Creek Facilities Baseline Study Area, 2012.

	AGROPYRON SMITHII/ BOUTELOUA GRACILIS				STIPA COMATA/CAREX FILIFOLIA										
	PLOT NUMBER		Mean	*Con-*	PLOT NUMBER									Mean	*Con-*
	744	810	Cover	*stancy*	751	754	798	854	857	858*	861	863	866	Cover	*stancy*
			n=2											n=9	
INTRODUCED PERENNIAL FORBS															
Taraxacum laevigatum	2	0.3	**1.15**	*100*											
TOTAL IPF	**2.0**	**0.3**	**1.15**	***100***	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
FERNS AND ALLIES															
TOTAL F&A	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS															
Cryptantha celosioides						0.3								**0.03**	***11***
Hedeoma hispidum							0.3			0.3				**0.07**	***22***
Machaeranthera canescens								0.3		0.3				**0.07**	***22***
Plantago patagonica		0.3	**0.15**	*50*			0.3		0.3	1				**0.18**	***33***
TOTAL NAF	**0.0**	**0.3**	**0.15**	***50***	**0.0**	**0.3**	**0.6**	**0.3**	**0.3**	**1.6**	**0.0**	**0.0**	**0.0**	**0.34**	***56***
INTRODUCED ANNUAL/BIENNIAL FORBS															
Alyssum alyssoides		0.3	**0.15**	*50*	0.3	0.3		0.3					0.3	**0.13**	***44***
Alyssum desertorum	0.3		**0.15**	*50*								0.3		**0.03**	***11***
Camelina microcarpa							0.3	0.3	0.3					**0.10**	***33***
Melilotus officinalis													0.3	**0.03**	***11***
Tragopogon dubius		0.3	**0.15**	*50*	0.3									**0.03**	***11***
TOTAL IAF	**0.3**	**0.6**	**0.45**	***100***	**0.6**	**0.3**	**0.3**	**0.6**	**0.3**	**0.0**	**0.0**	**0.3**	**0.6**	**0.33**	***78***
SHRUBS															
Artemisia cana													5	**0.56**	***11***
TOTAL SHRUBS	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**5.0**	**0.56**	***11***
TREES 0.01-acre															
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TREES 0.1-acre															
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TOTAL VEGETATION (Stratified)	**90.6**	**88.0**	**89.30**	***100***	**78.6**	**85.7**	**52.3**	**70.2**	**95.2**	**105.4**	**80.7**	**95.5**	**80.8**	**82.71**	***100***

Footnotes are presented on cover page G-ii.

Table G2
Percent Canopy Cover by Class and Species for Two GRASSLAND Community Types in the *Agropyron spicatum* Series, Otter Creek Facilities Baseline Study Area, 2012.

	AGROPYRON SPICATUM / STIPA COMATA					AGROPYRON SPICATUM / BOUTELOUA CURTIPENDULA					
	PLOT NUMBER			Mean	*Con-*	PLOT NUMBER				Mean	*Con-*
	742	809	871	Cover	*stancy*	820	831	832	846	Cover	*stancy*
				n=3						n=4	
SITE PARAMETERS											
Slope (percent)	29	8-14	12-16			25	38	40-50	30-35		
Aspect (degrees)	010	S	NE			ESE	SSW	S	ENE		
Topography	Mid	Lower	Sho			Upper	Mid	U-M	U-M		
Configuration	S	Und	X			Und	X	Und	Und		
Photo # (Digital)	788,790-1	430	476			439-40	399-400	405-6	387-8		
Investigator	SC	DB/KL	DB/KL			DB/KL	DB/KL	DB/KL	DB/KL		
Date	07/06/12	07/06/12	07/07/12			07/06/12	07/03/12	07/03/12	07/03/12		
GROUND COVER											
Bare Ground	23	36	34	**31.00**	***100***	35	29	30	30	**31.00**	***100***
Rock	16	3	20	**13.00**	***100***	6	21	4	9	**10.00**	***100***
Litter	47	56	39	**47.33**	***100***	50	46	62	54	**53.00**	***100***
Lichens	8	1	3	**4.00**	***100***	4	1		2	**1.75**	***75***
Moss	1	0.3	1	**0.77**	***100***	1				**0.25**	***25***
Basal Vegetation	5	4	3	**4.00**	***100***	4	3	4	5	**4.00**	***100***
VEGETATION STRUCTURE (nonstratified cover)											
Total Vegetation	82	67	60	**69.67**	***100***	60	50	64	65	**59.75**	***100***
Perennial Graminoids	74	55	54	**61.00**	***100***	50	46	45	60	**50.25**	***100***
Annual Graminoids	0.3	16	1	**5.77**	***100***	9	2	25	1	**9.25**	***100***
Perennial Forbs	13	5	11	**9.67**	***100***	4	4	6	6	**5.00**	***100***
Annual/Biennial Forbs	0.3	1	0.3	**0.53**	***100***	0.3	0.3	1		**0.40**	***75***
Shrubs	0.3			**0.10**	***33***	7	6		3	**4.00**	***75***
Trees 0.01-acre											
Trees 0.1-acre									1	**0.25**	***25***

Table G2
Percent Canopy Cover by Class and Species for Two GRASSLAND Community Types in the *Agropyron spicatum* Series, Otter Creek Facilities Baseline Study Area, 2012.

	AGROPYRON SPICATUM / STIPA COMATA					AGROPYRON SPICATUM / BOUTELOUA CURTIPENDULA					
	PLOT NUMBER			Mean	*Con-*	PLOT NUMBER				Mean	*Con-*
	742	809	871	Cover	*stancy*	820	831	832	846	Cover	*stancy*
				n=3						n=4	
CLASS\SPECIES											
NATIVE PERENNIAL GRAMINOIDS (Cool Season)											
Agropyron smithii						9	1		30	**10.00**	***75***
Agropyron spicatum	4	16	22	**14.00**	***100***	15	27	8	4	**13.50**	***100***
Carex filifolia	66	22	14	**34.00**	***100***	8	3	8	2	**5.25**	***100***
Koeleria cristata	3	2	8	**4.33**	***100***	3	2			**1.25**	***50***
Poa sandbergii	1	5		**2.00**	***67***	2		2	16	**5.00**	***75***
Stipa comata	6	10	6	**7.33**	***100***			8		**2.00**	***25***
TOTAL NPG(C)	**80.0**	**55.0**	**50.0**	**61.67**	***100***	**37.0**	**33.0**	**26.0**	**52.0**	**37.00**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)											
Andropogon scoparius			1	**0.33**	***33***		2	2	1	**1.25**	***75***
Bouteloua curtipendula						12	13	12	12	**12.25**	***100***
Bouteloua gracilis	1	8	**8**	**5.67**	***100***	8		10		**4.50**	***50***
Calamovilfa longifolia	0.3	0.3		**0.20**	***67***	1	1		1	**0.75**	***75***
Muhlenbergia cuspidata						2	4		1	**1.75**	***75***
TOTAL NPG(W)	**1.3**	**8.3**	**9.0**	**6.20**	***100***	**23.0**	**20.0**	**24.0**	**15.0**	**20.50**	***100***
INTRODUCED PERENNIAL GRAMINOIDS											
Agropyron cristatum	3			**1.00**	***33***						
TOTAL IPG	**3.0**	**0.0**	**0.0**	**1.00**	***33***	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL GRAMINOIDS											
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS											
Bromus japonicus	0.3	16	1	**5.77**	***100***	9	2	22	1	**8.50**	***100***
Bromus tectorum								5		**1.25**	***25***
TOTAL IAG	**0.3**	**16.0**	**1.0**	**5.77**	***100***	**9.0**	**2.0**	**27.0**	**1.0**	**9.75**	***100***
NATIVE PERENNIAL FORBS AND SUBSHRUBS											
Achillea millefolium									0.3	**0.08**	***25***
Ambrosia psilostachya	0.3	0.3	0.3	**0.30**	***100***			1		**0.25**	***25***
Antennaria microphylla			2	**0.67**	***33***				1	**0.25**	***25***
Antennaria parvifolia	2		1	**1.00**	***67***						
Arnica sororia	0.3			**0.10**	***33***			0.3		**0.08**	***25***
Artemisia frigida	4		1	**1.67**	***67***	1	0.3	1		**0.58**	***75***

Table G2
Percent Canopy Cover by Class and Species for Two GRASSLAND Community Types in the *Agropyron spicatum* Series, Otter Creek Facilities Baseline Study Area, 2012.

	AGROPYRON SPICATUM / STIPA COMATA					AGROPYRON SPICATUM / BOUTELOUA CURTIPENDULA					
	PLOT NUMBER			Mean	*Con-*	PLOT NUMBER				Mean	*Con-*
	742	809	871	Cover	*stancy*	820	831	832	846	Cover	*stancy*
				n=3						n=4	
Artemisia ludoviciana							1			**0.25**	***25***
Aster falcatus	1			**0.33**	***33***				1	**0.25**	***25***
Aster oblongifolius			0.3	**0.10**	***33***						
Astragalus adsurgens		0.3		**0.10**	***33***						
Astragalus lotiflorus		0.3		**0.10**	***33***						
Cerastium arvense									0.3	**0.08**	***25***
Cirsium undulatum	1	2		**1.00**	***67***						
Comandra umbellata						0.3				**0.08**	***25***
Echinacea angustifolia	0.3		0.3	**0.20**	***67***	0.3	0.3		0.3	**0.23**	***75***
Eriogonum flavum							0.3			**0.08**	***25***
Gaura coccinea	0.3	0.3		**0.20**	***67***	0.3	0.3	0.3	0.3	**0.30**	***100***
Gutierrezia sarothrae	3		1	**1.33**	***67***	0.3	0.3		2	**0.65**	***75***
Haplopappus spinulosus			0.3	**0.10**	***33***						
Kuhnia eupatorioides								0.3		**0.08**	***25***
Lithospermum incisum		1		**0.33**	***33***						
Lygodesmia juncea		0.3	0.3	**0.20**	***67***						
Mirabilis linearis								0.3		**0.08**	***25***
Opuntia polyacantha			0.3	**0.10**	***33***						
Oxytropis lambertii							0.3			**0.08**	***25***
Oxytropis sericea									0.3	**0.08**	***25***
Phlox hoodii	1		4	**1.67**	***67***	2	0.3			**0.58**	***50***
Psoralea esculenta			0.3	**0.10**	***33***						
Ratibida columnifera	0.3			**0.10**	***33***						
Senecio canus			1	**0.33**	***33***						
Solidago missouriensis						0.3			0.3	**0.15**	***50***
Sphaeralcea coccinea	0.3			**0.10**	***33***	0.3		1		**0.33**	***50***
Yucca glauca							1	3	1	**1.25**	***75***
TOTAL NPF AND SUBSHRUBS	**13.8**	**4.5**	**12.1**	**10.13**	***100***	**4.8**	**4.1**	**7.2**	**6.8**	**5.73**	***100***
INTRODUCED PERENNIAL FORBS											
Taraxacum laevigatum		1		**0.33**	***33***		0.3			**0.08**	***25***
TOTAL IPF	**0.0**	**1.0**	**0.0**	**0.33**	***33***	**0.0**	**0.3**	**0.0**	**0.0**	**0.08**	***25***
FERNS AND ALLIES											
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0.0***

Table G2
Percent Canopy Cover by Class and Species for Two GRASSLAND Community Types in the *Agropyron spicatum* Series, Otter Creek Facilities Baseline Study Area, 2012.

	AGROPYRON SPICATUM / STIPA COMATA					AGROPYRON SPICATUM / BOUTELOUA CURTIPENDULA					
	PLOT NUMBER			Mean	*Con-*	PLOT NUMBER				Mean	*Con-*
	742	809	871	Cover	*stancy*	820	831	832	846	Cover	*stancy*
				n=3						n=4	
NATIVE ANNUAL/BIENNIAL FORBS											
Hedeoma hispidum	0.3			**0.10**	***33***						
Lappula redowskii								0.3		**0.08**	***25***
Linum rigidum		0.3		**0.10**	***33***	0.3	0.3			**0.15**	***50***
Machaeranthera canescens	0.3			**0.10**	***33***						
Plantago patagonica		0.3		**0.10**	***33***	0.3		0.3		**0.15**	***50***
TOTAL NAF	**0.6**	**0.6**	**0.0**	**0.40**	***67***	**0.6**	**0.3**	**0.6**	**0.0**	**0.38**	***75***
INTRODUCED ANNUAL/BIENNIAL FORBS											
Alyssum alyssoides		0.3	0.3	**0.20**	***67***			0.3		**0.08**	***25***
Filago arvensis								0.3		**0.08**	***25***
Tragopogon dubius		0.3		**0.10**	***33***						
TOTAL IAF	**0.0**	**0.6**	**0.3**	**0.30**	***67***	**0.0**	**0.0**	**0.6**	**0.0**	**0.15**	***25***
SHRUBS											
Artemisia cana	0.3			**0.10**	***33***						
Artemisia tridentata						6	4		1	**2.75**	***75***
Chrysothamnus nauseosus						1				**0.25**	***25***
Rhus aromatica									0.3	**0.08**	***25***
Rosa arkansana						0.3				**0.08**	***25***
Rosa woodsii							2		1	**0.75**	***50***
Symphoricarpos occidentalis									0.3	**0.08**	***25***
TOTAL SHRUBS	**0.3**	**0.0**	**0.0**	**0.10**	***33***	**7.3**	**6.0**	**0.0**	**2.6**	**3.98**	***75***
TREES 0.01-acre											
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TREES 0.1-acre											
Juniperus scopulorum									1	**0.25**	***25***
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**1.0**	**0.25**	***25***
TOTAL VEGETATION (Stratified)	**99.3**	**86.0**	**72.4**	**85.90**	***100***	**81.7**	**65.7**	**85.4**	**77.4**	**77.55**	***100***

Footnotes are presented on cover page G-ii.

Table G3
Percent Canopy Cover by Class and Species for Three GRASSLAND Community Types in the *Andropogon scoparius* Series, Otter Creek Facilities Baseline Study Area, 2012.

	ANDROPOGON SCOPARIUS / CAREX FILIFOLIA				ANDROPOGON SCOPARIUS / BOUTELOUA CURTIPENDULA					ANDROPOGON SCOPARIUS / ANDROPOGON GERARDII			
	PLOT NUMBER		Mean	*Con-*	PLOT NUMBER			Mean	*Con-*	PLOT NUMBER		Mean	*Con-*
	856	867	Cover	*stancy*	803	815	825	Cover	*stancy*	756	833	Cover	*stancy*
			n=2					n=3				n=2	
SITE PARAMETERS													
Slope (percent)	15	16			26	10-14	25-30			32	25-35		
Aspect (degrees)	020	160			175	SW	SSE			N	NE		
Topography	U-M	Sho			Sho	U	M			Toe	M		
Configuration	S	S			X	Und	X			X	Und		
Photo # (Digital)	741-2	726-8			779-80	437-8	452			473	398		
Investigator	SC	SC			SC	DB/KL	DB/KL			DB/KL	DB/KL		
Date	07/03/12	07/02/12			07/06/12	07/06/12	07/06/12			07/07/12	07/03/12		
GROUND COVER													
Bare Ground	52	33	**42.50**	***100***	33	31	24	**29.33**	***100***	26	30	**28.00**	***100***
Rock	7	26	**16.50**	***100***	12	10	20	**14.00**	***100***	6	7	**6.50**	***100***
Litter	32	36	**34.00**	***100***	50	50	52	**50.67**	***100***	52	48	**50.00**	***100***
Lichens	4	0.3	**2.15**	***100***	0.3	4	1	**1.77**	***100***	8	6	**7.00**	***100***
Moss					0.3	1		**0.43**	***67***	3	4	**3.50**	***100***
Basal Vegetation	5	5	**5.00**	***100***	5	4	3	**4.00**	***100***	5	5	**5.00**	***100***
VEGETATION STRUCTURE (nonstratified cover)													
Total Vegetation	55	51	**53.00**	***100***	57	64	58	**59.67**	***100***	78	70	**74.00**	***100***
Perennial Graminoids	41	35	**38.00**	***100***	55	58	34	**49.00**	***100***	70	60	**65.00**	***100***
Annual Graminoids	2	4	**3.00**	***100***	1	3	36	**13.33**	***100***	0.3	2	**1.15**	***100***
Perennial Forbs	17	23	**20.00**	***100***	5	13	4	**7.33**	***100***	13	8	**10.50**	***100***
Annual/Biennial Forbs	0.3	0.3	**0.30**	***100***	0.3	0.3	0.3	**0.30**	***100***		0.3	**0.15**	***50***
Shrubs											12	**6.00**	***50***
Trees 0.01-acre											10	**5.00**	***50***
Trees 0.1-acre											5	**2.50**	***50***

Table G3
Percent Canopy Cover by Class and Species for Three GRASSLAND Community Types in the *Andropogon scoparius* Series, Otter Creek Facilities Baseline Study Area, 2012.

	ANDROPOGON SCOPARIUS / CAREX FILIFOLIA				ANDROPOGON SCOPARIUS / BOUTELOUA CURTIPENDULA					ANDROPOGON SCOPARIUS / ANDROPOGON GERARDII			
	PLOT NUMBER		Mean	*Con-*	PLOT NUMBER			Mean	*Con-*	PLOT NUMBER		Mean	*Con-*
	856	867	Cover	*stancy*	803	815	825	Cover	*stancy*	756	833	Cover	*stancy*
			n=2					n=3				n=2	
CLASS\SPECIES													
NATIVE PERENNIAL GRAMINOIDS (Cool Season)													
Agropyron smithii							5	**1.67**	***33***				
Agropyron spicatum	0.3		**0.15**	***50***	1		5	**2.00**	***67***		28	**14.00**	***50***
Aristida longiseta	1	1	**1.00**	***100***									
Carex filifolia	5	3	**4.00**	***100***	20	10	10	**13.33**	***100***	18	4	**11.00**	***100***
Carex heliophila	16	12	**14.00**	***100***			2	**0.67**	***33***				
Koeleria cristata	3	1	**2.00**	***100***		2		**0.67**	***33***		2	**1.00**	***50***
Poa sandbergii						3		**1.00**	***33***		1	**0.50**	***50***
Stipa comata	4	2	**3.00**	***100***	6	5	7	**6.00**	***100***				
TOTAL NPG(C)	**29.3**	**19.0**	**24.15**	***100***	**27.0**	**20.0**	**29.0**	**25.33**	***100***	**18.0**	**35.0**	**26.50**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)													
Andropogon gerardii										16	25	**20.50**	***100***
Andropogon scoparius	10	18	**14.00**	***100***	3	28	4	**11.67**	***100***	22	3	**12.50**	***100***
Bouteloua curtipendula					21	12	6	**13.00**	***100***	16	4	**10.00**	***100***
Bouteloua gracilis	4	2	**3.00**	***100***	10	3		**4.33**	***67***		2	**1.00**	***50***
Calamovilfa longifolia					0.3	0.3		**0.20**	***67***				
Muhlenbergia cuspidata						2		**0.67**	***33***		1	**0.50**	***50***
TOTAL NPG(W)	**14.0**	**20.0**	**17.00**	***100***	**34.3**	**45.3**	**10.0**	**29.87**	***100***	**54.0**	**35.0**	**44.50**	***100***
INTRODUCED PERENNIAL GRAMINOIDS													
Poa pratensis										6		**3.00**	***50***
TOTAL IPG	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**6.0**	**0.0**	**3.00**	***50***
NATIVE ANNUAL GRAMINOIDS													
TOTAL NAG	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS													
Bromus japonicus	2	4	**3.00**	***100***	1	3	36	**13.33**	***100***	0.3	2	**1.15**	***100***
Bromus tectorum					0.3			**0.10**	***33***				
TOTAL IAG	**2.0**	**4.0**	**3.00**	***100***	**1.3**	**3.0**	**36.0**	**13.43**	***100***	**0.3**	**2.0**	**1.15**	***100***

Table G3
Percent Canopy Cover by Class and Species for Three GRASSLAND Community Types in the *Andropogon scoparius* Series, Otter Creek Facilities Baseline Study Area, 2012.

	ANDROPOGON SCOPARIUS / CAREX FILIFOLIA				ANDROPOGON SCOPARIUS / BOUTELOUA CURTIPENDULA					ANDROPOGON SCOPARIUS / ANDROPOGON GERARDII			
	PLOT NUMBER		Mean	*Con-*	PLOT NUMBER			Mean	*Con-*	PLOT NUMBER		Mean	*Con-*
	856	867	Cover	*stancy*	803	815	825	Cover	*stancy*	756	833	Cover	*stancy*
			n=2					n=3				n=2	
NATIVE PERENNIAL FORBS AND SUBSHRUBS													
Achillea millefolium										0.3	0.3	**0.30**	***100***
Ambrosia psilostachya					0.3	0.3		**0.20**	***67***				
Antennaria microphylla											0.3	**0.15**	***50***
Antennaria parvifolia	5	16	**10.50**	***100***		1		**0.33**	***33***	2		**1.00**	***50***
Artemisia campestris											0.3	**0.15**	***50***
Artemisia dracunculus		1	**0.50**	***50***									
Artemisia frigida	0.3	0.3	**0.30**	***100***	0.3	1		**0.43**	***67***	1	2	**1.50**	***100***
Artemisia ludoviciana							2	**0.67**	***33***	0.3		**0.15**	***50***
Asclepias viridiflora							0.3	**0.10**	***33***				
Aster falcatus	0.3		**0.15**	***50***		1	0.3	**0.43**	***67***	0.3	1	**0.65**	***100***
Aster oblongifolius						4	0.3	**1.43**	***67***				
Astragalus flexuosus										0.3		**0.15**	***50***
Astragalus gilviflorus	0.3	0.3	**0.30**	***100***						1		**0.50**	***50***
Astragalus missouriensis	0.3		**0.15**	***50***	0.3			**0.10**	***33***				
Astragalus spatulatus											1	**0.50**	***50***
Besseya wyomingensis											0.3	**0.15**	***50***
Castilleja sessiliflora						0.3		**0.10**	***33***		0.3	**0.15**	***50***
Cerastium arvense	1		**0.50**	***50***						2	0.3	**1.15**	***100***
Chrysopsis villosa	1	0.3	**0.65**	***100***						0.3	0.3	**0.30**	***100***
Cirsium undulatum	0.3	0.3	**0.30**	***100***	0.3	0.3		**0.20**	***67***	1		**0.50**	***50***
Dalea purpurea						0.3		**0.10**	***33***				
Echinacea angustifolia					0.3	0.3		**0.20**	***67***	0.3		**0.15**	***50***
Erigeron pumilus var. pumilus	0.3		**0.15**	***50***									
Evolvulus nuttallianus	0.3	0.3	**0.30**	***100***	0.3	0.3		**0.20**	***67***				
Gaura coccinea	0.3		**0.15**	***50***	0.3			**0.10**	***33***	0.3		**0.15**	***50***
Gutierrezia sarothrae	1	0.3	**0.65**	***100***	0.3	2		**0.77**	***67***		0.3	**0.15**	***50***
Haplopappus armerioides		0.3	**0.15**	***50***									
Haplopappus spinulosus						0.3		**0.10**	***33***				
Iva axillaris							0.3	**0.10**	***33***				
Kuhnia eupatorioides	0.3		**0.15**	***50***			1	**0.33**	***33***				
Liatris punctata		0.3	**0.15**	***50***		0.3		**0.10**	***33***	0.3		**0.15**	***50***
Lithospermum incisum		0.3	**0.15**	***50***									
Opuntia polyacantha		0.3	**0.15**	***50***			0.3	**0.10**	***33***		0.3	**0.15**	***50***
Oxytropis lambertii										2		**1.00**	***50***
Oxytropis sericea		0.3	**0.15**	***50***							0.3	**0.15**	***50***
Phlox hoodii	6	5	**5.50**	***100***	3	1		**1.33**	***67***	2	2	**2.00**	***100***
Psoralea esculenta						0.3		**0.10**	***33***	0.3		**0.15**	***50***
Senecio canus											0.3	**0.15**	***50***

Table G3
Percent Canopy Cover by Class and Species for Three GRASSLAND Community Types in the *Andropogon scoparius* Series, Otter Creek Facilities Baseline Study Area, 2012.

	ANDROPOGON SCOPARIUS / CAREX FILIFOLIA				ANDROPOGON SCOPARIUS / BOUTELOUA CURTIPENDULA					ANDROPOGON SCOPARIUS / ANDROPOGON GERARDII			
	PLOT NUMBER		Mean	*Con-*	PLOT NUMBER			Mean	*Con-*	PLOT NUMBER		Mean	*Con-*
	856	867	Cover	*stancy*	803	815	825	Cover	*stancy*	756	833	Cover	*stancy*
			n=2					n=3				n=2	
Solidago missouriensis						0.3		**0.10**	***33***		0.3	**0.15**	***50***
Sphaeralcea coccinea	0.3		**0.15**	***50***						0.3		**0.15**	***50***
Vicia americana						0.3		**0.10**	***33***				
TOTAL NPF AND SUBSHRUBS	**17.0**	**25.3**	**21.15**	***100***	**5.4**	**13.3**	**4.5**	**7.73**	***100***	**14.0**	**9.6**	**11.80**	***100***
INTRODUCED PERENNIAL FORBS													
TOTAL IPF	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.00**	***0***
FERNS AND ALLIES													
TOTAL F&A	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS													
Arabis holboellii	0.3		**0.15**	***50***									
Plantago patagonica						0.3		**0.10**	***33***		0.3	**0.15**	***50***
TOTAL NAF	**0.3**	**0.0**	**0.15**	***50***	**0.0**	**0.3**	**0.0**	**0.10**	***33***	**0.0**	**0.3**	**0.15**	***50***
INTRODUCED ANNUAL/BIENNIAL FORBS													
Alyssum alyssoides		0.3	**0.15**	***50***		0.3	0.3	**0.20**	***67***				
Camelina microcarpa	0.3		**0.15**	***50***	0.3			**0.10**	***33***				
Tragopogon dubius							0.3	**0.10**	***33***				
TOTAL IAF	**0.3**	**0.3**	**0.30**	***100***	**0.3**	**0.3**	**0.6**	**0.40**	***100***	**0.0**	**0.0**	**0.00**	***0***
SHRUBS													
Artemisia tridentata											2	**1.00**	***50***
Juniperus horizontalis											8	**4.00**	***50***
Rosa woodsii											2	**1.00**	***50***
TOTAL SHRUBS	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**12.0**	**6.00**	***50***
TREES 0.01-acre													
Juniperus scopulorum											10	**5.00**	***50***
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**10.0**	**5.00**	***50***
TREES 0.1-acre													
Juniperus scopulorum											5	**2.50**	***50***
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**5.0**	**2.50**	***50***
TOTAL VEGETATION (Stratified)	**62.9**	**68.6**	**65.75**	***100***	**68.3**	**82.2**	**80.1**	**76.87**	***100***	**92.3**	**103.9**	**98.10**	***100***

Footnotes are presented on cover page G-ii.

Table G4
Percent Canopy Cover by Class and Species for Two GRASSLAND Community Types in the *Andropogon scoparius* and *Calamovilfa longifolia* Series, Otter Creek Facilities Baseline Study Area, 2012.

	ANDROPOGON SCOPARIUS / CALAMOVILFA LONGIFOLIA				CALAMOVILFA LONGIFOLIA / STIPA COMATA							
	PLOT NUMBER		Mean	*Con-*	PLOT NUMBER						Mean	*Con-*
	813	853	Cover	*stancy*	745	752	758	796	802	870	Cover	*stancy*
			n=2								n=6	
SITE PARAMETERS												
Slope (percent)	28	8-14			18-20	9	12-18	3-7	42	30-40		
Aspect (degrees)	ENE	S			013	NE	E	095	240	S		
Topography	M	U			Upper	M	M	Knob	L-M	L		
Configuration	Und	Und			V	S	X	X	S (Und)	Und		
Photo # (Digital)	444	455-6			11-12	470	477-8	765-7	777-8	475		
Investigator	DB/KL	DB/KL			ED	DB/KL	DB/KL	SC	SC	DB/KL		
Date	07/06/12	07/06/12			07/03/12	07/07/12	07/07/12	07/05/12	07/06/12	07/07/12		
GROUND COVER												
Bare Ground	24	30	**27.00**	***100***	18	31	18	35	8	35	**24.17**	***100***
Rock	28	14	**21.00**	***100***	26	0.3	6	16	42	14	**17.38**	***100***
Litter	40	50	**45.00**	***100***	51	54	69	42	44	48	**51.33**	***100***
Lichens	4	1	**2.50**	***100***	1	8	2	0.3	0.3		**1.93**	***83***
Moss	1	2	**1.50**	***100***		3					**0.50**	***17***
Basal Vegetation	3	3	**3.00**	***100***	4	4	5	7	6	3	**4.83**	***100***
VEGETATION STRUCTURE (nonstratified cover)												
Total Vegetation	66	62	**64.00**	***100***	60	68	74	79	68	51	**66.67**	***100***
Perennial Graminoids	56	54	**55.00**	***100***	55	60	65	60	58	41	**56.50**	***100***
Annual Graminoids	2	2	**2.00**	***100***	1	2	22	8	5	3	**6.83**	***100***
Perennial Forbs	12	12	**12.00**	***100***	11	16	1	7	12	6	**8.83**	***100***
Annual/Biennial Forbs	0.3	0.3	**0.30**	***100***		0.3	0.3	0.3	0.3		**0.20**	***67***
Shrubs	7	4	**5.50**	***100***	1			9	0.3	10	**3.38**	***67***
Trees 0.01-acre												
Trees 0.1-acre												

Table G4
Percent Canopy Cover by Class and Species for Two GRASSLAND Community Types in the *Andropogon scoparius* and *Calamovilfa longifolia* Series, Otter Creek Facilities Baseline Study Area, 2012.

	ANDROPOGON SCOPARIUS / CALAMOVILFA LONGIFOLIA				CALAMOVILFA LONGIFOLIA / STIPA COMATA							
	PLOT NUMBER		Mean	*Con-*	PLOT NUMBER						Mean	*Con-*
	813	853	Cover	*stancy*	745	752	758	796	802	870	Cover	*stancy*
			n=2								n=6	
CLASS\SPECIES												
NATIVE PERENNIAL GRAMINOIDS (Cool Season)												
Agropyron smithii										3	**0.50**	***17***
Agropyron spicatum	8	14	**11.00**	***100***	1			0.3	1		**0.38**	***50***
Aristida longiseta								0.3			**0.05**	***17***
Carex filifolia	8	10	**9.00**	***100***	5	11	20		8	5	**8.17**	***83***
Carex heliophila						8		36			**7.33**	***33***
Koeleria cristata	3	6	**4.50**	***100***		5	4				**1.50**	***33***
Poa sandbergii					1	2	1				**0.67**	***50***
Stipa comata		2	**1.00**	***50***	32	22	35	10	18	6	**20.50**	***100***
TOTAL NPG(C)	**19.0**	**32.0**	**25.50**	***100***	**39.0**	**48.0**	**60.0**	**46.6**	**27.0**	**14.0**	**39.10**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)												
Andropogon scoparius	25	8	**16.50**	***100***				2	1		**0.50**	***33***
Bouteloua curtipendula	12	8	**10.00**	***100***					4	2	**1.00**	***33***
Bouteloua gracilis	5	2	**3.50**	***100***		9		0.3	29	14	**8.72**	***67***
Calamovilfa longifolia	5	5	**5.00**	***100***	6	6	10	19	3	3	**7.83**	***100***
Muhlenbergia cuspidata		6	**3.00**	***50***						2	**0.33**	***17***
TOTAL NPG(W)	**47.0**	**29.0**	**38.00**	***100***	**6.0**	**15.0**	**10.0**	**21.3**	**37.0**	**21.0**	**18.38**	***100***
INTRODUCED PERENNIAL GRAMINOIDS												
Agropyron cristatum					14	3	3			10	**5.00**	***67***
Poa compressa					2						**0.33**	***17***
Poa pratensis					1						**0.17**	***17***
TOTAL IPG	**0.0**	**0.0**	**0.00**	***0***	**17.0**	**3.0**	**3.0**	**0.0**	**0.0**	**10.0**	**5.50**	***67***
NATIVE ANNUAL GRAMINOIDS												
TOTAL NAG	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS												
Bromus japonicus	2	2	**2.00**	***100***	1	2	22	8	3	3	**6.50**	***100***
Bromus tectorum									2		**0.33**	***17***
TOTAL IAG	**2.0**	**2.0**	**2.00**	***100***	**1.0**	**2.0**	**22.0**	**8.0**	**5.0**	**3.0**	**6.83**	***100***

Table G4
Percent Canopy Cover by Class and Species for Two GRASSLAND Community Types in the *Andropogon scoparius* and *Calamovilfa longifolia* Series, Otter Creek Facilities Baseline Study Area, 2012.

	ANDROPOGON SCOPARIUS / CALAMOVILFA LONGIFOLIA				CALAMOVILFA LONGIFOLIA / STIPA COMATA							
	PLOT NUMBER		Mean	*Con-*	PLOT NUMBER						Mean	*Con-*
	813	853	Cover	*stancy*	745	752	758	796	802	870	Cover	*stancy*
			n=2								n=6	
NATIVE PERENNIAL FORBS AND SUBSHRUBS												
Achillea millefolium	0.3		**0.15**	***50***								
Ambrosia psilostachya									2		**0.33**	***17***
Antennaria parvifolia	2		**1.00**	***50***	1						**0.17**	***17***
Apocynum cannabinum					0.3						**0.05**	***17***
Artemisia campestris	0.3		**0.15**	***50***								
Artemisia dracunculus						13		6			**3.17**	***33***
Artemisia frigida	1	3	**2.00**	***100***	1		0.3	0.3	2	1	**0.77**	***83***
Artemisia ludoviciana					1			1			**0.33**	***33***
Aster oblongifolius	0.3	0.3	**0.30**	***100***								
Astragalus adsurgens		0.3	**0.15**	***50***								
Astragalus gilviflorus	0.3	1	**0.65**	***100***	3						**0.50**	***17***
Cerastium arvense	1		**0.50**	***50***								
Chrysopsis villosa	1	1	**1.00**	***100***	0.3						**0.05**	***17***
Cirsium undulatum		0.3	**0.15**	***50***	0.3						**0.05**	***17***
Dalea purpurea	0.3		**0.15**	***50***								
Echinacea angustifolia	0.3	1	**0.65**	***100***	0.3						**0.05**	***17***
Gaura coccinea					0.3					0.3	**0.10**	***33***
Glycyrrhiza lepidota										1	**0.17**	***17***
Gutierrezia sarothrae	1		**0.50**	***50***						0.3	**0.05**	***17***
Haplopappus spinulosus										0.3	**0.05**	***17***
Kuhnia eupatorioides						0.3	0.3				**0.10**	***33***
Liatris punctata							0.3				**0.05**	***17***
Lygodesmia juncea										2	**0.33**	***17***
Machaeranthera grindelioides		0.3	**0.15**	***50***								
Opuntia polyacantha	0.3		**0.15**	***50***		1	0.3				**0.22**	***33***
Oxytropis lambertii	0.3		**0.15**	***50***								
Oxytropis sericea		0.3	**0.15**	***50***								
Phlox hoodii	4	2	**3.00**	***100***	3	2					**0.83**	***33***
Psoralea esculenta	0.3		**0.15**	***50***		0.3					**0.05**	***17***
Solidago missouriensis	0.3	0.3	**0.30**	***100***								
Sphaeralcea coccinea					0.3			0.3	0.3	1	**0.32**	***67***
Yucca glauca		3	**1.50**	***50***					8		**1.33**	***17***
TOTAL NPF AND SUBSHRUBS	**13.0**	**12.8**	**12.90**	***100***	**10.8**	**16.6**	**1.2**	**7.6**	**12.3**	**5.9**	**9.07**	***100***

Table G4
Percent Canopy Cover by Class and Species for Two GRASSLAND Community Types in the *Andropogon scoparius* and *Calamovilfa longifolia* Series, Otter Creek Facilities Baseline Study Area, 2012.

	ANDROPOGON SCOPARIUS / CALAMOVILFA LONGIFOLIA				CALAMOVILFA LONGIFOLIA / STIPA COMATA							
	PLOT NUMBER		Mean	*Con-*	PLOT NUMBER						Mean	*Con-*
	813	853	Cover	*stancy*	745	752	758	796	802	870	Cover	*stancy*
			n=2								n=6	
INTRODUCED PERENNIAL FORBS												
Medicago sativa					0.3						**0.05**	***17***
TOTAL IPF	**0.0**	**0.0**	**0.00**	***0***	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.05**	***17***
FERNS AND ALLIES												
TOTAL F&A	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS												
Grindelia squarrosa		0.3	**0.15**	***50***								
Plantago patagonica	0.3		**0.15**	***50***		0.3		0.3			**0.10**	***33***
TOTAL NAF	**0.3**	**0.3**	**0.30**	***100***	**0.0**	**0.3**	**0.0**	**0.3**	**0.0**	**0.0**	**0.10**	***33***
INTRODUCED ANNUAL/BIENNIAL FORBS												
Alyssum alyssoides	0.3	0.3	**0.30**	***100***								
Alyssum desertorum							0.3				**0.05**	***17***
Camelina microcarpa								0.3	0.3		**0.10**	***33***
TOTAL IAF	**0.3**	**0.3**	**0.30**	***100***	**0.0**	**0.0**	**0.3**	**0.3**	**0.3**	**0.0**	**0.15**	***50***
SHRUBS												
Artemisia cana										10	**1.67**	***17***
Artemisia tridentata	2	3	**2.50**	***100***								
Juniperus horizontalis	4		**2.00**	***50***								
Rhus aromatica								9	0.3		**1.55**	***33***
Rosa arkansana	1		**0.50**	***50***	0.3						**0.05**	***17***
Rosa woodsii		1	**0.50**	***50***	0.3						**0.05**	***17***
TOTAL SHRUBS	**7.0**	**4.0**	**5.50**	***100***	**0.6**	**0.0**	**0.0**	**9.0**	**0.3**	**10.0**	**3.32**	***67***
TREES 0.01-acre												
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TREES 0.1-acre												
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TOTAL VEGETATION (Stratified)	**88.6**	**80.4**	**84.50**	***100***	**74.7**	**84.9**	**96.5**	**93.1**	**81.9**	**63.9**	**82.50**	***100***

Footnotes are presented on cover page G-ii.

Table G5

Percent Canopy Cover by Class and Species for the HAY CROPLAND TAME PASTURE Type, Otter Creek Facilities Baseline Study Area, 2012.

	HAY CROPLAND - FARMED																
	PLOT NUMBER																
	704	705	706	707	708	709	711	712	713	714	715	716	717	718	719	720	721
SITE PARAMETERS																	
Slope (percent)	1	1-2	0-1	0-1	0	0-1	0-1	1-2	1-2	1-2	0	0-2	1-2	2-3	0	0-1	3-5
Aspect (degrees)	000	000	000	000	000	000	000	345	000	000	000	332	000	076	000	000	110
Topography	Ter	Ter	Ter	Ter	Ter	Ter	Ter	Ter	Ben	Ter	Ter	Ter	Ter	Ter	Ter	Ter	Ter
Configuration	S	S	S	S	S	S(V)	S	S	S	S	S	S	S	Und.	S	S	S
Photo # (Digital)	598	599	805-6	785	808-9	795-6	810	7	792	8	811-2	10	9	3-4	542	543	544
Investigator	KS/ED	KS/ED	SC	SC	SC	SC	SC	ED	SC	ED	SC	ED	ED	ED	KS	KS	KS/ED
Date	07/07/12	07/07/12	07/07/12	07/06/12	07/07/12	07/07/12	07/07/12	07/03/12	07/06/12	07/03/12	07/07/12	07/03/12	07/03/12	07/02/12	07/02/12	07/02/12	07/02/12
GROUND COVER																	
Bare Ground	4	5	3	4	34	5	20	38	12	36	5	18	42	42	34	58	25
Rock								0.3						0.3		0.3	0.3
Litter	91	90	93	89	61	89	74	58	83	60	90	78	54	54	62	38	70
Lichens					0.3		0.3		0.3				0.3				
Moss				2													
Basal Vegetation	5	5	4	5	5	6	6	4	5	4	5	4	4	4	4	4	5
VEGETATION STRUCTURE (nonstratified cover)																	
Total Vegetation	86	84	69	80	68	99	80	80	85	90	98	92	86	75	78	70	86
Perennial Graminoids	86	83	69	80	64	90	80	78	85	84	98	86	80	74	75	62	80
Annual Graminoids				0.3					0.3								
Perennial Forbs	3		0.3	0.3	6		0.3	12	1	24		22	18	4	7	10	18
Annual/Biennial Forbs		4	0.3	1	0.3	22		0.3	0.3	0.3		2			0.3		0.3
Shrubs									0.3								
Trees 0.01-acre																	
Trees 0.1-acre																	

Table G5

Percent Canopy Cover by Class and Species for the HAY CROPLAND TAME PASTURE Type, Otter Creek Facilities Baseline Study Area, 2012.

	HAY CROPLAND - FARMED																
	PLOT NUMBER																
	704	705	706	707	708	709	711	712	713	714	715	716	717	718	719	720	721
CLASS\SPECIES																	
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																	
Agropyron smithii				3													
Hordeum jubatum																	
TOTAL NPG(C)	**0.0**	**0.0**	**0.0**	**3.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																	
Spartina pectinata																	
TOTAL NPG(W)	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
INTRODUCED PERENNIAL GRAMINOIDS																	
Agropyron cristatum	64	44		60	55	65	74	26	85	58	30	72	78	74	34	62	80
Agropyron elongatum																	
Agropyron intermedium				25													
Agropyron repens	38	54	65		17	35	12	60		32	20	26	5		3		
Bromus inermis			4					3		3	70				62		
Elymus junceus																	
Festuca arundinacea																	
Poa bulbosa																	
Poa pratensis																	
TOTAL IPG	**102.0**	**98.0**	**69.0**	**85.0**	**72.0**	**100.0**	**86.0**	**89.0**	**85.0**	**93.0**	**120.0**	**98.0**	**83.0**	**74.0**	**99.0**	**62.0**	**80.0**
NATIVE ANNUAL GRAMINOIDS																	
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
INTRODUCED ANNUAL GRAMINOIDS																	
Bromus japonicus				0.3					0.3								
TOTAL IAG	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE PERENNIAL FORBS AND SUBSHRUBS																	
Aster falcatus								2							0.3		
Cerastium arvense									1								
Evolvulus nuttallianus				0.3													
Gaura coccinea																	
Kuhnia eupatorioides																	
Sphaeralcea coccinea														0.3			
Typha latifolia																	
TOTAL NPF AND SUBSHRUBS	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**2.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.3**	**0.0**	**0.0**

Table G5

Percent Canopy Cover by Class and Species for the HAY CROPLAND TAME PASTURE Type, Otter Creek Facilities Baseline Study Area, 2012.

	HAY CROPLAND - FARMED																
	PLOT NUMBER																
	704	705	706	707	708	709	711	712	713	714	715	716	717	718	719	720	721
INTRODUCED PERENNIAL FORBS																	
Cirsium arvense																	
Convolvulus arvensis			0.3														
Medicago sativa	3				6		0.3	10		24		22	18	4	7	10	18
Rumex crispus																	
TOTAL IPF	**3.0**	**0.0**	**0.3**	**0.0**	**6.0**	**0.0**	**0.3**	**10.0**	**0.0**	**24.0**	**0.0**	**22.0**	**18.0**	**4.0**	**7.0**	**10.0**	**18.0**
FERNS AND ALLIES																	
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS																	
Iva xanthifolia																	
Plantago patagonica					0.3				0.3								
Polygonum arenastrum																	
TOTAL NAF	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
INTRODUCED ANNUAL/BIENNIAL FORBS																	
Alyssum alyssoides										0.3		2			0.3		0.3
Atriplex heterosperma		4	0.3	1		22											
Camelina microcarpa									0.3						0.3		
Descurainia sophia																	0.3
Kochia scoparia																	
Lepidium perfoliatum		0.3						0.3									
Melilotus officinalis								0.3									
Thlaspi arvense																	
Tragopogon dubius																	0.3
TOTAL IAF	**0.0**	**4.3**	**0.3**	**1.0**	**0.0**	**22.0**	**0.0**	**0.6**	**0.3**	**0.3**	**0.0**	**2.0**	**0.0**	**0.0**	**0.6**	**0.0**	**0.9**
SHRUBS																	
Atriplex nuttallii									0.3								
TOTAL SHRUBS	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TREES 0.01-acre																	
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TREES 0.1-acre																	
Acer negundo																	
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TOTAL VEGETATION (Stratified)	**105.0**	**102.3**	**69.6**	**89.6**	**78.3**	**122.0**	**86.3**	**101.6**	**87.2**	**117.3**	**120.0**	**122.0**	**101.0**	**78.3**	**106.9**	**72.0**	**98.9**

Footnotes are presented on cover page G-ii.

Table G5

Percent Canopy Cover by Class and Species for the HAY CROPLAND TAME PASTURE Type, Otter Creek Facilities Baseline Study Area, 2012.

	HAY CROPLAND - FARMED																
	PLOT NUMBER																
	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738
SITE PARAMETERS																	
Slope (percent)	0-1	0-1	1-2	0-1	0	3-4	1-3	0-2	2-3	0-1	3-4	1	1-2	1-2	1-3	0-1	1-2
Aspect (degrees)	000	000	000	000	000	264	090	000	120	000	248	000	190	000	000	000	000
Topography	Ter	Ter	Ter	Ter	Ter	Ter	Ter	Ter	Low Ben	Ter	Ter	Ter	Ter	Ter	Ter	Ter	Ter
Configuration	S	S	S	S	S	X	S	S	V (S)	S	Und	S	S	S	S	S	S
Photo # (Digital)	548	538	1-2	546	539	15	590	589	572	586	14	580	13	571	577	604	608
Investigator	KS/ED	KS/ED	ED	KS	KS	ED	KS/ED	KS/ED	KS	KS/ED	ED	KS/ED	ED	KS	KS	KS/ED	KS/ED
Date	07/03/12	07/02/12	07/02/12	07/03/12	07/02/12	07/06/12	07/06/12	07/06/12	07/06/12	07/06/12	07/06/12	07/06/12	07/06/12	07/06/12	07/06/12	07/07/12	07/07/12
GROUND COVER																	
Bare Ground	12	38	56	36	40	5	6	3	35	2	15	13	39	13	8	2	36
Rock		3		0.3	0.3												0.3
Litter	83	55	40	60	56	90	89	92	58	94	77	82	49	82	87	93	60
Lichens		0.3							2		3	0.3	6				
Moss											0.3		1	0.3			
Basal Vegetation	5	4	4	4	4	5	5	5	5	4	5	5	5	5	5	5	4
VEGETATION STRUCTURE (nonstratified cover)																	
Total Vegetation	86	74	74	88	82	80	84	86	90	88	92	86	88	96	84	94	85
Perennial Graminoids	86	70	74	88	82	80	78	86	90	88	92	86	88	96	84	92	85
Annual Graminoids	1																
Perennial Forbs		8	0.3	1		0.3	24		0.3		0.3				3	0.3	
Annual/Biennial Forbs	0.3						0.3					0.3	0.3			16	
Shrubs																	
Trees 0.01-acre																	
Trees 0.1-acre																	

Table G5

Percent Canopy Cover by Class and Species for the HAY CROPLAND TAME PASTURE Type, Otter Creek Facilities Baseline Study Area, 2012.

	HAY CROPLAND - FARMED																
	PLOT NUMBER																
	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738
CLASS\SPECIES																	
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																	
Agropyron smithii				0.3		3					42	34	28	42			
Hordeum jubatum																4	
TOTAL NPG(C)	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**3.0**	**0.0**	**0.0**	**0.0**	**0.0**	**42.0**	**34.0**	**28.0**	**42.0**	**0.0**	**4.0**	**0.0**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																	
Spartina pectinata																2	
TOTAL NPG(W)	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**2.0**	**0.0**
INTRODUCED PERENNIAL GRAMINOIDS																	
Agropyron cristatum	16	70	4	38	54	80	52	8	90		76	70	74	72	68		85
Agropyron elongatum													1	1		80	
Agropyron intermedium																	
Agropyron repens	68		72		6			54		88		6	1			22	
Bromus inermis	26		2	68	58		48	46		0.3		1		16	22	4	
Elymus junceus																	
Festuca arundinacea																	
Poa bulbosa									0.3								
Poa pratensis																2	
TOTAL IPG	**110.0**	**70.0**	**78.0**	**106.0**	**118.0**	**80.0**	**100.0**	**108.0**	**90.3**	**88.3**	**76.0**	**77.0**	**76.0**	**89.0**	**90.0**	**108.0**	**85.0**
NATIVE ANNUAL GRAMINOIDS																	
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
INTRODUCED ANNUAL GRAMINOIDS																	
Bromus japonicus	1																
TOTAL IAG	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE PERENNIAL FORBS AND SUBSHRUBS																	
Aster falcatus						0.3											
Cerastium arvense																	
Evolvulus nuttallianus																	
Gaura coccinea		0.3															
Kuhnia eupatorioides																	
Sphaeralcea coccinea									0.3								
Typha latifolia																	
TOTAL NPF AND SUBSHRUBS	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Table G5

Percent Canopy Cover by Class and Species for the HAY CROPLAND TAME PASTURE Type, Otter Creek Facilities Baseline Study Area, 2012.

	HAY CROPLAND - FARMED																
	PLOT NUMBER																
	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738
INTRODUCED PERENNIAL FORBS																	
Cirsium arvense																	
Convolvulus arvensis							16										
Medicago sativa		8	0.3	1			10				0.3				1		
Rumex crispus															2	0.3	
TOTAL IPF	**0.0**	**8.0**	**0.3**	**1.0**	**0.0**	**0.0**	**26.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**3.0**	**0.3**	**0.0**
FERNS AND ALLIES																	
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS																	
Iva xanthifolia																	
Plantago patagonica																	
Polygonum arenastrum																	
TOTAL NAF	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
INTRODUCED ANNUAL/BIENNIAL FORBS																	
Alyssum alyssoides	0.3																
Atriplex heterosperma													0.3			16	
Camelina microcarpa																	
Descurainia sophia																	
Kochia scoparia													0.3				
Lepidium perfoliatum																	
Melilotus officinalis																	
Thlaspi arvense							0.3										
Tragopogon dubius												0.3					
TOTAL IAF	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.6**	**0.0**	**0.0**	**16.0**	**0.0**
SHRUBS																	
Atriplex nuttallii																	
TOTAL SHRUBS	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TREES 0.01-acre																	
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TREES 0.1-acre																	
Acer negundo																	
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TOTAL VEGETATION (Stratified)	**111.3**	**78.3**	**78.3**	**107.3**	**118.0**	**83.3**	**126.3**	**108.0**	**90.6**	**88.3**	**118.3**	**111.3**	**104.6**	**131.0**	**93.0**	**130.3**	**85.0**

Footnotes are presented on cover page G-ii.

Table G5

Percent Canopy Cover by Class and Species for the HAY CROPLAND TAME PASTURE Type, Otter Creek Facilities Baseline Study Area, 2012.

	HAY CROPLAND - FARMED								
	PLOT NUMBER							Mean	*Con-*
	739	740	748	761	768	786	788	Cover	*stancy*
								n=41	
SITE PARAMETERS									
Slope (percent)	2-3	3	0-3	2	0	2	0-1		
Aspect (degrees)	000	215	000	094	000	280	000		
Topography	Ter	Ter	Ter	Bot	Old Oxbov	Bot	Ter		
Configuration	Und	S (V)	X	S (V)	V (S)	V	S (V)		
Photo # (Digital)	16-17	611	591	582-3	803-5	575-6	605		
Investigator	KS/ED	KS/ED	KS	KS/ED	SC	KS/ED	KS/ED		
Date	07/07/12	07/07/12	07/06/12	07/06/12	07/07/12	07/06/12	07/07/12		
GROUND COVER									
Bare Ground	20	26	14	1	16	25		**20.63**	***98***
Rock								**0.12**	***20***
Litter	75	70	82	94	84	70	94	**74.39**	***100***
Lichens								**0.31**	***22***
Moss								**0.09**	***10***
Basal Vegetation	5	4	4	5	0.3	5	6	**4.57**	***100***
VEGETATION STRUCTURE (nonstratified cover)									
Total Vegetation	90	78	86	94	5	88	98	**82.98**	***100***
Perennial Graminoids	84	78	84	94	5	78	98	**80.98**	***100***
Annual Graminoids								**0.04**	***7***
Perennial Forbs	52	0.3	12	0.3		0.3		**5.57**	***68***
Annual/Biennial Forbs	4				0.3	20		**1.77**	***46***
Shrubs								**0.01**	***2***
Trees 0.01-acre									
Trees 0.1-acre						2		**0.05**	***2***

Table G5

Percent Canopy Cover by Class and Species for the HAY CROPLAND TAME PASTURE Type, Otter Creek Facilities Baseline Study Area, 2012.

	HAY CROPLAND - FARMED								
	PLOT NUMBER							Mean	*Con-*
	739	740	748	761	768	786	788	Cover	*stancy*
								n=41	
CLASS\SPECIES									
NATIVE PERENNIAL GRAMINOIDS (Cool Season)									
Agropyron smithii						10		**3.96**	***20***
Hordeum jubatum						0.3		**0.10**	***5***
TOTAL NPG(C)	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**10.3**	**0.0**	**4.06**	***22***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)									
Spartina pectinata						1		**0.07**	***5***
TOTAL NPG(W)	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**0.0**	**0.07**	***5***
INTRODUCED PERENNIAL GRAMINOIDS									
Agropyron cristatum	50		84			0.3		**47.62**	***83***
Agropyron elongatum	42						98	**5.41**	***12***
Agropyron intermedium								**0.61**	***2***
Agropyron repens					5			**16.80**	***51***
Bromus inermis		78		94		18		**15.20**	***46***
Elymus junceus	5							**0.12**	***2***
Festuca arundinacea						14		**0.34**	***2***
Poa bulbosa								**0.01**	***2***
Poa pratensis						54	1	**1.39**	***7***
TOTAL IPG	**97.0**	**78.0**	**84.0**	**94.0**	**5.0**	**86.3**	**99.0**	**87.51**	***100***
NATIVE ANNUAL GRAMINOIDS									
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS									
Bromus japonicus								**0.04**	***7***
TOTAL IAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.04**	***7***
NATIVE PERENNIAL FORBS AND SUBSHRUBS									
Aster falcatus								**0.06**	***7***
Cerastium arvense								**0.02**	***2***
Evolvulus nuttallianus								**0.01**	***2***
Gaura coccinea								**0.01**	***2***
Kuhnia eupatorioides		0.3						**0.01**	***2***
Sphaeralcea coccinea								**0.01**	***5***
Typha latifolia						0.3		**0.01**	***2***
TOTAL NPF AND SUBSHRUBS	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.13**	***24***

Table G5

Percent Canopy Cover by Class and Species for the HAY CROPLAND TAME PASTURE Type, Otter Creek Facilities Baseline Study Area, 2012.

	HAY CROPLAND - FARMED								
	PLOT NUMBER							Mean	*Con-*
	739	740	748	761	768	786	788	Cover	*stancy*
								n=41	
INTRODUCED PERENNIAL FORBS									
Cirsium arvense	1			0.3				**0.03**	***5***
Convolvulus arvensis			12					**0.69**	***7***
Medicago sativa	52	0.3						**4.76**	***46***
Rumex crispus								**0.06**	***5***
TOTAL IPF	**53.0**	**0.3**	**12.0**	**0.3**	**0.0**	**0.0**	**0.0**	**5.54**	***56***
FERNS AND ALLIES									
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS									
Iva xanthifolia						1		**0.02**	***2***
Plantago patagonica								**0.01**	***5***
Polygonum arenastrum						0.3		**0.01**	***2***
TOTAL NAF	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.3**	**0.0**	**0.05**	***7***
INTRODUCED ANNUAL/BIENNIAL FORBS									
Alyssum alyssoides								**0.08**	***12***
Atriplex heterosperma	4				0.3	6		**1.31**	***22***
Camelina microcarpa								**0.01**	***5***
Descurainia sophia								**0.01**	***2***
Kochia scoparia	0.3							**0.01**	***5***
Lepidium perfoliatum								**0.01**	***5***
Melilotus officinalis								**0.01**	***2***
Thlaspi arvense						15		**0.37**	***5***
Tragopogon dubius								**0.01**	***5***
TOTAL IAF	**4.3**	**0.0**	**0.0**	**0.0**	**0.3**	**21.0**	**0.0**	**1.84**	***44***
SHRUBS									
Atriplex nuttallii								**0.01**	***2***
TOTAL SHRUBS	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.01**	***2***
TREES 0.01-acre									
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TREES 0.1-acre									
Acer negundo						2		**0.05**	***2***
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**2.0**	**0.0**	**0.05**	***2***
TOTAL VEGETATION (Stratified)	**154.3**	**78.6**	**96.0**	**94.3**	**5.3**	**120.2**	**99.0**	**99.25**	***100***

Footnotes are presented on cover page G-ii.

Table G6

Percent Canopy Cover by Class and Species for the PASTURELAND TAME PASTURE Type, Otter Creek Facilities Baseline Study Area, 2012.

	PASTURELAND - GRAZED / GO-BACK																	
	PLOT NUMBER																	
	741	743	746	747	749	753	757	759	760	792*	793	795	797	799*	801	806	807	834
SITE PARAMETERS																		
Slope (percent)	1-2	12	12-18	7-8	4-5	4	3-6	5	1-2	2	0-1	4-5	2	0-1	0	10	4-6	6
Aspect (degrees)	150	060	270	288	042	NNE	S	E	000	360	000	234	180	000	000	NE	106	ESE
Topography	Ben	Mid	Mid	Mid	Low	Low	Low Ben	Ben	Ben	Low Ben	Ter	Ter	Mid Ben	Ter	Ter	Swa-Bot	Swa-Bot	Swa-Bot
Configuration	X	S (V)	Und	V	S	S	V	S	S (V)	S	S	S (V)	S (V)	S	S	V	V	V
Photo # (Digital)	801-2	793-4	553	5-6	592	468	474	479	612	762-3	760-1	562	768-9	776	774-5	813-4	554	401-2
Investigator	SC	SC	KS	ED	KS/ED	DB/KL	DB/KL	DB/KL	KS/ED	SC	SC	KS/ED	SC	SC	SC	SC	KS	DB/KL
Date	07/07/12	07/06/12	07/03/12	07/03/12	07/06/12	07/07/12	07/07/12	07/07/12	07/07/12	07/05/12	07/05/12	07/05/12	07/05/12	07/06/12	07/05/12	07/07/12	07/03/12	07/03/12
GROUND COVER																		
Bare Ground	12	89	1	18	20	18	22	20	4	12	16	28	12	34	36	4	0.3	28
Rock		3	0.3	0.3	0.3	0.3	16			0.3			0.3	0.3	0.3	0.3		1
Litter	80	6	94	78	75	78	60	75	92	83	76	67	82	51	58	90	95	66
Lichens	3	0.3			0.3	0.3	0.3				0.3		0.3	10	0.3	0.3		
Moss	0.3													0.3				
Basal Vegetation	5	2	5	4	5	4	2	5	4	5	8	5	5	5	5	6	5	5
VEGETATION STRUCTURE (nonstratified cover)																		
Total Vegetation	82	29	56	81	84	66	40	80	86	86	78	90	85	80	85	84	92	73
Perennial Graminoids	70	29	56	80	80	65	28	65	80	86	72	82	73	78	85	84	88	70
Annual Graminoids					3		17		8	0.3	2	5	21	2	0.3			2
Perennial Forbs	2	1		2	4	0.3	1	0.3		0.3	0.3	1	19	0.3	0.3		25	4
Annual/Biennial Forbs	0.3			0.3	0.3	0.3	0.3			0.3	0.3	2	0.3	3	0.3			0.3
Shrubs	17	0.3	0.3		5	4		35	22		12	42				2	2	
Trees 0.01-acre																		
Trees 0.1-acre																		

Table G6

Percent Canopy Cover by Class and Species for the PASTURELAND TAME PASTURE Type, Otter Creek Facilities Baseline Study Area, 2012.

	PASTURELAND - GRAZED / GO-BACK																	
	PLOT NUMBER																	
	741	743	746	747	749	753	757	759	760	792*	793	795	797	799*	801	806	807	834
CLASS\SPECIES																		
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																		
Agropyron smithii				5	22						0.3							6
Aristida longiseta																		
Carex filifolia																		
Carex heliophila																		
Hordeum jubatum												0.3						
Poa sandbergii					4	1					1	2						
Stipa comata						2		3		0.3	3	1	14	0.3	0.3			
Stipa viridula					16	0.3	1											
TOTAL NPG(C)	**0.0**	**0.0**	**0.0**	**5.0**	**42.0**	**3.3**	**1.0**	**3.0**	**0.0**	**0.3**	**4.3**	**3.3**	**14.0**	**0.3**	**0.3**	**0.0**	**0.0**	**6.0**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																		
Bouteloua gracilis	4				2		3	2		0.3	1	14	0.3					
Buchloe dactyloides												1						
Distichlis stricta		3	2															
Sporobolus cryptandrus					2													
TOTAL NPG(W)	**4.0**	**3.0**	**2.0**	**0.0**	**4.0**	**0.0**	**3.0**	**2.0**	**0.0**	**0.3**	**1.0**	**15.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
INTRODUCED PERENNIAL GRAMINOIDS																		
Agropyron cristatum	68	26	55	77	54	63	25	63	72	86	70	62	65	78	85	84	28	50
Agropyron intermedium												1						
Agropyron repens																	2	
Bromus inermis									16			1				1	76	4
Elymus junceus																		
Phleum pratense																	1	
Poa pratensis												20					4	20
TOTAL IPG	**68.0**	**26.0**	**55.0**	**77.0**	**54.0**	**63.0**	**25.0**	**63.0**	**88.0**	**86.0**	**70.0**	**84.0**	**65.0**	**78.0**	**85.0**	**85.0**	**111.0**	**74.0**
NATIVE ANNUAL GRAMINOIDS																		
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
INTRODUCED ANNUAL GRAMINOIDS																		
Bromus japonicus					3		17		8	0.3	2	5	21	2	0.3			2
Bromus tectorum																		
TOTAL IAG	**0.0**	**0.0**	**0.0**	**0.0**	**3.0**	**0.0**	**17.0**	**0.0**	**8.0**	**0.3**	**2.0**	**5.0**	**21.0**	**2.0**	**0.3**	**0.0**	**0.0**	**2.0**

Table G6

Percent Canopy Cover by Class and Species for the PASTURELAND TAME PASTURE Type, Otter Creek Facilities Baseline Study Area, 2012.

	PASTURELAND - GRAZED / GO-BACK																	
	PLOT NUMBER																	
	741	743	746	747	749	753	757	759	760	792*	793	795	797	799*	801	806	807	834
NATIVE PERENNIAL FORBS AND SUBSHRUBS																		
Achillea millefolium					0.3													
Artemisia dracunculus													18					
Artemisia frigida								0.3										
Aster falcatus																	14	
Cerastium arvense																		1
Evolvulus nuttallianus																		
Gaura coccinea	0.3			1		0.3							0.3	0.3	0.3			
Gutierrezia sarothrae		1																
Haplopappus spinulosus							0.3											
Lygodesmia juncea				1									0.3					
Opuntia fragilis	0.3														0.3			
Opuntia polyacantha	0.3				0.3		0.3				0.3							
Phlox hoodii	1																	
Solidago mollis						0.3											1	
Sphaeralcea coccinea	0.3	0.3		0.3	0.3	0.3	0.3			0.3	0.3	0.3	0.3					
Vicia americana												0.3						
TOTAL NPF AND SUBSHRUBS	**2.2**	**1.3**	**0.0**	**2.3**	**0.9**	**0.9**	**0.9**	**0.3**	**0.0**	**0.3**	**0.6**	**0.6**	**18.9**	**0.3**	**0.6**	**0.0**	**15.0**	**1.0**
INTRODUCED PERENNIAL FORBS																		
Medicago sativa					1												12	
Taraxacum laevigatum					2							1						3
TOTAL IPF	**0.0**	**0.0**	**0.0**	**0.0**	**3.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**12.0**	**3.0**
FERNS AND ALLIES																		
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS																		
Androsace occidentalis																		
Chenopodium leptophyllum																		
Lappula redowskii												0.3						
Orthocarpus luteus																		
Plantago patagonica											0.3		0.3	0.3				
TOTAL NAF	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.3**	**0.3**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**

Table G6

Percent Canopy Cover by Class and Species for the PASTURELAND TAME PASTURE Type, Otter Creek Facilities Baseline Study Area, 2012.

	PASTURELAND - GRAZED / GO-BACK																	
	PLOT NUMBER																	
	741	743	746	747	749	753	757	759	760	792*	793	795	797	799*	801	806	807	834
INTRODUCED ANNUAL/BIENNIAL FORBS																		
Alyssum alyssoides				0.3		0.3	0.3											0.3
Alyssum desertorum					0.3							0.3						
Camelina microcarpa										0.3	0.3	0.3						
Chenopodium album																		
Descurainia sophia																		0.3
Filago arvensis					0.3									3				
Lactuca serriola																		
Melilotus officinalis																		
Sisymbrium loeselii																		
Thlaspi arvense												0.3						0.3
Tragopogon dubius	0.3					0.3						0.3			0.3			
TOTAL IAF	**0.3**	**0.0**	**0.0**	**0.3**	**0.6**	**0.6**	**0.3**	**0.0**	**0.0**	**0.3**	**0.3**	**1.2**	**0.0**	**3.0**	**0.3**	**0.0**	**0.0**	**0.9**
SHRUBS																		
Artemisia cana					5	4		35	22		12	42				2		
Atriplex nuttallii	2	0.3																
Ceratoides lanata	15																	
Chrysothamnus nauseosus			0.3															
Rhus aromatica																		
Rosa woodsii																	2	
TOTAL SHRUBS	**17.0**	**0.3**	**0.3**	**0.0**	**5.0**	**4.0**	**0.0**	**35.0**	**22.0**	**0.0**	**12.0**	**42.0**	**0.0**	**0.0**	**0.0**	**2.0**	**2.0**	**0.0**
TREES 0.01-acre																		
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TREES 0.1-acre																		
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TOTAL VEGETATION (Stratified)	**91.5**	**30.6**	**57.3**	**84.6**	**112.5**	**71.8**	**47.2**	**103.3**	**118.0**	**87.5**	**90.5**	**152.4**	**119.5**	**83.9**	**86.5**	**87.0**	**140.0**	**86.9**

Footnotes are presented on cover page G-ii.

Table G6

Percent Canopy Cover by Class and Species for the PASTURELAND TAME PASTURE Type, Otter Creek Facilities Baseline Study Area, 2012.

	PASTURELAND - GRAZED / GO-BACK					
	PLOT NUMBER				Mean	*Con-*
	843	860	862*	864	Cover	*stancy*
					n=22	
SITE PARAMETERS						
Slope (percent)	12	13	2-4	3-5		
Aspect (degrees)	WNW	230	020	100		
Topography	Low-Mid	Knoll	Mid	Mid		
Configuration	S (X)	Und	S (V)	S		
Photo # (Digital)	372-3	735-7	732-4	730-1		
Investigator	DB/KL	SC	SC	SC		
Date	07/02/12	07/03/12	07/03/12	07/03/12		
GROUND COVER						
Bare Ground	30	40	24	29	**22.60**	***100***
Rock	0.3	5	1	3	**1.45**	***73***
Litter	66	54	70	62	**70.82**	***100***
Lichens	0.3		0.3	0.3	**0.74**	***59***
Moss					**0.03**	***9***
Basal Vegetation	4	1	5	6	**4.59**	***100***
VEGETATION STRUCTURE (nonstratified cover)						
Total Vegetation	64	38	69	75	**72.86**	***100***
Perennial Graminoids	56	27	64	66	**67.45**	***100***
Annual Graminoids	7	10	10	20	**4.89**	***64***
Perennial Forbs	4	0.3	1	4	**3.19**	***86***
Annual/Biennial Forbs	2	1	0.3	1	**0.56**	***73***
Shrubs		2			**6.53**	***55***
Trees 0.01-acre						
Trees 0.1-acre						

Table G6

Percent Canopy Cover by Class and Species for the PASTURELAND TAME PASTURE Type, Otter Creek Facilities Baseline Study Area, 2012.

	PASTURELAND - GRAZED / GO-BACK					
	PLOT NUMBER				Mean	*Con-*
	843	860	862*	864	Cover	*stancy*
					n=22	
CLASS\SPECIES						
NATIVE PERENNIAL GRAMINOIDS (Cool Season)						
Agropyron smithii					**1.51**	***18***
Aristida longiseta		2			**0.09**	***5***
Carex filifolia				5	**0.23**	***5***
Carex heliophila				1	**0.05**	***5***
Hordeum jubatum					**0.01**	***5***
Poa sandbergii					**0.36**	***18***
Stipa comata		6		12	**1.90**	***45***
Stipa viridula					**0.79**	***14***
TOTAL NPG(C)	**0.0**	**8.0**	**0.0**	**18.0**	**4.95**	***64***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)						
Bouteloua gracilis	2				**1.30**	***41***
Buchloe dactyloides					**0.05**	***5***
Distichlis stricta					**0.23**	***9***
Sporobolus cryptandrus					**0.09**	***5***
TOTAL NPG(W)	**2.0**	**0.0**	**0.0**	**0.0**	**1.66**	***50***
INTRODUCED PERENNIAL GRAMINOIDS						
Agropyron cristatum	54	20	64	56	**59.32**	***100***
Agropyron intermedium					**0.05**	***5***
Agropyron repens					**0.09**	***5***
Bromus inermis					**4.45**	***23***
Elymus junceus	0.3				**0.01**	***5***
Phleum pratense					**0.05**	***5***
Poa pratensis					**2.00**	***14***
TOTAL IPG	**54.3**	**20.0**	**64.0**	**56.0**	**65.97**	***100***
NATIVE ANNUAL GRAMINOIDS						
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS						
Bromus japonicus	6	8	10	20	**4.75**	***64***
Bromus tectorum	1	2			**0.14**	***9***
TOTAL IAG	**7.0**	**10.0**	**10.0**	**20.0**	**4.89**	***64***

Table G6

Percent Canopy Cover by Class and Species for the PASTURELAND TAME PASTURE Type, Otter Creek Facilities Baseline Study Area, 2012.

	PASTURELAND - GRAZED / GO-BACK					
	PLOT NUMBER				Mean	*Con-*
	843	860	862*	864	Cover	*stancy*
					n=22	
NATIVE PERENNIAL FORBS AND SUBSHRUBS						
Achillea millefolium					**0.01**	***5***
Artemisia dracunculus				2	**0.91**	***9***
Artemisia frigida		0.3	0.3	0.3	**0.05**	***18***
Aster falcatus					**0.64**	***5***
Cerastium arvense	0.3				**0.06**	***9***
Evolvulus nuttallianus			0.3		**0.01**	***5***
Gaura coccinea					**0.11**	***27***
Gutierrezia sarothrae					**0.05**	***5***
Haplopappus spinulosus					**0.01**	***5***
Lygodesmia juncea	2				**0.15**	***14***
Opuntia fragilis					**0.03**	***9***
Opuntia polyacantha					**0.05**	***18***
Phlox hoodii				1	**0.09**	***9***
Solidago mollis					**0.06**	***9***
Sphaeralcea coccinea	0.3	0.3	0.3	0.3	**0.19**	***64***
Vicia americana					**0.01**	***5***
TOTAL NPF AND SUBSHRUBS	**2.6**	**0.6**	**0.9**	**3.6**	**2.45**	***86***
INTRODUCED PERENNIAL FORBS						
Medicago sativa					**0.59**	***9***
Taraxacum laevigatum	2				**0.36**	***18***
TOTAL IPF	**2.0**	**0.0**	**0.0**	**0.0**	**0.95**	***23***
FERNS AND ALLIES						
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS						
Androsace occidentalis	0.3				**0.01**	***5***
Chenopodium leptophyllum	0.3				**0.01**	***5***
Lappula redowskii	0.3				**0.03**	***9***
Orthocarpus luteus	0.3				**0.01**	***5***
Plantago patagonica					**0.04**	***14***
TOTAL NAF	**1.2**	**0.0**	**0.0**	**0.0**	**0.11**	***23***

Table G6

Percent Canopy Cover by Class and Species for the PASTURELAND TAME PASTURE Type, Otter Creek Facilities Baseline Study Area, 2012.

	PASTURELAND - GRAZED / GO-BACK					
	PLOT NUMBER				Mean	*Con-*
	843	860	862*	864	Cover	*stancy*
					n=22	
INTRODUCED ANNUAL/BIENNIAL FORBS						
Alyssum alyssoides	0.3			0.3	**0.08**	***27***
Alyssum desertorum					**0.03**	***9***
Camelina microcarpa	0.3			0.3	**0.07**	***23***
Chenopodium album	0.3				**0.01**	***5***
Descurainia sophia					**0.01**	***5***
Filago arvensis	0.3				**0.16**	***14***
Lactuca serriola	0.3				**0.01**	***5***
Melilotus officinalis		1	0.3		**0.06**	***9***
Sisymbrium loeselii	0.3				**0.01**	***5***
Thlaspi arvense	0.3				**0.04**	***14***
Tragopogon dubius					**0.05**	***18***
TOTAL IAF	**2.1**	**1.0**	**0.3**	**0.6**	**0.55**	***68***
SHRUBS						
Artemisia cana					**5.55**	***32***
Atriplex nuttallii					**0.105**	***9***
Ceratoides lanata					**0.68**	***5***
Chrysothamnus nauseosus					**0.01**	***5***
Rhus aromatica		2			**0.09**	***5***
Rosa woodsii					**0.09**	***5***
TOTAL SHRUBS	**0.0**	**2.0**	**0.0**	**0.0**	**6.53**	***55***
TREES 0.01-acre						
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TREES 0.1-acre						
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TOTAL VEGETATION (Stratified)	**71.2**	**41.6**	**75.2**	**98.2**	**88.05**	***100***

Footnotes are presented on cover page G-ii.

Table G7
Percent Canopy Cover by Class and Species for the *Artemisia cana/Agropyron smithii* SHRUB/GRASSLAND Community Type, Otter Creek Facilities Baseline Study Area, 2012.

	ARTEMISIA CANA / AGROPYRON SMITHII								
	PLOT NUMBER							Mean	*Con-*
	755	805	817	835	845	868	869	Cover	*stancy*
								n=7	
SITE PARAMETERS									
Slope (percent)	1-3	5	4	12-20	10	3-4	40-55		
Aspect (degrees)	SE	155	NE	NE	NE	250	ESE		
Topography	Ben	Toe	Bot	Mid	Toe	Bot	Low		
Configuration	S	V (S)	V	V	V (S)	V	Und		
Photo # (Digital)	467	783-4	435	370-1	385-6	573-4	472		
Investigator	DB/KL	SC	DB/KL	All	DB/KL	KS/ED	DB/KL		
Date	07/07/12	07/06/12	07/06/12	07/02/12	07/03/12	07/06/12	07/07/12		
GROUND COVER									
Bare Ground	38	11	14	26	14	2	75	**25.71**	***100***
Rock	1	0.3		4	0.3		4	**1.37**	***71***
Litter	53	83	80	66	80	92	19	**67.57**	***100***
Lichens	3	0.3		0.3				**0.51**	***43***
Moss	2	0.3				0.3		**0.37**	***43***
Basal Vegetation	3	5	6	4	6	6	2	**4.57**	***100***
VEGETATION STRUCTURE (nonstratified cover)									
Total Vegetation	63	82	76	74	80	96	22	**70.43**	***100***
Perennial Graminoids	57	72	74	55	78	95	12	**63.29**	***100***
Annual Graminoids	8	0.3	1	17	2		0.3	**4.09**	***86***
Perennial Forbs	1	1	0.3	12	0.3	2	6	**3.23**	***100***
Annual/Biennial Forbs	0.3	0.3		0.3	0.3		0.3	**0.21**	***71***
Shrubs	7	17	7	20	5	11	6	**10.43**	***100***
Trees 0.01-acre									
Trees 0.1-acre						1		**0.14**	***14***
CLASS\SPECIES NATIVE PERENNIAL GRAMINOIDS (Cool Season)									
Agropyron smithii	6	1	27	1	26	34	7	**14.57**	***100***
Carex filifolia		1						**0.14**	***14***
Carex heliophila		25		3				**4.00**	***29***
Koeleria cristata				2				**0.29**	***14***
Poa scabrella					1			**0.14**	***14***
Stipa comata	4	4		38			2	**6.86**	***57***
Stipa viridula	3		1	1			3	**1.14**	***57***
TOTAL NPG(C)	**13.0**	**31.0**	**28.0**	**45.0**	**27.0**	**34.0**	**12.0**	**27.14**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)									
Bouteloua curtipendula				0.3				**0.04**	***14***
Bouteloua gracilis	25	4		7				**5.14**	***43***
Calamovilfa longifolia		2		3			0.3	**0.76**	***43***
Sporobolus airoides			2					**0.29**	***14***
TOTAL NPG(W)	**25.0**	**6.0**	**2.0**	**10.3**	**0.0**	**0.0**	**0.3**	**6.23**	***71***

Table G7
Percent Canopy Cover by Class and Species for the *Artemisia cana/Agropyron smithii* SHRUB/GRASSLAND Community Type, Otter Creek Facilities Baseline Study Area, 2012.

	ARTEMISIA CANA / AGROPYRON SMITHII								
	PLOT NUMBER							Mean	*Con-*
	755	805	817	835	845	868	869	Cover	*stancy*
								n=7	
INTRODUCED PERENNIAL GRAMINOIDS									
Agropyron cristatum	20	30	15	3				**9.71**	***57***
Bromus inermis						40		**5.71**	***14***
Poa pratensis	5	15	40	4	60	66		**27.14**	***86***
TOTAL IPG	**25.0**	**45.0**	**55.0**	**7.0**	**60.0**	**106.0**	**0.0**	**42.57**	***86***
NATIVE ANNUAL GRAMINOIDS									
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS									
Bromus japonicus	8	0.3	1	17	2		0.3	**4.09**	***86***
Bromus tectorum		0.3						**0.04**	***14***
TOTAL IAG	**8.0**	**0.6**	**1.0**	**17.0**	**2.0**	**0.0**	**0.3**	**4.13**	***86***
NATIVE PERENNIAL FORBS AND SUBSHRUBS									
Achillea millefolium			0.3					**0.04**	***14***
Artemisia frigida	0.3	0.3		0.3			1	**0.27**	***57***
Artemisia ludoviciana					0.3	2	2	**0.61**	***43***
Aster oblongifolius							0.3	**0.04**	***14***
Astragalus adsurgens				0.3				**0.04**	***14***
Cerastium arvense				7				**1.00**	***14***
Chrysopsis villosa				0.3				**0.04**	***14***
Dalea purpurea				0.3				**0.04**	***14***
Evolvulus nuttallianus		0.3						**0.04**	***14***
Gaura coccinea		0.3						**0.04**	***14***
Gutierrezia sarothrae	0.3			0.3			0.3	**0.13**	***43***
Haplopappus spinulosus							0.3	**0.04**	***14***
Kuhnia eupatorioides							1	**0.14**	***14***
Lithospermum incisum				0.3				**0.04**	***14***
Mentzelia decapetala							1	**0.14**	***14***
Oenothera nuttallii				0.3				**0.04**	***14***
Opuntia polyacantha	0.3	0.3						**0.09**	***29***
Solidago mollis				0.3				**0.04**	***14***
Sphaeralcea coccinea		0.3		2	0.3		0.3	**0.41**	***57***
TOTAL NPF AND SUBSHRUBS	**0.9**	**1.5**	**0.3**	**11.4**	**0.6**	**2.0**	**6.2**	**3.27**	***100***
INTRODUCED PERENNIAL FORBS									
Medicago sativa				0.3				**0.04**	***14***
Taraxacum laevigatum				1				**0.14**	***14***
TOTAL IPF	**0.0**	**0.0**	**0.0**	**1.3**	**0.0**	**0.0**	**0.0**	**0.19**	***14***
FERNS AND ALLIES									
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS									
Plantago patagonica	0.3	0.3			0.3			**0.13**	***43***
TOTAL NAF	**0.3**	**0.3**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.13**	***43***
INTRODUCED ANNUAL/BIENNIAL FORBS									
Alyssum alyssoides	0.3			0.3			0.3	**0.13**	***43***
Camelina microcarpa		0.3						**0.04**	***14***
Sisymbrium loeselii				0.3				**0.04**	***14***
Tragopogon dubius				0.3				**0.04**	***14***
TOTAL IAF	**0.3**	**0.3**	**0.0**	**0.9**	**0.0**	**0.0**	**0.3**	**0.26**	***57***

Table G7
Percent Canopy Cover by Class and Species for the *Artemisia cana/Agropyron smithii* SHRUB/GRASSLAND Community Type, Otter Creek Facilities Baseline Study Area, 2012.

	ARTEMISIA CANA / AGROPYRON SMITHII								
	PLOT NUMBER							Mean	*Con-*
	755	805	817	835	845	868	869	Cover	*stancy*
								n=7	
SHRUBS									
Artemisia cana	7	17	7	20	4	9	6	**10.00**	***100***
Artemisia tridentata					1			**0.14**	***14***
Rosa woodsii						2	0.3	**0.33**	***29***
TOTAL SHRUBS	**7.0**	**17.0**	**7.0**	**20.0**	**5.0**	**11.0**	**6.3**	**10.47**	***100***
TREES 0.01-acre									
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TREES 0.1-acre									
Acer negundo						1		**0.14**	***14***
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**0.0**	**0.14**	***14***
TOTAL VEGETATION (Stratified)	**79.5**	**101.7**	**93.3**	**112.9**	**94.9**	**153.0**	**25.4**	**94.39**	***100***

Footnotes are presented on cover page G-ii.

Table G8
Percent Canopy Cover by Class and Species for the *Artemisia tridentata/Agropyron smithii* SHRUB/GRASSLAND Community Type, Otter Creek Facilities Baseline Study Area, 2012.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII							
	PLOT NUMBER						Mean	*Con-*
	750	816	821	829	847	850	Cover	*stancy*
							n=6	
SITE PARAMETERS								
Slope (percent)	3	12	5	9	7	4		
Aspect (degrees)	SE	ENE	E	WNW	SSE	WNW		
Topography	Ben	Mid	Bot-Swa	Toe	Ben	Plateau		
Configuration	S	V	V (S)	V	S	S (X)		
Photo # (Digital)	466	443	441-2	412-3	378-9	374-5		
Investigator	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL		
Date	07/07/12	07/06/12	07/06/12	07/05/12	07/02/12	07/02/12		
GROUND COVER								
Bare Ground	17	31	12	18	20	30	**21.33**	***100***
Rock	0.3	0.3	0.3	12	0.3	3	**2.70**	***100***
Litter	70	55	80	53	64	55	**62.83**	***100***
Lichens	3	6	1	10	10	6	**6.00**	***100***
Moss	5	3	1	2	1	2	**2.33**	***100***
Basal Vegetation	5	5	6	5	5	4	**5.00**	***100***
VEGETATION STRUCTURE (nonstratified cover)								
Total Vegetation	76	78	80	70	78	68	**75.00**	***100***
Perennial Graminoids	64	50	76	60	60	52	**60.33**	***100***
Annual Graminoids	2	13		14	9	2	**6.67**	***83***
Perennial Forbs	0.3	9	0.3	7	4	10	**5.10**	***100***
Annual/Biennial Forbs	0.3	0.3		1	1	1	**0.60**	***83***
Shrubs	24	42	9	6	39	12	**22.00**	***100***
Trees 0.01-acre							**0.00**	***0***
Trees 0.1-acre							**0.00**	***0***
CLASS\SPECIES								
NATIVE PERENNIAL GRAMINOIDS (Cool Season)								
Agropyron smithii	32	2	46	35	22	11	**24.67**	***100***
Agropyron spicatum				5		4	**1.50**	***33***
Aristida longiseta		2				2	**0.67**	***33***
Carex filifolia		7		3		12	**3.67**	***50***
Carex heliophila				2			**0.33**	***17***
Koeleria cristata		3		6	10	8	**4.50**	***67***
Poa sandbergii		2		3	8		**2.17**	***50***
Stipa comata	10	8			14	3	**5.83**	***67***
Stipa viridula	3	5	3			2	**2.17**	***67***
TOTAL NPG(C)	**45.0**	**29.0**	**49.0**	**54.0**	**54.0**	**42.0**	**45.50**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)								
Bouteloua gracilis	10	4		10	20	19	**10.50**	***83***
Muhlenbergia cuspidata		2		4		1	**1.17**	***50***
TOTAL NPG(W)	**10.0**	**6.0**	**0.0**	**14.0**	**20.0**	**20.0**	**11.67**	***83***

Table G8
Percent Canopy Cover by Class and Species for the *Artemisia tridentata/Agropyron smithii* SHRUB/GRASSLAND Community Type, Otter Creek Facilities Baseline Study Area, 2012.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII							
	PLOT NUMBER						Mean	*Con-*
	750	816	821	829	847	850	Cover	*stancy*
							n=6	
INTRODUCED PERENNIAL GRAMINOIDS								
Agropyron cristatum	15	6					**3.50**	***33***
Poa pratensis	8	16	43				**11.17**	***50***
TOTAL IPG	**23.0**	**22.0**	**43.0**	**0.0**	**0.0**	**0.0**	**14.67**	***50***
NATIVE ANNUAL GRAMINOIDS								
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS								
Bromus japonicus	2	13		14	9	2	**6.67**	***83***
TOTAL IAG	**2.0**	**13.0**	**0.0**	**14.0**	**9.0**	**2.0**	**6.67**	***83***
NATIVE PERENNIAL FORBS AND SUBSHRUBS								
Achillea millefolium					0.3		**0.05**	***17***
Antennaria dimorpha						1	**0.17**	***17***
Antennaria parvifolia		2				0.3	**0.38**	***33***
Arnica sororia		0.3					**0.05**	***17***
Artemisia frigida		1	0.3	0.3	2	2	**0.93**	***83***
Aster falcatus				1			**0.17**	***17***
Astragalus gilviflorus						0.3	**0.05**	***17***
Astragalus spatulatus				0.3			**0.05**	***17***
Castilleja sessiliflora				0.3			**0.05**	***17***
Cerastium arvense					1		**0.17**	***17***
Comandra umbellata				0.3			**0.05**	***17***
Dalea purpurea		0.3		0.3			**0.10**	***33***
Erigeron pumilus var. pumilus						0.3	**0.05**	***17***
Gaura coccinea		0.3		0.3			**0.10**	***33***
Gutierrezia sarothrae		0.3		3		2	**0.88**	***50***
Haplopappus spinulosus		0.3					**0.05**	***17***
Iva axillaris				0.3			**0.05**	***17***
Linum lewisii			0.3				**0.05**	***17***
Lomatium orientale					0.3		**0.05**	***17***
Lygodesmia juncea		0.3					**0.05**	***17***
Opuntia polyacantha	0.3	2		0.3	1	0.3	**0.65**	***83***
Phlox hoodii		3		1		3	**1.17**	***50***
Psoralea esculenta						0.3	**0.05**	***17***
Sphaeralcea coccinea		0.3					**0.05**	***17***
Vicia americana				0.3			**0.05**	***17***
TOTAL NPF AND SUBSHRUBS	**0.3**	**10.1**	**0.6**	**7.7**	**4.6**	**9.5**	**5.47**	***100***
INTRODUCED PERENNIAL FORBS								
Taraxacum laevigatum					0.3	1	**0.22**	***33***
TOTAL IPF	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**1.0**	**0.22**	***33***
FERNS AND ALLIES								
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS								
Androsace occidentalis		0.3					**0.05**	***17***
Grindelia squarrosa				0.3			**0.05**	***17***
Linum rigidum				0.3	0.3	0.3	**0.15**	***50***
Orthocarpus luteus					0.3		**0.05**	***17***
Plantago patagonica					0.3	0.3	**0.10**	***33***
TOTAL NAF	**0.0**	**0.3**	**0.0**	**0.6**	**0.9**	**0.6**	**0.40**	***67***

Table G8
Percent Canopy Cover by Class and Species for the *Artemisia tridentata/Agropyron smithii* SHRUB/GRASSLAND Community Type, Otter Creek Facilities Baseline Study Area, 2012.

	ARTEMISIA TRIDENTATA / AGROPYRON SMITHII							
	PLOT NUMBER						Mean	*Con-*
	750	816	821	829	847	850	Cover	*stancy*
							n=6	
INTRODUCED ANNUAL/BIENNIAL FORBS								
Alyssum alyssoides	0.3	0.3		0.3		0.3	**0.20**	***67***
Camelina microcarpa		0.3					**0.05**	***17***
Filago arvensis					0.3		**0.05**	***17***
Tragopogon dubius	0.3			0.3		0.3	**0.15**	***50***
TOTAL IAF	**0.6**	**0.6**	**0.0**	**0.6**	**0.3**	**0.6**	**0.45**	***83***
SHRUBS								
Artemisia cana	11						**1.83**	***17***
Artemisia tridentata	12	42	9	6	39	11	**19.83**	***100***
Ceratoides lanata	1					1	**0.33**	***33***
TOTAL SHRUBS	**24.0**	**42.0**	**9.0**	**6.0**	**39.0**	**12.0**	**22.00**	***100***
TREES 0.01-acre								
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TREES 0.1-acre								
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TOTAL VEGETATION (Stratified)	**104.9**	**123.0**	**101.6**	**96.9**	**128.1**	**87.7**	**107.03**	***100***

Footnotes are presented on cover page G-ii.

Table G9

Percent Canopy Cover by Class and Species for the *Artemisia tridentata/Agropyron spicatum* and *Artemisia tridentata/ Andropogon scoparius* SHRUB/GRASSLAND Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	ARTEMISIA TRIDENTATA/ AGROPYRON SPICATUM											***ART TRI/ AND SCO***
	PLOT NUMBER									**Mean**	***Con-***	**PLOT**
	814	818	819	822	827	828	839	840	844	**Cover**	***stancy***	812
										n=9		n=1
SITE PARAMETERS												
Slope (percent)	9	16-20	49	8	8-12	6	9	8-12	3-10			15
Aspect (degrees)	N	SW	ENE	E	NE	E	NNW	S	W			N
Topography	Mid	Sho	U	Low	Sho	Rid	Sho	Sho	Sho-Rid			Mid
Configuration	V	X	X	V	X	X	X	S	Und			X (S)
Photo # (Digital)	436	416-7	418-9	414-5	449-50	425-7	408-9	389-90	383-4			445
Investigator	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL			DB/KL
Date	07/06/12	07/05/12	07/05/12	07/05/12	07/06/12	07/05/12	07/05/12	07/03/12	07/03/12			07/06/12
GROUND COVER												
Bare Ground	35	30	40	28	30	32	24	23	38	**31.11**	***100***	31
Rock	1	18	4	2	2	6	2	2	16	**5.89**	***100***	2
Litter	48	46	49	56	42	48	46	62	40	**48.56**	***100***	52
Lichens	7	2	2	8	7	6	16	9	3	**6.67**	***100***	8
Moss	4	0.3	1	1	15	3	8	0.3	0.3	**3.66**	***100***	2
Basal Vegetation	5	4	4	5	4	5	4	4	3	**4.22**	***100***	5
VEGETATION STRUCTURE (nonstratified cover)												
Total Vegetation	69	65	62	74	68	66	68	64	52	**65.33**	***100***	71
Perennial Graminoids	55	45	40	63	60	55	55	60	39	**52.44**	***100***	55
Annual Graminoids	4	6	1	4		1		2	2	**2.22**	***78***	3
Perennial Forbs	15	8	15	14	10	11	11	2	10	**10.67**	***100***	9
Annual/Biennial Forbs	0.3	1	0.3	0.3	0.3	0.3	0.3	0.3	2	**0.57**	***100***	0.3
Shrubs	14	21	20	14	12	25	18	8	8	**15.56**	***100***	24
Trees 0.01-acre												
Trees 0.1-acre									0.3	**0.03**	***11***	1

Table G9

Percent Canopy Cover by Class and Species for the *Artemisia tridentata/Agropyron spicatum* and *Artemisia tridentata/ Andropogon scoparius* SHRUB/GRASSLAND Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	ARTEMISIA TRIDENTATA/ AGROPYRON SPICATUM											*ART TRI/ AND SCO*
	PLOT NUMBER									**Mean**	***Con-***	**PLOT**
	814	818	819	822	827	828	839	840	844	**Cover**	***stancy***	812
										n=9		n=1
CLASS\SPECIES												
NATIVE PERENNIAL GRAMINOIDS (Cool Season)												
Agropyron smithii	8	16	5	8	5	7	4		8	**6.78**	***89***	
Agropyron spicatum	17	9	10	7	4	12	7	8	5	**8.78**	***100***	5
Aristida longiseta	2			1		1				**0.44**	***33***	2
Carex filifolia	8	2	11	23	28	24	30	22	2	**16.67**	***100***	8
Koeleria cristata	4	6	5	8	3	6	5	6	6	**5.44**	***100***	3
Poa sandbergii	5	2	1	4		3	2		2	**2.11**	***78***	
Stipa comata			4	6	3	5	7	8		**3.67**	***67***	5
Stipa viridula	4	2		2						**0.89**	***33***	3
TOTAL NPG(C)	**48.0**	**37.0**	**36.0**	**59.0**	**43.0**	**58.0**	**55.0**	**44.0**	**23.0**	**44.78**	***100***	**26.0**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)												
Andropogon scoparius												14
Bouteloua curtipendula								20	4	**2.67**	***22***	7
Bouteloua gracilis	7	6	1	10	22	5	8		14	**8.11**	***89***	4
Calamovilfa longifolia		3	9					2	1	**1.67**	***44***	8
Muhlenbergia cuspidata	8	5						1	1	**1.67**	***44***	2
TOTAL NPG(W)	**15.0**	**14.0**	**10.0**	**10.0**	**22.0**	**5.0**	**8.0**	**23.0**	**20.0**	**14.11**	***100***	**35.0**
INTRODUCED PERENNIAL GRAMINOIDS												
Poa pratensis										**0.00**	***0***	5
TOTAL IPG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**5.0**
NATIVE ANNUAL GRAMINOIDS												
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**
INTRODUCED ANNUAL GRAMINOIDS												
Bromus japonicus	4	6	1	4		1		2	2	**2.22**	***78***	3
TOTAL IAG	**4.0**	**6.0**	**1.0**	**4.0**	**0.0**	**1.0**	**0.0**	**2.0**	**2.0**	**2.22**	***78***	**3.0**

Table G9

Percent Canopy Cover by Class and Species for the *Artemisia tridentata/Agropyron spicatum* and *Artemisia tridentata/ Andropogon scoparius* SHRUB/GRASSLAND Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	ARTEMISIA TRIDENTATA/ AGROPYRON SPICATUM											*ART TRI/ AND SCO*
	PLOT NUMBER									**Mean**	***Con-***	**PLOT**
	814	818	819	822	827	828	839	840	844	**Cover**	***stancy***	812
										n=9		n=1
NATIVE PERENNIAL FORBS AND SUBSHRUBS												
Achillea millefolium	0.3			0.3						**0.07**	***22***	0.3
Antennaria microphylla	0.3			2						**0.26**	***22***	1
Antennaria parvifolia				0.3			0.3			**0.07**	***22***	
Artemisia campestris			0.3			0.3				**0.07**	***22***	
Artemisia frigida				3	3	3	3	1	1	**1.56**	***67***	0.3
Aster falcatus					0.3	0.3				**0.07**	***22***	0.3
Aster oblongifolius												0.3
Astragalus adsurgens								0.3		**0.03**	***11***	
Astragalus drummondii							0.3			**0.03**	***11***	
Astragalus flexuosus					0.3					**0.03**	***11***	
Astragalus lotiflorus												0.3
Astragalus purshii	0.3									**0.03**	***11***	
Astragalus spatulatus	0.3						0.3		1	**0.18**	***33***	
Besseya wyomingensis	0.3									**0.03**	***11***	
Castilleja sessiliflora							0.3			**0.03**	***11***	
Cerastium arvense	1									**0.11**	***11***	3
Chrysopsis villosa						0.3				**0.03**	***11***	
Cirsium undulatum	0.3		0.3					0.3		**0.10**	***33***	
Comandra umbellata	0.3		0.3			0.3	0.3			**0.13**	***44***	
Dalea purpurea									0.3	**0.03**	***11***	
Echinacea angustifolia								0.3	0.3	**0.07**	***22***	0.3
Erigeron pumilus var. pumilus					0.3	0.3				**0.07**	***22***	
Eriogonum pauciflorum			1						0.3	**0.14**	***22***	
Gaura coccinea	1					0.3	0.3	0.3	0.3	**0.24**	***56***	0.3
Gutierrezia sarothrae	8	2	2		3	3	4		2	**2.67**	***78***	2
Haplopappus spinulosus												0.3
Hymenopappus filifolius			0.3							**0.03**	***11***	
Liatris punctata					0.3					**0.03**	***11***	
Linum lewisii	0.3	0.3								**0.07**	***22***	0.3
Lithospermum incisum					0.3					**0.03**	***11***	
Lomatium orientale				0.3			0.3			**0.07**	***22***	
Machaeranthera grindelioides			0.3						1	**0.14**	***22***	
Opuntia polyacantha	0.3	0.3	2	0.3			1	0.3	0.3	**0.50**	***78***	0.3
Oxytropis lambertii			0.3			0.3	0.3			**0.10**	***33***	
Oxytropis sericea	0.3	0.3					0.3		0.3	**0.13**	***44***	
Phlox hoodii	3	2	1	6	2	2	1		3	**2.22**	***89***	1
Psoralea argophylla		0.3				0.3				**0.07**	***22***	
Psoralea esculenta	0.3				0.3		0.3		0.3	**0.13**	***44***	

Table G9

Percent Canopy Cover by Class and Species for the *Artemisia tridentata/Agropyron spicatum* and *Artemisia tridentata/ Andropogon scoparius* SHRUB/GRASSLAND Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	ARTEMISIA TRIDENTATA/ AGROPYRON SPICATUM											*ART TRI/ AND SCO*
	PLOT NUMBER									**Mean**	***Con-***	**PLOT**
	814	818	819	822	827	828	839	840	844	**Cover**	***stancy***	812
										n=9		n=1
Senecio canus			0.3							**0.03**	***11***	0.3
Solidago missouriensis		0.3						0.3		**0.07**	***22***	
Sphaeralcea coccinea	0.3	0.3	0.3	1	0.3	0.3	0.3			**0.31**	***78***	
Vicia americana				1						**0.11**	***11***	
Yucca glauca		2	7						0.3	**1.03**	***33***	
Zigadenus venenosus									0.3	**0.03**	***11***	
TOTAL NPF AND SUBSHRUBS	**16.6**	**7.8**	**15.4**	**14.2**	**10.1**	**10.7**	**12.3**	**2.8**	**10.7**	**11.18**	***100***	**10.3**
INTRODUCED PERENNIAL FORBS												
Taraxacum laevigatum	0.3	1				1				**0.26**	***33***	
TOTAL IPF	**0.3**	**1.0**	**0.0**	**0.0**	**0.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.26**	***33***	**0.0**
FERNS AND ALLIES												
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS												
Erysimum asperum						0.3				**0.03**	***11***	
Grindelia squarrosa		1							0.3	**0.14**	***22***	
Linum rigidum					0.3					**0.03**	***11***	
Plantago patagonica	0.3			0.3	0.3	0.3	0.3		1	**0.28**	***67***	0.3
TOTAL NAF	**0.3**	**1.0**	**0.0**	**0.3**	**0.6**	**0.6**	**0.3**	**0.0**	**1.3**	**0.49**	***78***	**0.3**
INTRODUCED ANNUAL/BIENNIAL FORBS												
Alyssum alyssoides	0.3	0.3	0.3	0.3				0.3		**0.17**	***56***	0.3
Alyssum desertorum									0.3	**0.03**	***11***	
Camelina microcarpa			0.3							**0.03**	***11***	
Filago arvensis				0.3						**0.03**	***11***	
Tragopogon dubius				0.3	0.3	0.3				**0.10**	***33***	
TOTAL IAF	**0.3**	**0.3**	**0.6**	**0.9**	**0.3**	**0.3**	**0.0**	**0.3**	**0.3**	**0.37**	***89***	**0.3**
SHRUBS												
Artemisia cana												1
Artemisia tridentata	14	19	12	13	12	25	18	8	8	**14.33**	***100***	23
Ceratoides lanata			6	1						**0.78**	***22***	
Chrysothamnus nauseosus		2	2							**0.44**	***22***	
TOTAL SHRUBS	**14.0**	**21.0**	**20.0**	**14.0**	**12.0**	**25.0**	**18.0**	**8.0**	**8.0**	**15.56**	***100***	**24.0**

Table G9

Percent Canopy Cover by Class and Species for the *Artemisia tridentata/Agropyron spicatum* and *Artemisia tridentata/ Andropogon scoparius* SHRUB/GRASSLAND Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	ARTEMISIA TRIDENTATA/ AGROPYRON SPICATUM											*ART TRI/ AND SCO*
	PLOT NUMBER									**Mean**	***Con-***	**PLOT**
	814	818	819	822	827	828	839	840	844	**Cover**	***stancy***	812
										n=9		n=1
TREES 0.01-acre												
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**
TREES 0.1-acre												
Juniperus scopulorum												1
Pinus ponderosa									0.3	**0.03**	***11***	
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.03**	***11***	**1.0**
TOTAL VEGETATION (Stratified)	**98.5**	**88.1**	**83.0**	**102.4**	**88.0**	**101.6**	**93.6**	**80.1**	**65.3**	**88.96**	***100***	**103.9**

Footnotes are presented on cover page G-ii.

Table G10
Percent Canopy Cover by Class and Species for Five BREAKS Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	GRASS-DOMINATED BREAKS	SHRUB-DOMINATED BREAKS												CONIFER-DOMINATED BREAKS
	AGR SMI BREAKS	*ART TRI-SAR VER-CHR NAU/ AGR SMI*	*ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/ AGROPYRON SPICATUM*					*RHUS AROMATICA/AGROPYRON SPICATUM*						*PIN PON-JUN SCO/ AGR SPI* BREAKS
	PLOT	PLOT	PLOT NUMBER			Mean	*Con-*	PLOT NUMBER				Mean	*Con-*	PLOT
	849	848	823	830	838	Cover	*stancy*	836	855	859	865	Cover	*stancy*	824
	n=1	n=1				n=3						n=4		n=1
SITE PARAMETERS														
Slope (percent)	4-8	18-25	2-8	15-30	3			45-60	5-12	5-12	2-8			47
Aspect (degrees)	WNW	SSE	NNW	WSW	W			S	095	000	000			NNE
Topography	Saddle	U-M	Toe	U	Rid			U-M	Knob	Knob	Knob			U-M
Configuration	V	Und	Und	Und	X			X	X	X	Und			X
Photo # (Digital)	380	376-7	420-1	411	410			392-4	745-8	752-754	724-5			422-3
Investigator	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL			DB/KL	SC	SC	SC			DB/KL
Date	07/02/12	07/02/12	07/05/12	07/05/12	07/05/12			07/03/12	07/03/12	07/03/12	07/02/12			07/05/12
GROUND COVER														
Bare Ground	54	83	50	74	55	**59.67**	***100***	20	47	5	20	**23.00**	***100***	20
Rock	6	4	30	20	9	**19.67**	***100***	40	23	46	27	**34.00**	***100***	40
Litter	38	10	18	5	32	**18.33**	***100***	35	26	45	46	**38.00**	***100***	31
Lichens	0.3	1	0.3		1	**0.43**	***67***	1	0.3	0.3	3	**1.15**	***100***	0.3
Moss			0.3			**0.10**	***33***	2	0.3			**0.58**	***50***	6
Basal Vegetation	2	2	2	1	3	**2.00**	***100***	2	4	4	4	**3.50**	***100***	3
VEGETATION STRUCTURE (nonstratified cover)														
Total Vegetation	40	18	39	21	52	**37.33**	***100***	59	70	62	76	**66.75**	***100***	62
Perennial Graminoids	27	2	17	2	26	**15.00**	***100***	26	38	26	40	**32.50**	***100***	15
Annual Graminoids	5		1			**0.33**	***33***	16	18	20	28	**20.50**	***100***	
Perennial Forbs	7	0.3	12	5	14	**10.33**	***100***	7	3	4	4	**4.50**	***100***	10
Annual/Biennial Forbs	1		0.3	0.3	0.3	**0.30**	***100***	0.3	1	1		**0.58**	***75***	0.3
Shrubs	4	17	13	15	22	**16.67**	***100***	21	15	20	31	**21.75**	***100***	40
Trees 0.01-acre														18
Trees 0.1-acre														9

Table G10
Percent Canopy Cover by Class and Species for Five BREAKS Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	GRASS-DOMINATED BREAKS	SHRUB-DOMINATED BREAKS												CONIFER-DOMINATED BREAKS
	AGR SMI BREAKS	*ART TRI-SAR VER-CHR NAU/ AGR SMI*	*ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/ AGROPYRON SPICATUM*					*RHUS AROMATICA/AGROPYRON SPICATUM*						*PIN PON-JUN SCO/ AGR SPI* BREAKS
	PLOT	PLOT	PLOT NUMBER			Mean	*Con-*	PLOT NUMBER				Mean	*Con-*	PLOT
	849	848	823	830	838	Cover	*stancy*	836	855	859	865	Cover	*stancy*	824
	n=1	n=1				n=3						n=4		n=1
CLASS\SPECIES														
NATIVE PERENNIAL GRAMINOIDS (Cool Season)														
Agropyron smithii	14	2												
Agropyron spicatum	1	0.3	15	2	16	**11.00**	***100***	2	3	5	4	**3.50**	***100***	13
Aristida longiseta									1	0.3	3	**1.08**	***75***	
Carex filifolia								2	10	16	5	**8.25**	***100***	
Carex heliophila									7		1	**2.00**	***50***	
Koeleria cristata	6		2		8	**3.33**	***67***							
Oryzopsis hymenoides														3
Poa sandbergii	6													
Stipa comata	1							6	15	4	12	**9.25**	***100***	
Stipa viridula	1								0.3			**0.08**	***25***	
TOTAL NPG(C)	**29.0**	**2.3**	**17.0**	**2.0**	**24.0**	**14.33**	***100***	**10.0**	**36.3**	**25.3**	**25.0**	**24.15**	***100***	**16.0**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)														
Andropogon scoparius									0.3			**0.08**	***25***	
Bouteloua gracilis					4	**1.33**	***33***	18	3	3	18	**10.50**	***100***	
Calamovilfa longifolia								0.3	3	0.3	1	**1.15**	***100***	
TOTAL NPG(W)	**0.0**	**0.0**	**0.0**	**0.0**	**4.0**	**1.33**	***33***	**18.3**	**6.3**	**3.3**	**19.0**	**11.73**	***100***	**0.0**
INTRODUCED PERENNIAL GRAMINOIDS														
TOTAL IPG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**
NATIVE ANNUAL GRAMINOIDS														
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**
INTRODUCED ANNUAL GRAMINOIDS														
Bromus japonicus	5		1			**0.33**	***33***	15	18	8	28	**17.25**	***100***	
Bromus tectorum								3		12		**3.75**	***50***	
TOTAL IAG	**5.0**	**0.0**	**1.0**	**0.0**	**0.0**	**0.33**	***33***	**18.0**	**18.0**	**20.0**	**28.0**	**21.00**	***100***	**0.0**

Table G10
Percent Canopy Cover by Class and Species for Five BREAKS Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	GRASS-DOMINATED BREAKS	SHRUB-DOMINATED BREAKS												CONIFER-DOMINATED BREAKS
	AGR SMI BREAKS	*ART TRI-SAR VER-CHR NAU/ AGR SMI*	*ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/ AGROPYRON SPICATUM*					*RHUS AROMATICA/AGROPYRON SPICATUM*						*PIN PON-JUN SCO/ AGR SPI* BREAKS
	PLOT	PLOT	PLOT NUMBER			Mean	*Con-*	PLOT NUMBER				Mean	*Con-*	PLOT
	849	848	823	830	838	Cover	*stancy*	836	855	859	865	Cover	*stancy*	824
	n=1	n=1				n=3						n=4		n=1
NATIVE PERENNIAL FORBS AND SUBSHRUBS														
Achillea millefolium														0.3
Ambrosia psilostachya								0.3				**0.08**	***25***	
Antennaria microphylla											0.3	**0.08**	***25***	
Artemisia campestris														0.3
Artemisia dracunculus										1	2	**0.75**	***50***	
Artemisia frigida								4	1	0.3	1	**1.58**	***100***	
Astragalus bisulcatus		0.3												
Astragalus gilviflorus			0.3	0.3	4	**1.53**	***100***							0.3
Astragalus missouriensis									0.3			**0.08**	***25***	
Astragalus spatulatus														0.3
Cerastium arvense										1		**0.25**	***25***	
Chrysopsis villosa					0.3	**0.10**	***33***							
Comandra umbellata					0.3	**0.10**	***33***							0.3
Dalea purpurea			0.3			**0.10**	***33***			0.3				0.3
Eriogonum pauciflorum			7	3		**3.33**	***67***							4
Euphorbia robusta					0.3	**0.10**	***33***							
Evolvulus nuttallianus								3				**0.75**	***25***	
Gaura coccinea									0.3		0.3	**0.15**	***50***	0.3
Gutierrezia sarothrae	7		1	1	4	**2.00**	***100***							1
Haplopappus armerioides					1	**0.33**	***33***							
Hedeoma drummondii			0.3			**0.10**	***33***							
Hymenopappus filifolius			1			**0.33**	***33***							0.3
Iva axillaris				0.3		**0.10**	***33***							
Kuhnia eupatorioides											0.3	**0.08**	***25***	
Leucocrinum montanum														0.3
Liatris punctata														0.3
Linum lewisii					0.3	**0.10**	***33***							0.3
Lithospermum incisum											0.3	**0.08**	***25***	
Machaeranthera grindelioides			0.3	0.3	0.3	**0.30**	***100***							0.3
Oxytropis lambertii					0.3	**0.10**	***33***							0.3
Penstemon albidus					0.3	**0.10**	***33***							
Phlox alyssifolia														1
Phlox hoodii					2	**0.67**	***33***		1	1	0.3	**0.58**	***75***	
Polygala alba														0.3

Table G10
Percent Canopy Cover by Class and Species for Five BREAKS Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	GRASS-DOMINATED BREAKS	SHRUB-DOMINATED BREAKS												CONIFER-DOMINATED BREAKS
	AGR SMI BREAKS	*ART TRI-SAR VER-CHR NAU/ AGR SMI*	*ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/ AGROPYRON SPICATUM*					*RHUS AROMATICA/AGROPYRON SPICATUM*						*PIN PON-JUN SCO/ AGR SPI* BREAKS
	PLOT	PLOT	PLOT NUMBER			Mean	*Con-*	PLOT NUMBER				Mean	*Con-*	PLOT
	849	848	823	830	838	Cover	*stancy*	836	855	859	865	Cover	*stancy*	824
	n=1	n=1				n=3						n=4		n=1
Psoralea esculenta			0.3			**0.10**	***33***							
Senecio canus			0.3			**0.10**	***33***							
Solidago missouriensis			0.3			**0.10**	***33***							0.3
Solidago rigida			1			**0.33**	***33***							
Sphaeralcea coccinea									0.3	0.3		**0.15**	***50***	
Thermopsis rhombifolia					1	**0.33**	***33***							
TOTAL NPF AND SUBSHRUBS	**7.0**	**0.3**	**12.1**	**4.9**	**14.1**	**10.37**	***100***	**7.3**	**2.9**	**3.9**	**4.5**	**4.65**	***100***	**10.5**
INTRODUCED PERENNIAL FORBS														
TOTAL IPF	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**
FERNS AND ALLIES														
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS														
Atriplex argentea	0.3													
Chenopodium leptophyllum										0.3		**0.08**	***25***	
Cryptantha celosioides			0.3	0.3		**0.20**	***67***							0.3
Erysimum asperum					0.3	**0.10**	***33***							
Grindelia squarrosa	1		0.3			**0.10**	***33***							
Machaeranthera canescens										0.3		**0.08**	***25***	
Plantago patagonica	0.3								1	0.3		**0.33**	***50***	
TOTAL NAF	**1.6**	**0.0**	**0.6**	**0.3**	**0.3**	**0.40**	***100***	**0.0**	**1.0**	**0.9**	**0.0**	**0.48**	***50***	**0.3**
INTRODUCED ANNUAL/BIENNIAL FORBS														
Alyssum alyssoides	0.3		0.3			**0.10**	***33***		0.3			**0.08**	***25***	
Alyssum desertorum								0.3				**0.08**	***25***	
Camelina microcarpa										0.3		**0.08**	***25***	
Tragopogon dubius								0.3				**0.08**	***25***	
TOTAL IAF	**0.3**	**0.0**	**0.3**	**0.0**	**0.0**	**0.10**	***33***	**0.6**	**0.3**	**0.3**	**0.0**	**0.30**	***75***	**0.0**

Table G10
Percent Canopy Cover by Class and Species for Five BREAKS Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	GRASS-DOMINATED BREAKS	SHRUB-DOMINATED BREAKS												CONIFER-DOMINATED BREAKS
	AGR SMI BREAKS	*ART TRI-SAR VER-CHR NAU/ AGR SMI*	*ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/ AGROPYRON SPICATUM*					*RHUS AROMATICA/AGROPYRON SPICATUM*						*PIN PON-JUN SCO/ AGR SPI* BREAKS
	PLOT	PLOT	PLOT NUMBER			Mean	*Con-*	PLOT NUMBER				Mean	*Con-*	PLOT
	849	848	823	830	838	Cover	*stancy*	836	855	859	865	Cover	*stancy*	824
	n=1	n=1				n=3						n=4		n=1
SHRUBS														
Artemisia tridentata	4	7	8	2	20	**10.00**	***100***							
Chrysothamnus nauseosus	0.3	9	2	2	2	**2.00**	***100***							5
Juniperus horizontalis														35
Prunus virginiana										2		**0.50**	***25***	
Rhus aromatica								21	15	18	31	**21.25**	***100***	
Rosa arkansana			3			**1.00**	***33***							
Sarcobatus vermiculatus		2		11		**3.67**	***33***							
TOTAL SHRUBS	**4.3**	**18.0**	**13.0**	**15.0**	**22.0**	**16.67**	***100***	**21.0**	**15.0**	**20.0**	**31.0**	**21.75**	***100***	**40.0**
TREES 0.01-acre														
Pinus ponderosa														18
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**18.0**
TREES 0.1-acre														
Juniperus scopulorum														2
Pinus ponderosa														7
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**9.0**
TOTAL VEGETATION (Stratified)	**47.2**	**20.6**	**44.0**	**22.2**	**64.4**	**43.53**	***100***	**75.2**	**79.8**	**73.7**	**107.5**	**84.05**	***100***	**84.8**

Footnotes are presented on cover page G-ii.

Table G11
Percent Canopy Cover by Class and Species for Two PINE-JUNIPER FOREST and SAVANNAH Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM / AGROPYRON SPICATUM									*PINUS PONDEROSA-JUNIPERUS SCOPULORUM / ANDROPOGON SCOPARIUS*			
	PLOT NUMBER							**Mean**	***Con-***	**PLOT NUMBER**		**Mean**	***Con-***
	791	804	826	837	841	851	852	**Cover**	***stancy***	794	800	**Cover**	***stancy***
								n=7				**n=2**	
SITE PARAMETERS													
Slope (percent)	18-25	30	12-18	30-40	65	25-35	40-45			12	16		
Aspect (degrees)	E	305	ENE	N	NE	NE	NNE			220	175		
Topography	Mid	L	Mid	Mid	U	Mid	U			L	Mid		
Configuration	Und	Und	X	X	Und	Und	X (Und)			Und	X		
Photo # (Digital)	453-4	781-2	451	395	391	457	464-5			758-9	772-3		
Investigator	DB/KL	SC	DB/KL	DB/KL	DB/KL	DB/KL	DB/KL			SC	SC		
Date	07/06/12	07/06/12	07/06/12	07/03/12	07/03/12	07/07/12	07/07/12			07/05/12	07/05/12		
GROUND COVER													
Bare Ground	22	32	22	16	30	23	36	**25.86**	***100***	26	60	**43.00**	***100***
Rock	16	6	21	3	16	2	14	**11.14**	***100***	12	20	**16.00**	***100***
Litter	56	56	42	64	39	65	45	**52.43**	***100***	58	17	**37.50**	***100***
Lichens	1	0.3	3	4	4	3	1	**2.33**	***100***	0.3	0.3	**0.30**	***100***
Moss	1	0.3	8	8	7	4	0.3	**4.09**	***100***			**0.00**	***0***
Basal Vegetation	4	6	4	5	4	3	4	**4.29**	***100***	4	3	**3.50**	***100***
VEGETATION STRUCTURE (nonstratified cover)													
Total Vegetation	75	55	82	88	63	80	64	**72.43**	***100***	66	62	**64.00**	***100***
Perennial Graminoids	30	42	43	36	32	35	47	**37.86**	***100***	45	50	**47.50**	***100***
Annual Graminoids	20	1	4			12	0.3	**5.33**	***71***	18	14	**16.00**	***100***
Perennial Forbs	11	5	10	7	11	10	15	**9.86**	***100***	9	4	**6.50**	***100***
Annual/Biennial Forbs	1	0.3	0.3		0.3	0.3	0.3	**0.36**	***86***	0.3	0.3	**0.30**	***100***
Shrubs	11	1	5	1	13	15	4	**7.14**	***100***	6		**3.00**	***50***
Trees 0.01-acre	55	13	54	66	38	50	27	**43.29**	***100***	12	6	**9.00**	***100***
Trees 0.1-acre	30	23	31	38	18	22	12	**24.86**	***100***	15	28	**21.50**	***100***

Table G11
Percent Canopy Cover by Class and Species for Two PINE-JUNIPER FOREST and SAVANNAH Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM / AGROPYRON SPICATUM									*PINUS PONDEROSA-JUNIPERUS SCOPULORUM / ANDROPOGON SCOPARIUS*			
	PLOT NUMBER							**Mean**	***Con-***	**PLOT NUMBER**		**Mean**	***Con-***
	791	804	826	837	841	851	852	**Cover**	***stancy***	794	800	**Cover**	***stancy***
								n=7				**n=2**	
CLASS\SPECIES													
NATIVE PERENNIAL GRAMINOIDS (Cool Season)													
Agropyron smithii	7	2	6					**2.14**	***43***				
Agropyron spicatum	18	3	12	30	15	25	30	**19.00**	***100***	1	2	**1.50**	***100***
Aristida longiseta										0.3		**0.15**	***50***
Carex filifolia		5	9	3	10	1	2	**4.29**	***86***	32	13	**22.50**	***100***
Carex rossii			1	0.3				**0.19**	***29***				
Koeleria cristata	5			2	4		7	**2.57**	***57***				
Poa sandbergii				1				**0.14**	***14***	0.3		**0.15**	***50***
Poa scabrella			2					**0.29**	***14***				
Stipa comata		6						**0.86**	***14***		12	**6.00**	***50***
Stipa viridula						7	7	**2.00**	***29***				
TOTAL NPG(C)	**30.0**	**16.0**	**30.0**	**36.3**	**29.0**	**33.0**	**46.0**	**31.47**	***100***	**33.6**	**27.0**	**30.30**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)													
Andropogon scoparius		1	4	1	1		1	**1.14**	***71***	4	22	**13.00**	***100***
Bouteloua curtipendula		22	6		6	5		**5.57**	***57***		4	**2.00**	***50***
Bouteloua gracilis		6						**0.86**	***14***	10	0.3	**5.15**	***100***
Buchloe dactyloides										0.3		**0.15**	***50***
Calamovilfa longifolia		1	1					**0.29**	***29***				
Muhlenbergia cuspidata						0.3	3	**0.47**	***29***				
TOTAL NPG(W)	**0.0**	**30.0**	**11.0**	**1.0**	**7.0**	**5.3**	**4.0**	**8.33**	***86***	**14.3**	**26.3**	**20.30**	***100***
INTRODUCED PERENNIAL GRAMINOIDS													
Agropyron cristatum		0.3						**0.04**	***14***				
Poa pratensis	4		6	3				**1.86**	***43***				
TOTAL IPG	**4.0**	**0.3**	**6.0**	**3.0**	**0.0**	**0.0**	**0.0**	**1.90**	***57***	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL GRAMINOIDS													
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS													
Bromus japonicus	20	1	3			9	0.3	**4.76**	***71***	18	12	**15.00**	***100***
Bromus tectorum		0.3	1			4		**0.76**	***43***		2	**1.00**	***50***
TOTAL IAG	**20.0**	**1.3**	**4.0**	**0.0**	**0.0**	**13.0**	**0.3**	**5.51**	***71***	**18.0**	**14.0**	**16.00**	***100***

Table G11
Percent Canopy Cover by Class and Species for Two PINE-JUNIPER FOREST and SAVANNAH Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM / AGROPYRON SPICATUM									*PINUS PONDEROSA-JUNIPERUS SCOPULORUM / ANDROPOGON SCOPARIUS*			
	PLOT NUMBER							**Mean**	***Con-***	**PLOT NUMBER**		**Mean**	***Con-***
	791	804	826	837	841	851	852	**Cover**	***stancy***	794	800	**Cover**	***stancy***
								n=7				**n=2**	
NATIVE PERENNIAL FORBS AND SUBSHRUBS													
Achillea millefolium		0.3	0.3	0.3	0.3	0.3	0.3	**0.26**	***86***				
Ambrosia psilostachya			1					**0.14**	***14***	0.3	1	**0.65**	***100***
Antennaria parvifolia		0.3			1			**0.19**	***29***				
Artemisia campestris			0.3					**0.04**	***14***				
Artemisia dracunculus										2		**1.00**	***50***
Artemisia frigida	3	1	2	3	1	0.3	3	**1.90**	***100***				
Artemisia ludoviciana	1		2			5		**1.14**	***43***	2	1	**1.50**	***100***
Aster falcatus	0.3	0.3				2	1	**0.51**	***57***				
Aster oblongifolius						0.3		**0.04**	***14***				
Astragalus adsurgens				0.3	0.3		1	**0.23**	***43***				
Astragalus gilviflorus		0.3		0.3			0.3	**0.13**	***43***				
Astragalus missouriensis											0.3	**0.15**	***50***
Besseya wyomingensis							0.3	**0.04**	***14***				
Cerastium arvense	3		3	1	0.3	1	2	**1.47**	***86***				
Chrysopsis villosa	1		1		0.3	0.3		**0.37**	***57***				
Cirsium undulatum	0.3		0.3		0.3			**0.13**	***43***				
Comandra umbellata				0.3			0.3	**0.09**	***29***				
Dalea purpurea	0.3						0.3	**0.09**	***29***				
Echinacea angustifolia							0.3	**0.04**	***14***				
Eriogonum pauciflorum					0.3			**0.04**	***14***				
Evolvulus nuttallianus		0.3						**0.04**	***14***	0.3	0.3	**0.30**	***100***
Gaura coccinea	0.3		0.3	0.3	0.3	0.3		**0.21**	***71***	0.3	0.3	**0.30**	***100***
Geum triflorum			0.3	0.3	0.3	0.3	0.3	**0.21**	***71***				
Gutierrezia sarothrae	3	1			1	0.3	5	**1.47**	***71***				
Kuhnia eupatorioides										1	0.3	**0.65**	***100***
Liatris punctata							0.3	**0.04**	***14***				
Linum lewisii		0.3		0.3	0.3		0.3	**0.17**	***57***				
Oxytropis lambertii					0.3		0.3	**0.09**	***29***				
Oxytropis sericea			0.3			0.3	0.3	**0.13**	***43***				
Penstemon albidus		0.3						**0.04**	***14***				
Phlox hoodii		1		1	3	0.3		**0.76**	***57***				
Psoralea esculenta						0.3		**0.04**	***14***		0.3	**0.15**	***50***
Solidago missouriensis			0.3		1		1	**0.33**	***43***				
Solidago mollis							0.3	**0.04**	***14***				
Sphaeralcea coccinea						0.3		**0.04**	***14***	3		**1.50**	***50***
Vicia americana			0.3					**0.04**	***14***				
Yucca glauca					2			**0.29**	***14***		0.3	**0.15**	***50***
TOTAL NPF AND SUBSHRUBS	**12.2**	**5.1**	**11.4**	**7.1**	**12.0**	**11.3**	**16.6**	**10.81**	***100***	**8.9**	**3.8**	**6.35**	***100***

Table G11
Percent Canopy Cover by Class and Species for Two PINE-JUNIPER FOREST and SAVANNAH Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM / AGROPYRON SPICATUM									*PINUS PONDEROSA-JUNIPERUS SCOPULORUM / ANDROPOGON SCOPARIUS*			
	PLOT NUMBER							**Mean**	***Con-***	**PLOT NUMBER**		**Mean**	***Con-***
	791	804	826	837	841	851	852	**Cover**	***stancy***	794	800	**Cover**	***stancy***
								n=7				**n=2**	
INTRODUCED PERENNIAL FORBS													
TOTAL IPF	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.00**	***0***
FERNS AND ALLIES													
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS													
Arabis holboellii			0.3					**0.04**	***14***				
Descurainia richardsonii			0.3					**0.04**	***14***				
Machaeranthera canescens										0.3		**0.15**	***50***
Plantago patagonica											0.3	**0.15**	***50***
TOTAL NAF	**0.0**	**0.0**	**0.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.09**	***14***	**0.3**	**0.3**	**0.30**	***100***
INTRODUCED ANNUAL/BIENNIAL FORBS													
Alyssum alyssoides	0.3		0.3			0.3	0.3	**0.17**	***57***				
Alyssum desertorum					0.3			**0.04**	***14***				
Camelina microcarpa	0.3	0.3						**0.09**	***29***	0.3	0.3	**0.30**	***100***
Lactuca serriola	0.3							**0.04**	***14***				
Tragopogon dubius					0.3	0.3		**0.09**	***29***				
TOTAL IAF	**0.9**	**0.3**	**0.3**	**0.0**	**0.6**	**0.6**	**0.3**	**0.43**	***86***	**0.3**	**0.3**	**0.30**	***100***
SHRUBS													
Artemisia cana	1	1				1	1	**0.57**	***57***	0.3		**0.15**	***50***
Artemisia tridentata				0.3	11	14	1	**3.76**	***57***				
Chrysothamnus nauseosus					0.3		1	**0.19**	***29***				
Prunus virginiana			1					**0.14**	***14***	2		**1.00**	***50***
Rhus aromatica	9		2		1	0.3		**1.76**	***57***	5		**2.50**	***50***
Ribes cereum			2					**0.29**	***14***				
Rosa woodsii	1			0.3	1		1	**0.47**	***57***				
Symphoricarpos occidentalis				0.3	0.3		0.3	**0.13**	***43***				
TOTAL SHRUBS	**11.0**	**1.0**	**5.0**	**0.9**	**13.6**	**15.3**	**4.3**	**7.30**	***100***	**7.3**	**0.0**	**3.65**	***50***
TREES 0.01-acre													
Juniperus scopulorum			6	28	3		24	**8.71**	***57***				
Pinus ponderosa	55	13	52	56	35	50	5	**38.00**	***100***	12	6	**9.00**	***100***
TOTAL TREES 0.01-acre	**55.0**	**13.0**	**58.0**	**84.0**	**38.0**	**50.0**	**29.0**	**46.71**	***100***	**12.0**	**6.0**	**9.00**	***100***

Table G11
Percent Canopy Cover by Class and Species for Two PINE-JUNIPER FOREST and SAVANNAH Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM / AGROPYRON SPICATUM									*PINUS PONDEROSA-JUNIPERUS SCOPULORUM / ANDROPOGON SCOPARIUS*			
	PLOT NUMBER							**Mean**	***Con-***	**PLOT NUMBER**		**Mean**	***Con-***
	791	804	826	837	841	851	852	**Cover**	***stancy***	794	800	**Cover**	***stancy***
								n=7				**n=2**	
TREES 0.1-acre													
Juniperus scopulorum	2	1	3	20	4	2	10	**6.00**	***100***		2	**1.00**	***50***
Pinus ponderosa	28	22	29	24	14	20	2	**19.86**	***100***	15	26	**20.50**	***100***
TOTAL TREES 0.1-acre	**30.0**	**23.0**	**32.0**	**44.0**	**18.0**	**22.0**	**12.0**	**25.86**	***100***	**15.0**	**28.0**	**21.50**	***100***
TOTAL VEGETATION (Stratified)	**133.1**	**67.0**	**126.3**	**132.3**	**100.2**	**128.5**	**100.5**	**112.56**	***100***	**94.7**	**77.7**	**86.20**	***100***

Footnotes are presented on cover page G-ii.

Table G12
Percent Canopy Cover by Class and Species for Three HERBACEOUS BOTTOM Community Types in the *Spartina pectinata* Series, Otter Creek Facilities Baseline Study Area, 2012.

	SPARTINA PECTINATA/ BROMUS INERMIS				***SPA PEC/ PUC NUT***	***SPARTINA PECTINATA/ SCIRPUS AMERICANUS***			
	PLOT NUMBER		**Mean**	***Con-***	**PLOT**	**PLOT NUMBER**		**Mean**	***Con-***
	773	775	**Cover**	***stancy***	710	772	774	**Cover**	***stancy***
			n=2		n=1			**n=2**	
SITE PARAMETERS									
Slope (percent)	0/40-65	0/5-30			1	0-1/4-6	0/12-30		
Aspect (degrees)	140/040	300/220			095	080	350/260		
Topography	Bot/Bnk	Bot/Bnk			Ter	Bot/Bnk	Bot/Toe		
Configuration	V	V			V (S)	V	V		
Photo # (Digital)	549	551			797-9	786-7	550		
Investigator	KS/ED	KS			SC	SC	KS		
Date	07/03/12	07/03/12			07/07/12	07/06/12	07/03/12		
GROUND COVER									
Bare Ground	22	4	**13.00**	***100***	62	50	32	**41.00**	***100***
Rock									
Litter	61	76	**68.50**	***100***	32	27	60	**43.50**	***100***
Lichens									
Moss									
Water	12	16	**14.00**	***100***		20	4	**12.00**	***100***
Basal Vegetation	5	4	**4.50**	***100***	6	3	4	**3.50**	***100***
VEGETATION STRUCTURE (nonstratified cover)									
Total Vegetation	84	86	**85.00**	***100***	84	88	86	**87.00**	***100***
Perennial Graminoids	78	74	**76.00**	***100***	84	84	83	**83.50**	***100***
Annual Graminoids									
Perennial Forbs	12	12	**12.00**	***100***		4	4	**4.00**	***100***
Annual/Biennial Forbs	14	0.3	**7.15**	***100***	1	1	2	**1.50**	***100***
Shrubs									
Trees 0.01-acre									
Trees 0.1-acre	2		**1.00**	***50***			5	**2.50**	***50***

Table G12
Percent Canopy Cover by Class and Species for Three HERBACEOUS BOTTOM Community Types in the *Spartina pectinata* Series, Otter Creek Facilities Baseline Study Area, 2012.

	SPARTINA PECTINATA/ BROMUS INERMIS				*SPA PEC/ PUC NUT*	*SPARTINA PECTINATA/ SCIRPUS AMERICANUS*			
	PLOT NUMBER		**Mean**	***Con-***	**PLOT**	**PLOT NUMBER**		**Mean**	***Con-***
	773	775	**Cover**	***stancy***	710	772	774	**Cover**	***stancy***
			n=2		n=1			**n=2**	
CLASS\SPECIES									
NATIVE PERENNIAL GRAMINOIDS (Cool Season)									
Carex nebraskensis	2		**1.00**	***50***					
Eleocharis palustris					0.3	4	2	**3.00**	***100***
Hordeum jubatum	1	0.3	**0.65**	***100***	3				
Puccinellia nuttalliana					78				
Scirpus acutus	1		**0.50**	***50***		4		**2.00**	***50***
Scirpus americanus	4		**2.00**	***50***		30	22	**26.00**	***100***
Scirpus maritimus	3		**1.50**	***50***					
Scirpus validus							1	**0.50**	***50***
TOTAL NPG(C)	**11.0**	**0.3**	**5.65**	***100***	**81.3**	**38.0**	**25.0**	**31.50**	***100***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)									
Spartina pectinata	58	72	**65.00**	***100***	9	45	76	**60.50**	***100***
TOTAL NPG(W)	**58.0**	**72.0**	**65.00**	***100***	**9.0**	**45.0**	**76.0**	**60.50**	***100***
INTRODUCED PERENNIAL GRAMINOIDS									
Agropyron cristatum		0.3	**0.15**	***50***					
Agropyron repens	8		**4.00**	***50***	1		1	**0.50**	***50***
Bromus inermis	26	3	**14.50**	***100***		12	3	**7.50**	***100***
Poa pratensis							0.3	**0.15**	***50***
TOTAL IPG	**34.0**	**3.3**	**18.65**	***100***	**1.0**	**12.0**	**4.3**	**8.15**	***100***
NATIVE ANNUAL GRAMINOIDS									
TOTAL NAG	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS									
TOTAL IAG	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE PERENNIAL FORBS AND SUBSHRUBS									
Apocynum cannabinum	12		**6.00**	***50***					
Aster hesperius							3	**1.50**	***50***
Aster pansus							1	**0.50**	***50***
Potamogeton pectinatus		12	**6.00**	***50***					
Typha latifolia						4		**2.00**	***50***
TOTAL NPF AND SUBSHRUBS	**12.0**	**12.0**	**12.00**	***100***	**0.0**	**4.0**	**4.0**	**4.00**	***100***

Table G12
Percent Canopy Cover by Class and Species for Three HERBACEOUS BOTTOM Community Types in the *Spartina pectinata* Series, Otter Creek Facilities Baseline Study Area, 2012.

	SPARTINA PECTINATA/ BROMUS INERMIS				*SPA PEC/ PUC NUT*	*SPARTINA PECTINATA/ SCIRPUS AMERICANUS*			
	PLOT NUMBER		**Mean**	***Con-***	**PLOT**	**PLOT NUMBER**		**Mean**	***Con-***
	773	775	**Cover**	***stancy***	710	772	774	**Cover**	***stancy***
			n=2		n=1			**n=2**	
INTRODUCED PERENNIAL FORBS									
Rumex crispus	0.3		**0.15**	***50***					
TOTAL IPF	**0.3**	**0.0**	**0.15**	***50***	**0.0**	**0.0**	**0.0**	**0.00**	***0***
FERNS AND ALLIES									
Equisetum laevigatum							0.3	**0.15**	***50***
TOTAL F&A	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.3**	**0.15**	***50***
NATIVE ANNUAL/BIENNIAL FORBS									
Ambrosia trifida							0.3	**0.15**	***50***
Chenopodium rubrum	6		**3.00**	***50***			1	**0.50**	***50***
Gaura parviflora							0.3	**0.15**	***50***
Suaeda depressa					0.3				
TOTAL NAF	**6.0**	**0.0**	**3.00**	***50***	**0.3**	**0.0**	**1.6**	**0.80**	***50***
INTRODUCED ANNUAL/BIENNIAL FORBS									
Atriplex heterosperma	8	0.3	**4.15**	***100***	1	1	0.3	**0.65**	***100***
Thlaspi arvense	0.3		**0.15**	***50***					
TOTAL IAF	**8.3**	**0.3**	**4.30**	***100***	**1.0**	**1.0**	**0.3**	**0.65**	***100***
SHRUBS									
TOTAL SHRUBS	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TREES 0.01-acre									
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.00**	***0***
TREES 0.1-acre									
Acer negundo	2		**1.00**	***50***			5	**2.50**	***50***
TOTAL TREES 0.1-acre	**2.0**	**0.0**	**1.00**	***50***	**0.0**	**0.0**	**5.0**	**2.50**	***50***
TOTAL VEGETATION (Stratified)	**129.6**	**87.9**	**108.75**	***100***	**92.6**	**100.0**	**111.5**	**105.75**	***100***

Footnotes are presented on cover page G-ii.

Table G13
Percent Canopy Cover by Class and Species for Three HERBACEOUS BOTTOM Community Types in the *Typha latifolia* and *Scirpus acutus* Series, Otter Creek Tract 2 Facilities Baseline Study Area, 2012.

	TYP LAT/ SPA PEC	*SCIRPUS VALIDUS-SCIRPUS ACUTUS/SPARTINA PECTINATA*							*SCI VAL-SCI ACU/ TYP LAT*
	PLOT	**PLOT NUMBER**					**Mean**	***Con-***	**PLOT**
	777	769	771	776	782	787	**Cover**	***stancy***	789
	n=1						**n=5**		n=1
SITE PARAMETERS									
Slope (percent)	0-2	0-1/15-40	0/10-20	0/1-20	0-1/20-75	0/5-25			0-1/5-15
Aspect (degrees)	070	350	335	320	352	000/275			140
Topography	Bot	Bot/Bnk	Bot/Bnk	Bot/Bnk	Bot/Bnk	Bot/Bnk			Bot/Bnk
Configuration	V	V	V	V	V	V (S)			V
Photo # (Digital)	541	600-1	593-4	552	578-9	602-3			606-7
Investigator	KS/ED	KS/ED	KS/ED	KS	KS/ED	KS/ED			KS/ED
Date	07/02/12	07/07/12	07/07/12	07/03/12	07/06/12	07/07/12			07/07/12
GROUND COVER									
Bare Ground	8	0.3	17	40	17	13	**17.46**	***100***	0.3
Rock									
Litter	87	59	26	50	65	72	**54.40**	***100***	52
Lichens									
Moss									
Water	0.3	35	52	6	12	8	**22.60**	***100***	42
Basal Vegetation	5	6	5	4	6	7	**5.60**	***100***	6
VEGETATION STRUCTURE (nonstratified cover)									
Total Vegetation	90	94	94	88	90	97	**92.60**	***100***	72
Perennial Graminoids	72	78	94	72	84	96	**84.80**	***100***	21
Annual Graminoids									
Perennial Forbs	54	4			0.3	24	**5.66**	***60***	54
Annual/Biennial Forbs	3	8		22	13	16	**11.80**	***80***	**3**
Shrubs		40					**8.00**	***20***	
Trees 0.01-acre					3		**0.60**	***20***	
Trees 0.1-acre				4	14		**3.60**	***40***	2

Table G13
Percent Canopy Cover by Class and Species for Three HERBACEOUS BOTTOM Community Types in the *Typha latifolia* and *Scirpus acutus* Series, Otter Creek Tract 2 Facilities Baseline Study Area, 2012.

	TYP LAT/ SPA PEC	*SCIRPUS VALIDUS-SCIRPUS ACUTUS/SPARTINA PECTINATA*							*SCI VAL-SCI ACU/ TYP LAT*
	PLOT	**PLOT NUMBER**					**Mean**	***Con-***	**PLOT**
	777	769	771	776	782	787	**Cover**	***stancy***	789
	n=1						**n=5**		n=1
CLASS\SPECIES									
NATIVE PERENNIAL GRAMINOIDS (Cool Season)									
Hordeum jubatum						0.3	**0.06**	***20***	
Scirpus acutus		58	62	56	56	20	**50.40**	***100***	18
Scirpus americanus			16	1		48	**13.00**	***60***	
Scirpus maritimus						10	**2.00**	***20***	
TOTAL NPG(C)	**0.0**	**58.0**	**78.0**	**57.0**	**56.0**	**78.3**	**65.46**	***100***	**18.0**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)									
Spartina pectinata	58	20	28	16	8	32	**20.80**	***100***	3
TOTAL NPG(W)	**58.0**	**20.0**	**28.0**	**16.0**	**8.0**	**32.0**	**20.80**	***100***	**3.0**
INTRODUCED PERENNIAL GRAMINOIDS									
Agropyron cristatum		1					**0.20**	***20***	
Agropyron elongatum						28	**5.60**	***20***	
Agropyron repens	2			3			**0.60**	***20***	
Bromus inermis	16	5			38		**8.60**	***40***	
TOTAL IPG	**18.0**	**6.0**	**0.0**	**3.0**	**38.0**	**28.0**	**15.00**	***80***	**0.0**
NATIVE ANNUAL GRAMINOIDS									
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**
INTRODUCED ANNUAL GRAMINOIDS									
TOTAL IAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**
NATIVE PERENNIAL FORBS AND SUBSHRUBS									
Apocynum cannabinum	8								
Asclepias speciosa	0.3	3			0.3		**0.66**	***40***	
Potamogeton pectinatus						7	**1.40**	***20***	
Typha latifolia	46	1				18	**3.80**	***40***	54
TOTAL NPF AND SUBSHRUBS	**54.3**	**4.0**	**0.0**	**0.0**	**0.3**	**25.0**	**5.86**	***60***	**54.0**
INTRODUCED PERENNIAL FORBS									
Rumex crispus					0.3		**0.06**	***20***	
TOTAL IPF	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.06**	***20***	**0.0**

Table G13
Percent Canopy Cover by Class and Species for Three HERBACEOUS BOTTOM Community Types in the *Typha latifolia* and *Scirpus acutus* Series, Otter Creek Tract 2 Facilities Baseline Study Area, 2012.

	TYP LAT/ SPA PEC	*SCIRPUS VALIDUS-SCIRPUS ACUTUS/SPARTINA PECTINATA*							*SCI VAL- SCI ACU/ TYP LAT*
	PLOT	**PLOT NUMBER**					**Mean**	***Con-***	**PLOT**
	777	769	771	776	782	787	**Cover**	***stancy***	789
	n=1						**n=5**		n=1
FERNS AND ALLIES									
Equisetum laevigatum	0.3								
TOTAL F&A	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS									
Artemisia biennis	0.3								
Chenopodium rubrum				18			**3.60**	***20***	
TOTAL NAF	**0.3**	**0.0**	**0.0**	**18.0**	**0.0**	**0.0**	**3.60**	***20***	**0.0**
INTRODUCED ANNUAL/BIENNIAL FORBS									
Atriplex heterosperma	3	7		16	13	16	**10.40**	***80***	3
Lactuca serriola									0.3
Sisymbrium loeselii		1			0.3		**0.26**	***40***	
Thlaspi arvense				0.3			**0.06**	***20***	
TOTAL IAF	**3.0**	**8.0**	**0.0**	**16.3**	**13.3**	**16.0**	**10.72**	***80***	**3.3**
SHRUBS									
Rosa woodsii		36					**7.20**	***20***	
Symphoricarpos occidentalis		5					**1.00**	***20***	
TOTAL SHRUBS	**0.0**	**41.0**	**0.0**	**0.0**	**0.0**	**0.0**	**8.20**	***20***	**0.0**
TREES 0.01-acre									
Acer negundo					3		**0.60**	***20***	
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.0**	**0.0**	**3.0**	**0.0**	**0.60**	***20***	**0.0**
TREES 0.1-acre									
Acer negundo				4	14		**3.60**	***40***	2
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.0**	**4.0**	**14.0**	**0.0**	**3.60**	***40***	**2.0**
TOTAL VEGETATION (Stratified)	**133.9**	**137.0**	**106.0**	**110.3**	**118.9**	**179.3**	**130.30**	***100***	**78.3**

Footnotes are presented on cover page G-ii.

Table G14
Percent Canopy Cover by Class and Species for Two MESOPHYTIC SHRUB BOTTOM Community Types in the *Symphoricarpos occidentalis* Series, Otter Creek Facilities Baseline Study Area, 2012.

	SYMPHORICARPOS OCCIDENTALIS ARTEMISIA CANA/ AGROPYRON SMITHII-POA PRATENSIS				SYM OCC-ROS WOO/ POA PRA-AGR SMI
	PLOT NUMBER		Mean	*Con-*	PLOT
	808	811	Cover	*stancy*	842
			n=2		n=1
SITE PARAMETERS					
Slope (percent)	4	6			4-6
Aspect (degrees)	E	E			NNE
Topography	Bot	Bot			Bot
Configuration	V	V			V
Photo # (Digital)	428-9	433-4			381-2
Investigator	DB/KL	DB/KL			DB/KL
Date	07/06/12	07/06/12			07/03/12
GROUND COVER					
Bare Ground	8	33	**20.50**	***100***	26
Rock		0.3	**0.15**	***50***	6
Litter	86	55	**70.50**	***100***	55
Lichens		3	**1.50**	***50***	5
Moss		4	**2.00**	***50***	3
Water					
Basal Vegetation	6	5	**5.50**	***100***	5
VEGETATION STRUCTURE (nonstratified cover)					
Total Vegetation	86	76	**81.00**	***100***	86
Perennial Graminoids	70	70	**70.00**	***100***	62
Annual Graminoids	7		**3.50**	***50***	3
Perennial Forbs	1	1	**1.00**	***100***	17
Annual/Biennial Forbs	2		**1.00**	***50***	
Shrubs	30	12	**21.00**	***100***	31
Trees 0.01-acre					
Trees 0.1-acre					0.3

Table G14
Percent Canopy Cover by Class and Species for Two MESOPHYTIC SHRUB BOTTOM Community Types in the *Symphoricarpos occidentalis* Series, Otter Creek Facilities Baseline Study Area, 2012.

	SYMPHORICARPOS OCCIDENTALIS ARTEMISIA CANA/ AGROPYRON SMITHII-POA PRATENSIS				SYM OCC-ROS WOO/ POA PRA-AGR SMI
	PLOT NUMBER		Mean	*Con-*	PLOT
	808	811	Cover	*stancy*	842
			n=2		n=1
CLASS\SPECIES					
NATIVE PERENNIAL GRAMINOIDS (Cool Season)					
Agropyron smithii	30	45	**37.50**	***100***	2
Agropyron spicatum					12
Carex filifolia					4
Koeleria cristata					3
Stipa viridula		7	**3.50**	***50***	1
TOTAL NPG(C)	**30.0**	**52.0**	**41.00**	***100***	**22.0**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)					
Sporobolus airoides		2	**1.00**	***50***	
TOTAL NPG(W)	**0.0**	**2.0**	**1.00**	***50***	**0.0**
INTRODUCED PERENNIAL GRAMINOIDS					
Poa pratensis	50	30	**40.00**	***100***	46
TOTAL IPG	**50.0**	**30.0**	**40.00**	***100***	**46.0**
NATIVE ANNUAL GRAMINOIDS					
TOTAL NAG	**0.0**	**0.0**	**0.00**	***0***	**0.0**
INTRODUCED ANNUAL GRAMINOIDS					
Bromus japonicus	7		**3.50**	***50***	3
TOTAL IAG	**7.0**	**0.0**	**3.50**	***50***	**3.0**
NATIVE PERENNIAL FORBS AND SUBSHRUBS					
Achillea millefolium	1		**0.50**	***50***	0.3
Antennaria parvifolia					2
Artemisia frigida					1
Artemisia ludoviciana					3
Aster falcatus	0.3	1	**0.65**	***100***	
Cerastium arvense					3
Chrysopsis villosa					0.3
Dalea purpurea					0.3
Gaura coccinea					2

Table G14
Percent Canopy Cover by Class and Species for Two MESOPHYTIC SHRUB BOTTOM Community Types in the *Symphoricarpos occidentalis* Series, Otter Creek Facilities Baseline Study Area, 2012.

	SYMPHORICARPOS OCCIDENTALIS ARTEMISIA CANA/ AGROPYRON SMITHII-POA PRATENSIS				SYM OCC-ROS WOO/ POA PRA-AGR SMI
	PLOT NUMBER		Mean	*Con-*	PLOT
	808	811	Cover	*stancy*	842
			n=2		n=1
Gutierrezia sarothrae					0.3
Hymenopappus filifolius					0.3
Linum lewisii					0.3
Lygodesmia juncea					0.3
Opuntia polyacantha		0.3	**0.15**	***50***	0.3
Oxytropis sericea					0.3
Solidago missouriensis					0.3
Solidago rigida		0.3	**0.15**	***50***	3
Sphaeralcea coccinea					0.3
Toxicodendron rydbergii					1
TOTAL NPF AND SUBSHRUBS	**1.3**	**1.6**	**1.45**	***100***	**18.3**
INTRODUCED PERENNIAL FORBS					
TOTAL IPF	**0.0**	**0.0**	**0.00**	***0***	**0.0**
FERNS AND ALLIES					
TOTAL F&A	**0.0**	**0.0**	**0.00**	***0***	**0.0**
NATIVE ANNUAL/BIENNIAL FORBS					
TOTAL NAF	**0.0**	**0.0**	**0.00**	***0***	**0.0**
INTRODUCED ANNUAL/BIENNIAL FORBS					
Thlaspi arvense	2		**1.00**	***50***	
TOTAL IAF	**2.0**	**0.0**	**1.00**	***50***	**0.0**
SHRUBS					
Artemisia cana	6	3	**4.50**	***100***	0.3
Artemisia tridentata					4
Rosa woodsii		0.3	**0.15**	***50***	1
Symphoricarpos occidentalis	24	9	**16.50**	***100***	28
TOTAL SHRUBS	**30.0**	**12.3**	**21.15**	***100***	**33.3**

Table G14
Percent Canopy Cover by Class and Species for Two MESOPHYTIC SHRUB BOTTOM Community Types in the *Symphoricarpos occidentalis* Series, Otter Creek Facilities Baseline Study Area, 2012.

	SYMPHORICARPOS OCCIDENTALIS ARTEMISIA CANA/ AGROPYRON SMITHII-POA PRATENSIS				SYM OCC-ROS WOO/ POA PRA-AGR SMI
	PLOT NUMBER		Mean	*Con-*	PLOT
	808	811	Cover	*stancy*	842
			n=2		n=1
TREES 0.01-acre					
TOTAL TREES 0.01-acre	**0.0**	**0.0**	**0.00**	***0***	**0.0**
TREES 0.1-acre					
Juniperus scopulorum					0.3
TOTAL TREES 0.1-acre	**0.0**	**0.0**	**0.00**	***0***	**0.3**
TOTAL VEGETATION (Stratified)	**120.3**	**97.9**	**109.10**	***100***	**122.6**

Footnotes are presented on cover page G-ii.

Table G15
Percent Canopy Cover by Class and Species for Three MESOPHYTIC DECIDUOUS TREE BOTTOM Community Types in the *Populus deltoides* Series, Otter Creek Facilities Baseline Study Area, 2012.

	POPULUS DELTOIDES-FRAXINUS PENNSYLVANICA-ACER NEGUNDO/ POA PRATENSIS				***POP DEL-SAL AMY/ POA PRA***	***POPULUS DELTOIDES-FRAXINUS PENNSYLVANICA-ACER NEGUNDO/ PRUNUS VIRGINIANA***			
	PLOT NUMBER		**Mean**	***Con-***	**PLOT**	**PLOT NUMBER**		**Mean**	***Con-***
	765	767	**Cover**	***stancy***	766	763	764	**Cover**	***stancy***
			n=2		n=1			**n=2**	
SITE PARAMETERS									
Slope (percent)	4-8/40-100	0-2/35-75			2-3/30-80	3-5/35-90	3-5/25-80		
Aspect (degrees)	250	335			340	275	256		
Topography	Bot/Bnk	Bot/Bnk			Bot/Bnk	Bot/Bnk	Bot/Bnk		
Configuration	V	V			V	V	V		
Photo # (Digital)	563	567-8			564-6	558-9	560-1		
Investigator	KS/ED	KS/ED			KS/ED	KS/ED	KS/ED		
Date	07/05/12	07/05/12			07/05/12	07/05/12	07/05/12		
GROUND COVER									
Bare Ground	36	57	**46.50**	***100***	30	60	20	**40.00**	***100***
Rock									
Litter	60	40	**50.00**	***100***	66	37	76	**56.50**	***100***
Lichens									
Moss									
Water									
Basal Vegetation	4	3	**3.50**	***100***	4	3	4	**3.50**	***100***
VEGETATION STRUCTURE (nonstratified cover)									
Total Vegetation	92	99	**95.50**	***100***	96	90	95	**92.50**	***100***
Perennial Graminoids	70	12	**41.00**	***100***	67	55	60	**57.50**	***100***
Annual Graminoids	1		**0.50**	***50***	0.3	0.3	0.3	**0.30**	***100***
Perennial Forbs	1		**0.50**	***50***	4	0.3	5	**2.65**	***100***
Annual/Biennial Forbs	2	6	**4.00**	***100***	7	4	1	**2.50**	***100***
Shrubs	0.3	1	**0.65**	***100***	1	25	8	**16.50**	***100***
Trees 0.01-acre	60	98	**79.00**	***100***	80	35	58	**46.50**	***100***
Trees 0.1-acre	80	84	**82.00**	***100***	60	32	48	**40.00**	***100***

Table G15
Percent Canopy Cover by Class and Species for Three MESOPHYTIC DECIDUOUS TREE BOTTOM Community Types in the *Populus deltoides* Series, Otter Creek Facilities Baseline Study Area, 2012.

	POPULUS DELTOIDES-FRAXINUS PENNSYLVANICA-ACER NEGUNDO/ POA PRATENSIS				*POP DEL-SAL AMY/ POA PRA*	*POPULUS DELTOIDES-FRAXINUS PENNSYLVANICA-ACER NEGUNDO/ PRUNUS VIRGINIANA*			
	PLOT NUMBER		**Mean**	***Con-***	**PLOT**	**PLOT NUMBER**		**Mean**	***Con-***
	765	767	**Cover**	***stancy***	766	763	764	**Cover**	***stancy***
			n=2		n=1			**n=2**	
CLASS\SPECIES									
NATIVE PERENNIAL GRAMINOIDS (Cool Season)									
Agropyron smithii						1		**0.50**	***50***
Hordeum jubatum	0.3		**0.15**	***50***					
TOTAL NPG(C)	**0.3**	**0.0**	**0.15**	***50***	**0.0**	**1.0**	**0.0**	**0.50**	***50***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)									
TOTAL NPG(W)	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED PERENNIAL GRAMINOIDS									
Agropyron cristatum	12	8	**10.00**	***100***		16	8	**12.00**	***100***
Agropyron repens	3		**1.50**	***50***	8				
Bromus inermis					28				
Poa pratensis	64	4	**34.00**	***100***	38	40	54	**47.00**	***100***
TOTAL IPG	**79.0**	**12.0**	**45.50**	***100***	**74.0**	**56.0**	**62.0**	**59.00**	***100***
NATIVE ANNUAL GRAMINOIDS									
TOTAL NAG	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS									
Bromus japonicus	1		**0.50**	***50***	0.3	0.3	0.3	**0.30**	***100***
Bromus tectorum	0.3		**0.15**	***50***	0.3				
TOTAL IAG	**1.3**	**0.0**	**0.65**	***50***	**0.6**	**0.3**	**0.3**	**0.30**	***100***
NATIVE PERENNIAL FORBS AND SUBSHRUBS									
Achillea millefolium						0.3	1	**0.65**	***100***
Artemisia ludoviciana							2	**1.00**	***50***
Aster falcatus							2	**1.00**	***50***
Ratibida columnifera	0.3		**0.15**	***50***	0.3				
Urtica dioica					2				
TOTAL NPF AND SUBSHRUBS	**0.3**	**0.0**	**0.15**	***50***	**2.3**	**0.3**	**5.0**	**2.65**	***100***

Table G15
Percent Canopy Cover by Class and Species for Three MESOPHYTIC DECIDUOUS TREE BOTTOM Community Types in the *Populus deltoides* Series, Otter Creek Facilities Baseline Study Area, 2012.

	POPULUS DELTOIDES-FRAXINUS PENNSYLVANICA-ACER NEGUNDO/ POA PRATENSIS				*POP DEL-SAL AMY/ POA PRA*	*POPULUS DELTOIDES-FRAXINUS PENNSYLVANICA-ACER NEGUNDO/ PRUNUS VIRGINIANA*			
	PLOT NUMBER		**Mean**	***Con-***	**PLOT**	**PLOT NUMBER**		**Mean**	***Con-***
	765	767	**Cover**	***stancy***	766	763	764	**Cover**	***stancy***
			n=2		n=1			**n=2**	
INTRODUCED PERENNIAL FORBS									
Rumex crispus	1		**0.50**	***50***	2		0.3	**0.15**	***50***
TOTAL IPF	**1.0**	**0.0**	**0.50**	***50***	**2.0**	**0.0**	**0.3**	**0.15**	***50***
FERNS AND ALLIES									
TOTAL F&A	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS									
Polygonum arenastrum	0.3		**0.15**	***50***		2		**1.00**	***50***
TOTAL NAF	**0.3**	**0.0**	**0.15**	***50***	**0.0**	**2.0**	**0.0**	**1.00**	***50***
INTRODUCED ANNUAL/BIENNIAL FORBS									
Alyssum desertorum						0.3	0.3	**0.30**	***100***
Arctium minus					3				
Asperugo procumbens		3	**1.50**	***50***					
Descurainia sophia	0.3		**0.15**	***50***					
Sisymbrium loeselii					1				
Thlaspi arvense	2	3	**2.50**	***100***	3	2	1	**1.50**	***100***
TOTAL IAF	**2.3**	**6.0**	**4.15**	***100***	**7.0**	**2.3**	**1.3**	**1.80**	***100***
SHRUBS									
Artemisia cana					1	0.3	1	**0.65**	***100***
Prunus virginiana						16	3	**9.50**	***100***
Rosa woodsii					0.3	12	3	**7.50**	***100***
Symphoricarpos occidentalis	0.3	1	**0.65**	***100***		1	1	**1.00**	***100***
TOTAL SHRUBS	**0.3**	**1.0**	**0.65**	***100***	**1.3**	**29.3**	**8.0**	**18.65**	***100***
TREES 0.01-acre									
Acer negundo		98	**49.00**	***50***			20	**10.00**	***50***
Fraxinus pennsylvanica	8		**4.00**	***50***		30		**15.00**	***50***
Populus deltoides	55		**27.50**	***50***	10	5	56	**30.50**	***100***
Salix amygdaloides					78				
TOTAL TREES 0.01-acre	**63.0**	**98.0**	**80.50**	***100***	**88.0**	**35.0**	**76.0**	**55.50**	***100***

Table G15
Percent Canopy Cover by Class and Species for Three MESOPHYTIC DECIDUOUS TREE BOTTOM Community Types in the *Populus deltoides* Series, Otter Creek Facilities Baseline Study Area, 2012.

	POPULUS DELTOIDES-FRAXINUS PENNSYLVANICA-ACER NEGUNDO/POA PRATENSIS				*POP DEL-SAL AMY/POA PRA*	*POPULUS DELTOIDES-FRAXINUS PENNSYLVANICA-ACER NEGUNDO/PRUNUS VIRGINIANA*			
	PLOT NUMBER		**Mean**	***Con-***	**PLOT**	**PLOT NUMBER**		**Mean**	***Con-***
	765	767	**Cover**	***stancy***	766	763	764	**Cover**	***stancy***
			n=2		n=1			**n=2**	
TREES 0.1-acre									
Acer negundo		84	**42.00**	***50***	4		2	**1.00**	***50***
Fraxinus pennsylvanica	30		**15.00**	***50***		18		**9.00**	***50***
Populus deltoides	56	8	**32.00**	***100***	26	14	48	**31.00**	***100***
Salix amygdaloides					38				
TOTAL TREES 0.1-acre	**86.0**	**92.0**	**89.00**	***100***	**68.0**	**32.0**	**50.0**	**41.00**	***100***
TOTAL VEGETATION (Stratified)	**147.8**	**117.0**	**132.40**	***100***	**175.2**	**126.2**	**152.9**	**139.55**	***100***

Footnotes are presented on cover page G-ii.

Table G16
Percent Canopy Cover by Class and Species for Three MESOPHYTIC DECIDUOUS TREE BOTTOM Community Types in the *Acer negundo Series* , Otter Creek Facilities Baseline Study Area, 2012.

	ACER NEGUNDO / BROMUS INERMIS							*ACER NEGUNDO / SPARTINA PECTINATA*				*ACER NEGUNDO / PRUNUS VIRGINIANA*				
	PLOT NUMBER					**Mean**	***Con-***	**PLOT NUMBER**		**Mean**	***Con-***	**PLOT NUMBER**			**Mean**	***Con-***
	778	779	780	781	783	**Cover**	***stancy***	770	785	**Cover**	***stancy***	762	784	790	**Cover**	***stancy***
						n=5				**n=2**					**n=3**	
SITE PARAMETERS																
Slope (percent)	0/50-70	2-8	0/5-50	0/20-100	0-1/10-90			0-1/5-20	0-1/20-55			3/60-90	50-55	5-55		
Aspect (degrees)	338/058	010	310/215	245	068			055	240			285	005	070		
Topography	Bot/Bnk	Bot/Ter	Bot/Bnk	Bot/Bnk	Bot/Bnk			Bot/Bnk	Bot/Bnk			Bot/Bnk	Bnk	Toe/Ter		
Configuration	V	V	V	V	V			V	V			V	X	V (Und)		
Photo # (Digital)	540	547	545	587-8	584-5			595-7	569-70			556-7	581	609-10		
Investigator	KS/ED	KS/ED	KS/ED	KS/ED	KS/ED			KS/ED	KS/ED			KS/ED	KS/ED	KS/ED		
Date	07/02/12	07/03/12	07/03/12	07/06/12	07/06/12			07/07/12	07/06/12			07/05/12	07/06/12	07/07/12		
GROUND COVER																
Bare Ground	11	1	6	3	8	**5.80**	***100***	2	20	**11.00**	***100***	74	4	0.3	**26.10**	***100***
Rock													18	0.3	**6.10**	***67***
Litter	70	95	90	87	83	**85.00**	***100***	88	73	**80.50**	***100***	23	74	95	**64.00**	***100***
Lichens																
Moss												0.3	0.3		**0.20**	***67***
Water	15			5	4	**4.80**	***60***	4	2	**3.00**	***100***					
Basal Vegetation	4	4	4	5	5	**4.40**	***100***	6	5	**5.50**	***100***	3	4	4	**3.67**	***100***
VEGETATION STRUCTURE (nonstratified cover)																
Total Vegetation	82	98	94	96	94	**92.80**	***100***	95	92	**93.50**	***100***	88	98	95	**93.67**	***100***
Perennial Graminoids	78	75	66	66	70	**71.00**	***100***	85	90	**87.50**	***100***	44	14	58	**38.67**	***100***
Annual Graminoids					0.3	**0.06**	***20***					2			**0.67**	***33***
Perennial Forbs	1	0.3	1	6	18	**5.26**	***100***	2	0.3	**1.15**	***100***		4	1	**1.67**	***67***
Annual/Biennial Forbs	2	1	0.3	19	12	**6.86**	***100***	16	1	**8.50**	***100***	2	13	2	**5.67**	***100***
Shrubs				18		**3.60**	***20***	4	1	**2.50**	***100***	8	36	29	**24.33**	***100***
Trees 0.01-acre	12	94	86	48	56	**59.20**	***100***	20	54	**37.00**	***100***	62	86	72	**73.33**	***100***
Trees 0.1-acre	22	64	66	52	16	**44.00**	***100***	6	26	**16.00**	***100***	58	72	75	**68.33**	***100***

Table G16
Percent Canopy Cover by Class and Species for Three MESOPHYTIC DECIDUOUS TREE BOTTOM Community Types in the *Acer negundo Series* , Otter Creek Facilities Baseline Study Area, 2012.

	ACER NEGUNDO / BROMUS INERMIS							*ACER NEGUNDO / SPARTINA PECTINATA*				*ACER NEGUNDO / PRUNUS VIRGINIANA*				
	PLOT NUMBER					**Mean**	***Con-***	**PLOT NUMBER**		**Mean**	***Con-***	**PLOT NUMBER**			**Mean**	***Con-***
	778	779	780	781	783	**Cover**	***stancy***	770	785	**Cover**	***stancy***	762	784	790	**Cover**	***stancy***
						n=5				**n=2**					**n=3**	
CLASS\SPECIES																
NATIVE PERENNIAL GRAMINOIDS (Cool Season)																
Eleocharis palustris									1	**0.50**	***50***					
Hordeum jubatum	0.3					**0.06**	***20***									
Phalaris arundinacea				2		**0.40**	***20***									
Poa sandbergii																
Poa scabrella																
Scirpus acutus								5		**2.50**	***50***					
Scirpus americanus								16	2	**9.00**	***100***					
TOTAL NPG(C)	**0.3**	**0.0**	**0.0**	**2.0**	**0.0**	**0.46**	***40***	**21.0**	**3.0**	**12.00**	***100***	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE PERENNIAL GRAMINOIDS (Warm Season)																
Spartina pectinata	1	1	0.3	8	14	**4.86**	***100***	24	32	**28.00**	***100***				**0.00**	***0***
TOTAL NPG(W)	**1.0**	**1.0**	**0.3**	**8.0**	**14.0**	**4.86**	***100***	**24.0**	**32.0**	**28.00**	***100***	**0.0**	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED PERENNIAL GRAMINOIDS																
Agropyron cristatum			2			**0.40**	***20***		1	**0.50**	***50***	30			**10.00**	***33***
Agropyron repens	8					**1.60**	***20***	14		**7.00**	***50***					
Bromus inermis	74	74	65	58	58	**65.80**	***100***	42	58	**50.00**	***100***		14	58	**24.00**	***67***
Poa pratensis												16			**5.33**	***33***
TOTAL IPG	**82.0**	**74.0**	**67.0**	**58.0**	**58.0**	**67.80**	***100***	**56.0**	**59.0**	**57.50**	***100***	**46.0**	**14.0**	**58.0**	**39.33**	***100***
NATIVE ANNUAL GRAMINOIDS																
TOTAL NAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL GRAMINOIDS																
Bromus japonicus												2			**0.67**	***33***
Bromus tectorum					0.3	**0.06**	***20***									
TOTAL IAG	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.06**	***20***	**0.0**	**0.0**	**0.00**	***0***	**2.0**	**0.0**	**0.0**	**0.67**	***33***

Table G16
Percent Canopy Cover by Class and Species for Three MESOPHYTIC DECIDUOUS TREE BOTTOM Community Types in the *Acer negundo Series* , Otter Creek Facilities Baseline Study Area, 2012.

	ACER NEGUNDO / BROMUS INERMIS							*ACER NEGUNDO / SPARTINA PECTINATA*				*ACER NEGUNDO / PRUNUS VIRGINIANA*				
	PLOT NUMBER					**Mean**	***Con-***	**PLOT NUMBER**		**Mean**	***Con-***	**PLOT NUMBER**			**Mean**	***Con-***
	778	779	780	781	783	**Cover**	***stancy***	770	785	**Cover**	***stancy***	762	784	790	**Cover**	***stancy***
						n=5				**n=2**					**n=3**	
NATIVE PERENNIAL FORBS AND SUBSHRUBS																
Apocynum cannabinum	1	0.3	1		12	**2.86**	***80***									
Asclepias speciosa					0.3	**0.06**	***20***		0.3	**0.15**	***50***					
Aster hesperius	0.3					**0.06**	***20***									
Potamogeton pectinatus								2		**1.00**	***50***					
Potentilla gracilis					2	**0.40**	***20***									
Rumex salicifolius								0.3		**0.15**	***50***					
Solidago gigantea					1	**0.20**	***20***							0.3	**0.10**	***33***
Toxicodendron rydbergii													1		**0.33**	***33***
Urtica dioica													1		**0.33**	***33***
TOTAL NPF AND SUBSHRUBS	**1.3**	**0.3**	**1.0**	**0.0**	**15.3**	**3.58**	***80***	**2.3**	**0.3**	**1.30**	***100***	**0.0**	**2.0**	**0.3**	**0.77**	***67***
INTRODUCED PERENNIAL FORBS																
Cirsium arvense				4	4	**1.60**	***40***						2	1	**1.00**	***67***
Rumex crispus				2	1	**0.60**	***40***						0.3		**0.10**	***33***
TOTAL IPF	**0.0**	**0.0**	**0.0**	**6.0**	**5.0**	**2.20**	***40***	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**2.3**	**1.0**	**1.10**	***67***
FERNS AND ALLIES																
TOTAL F&A	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.00**	***0***	**0.0**	**0.0**	**0.0**	**0.00**	***0***
NATIVE ANNUAL/BIENNIAL FORBS																
Chenopodium glaucum					3	**0.60**	***20***									
Chenopodium rubrum								2		**1.00**	***50***					
Gaura parviflora								1		**0.50**	***50***					
TOTAL NAF	**0.0**	**0.0**	**0.0**	**0.0**	**3.0**	**0.60**	***20***	**3.0**	**0.0**	**1.50**	***50***	**0.0**	**0.0**	**0.0**	**0.00**	***0***
INTRODUCED ANNUAL/BIENNIAL FORBS																
Alyssum desertorum												0.3			**0.10**	***33***
Arctium minus					2	**0.40**	***20***						3		**1.00**	***33***
Asperugo procumbens								0.3		**0.15**	***50***					
Atriplex heterosperma	2	1		14	5	**4.40**	***80***	12	0.3	**6.15**	***100***		2		**0.67**	***33***
Camelina microcarpa												0.3			**0.10**	***33***
Lactuca serriola					0.3	**0.06**	***20***	0.3	1	**0.65**	***100***					
Sisymbrium loeselii				5	2	**1.40**	***40***	1		**0.50**	***50***		8	2	**3.33**	***67***
Thlaspi arvense			0.3			**0.06**	***20***					2			**0.67**	***33***
TOTAL IAF	**2.0**	**1.0**	**0.3**	**19.0**	**9.3**	**6.32**	***100***	**13.6**	**1.3**	**7.45**	***100***	**2.6**	**13.0**	**2.0**	**5.87**	***100***

Table G16
Percent Canopy Cover by Class and Species for Three MESOPHYTIC DECIDUOUS TREE BOTTOM Community Types in the *Acer negundo Series* , Otter Creek Facilities Baseline Study Area, 2012.

	ACER NEGUNDO / BROMUS INERMIS							*ACER NEGUNDO / SPARTINA PECTINATA*				*ACER NEGUNDO / PRUNUS VIRGINIANA*				
	PLOT NUMBER					**Mean**	***Con-***	**PLOT NUMBER**		**Mean**	***Con-***	**PLOT NUMBER**			**Mean**	***Con-***
	778	779	780	781	783	**Cover**	***stancy***	770	785	**Cover**	***stancy***	762	784	790	**Cover**	***stancy***
						n=5				**n=2**					**n=3**	
SHRUBS																
Prunus virginiana												2	26	28	**18.67**	***100***
Ribes setosum									1	**0.50**	***50***	1	6	0.3	**2.43**	***100***
Rosa woodsii				18		**3.60**	***20***					2	4		**2.00**	***67***
Symphoricarpos occidentalis								4		**2.00**	***50***	3	5	1	**3.00**	***100***
TOTAL SHRUBS	**0.0**	**0.0**	**0.0**	**18.0**	**0.0**	**3.60**	***20***	**4.0**	**1.0**	**2.50**	***100***	**8.0**	**41.0**	**29.3**	**26.10**	***100***
TREES 0.01-acre																
Acer negundo	12	94	85	48	56	**59.00**	***100***	20	54	**37.00**	***100***	62	86	72	**73.33**	***100***
Fraxinus pennsylvanica			5			**1.00**	***20***									
TOTAL TREES 0.01-acre	**12.0**	**94.0**	**90.0**	**48.0**	**56.0**	**60.00**	***100***	**20.0**	**54.0**	**37.00**	***100***	**62.0**	**86.0**	**72.0**	**73.33**	***100***
TREES 0.1-acre																
Acer negundo	22	64	60	52	16	**42.80**	***100***	6	26	**16.00**	***100***	52	72	73	**65.67**	***100***
Fraxinus pennsylvanica			12			**2.40**	***20***					6		3	**3.00**	***67***
TOTAL TREES 0.1-acre	**22.0**	**64.0**	**72.0**	**52.0**	**16.0**	**45.20**	***100***	**6.0**	**26.0**	**16.00**	***100***	**58.0**	**72.0**	**76.0**	**68.67**	***100***
TOTAL VEGETATION (Stratified)	**98.6**	**170.3**	**158.6**	**159.0**	**160.9**	**149.48**	***100***	**143.9**	**150.6**	**147.25**	***100***	**120.6**	**158.3**	**162.6**	**147.17**	***100***

Footnotes are presented on cover page G-ii.

APPENDIX H

Shrub Density (Plants Per Acre) by Plot for Community Types Identified in the Otter Creek Facilities Baseline Study Area, Powder River County, Montana, 2012.

TABLE	COMMUNITY TYPE[1]	PAGE
	GRASSLAND	
H1	*Agropyron smithii / Bouteloua gracilis*	H-1
	Stipa comata / Carex filifolia	
H2	*Agropyron spicatum / Stipa comata*	H-2
	Agropyron spicatum / Bouteloua curtipendula	
H3	*Andropogon scoparius / Carex filifolia*	H-3
	Andropogon scoparius / Bouteloua curtipendula	
	Andropogon scoparius / Andropogon gerardii	
H4	*Andropogon scoparius / Calamovilfa longifolia*	H-4
	Calamovilfa longifolia / Stipa comata	
	TAME PASTURE	
H5	Hay Cropland – Farmed	H-5
H6	Pastureland - Grazed/Go-Back	H-6
	SHRUB / GRASSLAND	
H7	*Artemisia cana / Agropyron smithii*	H-7
H8	*Artemisia tridentata / Agropyron smithii*	H-8
H9	*Artemisia tridentata / Agropyron spicatum*	H-9
	Artemisia tridentata / Andropogon scoparius	
	BREAKS	
H10	**Grass-Dominated Breaks**	H-10
	Agropyron smithii Breaks	
	Shrub-Dominated Breaks	
	Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron smithii	
	Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron spicatum	
	Rhus aromatica / Agropyron spicatum	
	Conifer-Dominated Breaks	
	Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum Breaks	
	PONDEROSA PINE-JUNIPER FOREST AND SAVANNAH	
H11	**Ponderosa Pine-Juniper / Grass**	H-11
	Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum	
	Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius	
	DRAINAGE BOTTOM[3]	
H12	**Mesophytic/Hydrophytic Herbaceous Bottom**	H-12
	Spartina pectinata / Bromus inermis	
	Spartina pectinata / Puccinellia nuttalliana	
	Spartina pectinata / Scirpus americanus	
H13	*Typha latifolia / Spartina pectinata*	H-13
	Scirpus acutus-Scirpus validus / Spartina pectinata	
	Scirpus acutus-Scirpus validus / Typha latifolia	
H14	**Mesophytic Low Shrub Bottom**	H-14
	Symphoricarpos occidentalis-Artemisia cana / Agropyron smithii-Poa pratensis	
	Symphoricarpos occidentalis-Rosa woodsii / Poa pratensis-Agropyron smithii	

APPENDIX H

Shrub Density (Plants Per Acre) by Plot for Community Types Identified in the Otter Creek Facilities Baseline Study Area, Powder River County, Montana, 2012.

TABLE	COMMUNITY TYPE[1]	PAGE
H15	**Mesophytic Deciduous Tree Bottom**	H-15
	Populus deltoides-Fraxinus pennsylvanica-Acer negundo / Poa pratensis	
	Populus deltoides-Salix amygdaloides / Poa pratensis	
	Populus deltoides-Fraxinus pennsylvanica-Acer negundo / Prunus virginiana	
H16	*Acer negundo / Bromus inermis*	H-16
	Acer negundo / Spartina pectinata	
	Acer negundo / Prunus virginiana	

[1]In this classification, community types are named according to the following convention:

A slash (/) indicates a separation of species dominating different strata, namely the herbaceous, shrub and/or tree layers.

A hyphen (-) indicates species dominating the same stratum (understory, middle story or overstory) either or both of which may be dominant or codominant at a given sample site.

All plot locations are shown on the vegetation community type map (Plate 1).

Footnotes for the tables in Appendix H:

Binomials follow USDA Forest Service (1987).

Density counts in each 2 x 20-meter belt transect were converted to shrubs per acre using a conversion factor of 101.18.

Table H1
Shrub Density (Plants per Acre) by Species for Eleven GRASSLAND Sample Sites in the *Agropyron smithii* and *Stipa comata* Series, Otter Creek Facilities Baseline Study Area, 2012.

	AGROPYRON SMITHII/ BOUTELOUA GRACILIS			***STIPA COMATA/CAREX FILIFOLIA***									
	PLOT			**PLOT NUMBER**									
	744	810	**Mean**	751	754	798	854	857	858*	861	863	866	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**		**n=2**	**Plants Per Acre**									**n=9**
Artemisia cana													
immature/mature												304	**33.7**
decadent													
Total live												304	**33.7**
Artemisia tridentata													
immature/mature		101	**50.6**										
decadent													
Total live		101	**50.6**										
TOTAL SHRUBS													
IMMATURE/MATURE		101	**50.6**									304	**33.7**
DECADENT													
TOTAL LIVE		101	**50.6**									304	**33.7**

Table H2
Shrub Density (Plants per Acre) by Species for Seven GRASSLAND Sample Sites in the *Agropyron spicatum* Series, Otter Creek Facilities Baseline Study Area, 2012.

	AGROPYRON SPICATUM/ STIPA COMATA				*AGROPYRON SPICATUM/ BOUTELOUA CURTIPENDULA*				
	PLOT NUMBER				PLOT NUMBER				
	742	809	871	**Mean**	820	831	832	846	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**			**n=3**	**Plants Per Acre**				**n=4**
Artemisia tridentata									
immature/mature					607	607	304		**379.4**
decadent					101				**25.3**
Total live					708	607	304		**404.7**
Rosa woodsii									
immature/mature						405		607	**253.0**
decadent									
Total live						405		607	**253.0**
Symphoricarpos occidentalis									
immature/mature								708	**177.1**
decadent									
Total live								708	**177.1**
TOTAL SHRUBS									
IMMATURE/MATURE					607	1012	304	1315	**809.4**
DECADENT					101				**25.3**
TOTAL LIVE	0	0	0	**0.0**	708	1012	304	1315	**834.7**

Table H3
Shrub Density (Plants per Acre) by Species for Seven GRASSLAND Sample Sites in the *Andropogon scoparius* Series, Otter Creek Facilities Baseline Study Area, 2012.

	ANDROPOGON SCOPARIUS/ CAREX FILIFOLIA			*ANDROPOGON SCOPARIUS/ BOUTELOUA CURTIPENDULA*				*ANDROPOGON SCOPARIUS/ ANDROPOGON GERARDII*		
	PLOT NUMBER			**PLOT NUMBER**				**PLOT NUMBER**		
	856	867	**Mean**	803	815	825	**Mean**	756	833	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**		**n=2**	**Plants Per Acre**			**n=3**	**Plants Per Acre**		**n=2**
Artemisia tridentata										
immature/mature									405	**202.4**
decadent										
Total live									405	**202.4**
Juniperus horizontalis										
immature/mature									304	**151.8**
decadent										
Total live									304	**151.8**
Rosa woodsii										
immature/mature									304	**151.8**
decadent										
Total live									304	**151.8**
TOTAL SHRUBS										
IMMATURE/MATURE									**1012**	**505.9**
DECADENT										
TOTAL LIVE	**0**	**0**	**0.0**	**0**	**0**	**0**	**0.0**	**0**	**1012**	**505.9**

Table H4
Shrub Density (Plants per Acre) by Species for Eight GRASSLAND Sample Sites in the *Andropogon scoparius* and *Calamovilfa longifolia* Series, Otter Creek Facilities Baseline Study Area, 2012.

	ANDROPOGON SCOPARIUS/ CALAMOVILFA LONGIFOLIA			*CALAMOVILFA LONGIFOLIA/ STIPA COMATA*						
	PLOT NUMBER			**PLOT NUMBER**						
	813	853	**Mean**	745	752	758	796	802	870	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**		**n=2**	**Plants Per Acre**						**n=6**
Artemisia cana										
immature/mature									1113	**185.5**
decadent									101	**16.9**
Total live									1214	**202.4**
Artemisia tridentata										
immature/mature	101	506	**303.5**							
decadent	202		**101.2**							
Total live	304	506	**404.7**							
Chrysothamnus nauseosus										
immature/mature		101	**50.6**							
decadent										
Total live		101	**50.6**							
Juniperus horizontalis										
immature/mature	304		**151.8**							
decadent										
Total live	304		**151.8**							
Rhus aromatica										
immature/mature							607	202		**134.9**
decadent										
Total live							607	202		**134.9**
Rosa arkansana										
immature/mature	101		**50.6**	101						**16.9**
decadent										
Total live	101		**50.6**	101						**16.9**
Rosa woodsii										
immature/mature				202						**33.7**
decadent										
Total live				202						**33.7**
Symphoricarpos occidentalis										
immature/mature	708		**354.1**							
decadent										
Total live	708		**354.1**							
TOTAL SHRUBS										
IMMATURE/MATURE	**1214**	**607**	**910.6**	**304**			**607**	**202**	**1113**	**371.0**
DECADENT	**202**		**101.2**						**101**	**16.9**
TOTAL LIVE	**1417**	**607**	**1011.8**	**304**			**607**	**202**	**1214**	**387.9**

Table H5
Shrub Density (Plants per Acre) by Species for 41 HAY CROPLAND TAME PASTURE Sample Sites, Otter Creek Facilities Baseline Study Area, 2012.

	HAY CROPLAND - FARMED	
	PLOT NUMBER	
	713	Mean
SHRUB SPECIES/AGE CLASS	Plants Per Acre	n=41
Atriplex nuttallii		
immature/mature	202	**4.9**
decadent		
Total live	202	**4.9**
TOTAL SHRUBS		
IMMATURE/MATURE	**202**	**4.9**
DECADENT		
TOTAL LIVE	**202**	**4.9**

Table H6
Shrub Density (Plants per Acre) by Species for 22 PASTURELAND TAME PASTURE Sample Sites, Otter Creek Facilities Baseline Study Area, 2012.

	PASTURELAND - GRAZED / GO-BACK																						
	PLOT NUMBER																						
	741	743	746	747	749	753	757	759	760	792	793	795	797	799	801	806	807	834	843	860	862	864	Mean
SHRUB SPECIES/AGE CLASS	Plants Per Acre																						n=22
Artemisia cana																							
immature/mature					202	2833	202	7386	10219		2226	3035				405							**1205.0**
decadent					405	202			708			809											**96.6**
Total live					607	3035	202	7386	10927		2226	3845				405							**1301.5**
Atriplex nuttallii																							
immature/mature	304	101																					**18.4**
decadent																							
Total live	304	101																					**18.4**
Ceratoides lanata																							
immature/mature	3541																						**161.0**
decadent																							
Total live	3541																						**161.0**
Chrysothamnus nauseosus																							
immature/mature			304																				**13.8**
decadent																							
Total live			304																				**13.8**
Rhus aromatica																							
immature/mature																				405			**18.4**
decadent																							
Total live																				405			**18.4**
Rosa woodsii																							
immature/mature																	1315						**59.8**
decadent																	101						**4.6**
Total live																	1417						**64.4**
TOTAL SHRUBS																							
IMMATURE/MATURE	**3845**	**101**	**304**		**202**	**2833**	**202**	**7386**	**10219**		**2226**	**3035**				**405**	**1315**			**405**			**1476.3**
DECADENT					**405**	**202**			**708**			**809**					**101**						**101.2**
TOTAL LIVE	**3845**	**101**	**304**		**607**	**3035**	**202**	**7386**	**10927**		**2226**	**3845**				**405**	**1417**			**405**			**1577.5**

Table H7
Shrub Density (Plants per Acre) by Species for Seven *Artemisia cana/Agropyron smithii* SHRUB/GRASSLAND Sample Sites, Otter Creek Facilities Baseline Study Area, 2012.

	ARTEMISIA CANA/AGROPYRON SMITHII							
	PLOT NUMBER							
	755	805	817	835	845	868	869	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**							**n=7**
Artemisia cana								
immature/mature	1821	1922	506	1518	607	1821	1720	**1416.5**
decadent	708		101	304	304	506	202	**303.5**
Total live	2530	1922	607	1821	911	2327	1922	**1720.1**
Artemisia tridentata								
immature/mature	101				101			**28.9**
decadent					101			**14.5**
Total live	101				202			**43.4**
Rosa woodsii								
immature/mature				304		405		**101.2**
decadent				101		101		**28.9**
Total live				405		506		**130.1**
TOTAL SHRUBS								
IMMATURE/MATURE	**1922**	**1922**	**506**	**1821**	**708**	**2226**	**1720**	**1546.6**
DECADENT	**708**		**101**	**405**	**405**	**607**	**202**	**346.9**
TOTAL LIVE	**2631**	**1922**	**607**	**2226**	**1113**	**2833**	**1922**	**1893.5**

Table H8
Shrub Density (Plants per Acre) by Species for Six *Artemisia tridentata/Agropyron smithii* SHRUB/GRASSLAND Sample Sites, Otter Creek Facilities Baseline Study Area, 2012.

	ARTEMISIA TRIDENTATA/AGROPYRON SMITHII						
	PLOT NUMBER						
	750	816	821	829	847	850	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**						**n=6**
Artemisia cana							
immature/mature	607		708				**219.2**
decadent							
Total live	607		708				**219.2**
Artemisia tridentata							
immature/mature	607	3339	708	911	3035	2125	**1787.5**
decadent	405	506	405	405	809	607	**522.8**
Total live	1012	3845	1113	1315	3845	2732	**2310.3**
Atriplex nuttallii							
immature/mature					506		**84.3**
decadent							
Total live					506		**84.3**
Ceratoides lanata							
immature/mature	506					202	**118.0**
decadent							
Total live	506					202	**118.0**
TOTAL SHRUBS							
IMMATURE/MATURE	1720	3339	1417	911	3541	2327	**2209.1**
DECADENT	405	506	405	405	809	607	**522.8**
TOTAL LIVE	2125	3845	1821	1315	4351	2934	**2731.9**

Table H9
Shrub Density (Plants per Acre) by Species for Nine *Artemisia tridentata/Agropyron spicatum* and One *Artemisia tridentata/Andropogon scoparius* SHRUB/GRASSLAND Sample Sites, Otter Creek Facilities Baseline Study Area, 2012.

	ARTEMISIA TRIDENTATA/AGROPYRON SPICATUM										***ART TRI/ AND SCO***
	PLOT NUMBER										**PLOT**
	814	818	819	822	827	828	839	840	844	**Mean**	812
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**									**n=9**	**Plants Per Acre**
Artemisia cana											
immature/mature											304
decadent											
Total live											304
Artemisia tridentata											
immature/mature	1922	2024	1518	1113	2125	2428	1214	708	1417	**1607.6**	2530
decadent	1012	607		304	405	304	101	405		**348.5**	911
Total live	2934	2631	1518	1417	2530	2732	1315	1113	1417	**1956.1**	3440
Ceratoides lanata											
immature/mature			304	101						**45.0**	
decadent											
Total live			304	101						**45.0**	
Chrysothamnus nauseosus											
immature/mature		405	405							**89.9**	
decadent		405								**45.0**	
Total live		809	405							**134.9**	
Rosa woodsii											
immature/mature		1012								**112.4**	
decadent											
Total live		1012								**112.4**	
TOTAL SHRUBS											
IMMATURE/MATURE	1922	3440	2226	1214	2125	2428	1214	708	1417	**1855.0**	2833
DECADENT	1012	1012		304	405	304	101	405		**393.5**	911
TOTAL LIVE	2934	4452	2226	1518	2530	2732	1315	1113	1417	**2248.4**	3744

Table H10

Shrub Density (Plants per Acre) by Species for Five BREAKS Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	AGR SMI BREAKS	*ART TRI-SAR VER-CHR NAU/ AGR SMI*	*ARTEMISIA TRIDENTATA-SARCOBATUS VERMICULATUS-CHRYSOTHAMNUS NAUSEOSUS/ AGROPYRON SPICATUM*				*RHUS AROMATICA/ AGROPYRON SPICATUM*					*PIN PON-JUN SCO/ AGR SPI* BREAKS
	PLOT	**PLOT**	**PLOT NUMBER**				**PLOT NUMBER**					**PLOT**
	849	848	823	830	838	**Mean**	836	855	859	865	**Mean**	824
SHRUB SPECIES/AGE CLASS	**Plants/Ac**	**Plants/Ac**	**Plants Per Acre**			**n=3**	**Plants Per Acre**				**n=4**	**Plants/Ac**
Artemisia tridentata												
immature/mature	202	1214	101		2530	**876.9**						607
decadent		304			607	**202.4**						202
Total live	202	1518	101		3137	**1079.3**						809
Chrysothamnus nauseosus												
immature/mature		1417	1315	405	2024	**1247.9**						708
decadent		101	101			**33.7**						
Total live		1518	1417	405	2024	**1281.6**						708
Juniperus horizontalis												
immature/mature												1012
decadent												
Total live												1012
Rhus aromatica												
immature/mature							5160	708	1417	1315	**2150.1**	
decadent							304				**75.9**	
Total live							5464	708	1417	1315	**2226.0**	
Rosa arkansana												
immature/mature			7690			**2563.2**						
decadent												
Total live			7690			**2563.2**						
Rosa woodsii												
immature/mature							101				**25.3**	
decadent												
Total live							101				**25.3**	
Sarcobatus vermiculatus												
immature/mature		708		2125		**708.3**						
decadent				506		**168.6**						
Total live		708		2631		**876.9**						
TOTAL SHRUBS												
IMMATURE/MATURE	**202**	**3339**	**9106**	**2530**	**4553**	**5396.3**	**5261**	**708**	**1417**	**1315**	**2175.4**	**2327**
DECADENT		**405**	**101**	**506**	**607**	**404.7**	**304**				**75.9**	**202**
TOTAL LIVE	**202.4**	**3744**	**9207**	**3035**	**5160**	**5801.0**	**5565**	**708**	**1417**	**1315**	**2251.3**	**2530**

Table H11
Shrub Density (Plants per Acre) by Species for Two PINE-JUNIPER FOREST and SAVANNAH Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM / AGROPYRON SPICATUM								*PINUS PONDEROSA-JUNIPERUS SCOPULORUM / ANDROPOGON SCOPARIUS*		
	PLOT NUMBER								PLOT NUMBER		
	791	804	826	837	841	851	852	**Mean**	794	800	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**							**n=7**	**Plants Per Acre**		**n=2**
Artemisia cana											
immature/mature	101	304				101		**72.3**			
decadent											
Total live	101	304				101		**72.3**			
Artemisia tridentata											
immature/mature				101		202	506	**115.6**			
decadent					405			**57.8**			
Total live				101	405	202	506	**173.5**			
Chrysothamnus nauseosus											
immature/mature							101	**14.5**			
decadent											
Total live							101	**14.5**			
Prunus virginiana											
immature/mature									405		**202.4**
decadent											
Total live									405		**202.4**
Rhus aromatica											
immature/mature	809		506		911	405	304	**419.2**	1417		**708.3**
decadent											
Total live	809		506		911	405	304	**419.2**	1417		**708.3**
Rosa woodsii											
immature/mature			101	405	809	304	708	**332.4**			
decadent											
Total live			101	405	809	304	708	**332.4**			
Symphoricarpos occidentalis											
immature/mature			4958	506	506		607	**939.5**			
decadent							202	**28.9**			
Total live			4958	506	506		809	**968.4**			
TOTAL SHRUBS											
IMMATURE/MATURE	**911**	**304**	**5565**	**1012**	**2226**	**1012**	**2226**	**1893.5**	**1821**		**910.6**
DECADENT					**405**		**202**	**86.7**			
TOTAL LIVE	**911**	**304**	**5565**	**1012**	**2631**	**1012**	**2428**	**1980.2**	**1821**		**910.6**

Table H12
Shrub Density (Plants per Acre) by Species for Three HERBACEOUS BOTTOM Community Types in the *Spartina pectinata* Series, Otter Creek Facilities Baseline Study Area, 2012.

	SPARTINA PECTINATA/ BROMUS INERMIS			*SPA PEC/ PUC NUT*	*SPARTINA PECTINATA/ SCIRPUS AMERICANUS*		
	PLOT NUMBER			PLOT	PLOT NUMBER		
	773	775	Mean	710	772	774	Mean
SHRUB SPECIES/AGE CLASS	Plants Per Acre		n=2	Plants	Plants Per Acre		n=2
TOTAL SHRUBS							
IMMATURE/MATURE							
DECADENT							
TOTAL LIVE	0	0	0.0	0	0	0	0.0

Table H13
Shrub Density (Plants per Acre) by Species for Three HERBACEOUS BOTTOM Community Types in the *Typha latifolia* and *Scirpus acutus* Series, Otter Creek Facilities Baseline Study Area, 2012.

	TYP LAT/ SPA PEC	*SCIRPUS VALIDUS-SCIRPUS ACUTUS/ SPARTINA PECTINATA*						*SCI VAL-SCI ACU/ TYP LAT*
	PLOT	**PLOT NUMBER**						**PLOT**
	777	769	771	776	782	787	**Mean**	789
SHRUB SPECIES/AGE CLASS	**Plants/Ac**	**Plants Per Acre**					**n=5**	**Plants/Ac**
Rosa woodsii								
immature/mature		7589					**1517.7**	
decadent		304					**60.7**	
Total live		7892					**1578.4**	
Symphoricarpos occidentalis								
immature/mature		6577					**1315.3**	
decadent		1214					**242.8**	
Total live		7791					**1558.2**	
TOTAL SHRUBS								
IMMATURE/MATURE		**14165**					**2833.0**	
DECADENT		**1518**					**303.5**	
TOTAL LIVE	**0.0**	**15683**					**3136.6**	**0.0**

Table H14
Shrub Density (Plants per Acre) by Species for Two MESOPHYTIC SHRUB BOTTOM Community Types in the *Symphoricarpos occidentalis* Series, Otter Creek Facilities Baseline Study Area, 2012.

	SYM OCC-ART CAN/ AGR SMI-POA PRA			SYM OCC-ROS WOO/ POA PRA-AGR SMI
	PLOT NUMBER			PLOT
	808	811	Mean	842
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**		**n=2**	**Plants/Ac**
Artemisia cana				
immature/mature	809	202	**505.9**	
decadent				
Total live	809	202	**505.9**	
Rosa woodsii				
immature/mature		304	**151.8**	
decadent				
Total live		304	**151.8**	
Symphoricarpos occidentalis				
immature/mature	2024	9713	**5868.4**	34502
decadent	1619	809	**1214.2**	708
Total live	3642	10523	**7082.6**	35211
TOTAL SHRUBS				
IMMATURE/MATURE	**2833**	**10219**	**6526.1**	**34502**
DECADENT	**1619**	**809**	**1214.2**	**708**
TOTAL LIVE	**4452**	**11029**	**7740.3**	**35211**

Table H15
Shrub Density (Plants per Acre) by Species for Three MESOPHYTIC DECIDUOUS TREE BOTTOM Community Types in the *Populus deltoides* Series, Otter Creek Facilities Baseline Study Area, 2012.

	POPULUS DELTOIDES-FRAXINUS PENNSYLVANICA-ACER NEGUNDO/ POA PRATENSIS			*POP DEL-SAL AMY/ POA PRA*	*POPULUS DELTOIDES-FRAXINUS PENNSYLVANICA-ACER NEGUNDO/ PRUNUS VIRGINIANA*		
	PLOT NUMBER			**PLOT**	**PLOT NUMBER**		
	765	767	**Mean**	766	763	764	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**		**n=2**	**Plants/Ac**	**Plants Per Acre**		**n=2**
Artemisia cana							
immature/mature	101		**50.6**	405	101		**50.6**
decadent	101		**50.6**				
Total live	202		**101.2**	405	101		**50.6**
Prunus virginiana							
immature/mature					506		**253.0**
decadent							
Total live					506		**253.0**
Rosa woodsii							
immature/mature	101		**50.6**		2732	2024	**2377.7**
decadent	202		**101.2**		202	405	**303.5**
Total live	304		**151.8**		2934	2428	**2681.3**
Symphoricarpos occidentalis							
immature/mature	1012	708	**860.0**		405	7083	**3743.7**
decadent	304	202	**253.0**		202	809	**505.9**
Total live	1315	911	**1113.0**		607	7892	**4249.6**
TOTAL SHRUBS							
IMMATURE/MATURE	**1214**	**708**	**961.2**	**405**	**3744**	**9106**	**6424.9**
DECADENT	**607**	**202**	**404.7**		**405**	**1214**	**809.4**
TOTAL LIVE	**1821**	**911**	**1365.9**	**405**	**4148**	**10320**	**7234.4**

Table H16
Shrub Density (Plants per Acre) by Species for Three MESOPHYTIC DECIDUOUS TREE BOTTOM Community Types in the *Acer negundo* Series, Otter Creek Facilities Baseline Study Area, 2012.

	ACER NEGUNDO / BROMUS INERMIS						***ACER NEGUNDO / SPARTINA PECTINATA***			***ACER NEGUNDO / PRUNUS VIRGINIANA***			
	PLOT NUMBER						**PLOT NUMBER**			**PLOT NUMBER**			
	778	779	780	781	783	**Mean**	770	785	**Mean**	762	784	790	**Mean**
SHRUB SPECIES/AGE CLASS	**Plants Per Acre**					**n=5**	**Plants Per Acre**		**n=2**	**Plants Per Acre**			**n=3**
Prunus virginiana													
immature/mature										1821	15278	4047	**7048.9**
decadent										202	304		**168.6**
Total live										2024	15582	4047	**7217.5**
Ribes aureum													
immature/mature											809		**269.8**
decadent													
Total live											809		**269.8**
Ribes setosum													
immature/mature								304	**151.8**	405	5261		**1888.7**
decadent											304		**101.2**
Total live								304	**151.8**	405	5565		**1989.9**
Rosa woodsii													
immature/mature				405	405	**161.9**				405	911		**438.4**
decadent										101			**33.7**
Total live				405	405	**161.9**				506	911		**472.2**
Symphoricarpos occidentalis													
immature/mature			2631		6071	**1740.3**	11636	2530	**7082.6**	607	1922	506	**1011.8**
decadent			405			**80.9**	304	101	**202.4**	101			**33.7**
Total live			3035		6071	**1821.2**	11939	2631	**7285.0**	708	1922	506	**1045.5**
TOTAL SHRUBS													
IMMATURE/MATURE			**2631**	**405**	**6476**	**1902.2**	**11636**	**2833**	**7234.4**	**3238**	**24182**	**4553**	**10657.6**
DECADENT			**405**			**80.9**	**304**	**101**	**202.4**	**405**	**607**		**337.3**
TOTAL LIVE			**3035**	**405**	**6476**	**1983.1**	**11939**	**2934**	**7436.7**	**3642**	**24789**	**4553**	**10994.9**

APPENDIX J

Live Tree Density (Stems Per Acre) by Plot for Community Types Identified in the Otter Creek Facilities Baseline Study Area, Powder River County, Montana, 2012.

TABLE	COMMUNITY TYPE[1]	PAGE
	GRASSLAND	
J1	*Agropyron smithii / Bouteloua gracilis*	J-1
	Stipa comata / Carex filifolia	
	Agropyron spicatum / Stipa comata	
	Agropyron spicatum / Bouteloua curtipendula	
	Andropogon scoparius / Carex filifolia	
	Andropogon scoparius / Bouteloua curtipendula	
	Andropogon scoparius / Andropogon gerardii	
	Andropogon scoparius / Calamovilfa longifolia	
	Calamovilfa longifolia / Stipa comata	
	TAME PASTURE	
J1	Hay Cropland – Farmed	J-1
	Pastureland - Grazed/Go-Back	
	SHRUB / GRASSLAND	
J2	*Artemisia cana / Agropyron smithii*	J-2
	Artemisia tridentata / Agropyron smithii	
	Artemisia tridentata / Agropyron spicatum	
	Artemisia tridentata / Andropogon scoparius	
	BREAKS	
J3	**Grass-Dominated Breaks**	J-3
	Agropyron smithii Breaks	
	Shrub-Dominated Breaks	
	Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron smithii	
	Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron spicatum	
	Rhus aromatica / Agropyron spicatum	
	Conifer-Dominated Breaks	
	Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum Breaks	
	PONDEROSA PINE-JUNIPER FOREST AND SAVANNAH	
J4	**Ponderosa Pine-Juniper / Grass**	J-4
	Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum	
	Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius	
	DRAINAGE BOTTOM[3]	
J5	**Mesophytic/Hydrophytic Herbaceous Bottom**	J-5
	Spartina pectinata / Bromus inermis	
	Spartina pectinata / Puccinellia nuttalliana	
	Spartina pectinata / Scirpus americanus	
	Typha latifolia / Spartina pectinata	
	Scirpus acutus-Scirpus validus / Spartina pectinata	
	Scirpus acutus-Scirpus validus / Typha latifolia	
	Mesophytic Low Shrub Bottom	
	Symphoricarpos occidentalis-Artemisia cana / Agropyron smithii-Poa pratensis	
	Symphoricarpos occidentalis-Rosa woodsii / Poa pratensis-Agropyron smithii	

APPENDIX J

Live Tree Density (Stems Per Acre) by Plot for Community Types Identified in the Otter Creek Facilities Baseline Study Area, Powder River County, Montana, 2012.

TABLE	COMMUNITY TYPE[1]	PAGE
J6	**Mesophytic Deciduous Tree Bottom**	J-6
	Populus deltoides-Fraxinus pennsylvanica-Acer negundo / Poa pratensis	
	Populus deltoides-Salix amygdaloides / Poa pratensis	
	Populus deltoides-Fraxinus pennsylvanica-Acer negundo / Prunus virginiana	
	Acer negundo / Bromus inermis	
	Acer negundo / Spartina pectinata	
	Acer negundo / Prunus virginiana	

Footnotes for the tables in Appendix J:

All plot locations are shown on the vegetation community type map (Plate 1).

Binomials primarily follow USDA Forest Service (1987).

Density counts in each 0.1-acre circular plot were converted to trees per acre using a conversion factor of 10.

[1]No trees occurred in the sixty-three 0.1-acre density plots sampled in Tame Pasture.

Table J1
Tree Density (Live Trees per Acre) by Plot for Two[1] GRASSLAND Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	AGROPYRON SPICATUM/ BOUTELOUA CURTIPENDULA					*ANDROPOGON SCOPARIUS/ ANDROPOGON GERARDII*		
	PLOT NUMBER					**PLOT NUMBER**		
TREE SPECIES	820	831	832	846	**Mean**	756	833	**Mean**
DBH CLASS - LIVE TREES	**Trees Per Acre**				**n=4**	**Trees Per Acre**		**n=2**
Juniperus scopulorum								
<1"				20	**5.0**		80	**40.0**
1-4"							20	**10.0**
4-8"								
8-12"								
12-16"								
16-20"								
20-24"								
24-28"								
TOTAL LIVE TREES				**20**	**5.0**		**100**	**50.0**
TOTAL TREE SPECIES - LIVE								
<1"				20	**5.0**		80	**40.0**
1-4"							20	**10.0**
4-8"								
8-12"								
12-16"								
16-20"								
20-24"								
24-28"								
TOTAL LIVE TREES				**20**	**5.0**		**100**	**50.0**

[1]Trees were present in only two of the thirty-three 0.1-acre density plots sampled in nine GRASSLAND community types in the Facilities baseline study area in 2012. No trees were present in the sixty-three 0.1-acre density plots sampled in two Tame Pasture types in the Facilities baseline study area in 2012.

Table J2

Tree Density (Live Trees per Acre) by Plot for Three[1] SHRUB/GRASSLAND Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	ARTEMISIA CANA/AGROPYRON SMITHII								*ARTEMISIA TRIDENTATA/AGROPYRON SPICATUM*										*ART TRI/ AND SCO*
	PLOT NUMBER								**PLOT NUMBER**										**PLOT**
TREE SPECIES	755	805	817	835	845	868	869	**Mean**	814	818	819	822	827	828	839	840	844	**Mean**	812
DBH CLASS - LIVE TREES	**Trees Per Acre**							**n=7**	**Trees Per Acre**									**n=9**	**Trees Per Acre**
Acer negundo																			
<1"																			
1-4"						10		**1.43**											
4-8"																			
8-12"																			
TOTAL LIVE TREES						10		**1.43**											
Juniperus scopulorum																			
<1"																			20
1-4"																			10
4-8"																			
8-12"																			
TOTAL LIVE TREES																			**30**
Pinus ponderosa																			
<1"																			
1-4"																	10	**1.11**	
4-8"																			
8-12"																			
TOTAL LIVE TREES																	**10**	**1.11**	
TOTAL TREE SPECIES - LIVE																			
<1"																			20
1-4"						**10**		**1.43**									10	**1.11**	10
4-8"																			
8-12"																			
TOTAL LIVE TREES						**10**		**1.43**									**10**	**1.11**	**30**

[1]Trees were present in only three of the twenty-three 0.1-acre density plots sampled in four SHRUB/GRASSLAND community types in the Facilities baseline study area in 2012.

Table J3
Tree Density (Live Trees per Acre) by Plot for Five[1] BREAKS Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	***PIN PON-JUN SCO/ AGR SPI* BREAKS**
	PLOT
TREE SPECIES	824
DBH CLASS - LIVE TREES	**Trees/Ac**
Juniperus scopulorum	
<1"	30
1-4"	20
4-8"	
8-12"	
12-16"	
16-20"	
20-24"	
24-28"	
TOTAL LIVE TREES	**50**
Pinus ponderosa	
<1"	40
1-4"	70
4-8"	20
8-12"	
12-16"	
16-20"	
20-24"	
24-28"	
TOTAL LIVE TREES	**130**
TOTAL LIVE TREES	
<1"	**70**
1-4"	**90**
4-8"	**20**
8-12"	
12-16"	
16-20"	
20-24"	
24-28"	
TOTAL LIVE TREES	**180**

[1]Trees were present in only one of the ten 0.1-acre density plots sampled in five BREAKS community types in the Facilities baseline study area in 2012.

Table J4
Tree Density (Live Trees per Acre) by Plot for Two PINE-JUNIPER FOREST and SAVANNAH Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	PINUS PONDEROSA-JUNIPERUS SCOPULORUM / AGROPYRON SPICATUM								*PINUS PONDEROSA-JUNIPERUS SCOPULORUM / ANDROPOGON SCOPARIUS*		
	PLOT NUMBER								**PLOT NUMBER**		
TREE SPECIES	791	804	826	837	841	851	852	**Mean**	794	800	**Mean**
DBH CLASS - LIVE TREES	**Trees Per Acre**							**n=7**	**Trees Per Acre**		**n=2**
Juniperus scopulorum											
<1"	20	10	60	270		150	30	**77.1**			
1-4"			20	30	20			**10.0**		10	**5.0**
4-8"											
8-12"											
12-16"											
16-20"											
20-24"											
24-28"											
TOTAL LIVE TREES	**20**	**10**	**80**	**300**	**20**	**150**	**30**	**87.1**		**10**	**5.0**
Pinus ponderosa											
<1"			60	120	210	20	10	**60.0**			
1-4"		20	310		180		50	**80.0**		20	**10.0**
4-8"	10	40	70	20	30			**24.3**	10	30	**20.0**
8-12"	70	10	20	10		10		**17.1**	10	20	**15.0**
12-16"						10		**1.4**	10		**5.0**
16-20"				10		20		**4.3**			
20-24"			10					**1.4**			
24-28"											
TOTAL LIVE TREES	**80**	**70**	**470**	**160**	**420**	**60**	**60**	**188.6**	**30**	**70**	**50.0**
TOTAL TREE SPECIES - LIVE											
<1"	**20**	**10**	**120**	**390**	**210**	**170**	**40**	**137.1**			
1-4"		**20**	**330**	**30**	**200**		**50**	**90.0**		**30**	**15.0**
4-8"	**10**	**40**	**70**	**20**	**30**			**24.3**	**10**	**30**	**20.0**
8-12"	**70**	**10**	**20**	**10**		**10**		**17.1**	**10**	**20**	**15.0**
12-16"						**10**		**1.4**	**10**		**5.0**
16-20"				**10**		**20**		**4.3**			
20-24"			**10**					**1.4**			
24-28"											
TOTAL LIVE TREES	**100**	**80**	**550**	**460**	**440**	**210**	**90**	**275.7**	**30**	**80**	**55.0**

Table J5

Tree Density (Live Trees per Acre) by Plot for Four[1] HERBACEOUS BOTTOM Community Types and One[1] MESOPHYTIC LOW SHRUB BOTTOM Community Type, Otter Creek Facilities Baseline Study Area, 2012.

	SPARTINA PECTINATA/ BROMUS INERMIS			*SPARTINA PECTINATA/ SCIRPUS AMERICANUS*			*SCIRPUS VALIDUS SCIRPUS ACUTUS/ SPARTINA PECTINATA*						*SCI VAL-SCI ACU/ TYP LAT*	SYM OCC-ROS WOO/ POA PRA-AGR SMI
	PLOT NUMBER			PLOT NUMBER			PLOT NUMBER						PLOT	PLOT
TREE SPECIES	773	775	**Mean**	772	774	**Mean**	769	771	776	782	787	**Mean**	789	842
DBH CLASS - LIVE TREES	**Trees Per Acre**		**n=2**	**Trees Per Acre**		**n=2**	**Trees Per Acre**					**n=5**	**Trees/Ac**	**Trees/Ac**
Acer negundo														
<1"									80	20		**20.0**		
1-4"					10	**5.0**			40	60		**20.0**		
4-8"	50		**25.0**		50	**25.0**				10		**2.0**	20	
8-12"	10		**5.0**							10		**2.0**		
12-16"														
16-20"														
20-24"														
24-28"														
TOTAL LIVE TREES	**60**		**30.0**		**60**	**30.0**			**120**	**100**		**44.0**	**20**	
Juniperus scopulorum														
<1"														10
1-4"														
4-8"														
8-12"														
12-16"														
16-20"														
20-24"														
24-28"														
TOTAL LIVE TREES														**10**
TOTAL TREE SPECIES - LIVE														
<1"									**80**	**20**		**20.0**		**10**
1-4"					**10**	**5.0**			**40**	**60**		**20.0**		
4-8"	**50**		**25.0**		**50**	**25.0**				**10**		**2.0**	**20**	
8-12"	**10**		**5.0**							**10**		**2.0**		
12-16"														
16-20"														
20-24"														
24-28"														
TOTAL LIVE TREES	**60**	**0**	**30.0**	**0**	**60**	**30.0**	**0**	**0**	**120**	**100**	**0**	**44.0**	**20**	**10**

[1]Trees were present in ten of the twelve 0.1-acre density plots sampled in six HERBACEOUS BOTTOM community types and one of three plots sampled in two MESOPHYTIC LOW SHRUB BOTTOM community types in the Facilities baseline study area in 2012.

Table J6

Tree Density (Live Trees per Acre) by Plot for Six MESOPHYTIC DECIDUOUS TREE BOTTOM Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	POPULUS DELTOIDES-FRAXINUS PENNSYLVANICA-ACER NEGUNDO/ POA PRATENSIS			*POP DEL-SAL AMY/ POA PRA*	*POPULUS DELTOIDES-FRAXINUS PENNSYLVANICA-ACER NEGUNDO/ PRUNUS VIRGINIANA*			*ACER NEGUNDO / BROMUS INERMIS*						*ACER NEGUNDO / SPARTINA PECTINATA*			*ACER NEGUNDO / PRUNUS VIRGINIANA*			
	PLOT NUMBER			**PLOT**	**PLOT NUMBER**			**PLOT NUMBER**						**PLOT NUMBER**			**PLOT NUMBER**			
TREE SPECIES	765	767	**Mean**	766	763	764	**Mean**	778	779	780	781	783	**Mean**	770	785	**Mean**	762	784	790	**Mean**
DBH CLASS - LIVE TREES	**Trees Per Acre**		**n=2**	**Trees/Ac**	**Trees Per Acre**		**n=2**	**Trees Per Acre**					**n=5**	**Trees Per Acre**		**n=2**	**Trees Per Acre**			**n=3**
Acer negundo																				
<1"									110	220	310	180	**164.0**	40	90	**65.0**			110	**36.7**
1-4"		10	**5.0**			10	**5.0**	20	130	300	320	40	**162.0**		40	**20.0**	60		130	**63.3**
4-8"		10	**5.0**			10	**5.0**	100	120	60	120	10	**82.0**		20	**10.0**	30	20	40	**30.0**
8-12"		110	**55.0**					10	80	20	30	10	**30.0**	10	30	**20.0**	50	10	30	**30.0**
12-16"		30	**15.0**					30	20				**10.0**	10		**5.0**		10		**3.3**
16-20"									10				**2.0**							
20-24"																				
40-44"																				
TOTAL LIVE TREES		**160**	**80.0**			**20**	**10.0**	**160**	**470**	**600**	**780**	**240**	**450.0**	**60**	**180**	**120.0**	**140**	**40**	**310**	**163.3**
Fraxinus pennsylvanica																				
<1"	60		**30.0**							50			**10.0**						40	**13.3**
1-4"	10		**5.0**		10		**5.0**			40			**8.0**				10			**3.3**
4-8"	50		**25.0**		10		**5.0**			50			**10.0**				30			**10.0**
8-12"					10		**5.0**													
12-16"																				
16-20"																				
20-24"																				
40-44"																				
TOTAL LIVE TREES	**120**		**60.0**		**30**		**15.0**			**140**			**28.0**				**40**		**40**	**26.7**
Populus deltoides																				
<1"																				
1-4"	10		**5.0**																	
4-8"	10		**5.0**																	
8-12"	20		**10.0**																	
12-16"						20	**10.0**													
16-20"	20		**10.0**																	
20-24"	20		**10.0**	10		10	**5.0**													
40-44"				10																
TOTAL LIVE TREES	**80**		**40.0**	**20**		**30**	**15.0**													

Table J6

Tree Density (Live Trees per Acre) by Plot for Six MESOPHYTIC DECIDUOUS TREE BOTTOM Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	POPULUS DELTOIDES-FRAXINUS PENNSYLVANICA-ACER NEGUNDO/ POA PRATENSIS			*POP DEL-SAL AMY/ POA PRA*	*POPULUS DELTOIDES-FRAXINUS PENNSYLVANICA-ACER NEGUNDO/ PRUNUS VIRGINIANA*			*ACER NEGUNDO / BROMUS INERMIS*						*ACER NEGUNDO / SPARTINA PECTINATA*			*ACER NEGUNDO / PRUNUS VIRGINIANA*			
	PLOT NUMBER			**PLOT**	**PLOT NUMBER**			**PLOT NUMBER**						**PLOT NUMBER**			**PLOT NUMBER**			
TREE SPECIES	765	767	**Mean**	766	763	764	**Mean**	778	779	780	781	783	**Mean**	770	785	**Mean**	762	784	790	**Mean**
DBH CLASS - LIVE TREES	**Trees Per Acre**		**n=2**	**Trees/Ac**	**Trees Per Acre**		**n=2**	**Trees Per Acre**					**n=5**	**Trees Per Acre**		**n=2**	**Trees Per Acre**			**n=3**
Salix amygdaloides																				
<1"																				
1-4"				70																
4-8"				60																
8-12"				10																
12-16"				10																
16-20"																				
20-24"																				
40-44"																				
TOTAL LIVE TREES				**150**																
TOTAL TREE SPECIES - LIVE																				
<1"	**60**		**30.0**						**110**	**270**	**310**	**180**	**174.0**	**40**	**90**	**65.0**			**150**	**50.0**
1-4"	**20**	**10**	**15.0**	**70**	**10**	**10**	**10.0**	**20**	**130**	**340**	**320**	**40**	**170.0**		**40**	**20.0**	**70**		**130**	**66.7**
4-8"	**60**	**10**	**35.0**	**60**	**10**	**10**	**10.0**	**100**	**120**	**110**	**120**	**10**	**92.0**		**20**	**10.0**	**60**	**20**	**40**	**40.0**
8-12"	**20**	**110**	**65.0**	**10**	**10**		**5.0**	**10**	**80**	**20**	**30**	**10**	**30.0**	**10**	**30**	**20.0**	**50**	**10**	**30**	**30.0**
12-16"		**30**	**15.0**	**10**		**20**	**10.0**	**30**	**20**				**10.0**	**10**		**5.0**		**10**		**3.3**
16-20"	**20**		**10.0**						**10**				**2.0**							
20-24"	**20**		**10.0**	**10**		**10**	**5.0**													
40-44"				**10**																
TOTAL LIVE TREES	**200**	**160**	**180.0**	**170**	**30**	**50**	**40.0**	**160**	**470**	**740**	**780**	**240**	**478.0**	**60**	**180**	**120.0**	**180**	**40**	**350**	**190.0**

APPENDIX K

Soil Type and Ecological Site by Plot for Community Types in the Otter Creek Facilities Baseline Study Area, Powder River County, Montana, 2012.

PHYSIOGNOMIC TYPE	PAGE
GRASSLAND	K-1
TAME PASTURE	K-2
SHRUB / GRASSLAND	K-3
BREAKS	K-4
PONDEROSA PINE FOREST AND SAVANNAH	K-4
DRAINAGE BOTTOM	K-5

Map Symbol[1]	Soil Mapping Unit[1]
Av	Arvada clay loam, 0-10%
BCC	Blacksheep-Cabba-Cabbart Complex, 15-60%
BCT	Blacksheep-Cabba-Twilight Complex, 10-30%
BL-RO	Badlands-Rock Outcrop, 25-70%
CC	Cabbart-Cabba shallow loams, 20-70%
Cu	Cushman silt loam, 0-5%
DL	Disturbed Land, 0-5%
Fa	Farland silt loam, 0-10%
FtD	Fort Collins-Delpoint silt loams, 5-30%
FtHp	Fort Collins-Hesper silt loams, 5-15%
H	Haverson silty clay, 0-5%
H-S	Haverson silty clay - Saline, 0-5%
He	Heldt silty clay loam, 0-5%
He-S	Heldt silty clay loam - Saline, 0-5%
Hp	Hesper silty clay loam, 5-15%
Hy	Hydro clay loam, 0-10%
HyHp	Hydro-Hesper silty clay loams, 0-15%
McR	McRae silt loam, 0-15%
McR-S	McRae silt loam - Saline, 0-15%
Md-E	Midway clay loam - Eroded, 10-30%
MiCa	Midway-Cabbart shallow loams, 5-15%
MiDe	Midway-Delpoint silty clay loams, 5-15%
NiHa	Nihill-Havre outwash areas, 5-15%
Re	Relan loam, 5-15%
Ri	Ringling loam, 0-15%
RmT	Remmit-Twilight sandy loams, 5-20%
RTB	Ringling-Twilight-Barvon Complex, 5-30%
SO	Saline Overflow
TwB	Twilight-Blacksheep sandy loams, 0-20%
W	Water/Riparian Fringe

[1]Soils mapping units are identified, classified and delineated in the baseline soils report and map (Baker 2014).

n=number of sample sites

Site Code[2]	Ecological Site[2]
Cy	Clayey
CyT	Clayey Terrace
DC	Dense Clay
LyT	Loamy Terrace
Ov	Overflow
RWM	Riparian Wet Meadow
Sb	Subirrigated
Si	Silty
SiStp	Silty Steep
SL	Saline Lowland
Sw	Shallow
SwC	Shallow Clay
Sy	Sandy
SyStp	Sandy Steep
VSw	Very Shallow
Water	Water

[2]Ecological sites were determined using the baseline soils study (Baker 2014), descriptions in the Powder River County Soil Survey (USDA Natural Resources Conservation Service 1971, 2012) and technical guides for evaluating ecological site condition in NRCS (2003, 2006, 2012).

All plot locations are shown on the vegetation community type map (Plate 1). Plot numbers with an asterisk indicate sites associated with current and recent prairie dog colonies; prairie dogs conspicuously impact vegetation ecology in substantial portions of the study area, significantly affecting plant composition and diversity in the vicinity of their colonies.

APPENDIX K

Soil Type and Ecological Site by Vegetation Sample Plot, Otter Creek Facilities Baseline Study Area, Powder River County, Montana, 2012.

Community Type	Vegetation Plot Number	Soil Mapping Unit[1]	Ecological Site[2]
GRASSLAND (n=33)			
Agropyron smithii / Bouteloua gracilis (n=2)	810	BCC	Shallow
	744	Ri	Very Shallow
Stipa comata / Carex filifolia (n=9)	754	MiCa	Shallow Clay-Shallow
	751	Re	Silty
	866		
	798	Ri	Very Shallow
	858*		
	854	RTB	Very Shallow-Sandy Steep-Silty Steep
	857		
	861		
	863		
Agropyron spicatum / Stipa comata (n=3)	809	BCC	Shallow
	742	Ri	Very Shallow
	871		
Agropyron spicatum / Bouteloua curtipendula (n=4)	820	BCC	Shallow
	831		
	846		
	832	RTB	Very Shallow-Sandy Steep-Silty Steep
Andropogon scoparius / Carex filifolia (n=2)	856	RTB	Very Shallow-Sandy Steep-Silty Steep
	867	Re	Silty
Andropogon scoparius / Bouteloua curtipendula (n=3)	815	BCC	Shallow
	803	Ri	Very Shallow
	825	RTB	Very Shallow-Sandy Steep-Silty Steep
Andropogon scoparius / Andropogon gerardii (n=2)	833	BCC	Shallow
	756	Ri	Very Shallow
Andropogon scoparius / Calamovilfa longifolia (n=2)	853	BCC	Shallow
	813	RTB	Very Shallow-Sandy Steep-Silty Steep
Calamovilfa longifolia / Stipa comata (n=6)	752	Re	Silty
	745	Ri	Very Shallow
	758		
	796		
	802		
	870		

APPENDIX K

Soil Type and Ecological Site by Vegetation Sample Plot, Otter Creek Facilities Baseline Study Area, Powder River County, Montana, 2012.

Community Type	Vegetation Plot Number	Soil Mapping Unit[1]	Ecological Site[2]
TAME PASTURE (n=63)			
Hay Cropland – Farmed (n=41)	761	Fa	Silty (Overflow)
	740	FtD	Silty
	711	He	Clayey Terrace (Clayey)
	715		
	718		
	720		
	728		
	748		
	704	H-S	Saline Lowland
	705		
	706		
	707		
	708		
	709		
	712		
	714		
	716		
	717		
	719		
	722		
	724		
	725		
	726		
	727		
	729		
	731		
	732		
	733		
	734		
	735		
	736		
	737		
	739		
	788		
	713	McR	Silty
	723		
	730		
	738		
	721	Ri	Very Shallow
	768	SO	Saline Lowland
	786		

APPENDIX K

Soil Type and Ecological Site by Vegetation Sample Plot, Otter Creek Facilities Baseline Study Area, Powder River County, Montana, 2012.

Community Type	Vegetation Plot Number	Soil Mapping Unit[1]	Ecological Site[2]
Pastureland - Grazed/Go-Back (n=22)	834	BCC	Shallow
	793	H	Loamy Terrace (Silty)
	795		
	741	McR	Silty
	743		
	749		
	753		
	759		
	760		
	801		
	792*	McR-S	Saline Lowland
	799*		
	806	NiHa	Overflow (Silty)
	807		
	746	Re	Silty
	747		
	862*		
	864		
	757	Ri	Very Shallow
	797		
	843	RTB	Very Shallow-Sandy Steep-Silty Steep
	860		
SHRUB / GRASSLAND (n=23)			
Artemisia cana / Agropyron smithii (n=7)	845	BCC	Shallow
	805	McR	Silty
	755	MiCa	Shallow Clay-Shallow
	817	NiHa	Overflow (Silty)
	868		
	869	Ri	Very Shallow
	835	RTB	Very Shallow-Sandy Steep-Silty Steep
Artemisia tridentata / Agropyron smithii (n=6)	829	BCC	Shallow
	850		
	750	McR	Silty
	847	MiDe	Shallow Clay-Silty
	821	NiHa	Overflow (Silty)
	816	RTB	Very Shallow-Sandy Steep-Silty Steep
Artemisia tridentata / Agropyron spicatum (n=9)	814	BCC	Shallow
	818		
	822		
	844		
	819	MiCa	Shallow Clay-Shallow
	828		
	839	MiDe	Shallow Clay-Silty
	840		
	827	RTB	Very Shallow-Sandy Steep-Silty Steep
Artemisia tridentata / Andropogon scoparius (n=1)	812	RTB	Very Shallow-Sandy Steep-Silty Steep

APPENDIX K

Soil Type and Ecological Site by Vegetation Sample Plot, Otter Creek Facilities Baseline Study Area, Powder River County, Montana, 2012.

Community Type	Vegetation Plot Number	Soil Mapping Unit[1]	Ecological Site[2]
BREAKS (n=10)			
Grass-Dominated Breaks (n=1)			
Agropyron smithii Breaks (n=1)	849	BCC	Shallow
Shrub-Dominated Breaks (n=8)			
Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron smithii (n=1)	848	MiDe	Shallow Clay-Silty
Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron spicatum (n=3)	838	BCC	Shallow
	823	MiCa	Shallow Clay-Shallow
	830		
Rhus aromatica / Agropyron spicatum (n=4)	836	BCC	Shallow
	855	Ri	Very Shallow
	859		
	865		
Conifer-Dominated Breaks (n=1)			
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum Breaks (n=1)	824	MiCa	Shallow Clay-Shallow
PONDEROSA PINE-JUNIPER FOREST AND SAVANNAH (n=9)			
Ponderosa Pine-Juniper / Grass (n=9)			
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum (n=7)	837	BCC	Shallow
	841		
	852		
	804	Ri	Very Shallow
	791	RTB	Very Shallow-Sandy Steep-Silty Steep
	826		
	851		
Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius (n=2)	794	Ri	Very Shallow
	800		

APPENDIX K

Soil Type and Ecological Site by Vegetation Sample Plot, Otter Creek Facilities Baseline Study Area, Powder River County, Montana, 2012.

Community Type	Vegetation Plot Number	Soil Mapping Unit[1]	Ecological Site[2]
DRAINAGE BOTTOM (n=30)			
Mesophytic/Hydrophytic Herbaceous Bottom (n=12)			
Spartina pectinata/Bromus inermis (n=2)	773	W	Water/Riparian Wet Meadow/ Subirrigated
	775		
Spartina pectinata / Puccinellia nuttalliana (n=1)	710	SO	Saline Lowland
Spartina pectinata/Scirpus americanus (n=2)	772	W	Water/Riparian Wet Meadow/ Subirrigated
	774		
Typha latifolia/Spartina pectinata (n=1)	777	W	Water/Riparian Wet Meadow/ Subirrigated
Scirpus acutus-Scirpus validus / Spartina pectinata (n=5)	769	H-S	Saline Lowland
	776		
	771	W	Water/Riparian Wet Meadow/ Subirrigated
	782		
	787		
Scirpus acutus-Scirpus validus/Typha latifolia (n=1)	789	W	Water/Riparian Wet Meadow/ Subirrigated
Mesophytic Low Shrub Bottom (n=3)			
Symphoricarpos occidentalis-Artemisia cana / Agropyron smithii-Poa pratensis (n=2)	808	NiHa	Overflow (Silty)
	811		
Symphoricarpos occidentalis-Rosa woodsii / Poa pratensis-Agropyron smithii (n=1)	842	BCC	Shallow
Mesophytic Deciduous Tree Bottom (n=15)			
Populus deltoides-Fraxinus pennsylvanica-Acer negundo / Poa pratensis (n=2)	765	H	Loamy Terrace (Silty)
	767		
Populus deltoides-Salix amygdaloides / Poa pratensis (n=1)	766	H	Loamy Terrace (Silty)
Populus deltoides-Fraxinus pennsylvanica-Acer negundo / Prunus virginiana (n=2)	763	H	Loamy Terrace (Silty)
	764		
Acer negundo / Bromus inermis (n=5)	780	H-S	Saline Lowland
	778	W	Water/Riparian Wet Meadow/ Subirrigated
	779		
	781		
	783		
Acer negundo / Spartina pectinata (n=2)	770	H-S	Saline Lowland
	785	W	Water/Riparian Wet Meadow/ Subirrigated
Acer negundo / Prunus virginiana (n=3)	762	H	Loamy Terrace (Silty)
	784	McR	Silty
	790	W	Water/Riparian Wet Meadow/ Subirrigated

APPENDIX L

Relative Cover and Range Condition for Community Types in the Otter Creek Facilities Baseline Study Area, Powder River County, Montana, 2012.

PHYSIOGNOMIC TYPE	TABLE	PAGE
GRASSLAND	L1	L-1
TAME PASTURE	L2	L-3
SHRUB / GRASSLAND	L3	L-5
BREAKS	L4	L-7
PONDEROSA PINE FOREST AND SAVANNAH	L5	L-9
HERBACEOUS BOTTOM	L6	L-11
LOW SHRUB BOTTOM	L7	L-12
DECIDUOUS TREE BOTTOM	L8	L-13

Footnotes for the tables in Appendix L:

Relative cover values in this Appendix were derived from the absolute cover data presented in Appendix G.

[1]ECOLOGICAL SITE CONDITION RATING (SIMILARITY INDEX) is derived from percent composition of cover data using the maximum percent composition values allowed by NRCS technical guides for the relevant ecological sites in MLRA 58AE – Sedimentary Plains East, Northern Rolling High Plains, North Part, 10 to 14-inch precipitation zone (NRCS 2003, 2012). Composition values occasionally were adjusted upward for "decreaser" species to better evaluate condition.

WEIGHTED ABUNDANCE is a numerical expression of the relative abundance of each ecological site in a community type.

[2]ECOLOGICAL SITE CONDITION CLASS is a verbal description of the numerical condition rating, where:

E = Excellent (76-100 percent)
G = Good (51-75 percent)
F = Fair (26-50 percent)
P = Poor (0-25 percent)

and "+" or "-" indicates higher or lower condition within each range.

Table L1
Relative Cover (Percent) and Range Condition for Nine GRASSLAND Community Types, Otter Creek Facilities Baseline Study Area, 2012.

CLASS\SPECIES	AGR SMI/ BOU GRA n=2	STI COM/ CAR FIL n=9	AGR SPI/ STI COM n=3	AGR SPI/ BOU CUR n=4	AND SCO / CAR FIL n=2	AND SCO/ BOU CUR n=3	AND SCO/ AND GER n=2	AND SCO/ CAL LON n=2	CAL LON/ STI COM n=6
NATIVE PERENNIAL GRAMINOIDS (Cool Season)									
Agropyron smithii	40.31	0.27		12.89		2.17			0.61
Agropyron spicatum		0.31	16.30	17.41	0.23	2.60	14.27	13.02	0.46
Aristida longiseta		0.67			1.52				0.06
Carex filifolia	3.36	10.88	39.58	6.77	6.08	17.35	11.21	10.65	9.90
Carex heliophila		4.30			21.29	0.87			8.89
Koeleria cristata	2.24	0.81	5.04	1.61	3.04	0.87	1.02	5.33	1.82
Poa sandbergii	12.88	1.38	2.33	6.45		1.30	0.51		0.81
Stipa comata		22.30	8.54	2.58	4.56	7.81		1.18	24.85
TOTAL NPG(C)	**58.79**	**40.92**	**71.79**	**47.71**	**36.73**	**32.96**	**27.01**	**30.18**	**47.39**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)									
Andropogon gerardii							20.90		
Andropogon scoparius		0.31	0.39	1.61	21.29	15.18	12.74	19.53	0.61
Bouteloua curtipendula		0.48		15.80		16.91	10.19	11.83	1.21
Bouteloua gracilis	17.36	20.28	6.60	5.80	4.56	5.64	1.02	4.14	10.57
Calamovilfa longifolia		0.08	0.23	0.97		0.26	0.00	5.92	9.49
Muhlenbergia cuspidata		0.13		2.26		0.87	0.51	3.55	0.40
TOTAL NPG(W)	**17.36**	**21.29**	**7.22**	**26.43**	**25.86**	**38.86**	**45.36**	**44.97**	**22.28**
NATIVE PERENNIAL GRAMINOIDS	76.15	62.21	79.01	74.15	62.59	71.81	72.38	75.15	69.68
INTRODUCED PERENNIAL GRAMINOIDS	10.08	3.94	1.16	0.00	0.00	0.00	3.06	0.00	6.67
TOTAL PERENNIAL GRASS	86.23	66.15	80.17	74.15	62.59	71.81	75.43	75.15	76.34
NATIVE ANNUAL GRAMINOIDS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INTRODUCED ANNUAL GRAMINOIDS	9.52	22.70	6.71	12.57	4.56	17.48	1.17	2.37	8.28
TOTAL ANNUAL GRASS	9.52	22.70	6.71	12.57	4.56	17.48	1.17	2.37	8.28
NATIVE PERENNIAL FORBS AND SUBSHRUBS	2.30	9.66	11.80	7.38	32.17	10.06	12.03	15.27	10.99
INTRODUCED PERENNIAL FORBS	1.29	0.00	0.39	0.10	0.00	0.00	0.00	0.00	0.06
FERNS AND ALLIES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL PERENNIAL FORBS	3.58	9.66	12.18	7.48	32.17	10.06	12.03	15.27	11.05
NATIVE ANNUAL/BIENNIAL FORBS	0.17	0.42	0.47	0.48	0.23	0.13	0.15	0.36	0.12
INTRODUCED ANNUAL/BIENNIAL FORBS	0.50	0.40	0.35	0.19	0.46	0.52	0.00	0.36	0.18
TOTAL ANNUAL/BIENNIAL FORBS	0.67	0.82	0.81	0.68	0.68	0.65	0.15	0.71	0.30
TOTAL HERBACEOUS	**100.00**	**99.33**	**99.88**	**94.87**	**100.00**	**100.00**	**88.79**	**93.49**	**95.98**

Table L1
Relative Cover (Percent) and Range Condition for Nine GRASSLAND Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	AGR SMI/ BOU GRA n=2	STI COM/ CAR FIL n=9	AGR SPI/ STI COM n=3	AGR SPI/ BOU CUR n=4	AND SCO / CAR FIL n=2	AND SCO/ BOU CUR n=3	AND SCO/ AND GER n=2	AND SCO/ CAL LON n=2	CAL LON/ STI COM n=6
SHRUBS									
Artemisia cana		0.67	0.12						2.02
Artemisia tridentata				3.55			1.02	2.96	
Chrysothamnus nauseosus				0.32					
Juniperus horizontalis							4.08	2.37	
Rhus aromatica				0.10					1.88
Rosa arkansana				0.10				0.59	0.06
Rosa woodsii				0.97			1.02	0.59	0.06
Symphoricarpos occidentalis				0.10					
TOTAL SHRUBS	**0.00**	**0.67**	**0.12**	**5.13**	**0.00**	**0.00**	**6.12**	**6.51**	**4.02**
TREES 0.01-acre									
Juniperus scopulorum							5.10		
TOTAL TREES 0.01-acre	***0.00***	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**5.10**	**0.00**	**0.00**
TOTAL VEGETATION (Stratified)	***100.00***	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
ECOLOGICAL SITE CONDITION RATING (Weighted Abundance)[1]									
Silty		36.9 (.333)			39.8 (.500)				43.3 (.167)
Shallow	27.3 (1.000)		45.5 (.333)	70.3 (.750)		59.0 (.333)	86.0 (.500)	79.7 (.500)	
Very Shallow		27.0 (.667)	40.5 (.667)	60.0 (.250)	41.1 (.500)	56.8 (.667)	81.2 (.500)	76.5 (.500)	41.2 (.833)
WEIGHTED MEAN CONDITION	27.3	30.3	42.2	67.7	40.5	57.5	83.6	78.1	41.6
ECOLOGICAL SITE CONDITION CLASS[2]	F-	F-	F+	G+	F	G-	E	E-	F

Footnotes are presented on cover page L-i.

Table L2
Relative Cover (Percent) and Range Condition for Two TAME PASTURE Types, Otter Creek Facilities Baseline Study Area, 2012.

CLASS\SPECIES	HAY CROPLAND - FARMED n=41	PASTURELAND - GRAZED/GO-BACK n=22
NATIVE PERENNIAL GRAMINOIDS (Cool Season)		
Agropyron smithii	3.99	1.72
Aristida longiseta		0.10
Carex filifolia		0.26
Carex heliophila		0.05
Hordeum jubatum	0.11	0.02
Poa sandbergii		0.41
Stipa comata		2.16
Stipa viridula		0.89
TOTAL NPG(C)	**4.09**	**5.62**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)		
Bouteloua gracilis		1.48
Buchloe dactyloides		0.05
Distichlis stricta		0.26
Spartina pectinata	0.07	
Sporobolus cryptandrus		0.10
TOTAL NPG(W)	**0.07**	**1.89**
NATIVE PERENNIAL GRAMINOIDS	4.17	7.51
INTRODUCED PERENNIAL GRAMINOIDS	88.17	74.92
TOTAL PERENNIAL GRASS	92.34	82.42
NATIVE ANNUAL GRAMINOIDS	0.00	0.00
INTRODUCED ANNUAL GRAMINOIDS	0.04	5.55
TOTAL ANNUAL GRASS	0.04	5.55
NATIVE PERENNIAL FORBS AND SUBSHRUBS	0.13	2.78
INTRODUCED PERENNIAL FORBS	5.58	1.08
FERNS AND ALLIES	0.00	0.00
TOTAL PERENNIAL FORBS	5.71	3.86
NATIVE ANNUAL/BIENNIAL FORBS	0.05	0.12
INTRODUCED ANNUAL/BIENNIAL FORBS	1.85	0.62
TOTAL ANNUAL/BIENNIAL FORBS	1.90	0.75
TOTAL HERBACEOUS	**99.99**	**92.59**
SHRUBS		
Artemisia cana		6.30
Atriplex nuttallii	0.01	0.12
Ceratoides lanata		0.77
Chrysothamnus nauseosus		0.02
Rhus aromatica		0.10
Rosa woodsii		0.10
TOTAL SHRUBS	**0.01**	**7.41**
TREES 0.01-acre		
TOTAL TREES 0.01-acre	**0.00**	**0.00**
TOTAL VEGETATION (Stratified)	**100.00**	**100.00**

Table L2
Relative Cover (Percent) and Range Condition for Two TAME PASTURE Types, Otter Creek Facilities Baseline Study Area, 2012.

	HAY CROPLAND - FARMED n=41	PASTURELAND - GRAZED/GO-BACK n=22
ECOLOGICAL SITE CONDITION RATING (Weighted Abundance)[1]		
Clayey	*4.3* *(.244)*	
Saline Lowland	*4.3* *(.610)*	*16.4* *(.091)*
Silty	*4.3* *(.146)*	*15.3* *(.682)*
Very Shallow		*17.7* *(.227)*
WEIGHTED MEAN CONDITION	*4.3*	*15.9*
ECOLOGICAL SITE CONDITION CLASS[2]	P-	P

Footnotes are presented on cover page L-i.

Table L3
Relative Cover (Percent) and Range Condition for Four SHRUB/GRASSLAND Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	ART CAN/ AGR SMI n=7	*ART TRI/ AGR SMI* n=6	*ART TRI/ AGR SPI* n=9	*ART TRI/ AND SCO* n=1
CLASS\SPECIES				
NATIVE PERENNIAL GRAMINOIDS (Cool Season)				
Agropyron smithii	15.44	23.05	7.62	
Agropyron spicatum		1.40	9.87	4.81
Aristida longiseta		0.62	0.50	1.92
Carex filifolia	0.15	3.43	18.74	7.70
Carex heliophila	4.24	0.31		
Koeleria cristata	0.30	4.20	6.12	2.89
Poa sandbergii		2.02	2.37	
Poa scabrella	0.15			
Stipa comata	7.27	5.45	4.12	4.81
Stipa viridula	1.21	2.02	1.00	2.89
TOTAL NPG(C)	**28.76**	**42.51**	**50.34**	**25.02**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)				
Andropogon scoparius				13.47
Bouteloua curtipendula	0.05		3.00	6.74
Bouteloua gracilis	5.45	9.81	9.12	3.85
Calamovilfa longifolia	0.80		1.87	7.70
Muhlenbergia cuspidata		1.09	1.87	1.92
Sporobolus airoides	0.30			
TOTAL NPG(W)	**6.60**	**10.90**	**15.86**	**33.69**
NATIVE PERENNIAL GRAMINOIDS	35.36	53.41	66.20	58.71
INTRODUCED PERENNIAL GRAMINOIDS	45.10	13.70	0.00	4.81
TOTAL PERENNIAL GRASS	80.46	67.11	66.20	63.52
NATIVE ANNUAL GRAMINOIDS	0.00	0.00	0.00	0.00
INTRODUCED ANNUAL GRAMINOIDS	4.37	6.23	2.50	2.89
TOTAL ANNUAL GRASS	4.37	6.23	2.50	2.89
NATIVE PERENNIAL FORBS AND SUBSHRUBS	3.47	5.11	12.57	9.91
INTRODUCED PERENNIAL FORBS	0.20	0.20	0.29	0.00
TOTAL PERENNIAL FORBS	3.66	5.31	12.85	9.91
NATIVE ANNUAL/BIENNIAL FORBS	0.14	0.37	0.55	0.29
INTRODUCED ANNUAL/BIENNIAL FORBS	0.27	0.42	0.41	0.29
TOTAL ANNUAL/BIENNIAL FORBS	0.41	0.79	0.96	0.58
TOTAL HERBACEOUS	**88.91**	**79.45**	**82.51**	**76.90**
SHRUBS				
Artemisia cana	10.59	1.71		0.96
Artemisia tridentata	0.15	18.53	16.11	22.14
Ceratoides lanata		0.31	0.87	
Chrysothamnus nauseosus			0.50	
Rosa woodsii	0.35			
TOTAL SHRUBS	**11.09**	**20.55**	**17.49**	**23.10**
TREES 0.01-acre				
TOTAL TREES 0.01-acre	**0.00**	**0.00**	**0.00**	**0.00**
TOTAL VEGETATION (Stratified)	**100.00**	**100.00**	**100.00**	**100.00**

Table L3
Relative Cover (Percent) and Range Condition for Four SHRUB/GRASSLAND Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	ART CAN/ AGR SMI n=7	*ART TRI/ AGR SMI* n=6	*ART TRI/ AGR SPI* n=9	*ART TRI/ AND SCO* n=1
ECOLOGICAL SITE CONDITION RATING (Weighted Abundance)[1]				
Silty	43.3 (.428)	50.1 (.500)		
Shallow	43.4 (.286)	45.1 (.500)	54.8 (.556)	
Shallow Clay			56.7 (.444)	
Very Shallow	32.2 (.286)			65.4 (1.000)
WEIGHTED MEAN CONDITION	40.2	47.6	55.6	65.4
ECOLOGICAL SITE CONDITION CLASS[2]	F	F+	G-	G

Footnotes are presented on cover pageL-i.

Table L4
Relative Cover (Percent) and Range Condition for Five BREAKS Community Types, Otter Creek Facilities Baseline Study Area, 2012.

CLASS\SPECIES	*AGR SMI* BREAKS n=1	*ART TRI-SAR VER-CHR NAU/ AGR SMI* n=1	*ART TRI-SAR VER-CHR NAU/ AGR SPI* n=3	*RHU ARO/ AGR SPI* n=4	*PIN PON-JUN SCO/ AGR SPI* BREAKS n=1
NATIVE PERENNIAL GRAMINOIDS (Cool Season)					
Agropyron smithii	29.66	9.71			
Agropyron spicatum	2.12	1.46	25.27	4.16	15.33
Aristida longiseta				1.28	
Carex filifolia				9.82	
Carex heliophila				2.38	
Koeleria cristata	12.71		7.66		
Oryzopsis hymenoides					3.54
Poa sandbergii	12.71				
Stipa comata	2.12			11.01	
Stipa viridula	2.12			0.09	
TOTAL NPG(C)	**61.44**	**11.17**	**32.92**	**28.73**	**18.87**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)					
Andropogon scoparius				0.09	
Bouteloua gracilis			3.06	12.49	
Calamovilfa longifolia				1.37	
TOTAL NPG(W)	**0.00**	**0.00**	**3.06**	**13.95**	**0.00**
NATIVE PERENNIAL GRAMINOIDS	61.44	11.17	35.99	42.68	18.87
INTRODUCED PERENNIAL GRAMINOIDS	0.00	0.00	0.00	0.00	0.00
TOTAL PERENNIAL GRASS	61.44	11.17	35.99	42.68	18.87
NATIVE ANNUAL GRAMINOIDS	0.00	0.00	0.00	0.00	0.00
INTRODUCED ANNUAL GRAMINOIDS	10.59	0.00	0.77	24.99	0.00
TOTAL ANNUAL GRASS	10.59	0.00	0.77	24.99	0.00
NATIVE PERENNIAL FORBS AND SUBSHRUBS	14.83	1.46	23.81	5.53	12.38
INTRODUCED PERENNIAL FORBS	0.00	0.00	0.00	0.00	0.00
FERNS AND ALLIES	0.00	0.00	0.00	0.00	0.00
TOTAL PERENNIAL FORBS	14.83	1.46	23.81	5.53	12.38
NATIVE ANNUAL/BIENNIAL FORBS	3.39	0.00	0.92	0.57	0.35
INTRODUCED ANNUAL/BIENNIAL FORBS	0.64	0.00	0.23	0.36	0.00
TOTAL ANNUAL/BIENNIAL FORBS	4.03	0.00	1.15	0.92	0.35
TOTAL HERBACEOUS	**90.89**	**12.62**	**61.72**	**74.12**	**31.60**
SHRUBS					
Artemisia tridentata	8.47	33.98	22.97		
Chrysothamnus nauseosus	0.64	43.69	4.59		5.90
Juniperus horizontalis					41.27
Prunus virginiana				0.59	
Rhus aromatica				25.28	
Rosa arkansana			2.30		
Sarcobatus vermiculatus		9.71	8.42		
TOTAL SHRUBS	**9.11**	**87.38**	**38.28**	**25.88**	**47.17**
TREES 0.01-acre					
Pinus ponderosa					21.23
TOTAL TREES 0.01-acre	**0.00**	**0.00**	**0.00**	**0.00**	**21.23**
TOTAL VEGETATION (Stratified)	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Table L4
Relative Cover (Percent) and Range Condition for Five BREAKS Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	AGR SMI **BREAKS** **n=1**	***ART TRI-SAR VER-CHR NAU/ AGR SMI*** **n=1**	***ART TRI-SAR VER-CHR NAU/ AGR SPI*** **n=3**	***RHU ARO/ AGR SPI*** **n=4**	***PIN PON-JUN SCO/ AGR SPI*** **BREAKS** **n=1**
ECOLOGICAL SITE CONDITION RATING (Weighted Abundance)[1]					
Shallow			62.2 (.333)	41.8 (.250)	
Shallow Clay	63.0 (1.000)	27.7 (1.000)	60.3 (.667)		43.9 (1.000)
Very Shallow				53.8 (.750)	
WEIGHTED MEAN CONDITION	63.0	27.7	60.9	50.8	43.9
ECOLOGICAL SITE CONDITION CLASS[2]	G	F-	G	G-	F+

Footnotes are presented on cover page L-i.

Table L5
Relative Cover (Percent) and Range Condition for Two PINE-JUNIPER FOREST and SAVANNAH Community Types, Otter Creek Facilities Baseline Study Area, 2012.

CLASS\SPECIES	*PIN PON-JUN SCO/ AGR SPI* n=7	*PIN PON-JUN SCO/ AND SCO* n=2
NATIVE PERENNIAL GRAMINOIDS (Cool Season)		
Agropyron smithii	1.90	
Agropyron spicatum	16.88	1.74
Aristida longiseta		0.17
Carex filifolia	3.81	26.10
Carex rossii	0.16	
Koeleria cristata	2.28	
Poa sandbergii	0.13	0.17
Poa scabrella	0.25	
Stipa comata	0.76	6.96
Stipa viridula	1.78	
TOTAL NPG(C)	**27.96**	**35.15**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)		
Andropogon scoparius	1.02	15.08
Bouteloua curtipendula	4.95	2.32
Bouteloua gracilis	0.76	5.97
Buchloe dactyloides		0.17
Calamovilfa longifolia	0.25	
Muhlenbergia cuspidata	0.42	
TOTAL NPG(W)	**7.40**	**23.55**
NATIVE PERENNIAL GRAMINOIDS	35.36	58.70
INTRODUCED PERENNIAL GRAMINOIDS	1.69	0.00
TOTAL PERENNIAL GRASS	37.05	58.70
NATIVE ANNUAL GRAMINOIDS	0.00	0.00
INTRODUCED ANNUAL GRAMINOIDS	4.90	18.56
TOTAL ANNUAL GRASS	4.90	18.56
NATIVE PERENNIAL FORBS AND SUBSHRUBS	9.61	7.37
INTRODUCED PERENNIAL FORBS	0.00	0.00
FERNS AND ALLIES	0.00	0.00
TOTAL PERENNIAL FORBS	9.61	7.37
NATIVE ANNUAL/BIENNIAL FORBS	0.08	0.35
INTRODUCED ANNUAL/BIENNIAL FORBS	0.38	0.35
TOTAL ANNUAL/BIENNIAL FORBS	0.46	0.70
TOTAL HERBACEOUS	**52.01**	**85.32**
SHRUBS		
Artemisia cana	0.51	0.17
Artemisia tridentata	3.34	
Chrysothamnus nauseosus	0.16	
Prunus virginiana	0.13	1.16
Rhus aromatica	1.56	2.90
Ribes cereum	0.25	
Rosa woodsii	0.42	
Symphoricarpos occidentalis	0.11	
TOTAL SHRUBS	**6.49**	**4.23**
TREES 0.01-acre		
Juniperus scopulorum	7.74	
Pinus ponderosa	33.76	10.44
TOTAL TREES 0.01-acre	**41.50**	**10.44**
TOTAL VEGETATION (Stratified)	**100.00**	**100.00**

Table L5
Relative Cover (Percent) and Range Condition for Two PINE-JUNIPER FOREST and SAVANNAH Community Types, Otter Creek Facilities Baseline Study Area, 2012.

	PIN PON-JUN SCO/ AGR SPI **n=7**	***PIN PON-JUN SCO/ AND SCO*** **n=2**
ECOLOGICAL SITE CONDITION RATING (Weighted Abundance)[1]		
Shallow	56.5 (.429)	
Very Shallow	53.6 (.571)	45.3 (1.000)
WEIGHTED MEAN CONDITION	54.8	45.3
ECOLOGICAL SITE CONDITION CLASS[2]	G-	F+

Footnotes are presented on cover page L-i.

Table L6
Relative Cover (Percent) and Range Condition for Three MESOPHYTIC/HYDROPHYTIC HERBACEOUS BOTTOM Series, Otter Creek Facilities Baseline Study Area, 2012.

CLASS\SPECIES	*SPA PEC* SERIES n=5	*TYP LAT/* SERIES n=1	*SCI ACU* SERIES n=6
NATIVE PERENNIAL GRAMINOIDS (Cool Season)			
Carex nebraskensis	0.37		
Eleocharis palustris	1.20		
Hordeum jubatum	0.89		0.04
Puccinellia nuttalliana	16.85		
Scirpus acutus	0.94		36.06
Scirpus americanus	10.57		8.31
Scirpus maritimus	0.55		1.28
Scirpus validus	0.19		
TOTAL NPG(C)	**31.55**	**0.00**	**45.70**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)			
Spartina pectinata	48.74	43.32	13.94
TOTAL NPG(W)	**48.74**	**43.32**	**13.94**
NATIVE PERENNIAL GRAMINOIDS	80.29	43.32	59.64
INTRODUCED PERENNIAL GRAMINOIDS	10.16	13.44	9.59
TOTAL PERENNIAL GRASS	90.45	56.76	69.23
NATIVE ANNUAL GRAMINOIDS	0.00	0.00	0.00
INTRODUCED ANNUAL GRAMINOIDS	0.00	0.00	0.00
TOTAL ANNUAL GRASS	0.00	0.00	0.00
NATIVE PERENNIAL FORBS AND SUBSHRUBS	5.93	40.55	15.24
INTRODUCED PERENNIAL FORBS	0.06	0.00	0.04
FERNS AND ALLIES	0.06	0.22	0.00
TOTAL PERENNIAL FORBS	6.04	40.78	15.28
NATIVE ANNUAL/BIENNIAL FORBS	1.47	0.22	2.30
INTRODUCED ANNUAL/BIENNIAL FORBS	2.04	2.24	7.56
TOTAL ANNUAL/BIENNIAL FORBS	3.51	2.46	9.86
TOTAL HERBACEOUS	**100.00**	**100.00**	**94.37**
SHRUBS			
Rosa woodsii			4.60
Symphoricarpos occidentalis			0.64
TOTAL SHRUBS	**0.00**	**0.00**	**5.24**
TREES 0.01-acre			
Acer negundo			0.38
TOTAL TREES 0.01-acre	**0.00**	**0.00**	**0.38**
TOTAL VEGETATION (Stratified)	**100.00**	**100.00**	**100.00**

ECOLOGICAL SITE CONDITION RATING (Weighted Abundance)[1]			
Subirrigated	37.6 (.500)	35.0 (.500)	33.9 (.500)
Wet Meadow	37.6 (.500)	35.0 (.500)	29.4 (.500)
WEIGHTED MEAN CONDITION	37.6	35.0	31.7
ECOLOGICAL SITE CONDITION CLASS[2]	F	F	F-

Footnotes are presented on cover page L-i.

Table L7
Relative Cover (Percent) and Range Condition for One MESOPHYTIC LOW SHRUB BOTTOM Type in the *Symphoricarpos occidentalis* Series, Otter Creek Facilities Baseline Study Area, 2012.

	***SYM OCC* SERIES**
	n=3
CLASS\SPECIES	
NATIVE PERENNIAL GRAMINOIDS (Cool Season)	
Agropyron smithii	23.46
Agropyron spicatum	3.26
Carex filifolia	1.09
Koeleria cristata	0.82
Stipa viridula	2.41
TOTAL NPG(C)	**31.03**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)	
Sporobolus airoides	0.61
TOTAL NPG(W)	**0.61**
NATIVE PERENNIAL GRAMINOIDS	31.65
INTRODUCED PERENNIAL GRAMINOIDS	36.95
TOTAL PERENNIAL GRASS	68.60
NATIVE ANNUAL GRAMINOIDS	0.00
INTRODUCED ANNUAL GRAMINOIDS	2.95
TOTAL ANNUAL GRASS	2.95
NATIVE PERENNIAL FORBS AND SUBSHRUBS	5.86
INTRODUCED PERENNIAL FORBS	0.00
FERNS AND ALLIES	0.00
TOTAL PERENNIAL FORBS	5.86
NATIVE ANNUAL/BIENNIAL FORBS	0.00
INTRODUCED ANNUAL/BIENNIAL FORBS	0.61
TOTAL ANNUAL/BIENNIAL FORBS	0.61
TOTAL HERBACEOUS	**78.02**
SHRUBS	
Artemisia cana	2.83
Artemisia tridentata	1.09
Rosa woodsii	0.36
Symphoricarpos occidentalis	17.70
TOTAL SHRUBS	**21.98**
TREES 0.01-acre	
TOTAL TREES 0.01-acre	**0.00**
TOTAL VEGETATION (Stratified)	**100.00**

ECOLOGICAL SITE CONDITION RATING (Weighted Abundance)[1]	
Overflow	38.4 (1.000)
WEIGHTED MEAN CONDITION	38.4
ECOLOGICAL SITE CONDITION CLASS[2]	F

Footnotes are presented on cover page L-i.

Table L8
Relative Cover (Percent) and Range Condition for Two MESOPHYTIC DECIDUOUS TREE BOTTOM Series, Otter Creek Facilities Baseline Study Area, 2012.

	POP DEL SERIES n=5	*ACE NEG* SERIES n=10
CLASS\SPECIES		
NATIVE PERENNIAL GRAMINOIDS (Cool Season)		
Agropyron smithii	0.14	
Eleocharis palustris		0.07
Hordeum jubatum	0.05	0.02
Phalaris arundinacea		0.13
Scirpus acutus		0.34
Scirpus americanus		1.22
TOTAL NPG(C)	**0.19**	**1.78**
NATIVE PERENNIAL GRAMINOIDS (Warm Season)		
Spartina pectinata		5.43
TOTAL NPG(W)	**0.00**	**5.43**
NATIVE PERENNIAL GRAMINOIDS	0.19	7.21
INTRODUCED PERENNIAL GRAMINOIDS	39.11	38.51
TOTAL PERENNIAL GRASS	39.29	45.72
NATIVE ANNUAL GRAMINOIDS	0.00	0.00
INTRODUCED ANNUAL GRAMINOIDS	0.35	0.16
TOTAL ANNUAL GRASS	0.35	0.16
NATIVE PERENNIAL FORBS AND SUBSHRUBS	1.07	1.53
INTRODUCED PERENNIAL FORBS	0.42	0.96
FERNS AND ALLIES	0.00	0.00
TOTAL PERENNIAL FORBS	1.49	2.49
NATIVE ANNUAL/BIENNIAL FORBS	0.33	0.40
INTRODUCED ANNUAL/BIENNIAL FORBS	2.57	4.32
TOTAL ANNUAL/BIENNIAL FORBS	2.90	4.73
TOTAL HERBACEOUS	**44.04**	**53.09**
SHRUBS		
Artemisia cana	0.30	
Prunus virginiana	2.72	3.81
Ribes setosum		0.56
Rosa woodsii	2.18	1.61
Symphoricarpos occidentalis	0.48	0.88
TOTAL SHRUBS	**5.69**	**6.86**
TREES 0.01-acre		
Acer negundo	17.67	39.71
Fraxinus pennsylvanica	5.51	0.33
Populus deltoides	18.19	
Salix amygdaloides	8.90	
TOTAL TREES 0.01-acre	**50.27**	**40.04**
TOTAL VEGETATION (Stratified)	**100.00**	**100.00**

Table L8
Relative Cover (Percent) and Range Condition for Two MESOPHYTIC DECIDUOUS TREE BOTTOM Series, Otter Creek Facilities Baseline Study Area, 2012.

	***POP DEL* SERIES** **n=5**	***ACE NEG* SERIES** **n=10**
ECOLOGICAL SITE CONDITION RATING (Weighted Abundance)[1]		
Saline Lowland		15.6 (.200)
Loamy Terrace (Silty)	6.3 (1.000)	13.7 (.200)
Subirrigated		13.7 (.300)
Wet Meadow		9.2 (.300)
WEIGHTED MEAN CONDITION	6.3	12.7
ECOLOGICAL SITE CONDITION CLASS[2]	P-	P

Footnotes are presented on cover page L-i.

APPENDIX M

Summary of Site Parameters for Community Types in the Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

SITE PARAMETER	TABLE	PAGE
TOPOGRAPHICAL POSITION	M1	M-1
SLOPE GRADIENT	M2	M-4
ASPECT	M3	M-7

Footnotes for the tables in Appendix M:

Appendix M tables summarize the site parameters given for each sample site in Appendix B (2011 data) and Appendix G (2012 data).

Table M1

Summary of TOPOGRAPHICAL Categories by Community Type, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

		TOPOGRAPHY										
COMMUNITY TYPE[1]	**n**	**Bottom/ Bank**	**Terrace/ Floodplain**	**Swale**	**Bench**	**Toeslope**	**Lower Slope**	**Middle Slope**	**Upper Slope**	**Ridge/ Shoulder**	**Knob/ Knoll**	**Plateau**
		Number of Vegetation Sample Sites										
GRASSLAND	**185**											
Agropyron smithii / Bouteloua gracilis	15				3	1	2	9				
Agropyron smithii/Stipa viridula	77	11		21		5	13	21	6			
Stipa comata / Agropyron smithii	20				3		2	5	4	6		
Stipa comata / Carex filifolia	12				2	1	1	2	3	3		
Agropyron spicatum / Stipa comata	7						1	3		3		
Agropyron spicatum / Bouteloua curtipendula	12						1	4	3	4		
Andropogon scoparius / Carex filifolia	2							1		1		
Andropogon scoparius / Agropyron spicatum	11				1	1		2	4	3		
Andropogon scoparius / Bouteloua curtipendula	10						2	5	2	1		
Andropogon scoparius / Andropogon gerardii	2					1		1				
Andropogon scoparius / Calamovilfa longifolia	6						2	3	1			
Calamovilfa longifolia / Stipa comata	11					1	2	4	2	1	1	
TAME PASTURE	**106**											
Hay Crop-Farmed	66	3	58		2	2	1					
Pastureland-Grazed/Go-Back	40	8	5	1	10	1	5	9			1	
SHRUB / GRASSLAND	**172**											
Artemisia cana / Agropyron smithii	52	23	7	11	2	5	1	2	1			
Artemisia tridentata / Agropyron smithii	73	4		8	9	5	7	20	15	4		1
Artemisia tridentata / Agropyron spicatum	36			2			4	9	7	14		
Artemisia tridentata / Andropogon scoparius	11						1	7	3			
BREAKS	**175**											
Grass-Dominated Breaks	**(23)**											
Agropyron smithii Breaks	10					1	2	2		5		
Agropyron spicatum Breaks	4					1	1	1		1		
Sporobolus airoides Breaks	4					1	1	1	1			
Calamovilfa longifolia Breaks	5							2	2	1		

Table M1

Summary of TOPOGRAPHICAL Categories by Community Type, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

		TOPOGRAPHY										
COMMUNITY TYPE[1]	**n**	**Bottom/ Bank**	**Terrace/ Floodplain**	**Swale**	**Bench**	**Toeslope**	**Lower Slope**	**Middle Slope**	**Upper Slope**	**Ridge/ Shoulder**	**Knob/ Knoll**	**Plateau**
		Number of Vegetation Sample Sites										
Shrub-Dominated Breaks	**(97)**											
Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron smithii	26	3			2	1	3	4	8	5		
Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron spicatum	3					1			1	1		
Rhus aromatica / Agropyron spicatum-Andropogon scoparius	8							2		3	3	
Artemisia tridentata-Rhus aromatica-Chrysothamnus nauseosus / Agropyron spicatum	15	1						1	5	8		
Artemisia tridentata-Rhus aromatica-Sarcobatus vermiculatus / Agropyron spicatum	6						1		4	1		
Artemisia tridentata-Atriplex confertifolia-Sarcobatus vermiculatus / Agropyron spicatum	26	2				1	2	2	12	7		
Artemisia tridentata-Atriplex confertifolia-Rhus aromatica / Agropyron spicatum	13								11	2		
Conifer-Dominated Breaks	**(55)**											
Juniperus scopulorum/Agropyron spicatum Breaks	11	1				3	3	1	2	1		
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum Breaks	18							8	5	5		
Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius Breaks	15					1	3	4	4	3		
Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata Breaks	4						1	1		2		
Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata-Atriplex confertifolia Breaks	7							4	3			
PONDEROSA PINE-JUNIPER FOREST AND SAVANNAH	**140**											
Ponderosa Pine-Juniper / Grass	**(127)**											
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum	93	2				5	10	28	33	15		
Juniper scopulorum-Pinus ponderosa / Oryzopsis micrantha	2							2				
Pinus ponderosa-Juniper scopulorum / Festuca idahoensis	2						1			1		
Pinus ponderosa-Juniper scopulorum / Andropogon scoparius	30	3			1	4	3	11	6	2		

Table M1

Summary of TOPOGRAPHICAL Categories by Community Type, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

		TOPOGRAPHY										
COMMUNITY TYPE[1]	**n**	**Bottom/ Bank**	**Terrace/ Floodplain**	**Swale**	**Bench**	**Toeslope**	**Lower Slope**	**Middle Slope**	**Upper Slope**	**Ridge/ Shoulder**	**Knob/ Knoll**	**Plateau**
		Number of Vegetation Sample Sites										
Ponderosa Pine-Juniper / Shrub	**(13)**											
Drainage *Juniperus scopulorum-Pinus ponderosa / Symphoricarpos occidentalis-Agropyron smithii*	11	9		1		1						
Pinus ponderosa-Juniper scopulorum / Prunus virginiana	2	2										
DRAINAGE BOTTOM	**113**											
Mesophytic/Hydrophytic Herbaceous Bottom	**(46)**											
Distichlis stricta Series	3	2					1					
Sporobolus airoides Series	7	3				1		3				
Spartina gracilis Series	1					1						
Spartina pectinata Series	16	14	2									
Scirpus maritimus Series	2	2										
Eleocharis palustris Series	3	3										
Typha latifolia Series	4	4										
Scirpus acutus-validus Series	10	10										
Mesophytic Low Shrub Bottom	**(27)**											
Symphoricarpos occidentalis Series	27	27										
Mesophytic Tall Shrub Bottom	**(3)**											
Prunus virginiana/Symphoricarpos occidentalis-Poa pratensis	2	2										
Salix exigua/Scirpus americanus-Juncus torreyi	1	1										
Mesophytic Deciduous Tree Bottom	**(37)**											
Populus deltoides Series	14	14										
Acer negundo Series	22	20	2									
Fraxinus pennsylvanica Series	1					1						

Table M2

Summary of SLOPE GRADIENT Categories by Community Type, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

		SLOPE GRADIENT (percent)													
COMMUNITY TYPE[1]	**n**	**0-5**	**6-10**	**11-15**	**16-20**	**21-25**	**26-30**	**31-40**	**41-50**	**51-60**	**61-70**	**71-80**	**81-90**	**91-100**	**100-110**
		Number of Vegetation Sample Sites													
GRASSLAND	**185**														
Agropyron smithii / Bouteloua gracilis	15	11	4												
Agropyron smithii/Stipa viridula	77	36	31	9		1									
Stipa comata / Agropyron smithii	20	7	8	3	1	1									
Stipa comata / Carex filifolia	12	2	7	2	1										
Agropyron spicatum / Stipa comata	7	1	2	2			2								
Agropyron spicatum / Bouteloua curtipendula	12	1	3	1	1	1	1	2	2						
Andropogon scoparius / Carex filifolia	2			1	1										
Andropogon scoparius / Agropyron spicatum	11	1	3	2	1	1		2	1						
Andropogon scoparius / Bouteloua curtipendula	10	1	1	2	3	1	2								
Andropogon scoparius / Andropogon gerardii	2						2								
Andropogon scoparius / Calamovilfa longifolia	6	1	1	2	1		1								
Calamovilfa longifolia / Stipa comata	11	1	3	4	1			1	1						
TAME PASTURE	**106**														
Hay Crop-Farmed	66	64	2												
Pastureland-Grazed/Go-Back	40	29	5	6											
SHRUB / GRASSLAND	**172**														
Artemisia cana / Agropyron smithii	52	38	8	2	1	2			1						
Artemisia tridentata / Agropyron smithii	73	27	23	20	2			1							
Artemisia tridentata / Agropyron spicatum	36	9	12	8	2	2	2		1						
Artemisia tridentata / Andropogon scoparius	11		1	6	3	1									
BREAKS	**175**														
Grass-Dominated Breaks	**(23)**														
Agropyron smithii Breaks	10	4	4		1			1							
Agropyron spicatum Breaks	4	1	1	1			1								
Sporobolus airoides Breaks	4	1	3												
Calamovilfa longifolia Breaks	5	3			2										

Table M2

Summary of SLOPE GRADIENT Categories by Community Type, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

		SLOPE GRADIENT (percent)													
COMMUNITY TYPE[1]	**n**	**0-5**	**6-10**	**11-15**	**16-20**	**21-25**	**26-30**	**31-40**	**41-50**	**51-60**	**61-70**	**71-80**	**81-90**	**91-100**	**100-110**
		Number of Vegetation Sample Sites													
Shrub-Dominated Breaks	**(97)**														
Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron smithii	26	7	7	4		2	1	2	1	2					
Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron spicatum	3	2			1										
Rhus aromatica / Agropyron spicatum-Andropogon scoparius	8		5	2						1					
Artemisia tridentata-Rhus aromatica-Chrysothamnus nauseosus / Agropyron spicatum	15	2	1	3		2	1	2	4						
Artemisia tridentata-Rhus aromatica-Sarcobatus vermiculatus / Agropyron spicatum	6				1			2	2	1					
Artemisia tridentata-Atriplex confertifolia-Sarcobatus vermiculatus / Agropyron spicatum	26	2	4	2	3		1	2	5	3	3			1	
Artemisia tridentata-Atriplex confertifolia-Rhus aromatica / Agropyron spicatum	13							3	2	2	1	1	3		1
Conifer-Dominated Breaks	**(55)**														
Juniperus scopulorum/Agropyron spicatum Breaks	11		2		1		2	1	1	1	1	1	1		
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum Breaks	18	1	1	1		1	1	2	3	3	2	3			
Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius Breaks	15		1	1	2	2		2	1	3	3				
Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata Breaks	4			2	1			1							
Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata-Atriplex confertifolia Breaks	7					1			1	2	3				
PONDEROSA PINE-JUNIPER FOREST AND SAVANNAH	**140**														
Ponderosa Pine-Juniper / Grass	**(127)**														
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum	93	1	7	8	12	5	10	14	12	12	7	3	2		
Juniper scopulorum-Pinus ponderosa / Oryzopsis micrantha	2								2						
Pinus ponderosa-Juniper scopulorum / Festuca idahoensis	2		1							1					
Pinus ponderosa-Juniper scopulorum / Andropogon scoparius	30		4	5	8	3	1	4	2	3					
Ponderosa Pine-Juniper / Shrub	**(13)**														
Drainage *Juniperus scopulorum-Pinus ponderosa / Symphoricarpos occidentalis-Agropyron smithii*	11	8	1			1	1								
Pinus ponderosa-Juniper scopulorum / Prunus virginiana	2	1						1							

Table M2

Summary of SLOPE GRADIENT Categories by Community Type, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

		SLOPE GRADIENT (percent)													
COMMUNITY TYPE[1]	**n**	**0-5**	**6-10**	**11-15**	**16-20**	**21-25**	**26-30**	**31-40**	**41-50**	**51-60**	**61-70**	**71-80**	**81-90**	**91-100**	**100-110**
		Number of Vegetation Sample Sites													
DRAINAGE BOTTOM	**113**														
Mesophytic/Hydrophytic Herbaceous Bottom	**(46)**														
Distichlis stricta Series	3	2		1											
Sporobolus airoides Series	7	2	4	1											
Spartina gracilis Series	1		1												
Spartina pectinata Series	16	13	2	1											
Scirpus maritimus Series	2		2												
Eleocharis palustris Series	3	3													
Typha latifolia Series	4	3	1												
Scirpus acutus-validus Series	10	10													
Mesophytic Low Shrub Bottom	**(27)**														
Symphoricarpos occidentalis Series	27	23	4												
Mesophytic Tall Shrub Bottom	**(3)**														
Prunus virginiana/Symphoricarpos occidentalis-Poa pratensis	2							1	1						
Salix exigua/Scirpus americanus-Juncus torreyi	1	1													
Mesophytic Deciduous Tree Bottom	**(37)**														
Populus deltoides Series	14	9	1	2				1	1						
Acer negundo Series	22	16	1	1		1			2	1					
Fraxinus pennsylvanica Series	1		1												

Table M3

Summary of ASPECT Categories by Community Type, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

		ASPECT									
COMMUNITY TYPE[1]	**n**	**N**	**NE**	**E**	**SE**	**S**	**SW**	**W**	**NW**	**None**	**Variable**
		Number of Vegetation Sample Sites									
GRASSLAND	**185**										
Agropyron smithii / Bouteloua gracilis	15	2	2		3		5	2	1		
Agropyron smithii/Stipa viridula	77	10	7	3	3	5	10	27	12		
Stipa comata / Agropyron smithii	20					6	6	6	1	1	
Stipa comata / Carex filifolia	12	3	1	1		2	3	2			
Agropyron spicatum / Stipa comata	7	2	1			1	2		1		
Agropyron spicatum / Bouteloua curtipendula	12	1	1	4		4	1	1			
Andropogon scoparius / Carex filifolia	2	1				1					
Andropogon scoparius / Agropyron spicatum	11	3	2			2	1	3			
Andropogon scoparius / Bouteloua curtipendula	10	1	1		2	2	3		1		
Andropogon scoparius / Andropogon gerardii	2	1	1								
Andropogon scoparius / Calamovilfa longifolia	6		1	1		1	1		2		
Calamovilfa longifolia / Stipa comata	11	2	2	3		1	3				
TAME PASTURE	**106**										
Hay Crop-Farmed	66	1	1	4	1	1	2	4		52	
Pastureland-Grazed/Go-Back	40	8	4	5	1	3	4	8	1	6	
SHRUB / GRASSLAND	**172**										
Artemisia cana / Agropyron smithii	52	4	5	2	6	5	4	9	15	2	
Artemisia tridentata / Agropyron smithii	73	4	6	4	4	9	15	19	12		
Artemisia tridentata / Agropyron spicatum	36	8	3	7	2	2	4	7	3		
Artemisia tridentata / Andropogon scoparius	11	2	2	1	1	2	1	2			
BREAKS	**175**										
Grass-Dominated Breaks	**(23)**										
Agropyron smithii Breaks	10					3	2	5			
Agropyron spicatum Breaks	4	2			1				1		
Sporobolus airoides Breaks	4	1					1	2			
Calamovilfa longifolia Breaks	5					2		2	1		

Table M3

Summary of ASPECT Categories by Community Type, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

		ASPECT									
COMMUNITY TYPE[1]	**n**	**N**	**NE**	**E**	**SE**	**S**	**SW**	**W**	**NW**	**None**	**Variable**
		Number of Vegetation Sample Sites									
Shrub-Dominated Breaks	**(97)**										
Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron smithii	26	2	1			9	6	6	2		
Artemisia tridentata-Sarcobatus vermiculatus-Chrysothamnus nauseosus / Agropyron spicatum	3	1						2			
Rhus aromatica / Agropyron spicatum-Andropogon scoparius	8			1		1		1			5
Artemisia tridentata-Rhus aromatica-Chrysothamnus nauseosus / Agropyron spicatum	15	2	3	3		3	2	2			
Artemisia tridentata-Rhus aromatica-Sarcobatus vermiculatus / Agropyron spicatum	6						4	2			
Artemisia tridentata-Atriplex confertifolia-Sarcobatus vermiculatus / Agropyron spicatum	26	1		2	1	6	7	8	1		
Artemisia tridentata-Atriplex confertifolia-Rhus aromatica / Agropyron spicatum	13				1	2	9	1			
Conifer-Dominated Breaks	**(55)**										
Juniperus scopulorum/Agropyron spicatum Breaks	11	2	3	1		1	1		3		
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum Breaks	18	1	1	1	1	3	5	3	2		1
Pinus ponderosa-Juniperus scopulorum / Andropogon scoparius Breaks	15	1	1		2	7	3	1			
Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata Breaks	4	1					1	2			
Pinus ponderosa-Juniperus scopulorum / Artemisia tridentata-Atriplex confertifolia Breaks	7					1	1	4	1		
PONDEROSA PINE-JUNIPER FOREST AND SAVANNAH	**140**										
Ponderosa Pine-Juniper / Grass	**(127)**										
Pinus ponderosa-Juniperus scopulorum / Agropyron spicatum	93	26	29	10			2	4	22		
Juniper scopulorum-Pinus ponderosa / Oryzopsis micrantha	2	2									
Pinus ponderosa-Juniper scopulorum / Festuca idahoensis	2	1	1								
Pinus ponderosa-Juniper scopulorum / Andropogon scoparius	30	7	4	3	1	2	2	4	7		

Table M3

Summary of ASPECT Categories by Community Type, Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

		ASPECT									
COMMUNITY TYPE[1]	**n**	**N**	**NE**	**E**	**SE**	**S**	**SW**	**W**	**NW**	**None**	**Variable**
		Number of Vegetation Sample Sites									
Ponderosa Pine-Juniper / Shrub	**(13)**										
Drainage *Juniperus scopulorum-Pinus ponderosa / Symphoricarpos occidentalis-Agropyron smithii*	11	3	1				1	3	3		
Pinus ponderosa-Juniper scopulorum / Prunus virginiana	2	1		1							
DRAINAGE BOTTOM	**113**										
Mesophytic/Hydrophytic Herbaceous Bottom	**(46)**										
Distichlis stricta Series	3	1	1						1		
Sporobolus airoides Series	7	2	2						3		
Spartina gracilis Series	1								1		
Spartina pectinata Series	16	2	3	2	1		1	3	2	2	
Scirpus maritimus Series	2	1	1								
Eleocharis palustris Series	3			1				1	1		
Typha latifolia Series	4	2		1	1						
Scirpus acutus-validus Series	10	3	2		1			1	2	1	
Mesophytic Low Shrub Bottom	**(27)**										
Symphoricarpos occidentalis Series	27	4		2		3	3	8	7		
Mesophytic Tall Shrub Bottom	**(3)**										
Prunus virginiana/Symphoricarpos occidentalis-Poa pratensis	2	1						1			
Salix exigua/Scirpus americanus-Juncus torreyi	1		1								
Mesophytic Deciduous Tree Bottom	**(37)**										
Populus deltoides Series	14	3	1	2				4	3	1	
Acer negundo Series	22	5	2	2	1		2	1	9		
Fraxinus pennsylvanica Series	1	1									

Aspect Direction	Degree Interval
N	337.5 - 22.5
NE	22.5 - 67.5
E	67.5 - 112.5
SE	112.5 - 157.5
S	157.5 - 202.5
SW	202.5 - 247.5
W	247.5 - 292.5
NW	292.5 - 337.5
None	approx.level

APPENDIX N

Synoptic Literature Review of Community Types Occurring in the Region of the Otter Creek Baseline Study Area, Powder River County, Montana, 2011-2012.

PHYSIOGNOMIC TYPE	TABLE	PAGE
GRASSLAND	N1	N-1
SHRUB / GRASSLAND	N2	N-2
BREAKS	N3	N-3
PONDEROSA PINE-JUNIPER FOREST AND SAVANNAH	N4	N-4
DRAINAGE BOTTOM	N5	N-5

Footnotes for the tables in Appendix N:

Full citations are given in the References Cited section 4.0.

Table N1

Synopsis of Grassland Community Types Identified by Various Inventories in the Region of the Otter Creek Study Area.

GRASSLAND COMMUNITY TYPE	This Study (Scow 2014)	Olson-Elliott and Associates (1980)	Culwell (1979)	Culwell, Scow and Larsen (1985)	Culwell and Scow (1981)	Culwell and Scow (1982a)	Scow (1989)	Scow (2008b)	Scow (2006)	Scow (2004)	Scow (1992)	Scow (2009a)	Scow (1991, 2009b)	Scow (2008a) Prodgers (1978)	Hansen and Hoffman (1988)	Taylor and Holst (1976)	Culwell, Scow and Larsen (1986)	Olson-Elliott and Associates (1981)	DePuit et al. (1976b)	DePuit et al. (1978)	Jorgensen (1979)	VTN (1977); Prodgers (1991, 1998, 2007)	Scow, Larsen and Culwell (1988)
PROJECT NAME[1]		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	17	20	21	22	23	24	25
COUNTY LOCATION[2]	*1*	*2*	*1*	*2*	*3*	*4*	*5*	*3*	*3*	*3*	*3*	*6*	*6,7*	*8*	*1, 2, 9*	*1, 2*	*10*	*3*	*3*	*3*	*11,12*	*3*	*2*
Agr smi/Bou gra	x	x				x	x									x						x	x
Agr smi/Poa san												x	x									x	x
Agr smi/Car fil															x	x							x
Agr smi/Sti vir	x	x	x		x		x	x	x	x	x	x	x			x	x		x	x	x	x	
Sti com/Bou gra		x					x															x	x
Sti com/Agr smi	x	x	x	x	x	x	x	x	x	x	x	x	x	x			x	x		x		x	x
Sti com/Car fil	x	x		x		x	x					x		x	x	x	x					x	x
Sti com/Car hel					x										x								x
Sti com/Bou cur								x		x													
Agr spi/Poa san													x										
Agr spi/Sti com	x	x			x			x	x	x	x		x			x			x		x	x	x
Agr spi/Car fil				x			x					x			x	x						x	x
Agr spi/Sti vir										x						x							
Agr spi/Fes ida		x			x								x			x				x	x		
Agr spi/Bou cur	x	x						x							x	x						x	
Agr spi/Muh cus		x												x									
Fes ida/Agr smi																			x	x			
Fes ida/Car hel					x					x	x				x	x							
And sco/Sti com				x					x	x													x
And sco/Car fil	x					x									x								x
And sco/Agr spi	x	x	x				x		x	x	x			x						x	x	x	
And sco/Bou cur	x	x	x	x		x										x							
And sco/Cal lon	x		x	x		x			x		x		x	x			x						x
And sco/And ger	x				x											x							
Cal lon/Agr smi													x			x							
Cal lon/Sti com	x	x			x	x	x		x	x	x						x	x				x	x
Cal lon/Car hel							x								x								
And hal/Sti com									x	x												x	x
And hal/Car hel						x					x												
And ger/Cal lon																x							x
And ger / Fes ida																x							

Study[1]	Project Name	Study[1]	Project Name	Study[1]	Project Name	Study[1]	Project Name
0	Otter Creek	6	Buckskin Mine Area B	12	Bull Mountains Mine and South Extension	21	Tanner Creek
1	Montco[3]	7	Absaloka Mine Tract 3 West	13	Nelson Creek	22	Squirrel Creek
2	Coal Creek	8	Absaloka Mine South Extension	14	Ashland District, Custer N.F.	23	Yellow Water Triangle
3	Big Sky Mine Area B	9	Absaloka Mine Tract 3 South	15	Ashland District, Custer N.F.	24	Spring Creek Mine
4	Youngs Creek	10	Absaloka Mine Tract 3 East	17	Makoshika State Park	25	Rosebud Mine[4]
5	Dominy-Pine Hills	11	Carpenter Creek	20	CX Ranch		

[2]County Codes: 1=Powder River, MT; 2=Rosebud, MT; 3=Big Horn, MT; 4=Custer, MT; 5=Campbell, WY; 6=Musselshell, MT; 7=Yellowstone, MT; 8=McCone, MT; 9=Carter, MT; 10=Dawson, MT; 11=Petroleum, MT; 12=Fergus, MT; 13=Statewide, MT

[3]Supplemental data are incorporated from Culwell and Scow (1982b) for Montco's North King Unit.

[4]The vegetation classification for Western Energy Company's Rosebud Mine is based on Scow, Larsen and Culwell (1988), which also incorporates a compilation of information from earlier vegetation baseline inventories and other quantitative studies conducted by ECON, Inc. for the Rosebud Mine, including ECON, Inc. (1979a,b), Johnson (1983), Johnson and Suliteanu (1982a, b), Sell (1980), Youmans and Sell (1980a, b).

Table N2

Synopsis of Shrub/Grassland Community Types Identified by Various Inventories in the Region of the Otter Creek Study Area.

SHRUB/GRASSLAND COMMUNITY TYPE	This Study (Scow 2014)	Olson-Elliott and Associates (1980)	Culwell (1979)	Culwell, Scow and Larsen (1985)	Culwell and Scow (1981)	Culwell and Scow (1982a)	Scow (1989)	Scow (2008b)	Scow (2006)	Scow (2004)	Scow (1992)	Scow (2009a)	Scow (1991, 2009b)	Scow (2008a) Prodgers (1978)	Hansen and Hoffman (1988)	Taylor and Holst (1976)	Culwell, Scow and Larsen (1986)	Hansen et al. (1995)	Olson-Elliott and Associates (1981)	DePuit et al. (1976b)	DePuit et al. (1978)	Jorgensen (1979)	VTN (1977); Prodgers (1991, 1998, 2007)	Scow, Larsen and Culwell (1988)
PROJECT NAME[1]		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	17	19	20	21	22	23	24	25
COUNTY LOCATION[2]	*1*	*2*	*1*	*2*	*3*	*4*	*5*	*3*	*3*	*3*	*3*	*6*	*6,7*	*8*	*1, 2, 9*	*1, 2*	*10*	*13*	*3*	*3*	*3*	*11,12*	*3*	*2*
Sym occ/Fes ida								x		x	x													
Pru vir/Agr spi													x											
Art can-Sym occ/Sti com										x	x													
Art can/Agr smi	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Art can/Sti vir					x	x		x	x	x	x	x	x			x								x
Art can/Sti com				x	x		x	x	x	x	x	x	x			x	x							x
Art can/Car hel					x	x	x																	x
Art can/Agr spi										x		x	x	x										x
Art can/Fes ida					x			x		x	x		x					x						
Art tri/Agr smi	x	x	x	x	x	x		x	x	x		x			x	x	x		x	x			x	x
Art tri/Sti vir			x		x		x																x	x
Art tri/Sti com		x		x	x		x					x							x				x	x
Art tri/Agr das																						x		
Art tri/Agr spi	x	x		x	x	x	x	x				x			x	x			x	x	x	x	x	x
Art tri/Fes ida																x						x		
Art tri/And sco	x																							
Jun hor/Car hel															x							x		
Jun hor/And sco						x								x										
Rhu aro-Art can/Agr smi																								x
Rhu aro/Sti com					x	x		x	x	x		x	x						x					x
Rhu aro/Car fil				x											x									x
Rhu aro/Agr spi			x	x	x	x		x	x	x		x	x		x						x		x	x
Rhu aro/Fes ida					x										x									
Rhu aro/Bou cur						x		x																
Rhu aro/And sco				x		x										x								x
Rhu aro/Cal lon						x										x								x

Study[1]	Project Name	Study[1]	Project Name	Study[1]	Project Name	Study[1]	Project Name
0	Otter Creek	6	Buckskin Mine Area B	12	Bull Mountains Mine and South Extension	20	CX Ranch
1	Montco[3]	7	Absaloka Mine Tract 3 West	13	Nelson Creek	21	Tanner Creek
2	Coal Creek	8	Absaloka Mine South Extension	14	Ashland District, Custer N.F.	22	Squirrel Creek
3	Big Sky Mine Area B	9	Absaloka Mine Tract 3 South	15	Ashland District, Custer N.F.	23	Yellow Water Triangle
4	Youngs Creek	10	Absaloka Mine Tract 3 East	17	Makoshika State Park	24	Spring Creek Mine
5	Dominy-Pine Hills	11	Carpenter Creek	19	Montana Riparian and Wetland Sites	25	Rosebud Mine[4]

[2]County Codes: 1=Powder River, MT; 2=Rosebud, MT; 3=Big Horn, MT; 4=Custer, MT; 5=Campbell, WY; 6=Musselshell, MT; 7=Yellowstone, MT; 8=McCone, MT; 9=Carter, MT; 10=Dawson, MT; 11=Petroleum, MT; 12=Fergus, MT; 13=Statewide, MT

[3]Supplemental data are incorporated from Culwell and Scow (1982b) for Montco's North King Unit.

[4]The vegetation classification for Western Energy Company's Rosebud Mine is based on Scow, Larsen and Culwell (1988), which also incorporates a compilation of information from earlier vegetation baseline inventories and other quantitative studies conducted by ECON, Inc. for the Rosebud Mine, including ECON, Inc. (1979a,b), Johnson (1983), Johnson and Suliteanu (1982a, b), Sell (1980), Youmans and Sell (1980a, b).

Table N3

Synopsis of Breaks Community Types Identified by Various Inventories in the Region of the Otter Creek Study Area.

BREAKS COMMUNITY TYPE	This Study (Scow 2014)	Olson-Elliott and Associates (1980)	Culwell (1979)	Culwell, Scow and Larsen (1985)	Culwell and Scow (1981)	Culwell and Scow (1982a)	Scow (1989)	Scow (2008b)	Scow (2006)	Scow (2009a)	Scow (1991, 2009b)	Scow (2008a) Prodgers (1978)	Hansen and Hoffman (1988)	Brown (1971)	Culwell, Scow and Larsen (1986)	Olson-Elliott and Associates (1981)	DePuit et al. (1976b)	Jorgensen (1979)	VTN (1977); Prodgers (1991, 1998, 2007)	Scow, Larsen and Culwell (1988)
PROJECT NAME[1]		1	2	3	4	5	6	7	8	11	12	13	14	16	17	20	21	23	24	25
COUNTY LOCATION [2]	*1*	*2*	*1*	*2*	*3*	*4*	*5*	*3*	*3*	*6*	*6,7*	*8*	*1, 2, 9*	*1, 2*	*10*	*3*	*3*	*11,12*	*3*	*2*
GRASS-DOMINATED BREAKS																				
Agr smi	x																			
Agr smi/Gut sar			x	x													x			x
Agr spi	x																			x
Agr spi/Gut sar				x		x										x			x	x
Dis str												x								
Spo air	x																			
Cal lon	x																			
SHRUB-DOMINATED BREAKS																				
Sar ver/Agr smi		x											x							
Art tri-Sar ver-Chr nau/Agr smi	x																		x	
Art tri-Sar ver-Chr nau/Agr spi	x																			
Art tri-Sar ver/Agr das																		x		
Art tri-Art lon/Agr das																		x		
Art tri/Agr spi							x							x						x
Artr con/Agr spi											x								x	
Chr nau/Agr spi									x		x									
Rhu aro/Agr spi	x					x		x		x	x		x	x						x
Art tri-Atr con/Agr spi		x		x		x				x				x	x				x	
Art tri-Chr nau/Agr spi		x		x					x										x	
Art tri-Rhu aro/Agr spi			x	x					x											
Art tri-Rhu aro-Chr nau/Agr spi	x																			
Art tri-Rhu aro-Sar ver/Agr spi	x																			
Art tri-Atr con-Sar ver/Agr spi	x	x											x	x	x	x				
Art tri-Atr con-Rhu aro/Agr spi	x										x				x					
Rhu aro-Rib cer-Sym ore/Agr spi											x									
Atr can-Art tri-Rhu aro/Agr spi					x															
Cer led/Agr spi					x															
CONIFER-DOMINATED BREAKS																				
Jun sco/Agr spi	x	x											x	x		x			x	
Jun sco/Ory mic													x		x					
Pin pon-Jun sco/Agr spi	x					x			x	x	x		x	x						
Pin pon-Jun sco/And sco	x																			
Pin pon-Jun sco/Art tri	x																			
Pin pon-Jun sco/Art tri-Atr con	x																			

Study[1]	Project Name	Study[1]	Project Name	Study[1]	Project Name	Study[1]	Project Name
0	Otter Creek	5	Dominy-Pine Hills	12	Bull Mountains Mine and South Extension	20	CX Ranch
1	Montco[3]	6	Buckskin Mine Area B	13	Nelson Creek	21	Tanner Creek
2	Coal Creek	7	Absaloka Mine Tract 3 West	14	Ashland District, Custer N.F.	23	Yellow Water Triangle
3	Big Sky Mine Area B	8	Absaloka Mine South Extension	16	Ashland District, Custer N.F.	24	Spring Creek Mine
4	Youngs Creek	11	Carpenter Creek	17	Makoshika State Park	25	Rosebud Mine[4]

[2]County Codes: 1=Powder River, MT; 2=Rosebud, MT; 3=Big Horn, MT; 4=Custer, MT; 5=Campbell, WY; 6=Musselshell, MT; 7=Yellowstone, MT; 8=McCone, MT; 9=Carter, MT; 10=Dawson, MT; 11=Petroleum, MT; 12=Fergus, MT; 13=Statewide, MT

[3]Supplemental data are incorporated from Culwell and Scow (1982b) for Montco's North King Unit.

[4]The vegetation classification for Western Energy Company's Rosebud Mine is based on Scow, Larsen and Culwell (1988), which also incorporates a compilation of information from earlier vegetation baseline inventories and other quantitative studies conducted by ECON, Inc. for the Rosebud Mine, including ECON, Inc. (1979a,b), Johnson (1983), Johnson and Suliteanu (1982a, b), Sell (1980), Youmans and Sell (1980a, b).

Table N4

Synopsis of Ponderosa Pine-Juniper Forest and Savannah Community Types Identified by Various Inventories in the Region of the Otter Creek Study Area.

PONDEROSA PINE-JUNIPER COMMUNITY TYPE	This Study (Scow 2014)	Olson-Elliott and Associates (1980)	Culwell (1979)	Culwell, Scow and Larsen (1985)	Culwell and Scow (1981)	Culwell and Scow (1982a)	Scow (2008b)	Scow (2006)	Scow (2004)	Scow (1992)	Scow (2009a)	Scow (1991, 2009b)	Culwell, Scow and Larsen (1986)	Cooper and Pfister (1984)	Hansen and Hoffman (1988)	Taylor and Holst (1976)	Hansen et al. (1995)	Olson-Elliott and Associates (1981)	DePuit et al. (1976b)	DePuit et al. (1978)	Jorgensen (1979)	VTN (1977); Prodgers (1991, 1998, 2007)	Scow, Larsen and Culwell (1988)	DePuit et al. (1976a)
PROJECT NAME[1]		1	2	3	4	5	7	8	9	10	11	12	17	18	14	15	19	20	21	22	23	24	25	26
COUNTY LOCATION[2]	*1*	*2*	*1*	*2*	*3*	*4*	*3*	*3*	*3*	*3*	*6*	*6,7*	*10*	*2,3*	*1, 2, 9*	*1, 2*	*13*	*3*	*3*	*3*	*11,12*	*3*	*2*	*3*
PONDEROSA PINE-JUNIPER/GRASS																								
Pin pon/Agr smi										x	x	x											x	
Pin pon/Agr spi		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x		x	x
Pin pon-Jun sco/Agr spi	x																					x	x	
Pin pon/Car hel					x	x				x			x		x								x	
Jun sco-Pin pon/Ory mic	x																							
Pin pon/Fes ida				x	x		x	x	x	x		x		x	x	x							x	x
Pin pon-Jun sco/Fes ida	x																							
Pin pon/And sco			x	x	x	x				x	x			x		x							x	
Pin pon-Jun sco/And sco	x																							
Pin pon/And ger										x						x							x	
Pin pon/Agr cri									x															
PONDEROSA PINE-JUNIPER/SHRUB																								
Pin pon/Jun hor						x															x			
Pin pon/Rhu aro						x	x	x	x										x				x	
Upland Pin pon/Sym occ				x	x	x	x	x	x	x	x	x				x							x	x
Drainage Pin pon/Sym occ				x		x	x	x	x	x														
Drainage Jun sco-Pin pon/Sym occ-Agr smi	x																							
Pin pon/Sym alb														x										
Pin pon/Pru vir						x	x					x		x	x		x							x
Pin pon-Jun sco/Pru vir	x																							
Pin pon/Jun com															x									
Pin pon/Jun sco		x		x	x	x	x				x													
BURNED PONDEROSA PINE											x	x												
LOGGED OR CLEARCUT P. PINE								x	x		x													

Study[1]	Project Name	Study[1]	Project Name	Study[1]	Project Name	Study[1]	Project Name
0	Otter Creek	8	Absaloka Mine South Extension	17	Makoshika State Park	24	Spring Creek Mine
1	Montco[3]	9	Absaloka Mine Tract 3 South	18	Crow and Northern Cheyenne Reservations	25	Rosebud Mine[4]
2	Coal Creek	10	Absaloka Mine Tract 3 East	19	Montana Riparian and Wetland Sites	26	Wolf Mountain
3	Big Sky Mine Area B	11	Carpenter Creek	20	CX Ranch		
4	Youngs Creek	12	Bull Mountains Mine and South Extension	21	Tanner Creek		
5	Dominy-Pine Hills	14	Ashland District, Custer N.F.	22	Squirrel Creek		
7	Absaloka Mine Tract 3 West	15	Ashland District, Custer N.F.	23	Yellow Water Triangle		

[2]County Codes: 1=Powder River, MT; 2=Rosebud, MT; 3=Big Horn, MT; 4=Custer, MT; 5=Campbell, WY; 6=Musselshell, MT; 7=Yellowstone, MT; 8=McCone, MT; 9=Carter, MT; 10=Dawson, MT; 11=Petroleum, MT; 12=Fergus, MT; 13=Statewide, MT

[3]Supplemental data are incorporated from Culwell and Scow (1982b) for Montco's North King Unit.

[4]The vegetation classification for Western Energy Company's Rosebud Mine is based on Scow, Larsen and Culwell (1988), which also incorporates a compilation of information from earlier vegetation baseline inventories and other quantitative studies conducted by ECON, Inc. for the Rosebud Mine, including ECON, Inc. (1979a,b), Johnson (1983), Johnson and Suliteanu (1982a, b), Sell (1980), Youmans and Sell (1980a, b).

Table N5

Synopsis of Drainage Bottom Community Types Identified by Various Inventories in the Region of the Otter Creek Study Area.

DRAINAGE BOTTOM COMMUNITY TYPE	This Study (Scow 2014)	Olson-Elliott and Associates (1980)	Culwell (1979)	Culwell, Scow and Larsen (1985)	Culwell and Scow (1981)	Culwell and Scow (1982a)	Scow (1989)	Scow (2008b)	Scow (2006)	Scow (2004)	Scow (1992)	Scow (2009a)	Scow (1991, 2009b)	Scow (2008a) Prodgers (1978)	Hansen and Hoffman (1988)	Culwell, Scow and Larsen (1986)	Hansen et al. (1995)	Olson-Elliott and Associates (1981)	DePuit et al. (1976b)	DePuit et al. (1978)	Jorgensen (1979)	VTN (1977); Prodgers (1991, 1998, 2007)	Scow, Larsen and Culwell (1988)
PROJECT NAME[1]		1	2	3	4	5	6	7	8	9	10	11	12	13	14	17	19	20	21	22	23	24	25
COUNTY LOCATION[2]	*1*	*2*	*1*	*2*	*3*	*4*	*5*	*3*	*3*	*3*	*3*	*6*	*6,7*	*8*	*1, 2, 9*	*10*	*13*	*3*	*3*	*3*	*11,12*	*3*	*2*
MESOPHYTIC/HYDROPHYTIC HERBACEOUS BOTTOM																							
Bro ine/Agr smi											x						x						
Ely cin/Poa pra-Bro ine																		x					
Ely cin/Agr smi-Poa pra																						x	
Fes aru/Poa pra													x										
Pha aru																	x						
Poa pra-Agr sto/Agr smi													x	x			x		x		x		
Poa pra-Agr sto/Hor jub											x		x	x			x						
Poa pra-Agr sto/Jun bal							x						x	x			x						
Poa pra-Agr sto/Car pra											x		x										
Dis str/Agr smi	x	x	x				x							x			x						
Dis str/Agr smi-Agr das var. rip														x									
Dis str/Agr smi/Hor jub	x												x				x						
Dis str/Agr smi/Car pra				x																			
Dis str/Agr smi/Puc nut														x			x						
Puc nut/Hor jub													x				x						
Spo air/Agr smi	x																						
Spo air/Dis str	x													x									
Spa gra/Jun bal-Agr sto													x										
Spa gra/Dis str	x													x									
Spa gra/Spo air														x									
Spa gra/Sci ame													x	x									
Spa pec/Bro ine	x																						
Spa pec/Poa pra-Car pra	x			x					x	x			x										
Spa pec/Hor jub	x	x															x	x					
Spa pec/Dis str														x									
Spa pec/Pan vir	x																						
Spa pec/Sci ame	x			x		x							x	x			x	x					
Spa pec/Car lan											x												
Sci ame/Jun bal-Poa pra													x										
Sci ame/Ele pal-Jun bal																	x						
Sci ame/Ele pal-Car pra													x	x									
Sci mar/Spo air-Dis str	x																						
Sci mar/Sci ame-Ele pal	x													x			x						
Ele pal/Poa pra-Agr sto													x				x						
Ele pal/Sci ame-Jun tor	x												x	x									
Cal lan/Poa pra-Agr sto													x				x						
Cal lan/Sci ame-Car neb											x												
Cal lan/Sci ame-Ele pal											x		x										
Car neb/Poa pra-Agr sto											x		x				x						
Car neb/Sci ame-Car pra									x				x										
Car neb/Sci ame-Ele pal				x									x										

Table N5

Synopsis of Drainage Bottom Community Types Identified by Various Inventories in the Region of the Otter Creek Study Area.

DRAINAGE BOTTOM COMMUNITY TYPE	This Study (Scow 2014)	Olson-Elliott and Associates (1980)	Culwell (1979)	Culwell, Scow and Larsen (1985)	Culwell and Scow (1981)	Culwell and Scow (1982a)	Scow (1989)	Scow (2008b)	Scow (2006)	Scow (2004)	Scow (1992)	Scow (2009a)	Scow (1991, 2009b)	Scow (2008a) Prodgers (1978)	Hansen and Hoffman (1988)	Culwell, Scow and Larsen (1986)	Hansen et al. (1995)	Olson-Elliott and Associates (1981)	DePuit et al. (1976b)	DePuit et al. (1978)	Jorgensen (1979)	VTN (1977); Prodgers (1991, 1998, 2007)	Scow, Larsen and Culwell (1988)
PROJECT NAME[1]		1	2	3	4	5	6	7	8	9	10	11	12	13	14	17	19	20	21	22	23	24	25
COUNTY LOCATION[2]	*1*	*2*	*1*	*2*	*3*	*4*	*5*	*3*	*3*	*3*	*3*	*6*	*6,7*	*8*	*1, 2, 9*	*10*	*13*	*3*	*3*	*3*	*11,12*	*3*	*2*
Gly str/Poa pra-Agr sto													x										
Gly str/Car lan													x										
Gly str/Ele pal-Cat aqu													x										
Typ lat/Bro ine	x																						
Typ lat/Spa pec	x									x													
Typ lat/Car lan																		x					
Sci acu-Sci val/Spa pec	x																						
Sci acu-Sci val/Typ lat	x									x			x				x						
Sci acu-Sci val/Ele pal							x						x				x						
MESOPHYTIC LOW SHRUB BOTTOM																							
Sar ver/Agr smi		x													x		x	x				x	
Sym occ-Art tri-Sar ver/Agr smi	x																						
Jun hor-Art can/Agr smi-And sco														x									
Art can-Ros woo/Agr smi-Poa pra	x																						
Sym occ-Art can/Agr smi-Poa pra	x			x		x		x	x	x		x	x										
Sym occ-Rhu aro/Poa pra																							x
Sym occ-Ros woo/Poa pra-Agr smi	x			x	x	x		x	x	x	x	x	x	x	x		x		x	x	x		x
Sym occ-Ros woo/And ger									x	x													
MESOPHYTIC TALL SHRUB BOTTOM																							
Pru vir/Sym occ-Poa pra					x				x	x	x						x		x	x		x	x
Pru ame-Pru vir/Sym occ-Poa pra						x			x	x													x
Cra suc/Sym occ-Poa pra																	x						x
Cra suc-Pru vir/Sym occ-Poa pra										x										x			x
Cra suc-Pru ame/Sym occ-Poa pra					x				x	x	x								x				x
She arg/Sym occ-Poa pra															x		x						x
She arg-Pru vir/Sym occ-Poa pra											x												x
She arg-Cra suc/Sym occ-Poa pra											x												
Sal exi/Sym occ-Poa pra																	x						
Sal exi/Sci ame-Jun tor	x																						
MESOPHYTIC DECIDUOUS TREE BOTTOM																							
Pop del/Poa pra				x							x												
Pop del-Fra pen-Ace neg/Poa pra		x																					
Pop del/Bro ine	x																						
Pop del-Ace neg/Bro ine	x																						
Pop del/Sym occ-Poa pra	x	x														x	x				x		
Pop del-Fra pen-Ace neg/Sym occ	x																	x					
Pop del/Sal exi																	x						
Pop del-Sal amy/Sal exi	x																						
Pop del/Pru vir	x																						
Pop ang/Poa pra					x												x						
Pop ang/Sym occ-Poa pra																	x						

Table N5

Synopsis of Drainage Bottom Community Types Identified by Various Inventories in the Region of the Otter Creek Study Area.

DRAINAGE BOTTOM COMMUNITY TYPE	This Study (Scow 2014)	Olson-Elliott and Associates (1980)	Culwell (1979)	Culwell, Scow and Larsen (1985)	Culwell and Scow (1981)	Culwell and Scow (1982a)	Scow (1989)	Scow (2008b)	Scow (2006)	Scow (2004)	Scow (1992)	Scow (2009a)	Scow (1991, 2009b)	Scow (2008a) Prodgers (1978)	Hansen and Hoffman (1988)	Culwell, Scow and Larsen (1986)	Hansen et al. (1995)	Olson-Elliott and Associates (1981)	DePuit et al. (1976b)	DePuit et al. (1978)	Jorgensen (1979)	VTN (1977); Prodgers (1991, 1998, 2007)	Scow, Larsen and Culwell (1988)
PROJECT NAME[1]		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**17**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
COUNTY LOCATION[2]	*1*	*2*	*1*	*2*	*3*	*4*	*5*	*3*	*3*	*3*	*3*	*6*	*6,7*	*8*	*1, 2, 9*	*10*	*13*	*3*	*3*	*3*	*11,12*	*3*	*2*
Pop tre/Poa pra					x										x		x						
Pop tre/Ber rep															x		x						
Ela ang/Sym occ-Poa pra																	x						
Sal amy/Sym occ-Poa pra									x								x						
Ace neg/Poa pra					x				x									x					
Ace neg/Bro ine	x									x													
Ace neg/Spa pec	x																						
Ace neg/Sym occ-Poa pra										x							x					x	
Ace neg-Sal amy/Sym occ-Poa pra										x													
Ace neg/Pru vir										x							x						
Ace neg/Pru vir-Pru ame-Cra suc				x					x														
Fra pen/Poa pra	x				x			x							x								
Fra pen/Sym occ-Poa pra								x			x						x						
Fra pen-Ace neg/Sym occ-Poa pra					x	x				x	x						x	x					
Fra pen/Pru vir		x								x					x		x						
Fra pen-Ace neg/Pru vir					x	x				x													

Study[1]	Project Name	Study[1]	Project Name	Study[1]	Project Name	Study[1]	Project Name
0	Otter Creek	6	Buckskin Mine Area B	12	Bull Mountains Mine and South Extension	21	Tanner Creek
1	Montco[3]	7	Absaloka Mine Tract 3 West	13	Nelson Creek	22	Squirrel Creek
2	Coal Creek	8	Absaloka Mine South Extension	14	Ashland District, Custer N.F.	23	Yellow Water Triangle
3	Big Sky Mine Area B	9	Absaloka Mine Tract 3 South	17	Makoshika State Park	24	Spring Creek Mine
4	Youngs Creek	10	Absaloka Mine Tract 3 East	19	Montana Riparian and Wetland Sites	25	Rosebud Mine[4]
5	Dominy-Pine Hills	11	Carpenter Creek	20	CX Ranch		

[2]County Codes: 1=Powder River, MT; 2=Rosebud, MT; 3=Big Horn, MT; 4=Custer, MT; 5=Campbell, WY; 6=Musselshell, MT; 7=Yellowstone, MT; 8=McCone, MT; 9=Carter, MT; 10=Dawson, MT; 11=Petroleum, MT; 12=Fergus, MT; 13=Statewide, MT

[3]Supplemental data are incorporated from Culwell and Scow (1982b) for Montco's North King Unit.

[4]The vegetation classification for Western Energy Company's Rosebud Mine is based on Scow, Larsen and Culwell (1988), which also incorporates a compilation of information from earlier vegetation baseline inventories and other quantitative studies conducted by ECON, Inc. for the Rosebud Mine, including ECON, Inc. (1979a,b), Johnson (1983), Johnson and Suliteanu (1982a, b), Sell (1980), Youmans and Sell (1980a, b).