

**EXHIBIT 312A – FISH AND WILDLIFE PLAN**

**Appendix B**

**FISH AND WILDLIFE RESOURCES MONITORING PLAN**

**OTTER CREEK MINE**

**POWDER RIVER COUNTY, MONTANA**

Prepared for:

Otter Creek Coal, LLC  
401 N. 31<sup>st</sup> Street, Suite 770  
Billings, Montana 59101

Prepared by:

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

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## **1.0 Introduction**

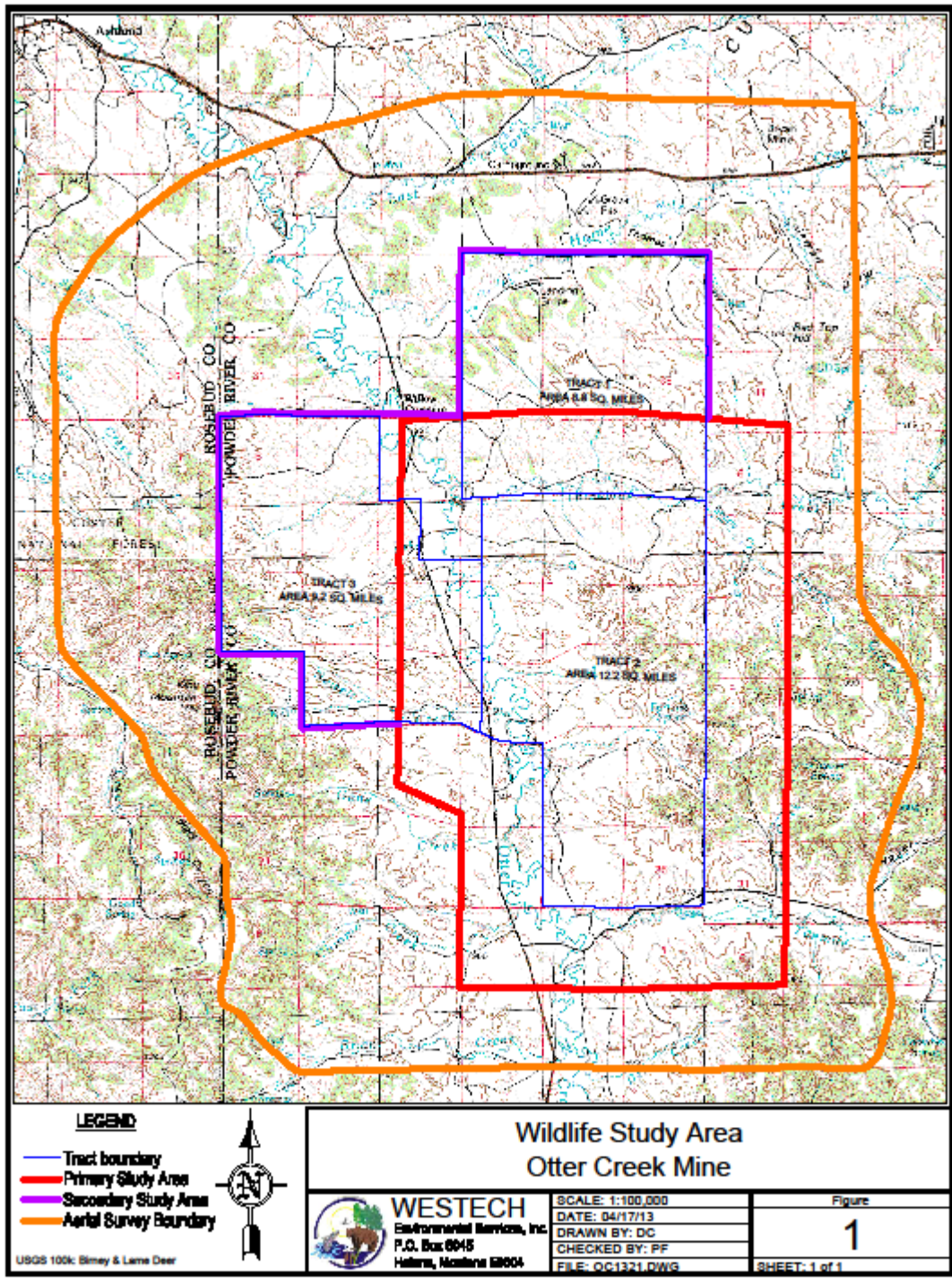
### **1.1 Purpose and Time Frame**

Otter Creek Coal, LLC (OCC) plans to develop the Otter Creek Mine, a surface coal mine located approximately six miles southeast of Ashland in Powder River County, Montana. The potential mine comprises three tracts (Figure 1); Tract 2 would be developed first.

In 2010 OCC initiated baseline inventories of natural resources in the mine area. Field data collection for the fish and wildlife resources baseline study began with a site reconnaissance in August 2010 and ended in late July 2011 (Farmer 2012). However, field work in the baseline year was skewed towards late spring-summer, because the study area was largely inaccessible during the severe 2010-2011 winter and the very wet 2012 spring. Therefore, OCC continued to inventory fish and wildlife resources in the mine area in 2011-2012, with emphasis on spring 2012 (Farmer 2013). Surveys continued for a third year, from autumn 2012 through spring 2013 (Farmer 2014), emphasizing big game distribution and habitat use in autumn and winter, and upland game bird and raptor occurrence and habitat use in spring.

This monitoring plan is submitted in accordance with ARM 17.24.312(1)(d). Monitoring would begin upon issuance of the mine operating permit, or at such other time agreed upon by OCC and the Montana Department of Environmental Quality (MDEQ). Some methods/tasks of the monitoring plan may not be applicable every year, depending on circumstances such as rate of mining, rate of reclamation, etc. OCC would confer with MDEQ to periodically adjust monitoring methods/tasks to reflect these circumstances.

Monitoring would occur over four seasons, although field effort would not be distributed equally by season. For the purposes of this plan, seasons would be defined as autumn (September–November), winter (December–February), spring (March–May) and summer (June–August). Season definitions may be adjusted, if appropriate.



**Wildlife Study Area  
Otter Creek Mine**

**LEGEND**

- Tract boundary
- Primary Study Area
- Secondary Study Area
- Aerial Survey Boundary

USGS 100k: Bimby & Larne Deer



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

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## 1.2 Objectives

The objectives of the Otter Creek Mine fish and wildlife resources monitoring effort will be:

- Determine fish and wildlife species present on and adjacent to the permit area;
- Describe fish and wildlife-habitat relationships;
- Provide a data base from which, to the extent possible, determinations of impacts due to proposed mining and reclamation activity can be made;
- Provide a basis for an effective reclamation plan; and
- Provide a data base to be used in implementing mitigation practices.

## 1.3 Study Area

OCC has identified three tracts that could eventually be developed for the Otter Creek Mine (i.e., the potential life-of-mine area), but only Tract 2 is under consideration at present. For purposes of this monitoring plan, the study area will be identical to that of the first three years of study as determined in consultation with MDEQ:

- The Primary Study Area will be Tract 2 (approximately 12 mi<sup>2</sup>) plus a one-mile buffer (Figure 1), which encompasses the proposed mine facilities area. Where access is available, the Primary Study Area will be surveyed by vehicle routes, pedestrian routes and landbird plots.
- The Secondary Study Area (Figure 1) comprises Tracts 1 (approximately 8 mi<sup>2</sup>) and 3 (about 9 mi<sup>2</sup>). The accessible portions of these tracts will be added to the grouse lek survey area.
- The Aerial Survey Area is defined by a two-mile buffer around all three tracts, as shown in Figure 1; the area covered by aerial surveys is approximately 106 mi<sup>2</sup>.

## 2.0 Methods

### 2.1 Species Lists

Farmer (2012, 2013, 2014) developed a list of fish and wildlife species that potentially occur in the Otter Creek Mine study area, and noted which species were recorded each year. This list will be retained for the monitoring effort. During field work all species documented by sightings or

evidence will be recorded by the habitat in which they are observed. These records will be used to describe habitat use by species, and species richness by habitat.

## **2.2 Aquatic Assessments**

The Montana Natural Heritage Program (MTNHP) was contracted to conduct aquatic assessments in the Otter Creek Mine study area in 2011, 2012 and 2013 (Stagliano 2012, 2013, 2014) at four sampling stations on Otter Creek (one “control” station upstream of Tract 2, two “impact” stations adjacent to Tract 2, and one “downstream” station below the Otter Creek Mine area), and one station each on Home Creek, Threemile Creek and Tenmile Creek. Habitat at each station was evaluated to characterize stream reach geomorphology, riparian and in-stream habitat, and characteristics that influence aquatic community integrity. Macroinvertebrate communities were sampled qualitatively using the EMAP Reach-Wide protocol (Stagliano 2014). Biological metrics were calculated for each sample using MDEQ’s multimetric macroinvertebrate (MMI) protocols. These metrics measure attributes of benthic macroinvertebrate communities that are sensitive to condition changes in the stream. The results were then scored and each sample was categorized as either nonimpaired or impaired, based on its score (Stagliano 2014).

Fish were sampled by seining and/or baited minnow traps at each station (Stagliano 2014). Captured fish were identified, counted, and total length was measured before release. Fish communities were analyzed using Integrated Biotic Indices (IBI) for wadeable prairie streams and Observed/Expected Fish Models to detect biological integrity impairment at each site. The resulting scores were used to rank the biological integrity at each site as poor (severely degraded), poor to fair, fair to good, and good to excellent (Stagliano 2014).

No further aquatic assessments are anticipated for this monitoring effort unless it is determined, in consultation with MDEQ, that such sampling is necessary to document effects from future mine-related activities.

## **2.3 Terrestrial Invertebrates**

Farmer (2012) reported that for the purposes of the baseline study, the only terrestrial invertebrates inventoried in the field were those considered to be Species of Concern by MTNHP and FWP (2013). The only completely terrestrial invertebrate Species of Concern potentially found in the Otter Creek Mine study area was the gray comma, a butterfly. Farmer (2012) determined that habitat quality for the gray comma in Tract 2 was limited, and did not observe this species.

Although still a Species of Concern, the gray comma is no longer included on the Species of Concern lists for Powder River and Rosebud Counties (MTNHP and FWP 2014). Therefore no further searches for the gray comma or any other terrestrial invertebrates are proposed for this monitoring plan.

## **2.4 Big Game**

For the purposes of this monitoring plan, big game animals are considered to be those species defined as “game animals” by FWP (87-2-101(4) MCA): pronghorn, mule deer, white-tailed deer, elk, mountain lion and black bear. Big game will be monitored with aerial surveys, vehicle routes, pedestrian routes and opportunistic observations.

Aerial surveys will be flown seasonally, and will provide information on distribution, habitat use and minimum numbers of animals. The preferred schedule for aerial surveys will be:

- There will be one flight in autumn (preferably early- to mid-October) before the opening of general big game hunting seasons. In addition to distribution, habitat and total numbers, age and gender of big game animals will be classified during this flight, to the extent practicable.
- There will be one flight in early winter (preferably mid-December), after the close of all hunting seasons. In addition to distribution, habitat and total numbers, age and gender of big game animals will be classified during this flight, to the extent practicable.
- There will be one flight each in January, February and March, preferably mid-month.
- There will be one flight in April, preferably mid- to late- month.

All surveys will be flown in a Piper SuperCub or similar fixed-wing aircraft. Altitude will usually be 150-300 feet above the ground, but will vary depending on topography, presence of livestock or buildings, etc. Aircraft speed will be as slow as safely practicable. Surveys will be flown on a grid of north-south flight lines, preferably beginning in the northeast corner of the aerial survey area. Flight lines over gentle to rolling open habitats, where animals may be observed at greater distances, will be spaced about 0.5 mile apart, while flight lines over forested or rugged habitats will be about 0.25 mile apart. In some areas flight lines may follow ridges and drainages, circle hills, etc., in an effort to observe as many animals as possible. All major species (big game, raptors, grouse, coyotes, etc.) observed during the flight will be mapped and will be recorded by date, species, time, GPS location, habitat, activity, group size, age and sex composition, if applicable.

Vehicle routes will include public, all-season roads (Highway 212, Otter Creek and Tenmile Creek roads) throughout the year, and two-track trails in accessible portions of all three tracts during all seasons. Pedestrian surveys will be confined to private lands in Tract 2 and lands managed by the U.S. Forest Service (USFS), Bureau of Land Management (BLM) or State of Montana in or adjacent to Tract 2. Observations will be mapped and will be recorded by date, species, time, GPS location, habitat, number of animals, age and gender (if possible), and activity, if applicable.

## **2.5 Upland Game**

For the purposes of this monitoring plan, upland game animals will be considered to be those species defined as “upland game birds” by FWP (87-2-101(13) MCA): ring-necked pheasant, gray partridge, wild turkey, greater sage-grouse and sharp-tailed grouse. Observations of upland game birds will be mapped and will be recorded by species, GPS location, date, time of day, habitat, number of animals, age and gender (if possible), and activity.

A 16-station ring-necked pheasant crow count route was established along the Otter Creek and Tenmile Creek roads (Farmer 2012, 2013, 2014). Stations were located approximately one mile apart at locations within 0.5 mile of riparian habitat along East Fork Otter Creek, Otter Creek and

Tenmile Creek. These routes/stations were also used to locate calling male turkeys and grouse leks in spring, and for owl surveys in winter and spring.

For upland game, surveys will begin about 0.5 hour before sunrise and end about 2.0 hours after sunrise on days with no precipitation and little wind from April 10 through June 15. At each station, the surveyor will stop the vehicle, turn the engine off, step out of the vehicle and listen for calling/displaying birds for five minutes. Ring-necked pheasant calls will be recorded for the first two minutes, while turkeys and grouse will be noted throughout the five minute stop. Gray partridge will be recorded whenever observed.

Grouse lek searches will also be conducted in upland habitats in Tract 2 and accessible portions of Tracts 1 and 3 by stopping the vehicle approximately every 0.5 mile along two-track trails and listening for displaying birds for 3-5 minutes.

## **2.6 Raptors**

For the purposes of this study, raptors are considered to be members of the Accipitriformes (vultures, eagles and hawks), Falconiformes (falcons) and Strigiformes (owls). Raptor sightings will be mapped and recorded by species, date, time of day, GPS location, habitat, number of animals, age and gender (if possible), and activity.

Surveys for breeding owls will be conducted along the ring-necked pheasant crow count route and portions of Tract 2 from mid-winter through mid-spring. After several minutes of listening, depending on site-specific conditions, recorded calls of species most likely to occur in the area in winter/early spring (eastern screech-owl, northern saw-whet owl, long-eared owl and great horned owl) may be played to elicit responses. Locations of calling birds will be triangulated, mapped and recorded in field notes.

Searches for nests of owls and diurnal raptors in accessible portions of the Primary and Secondary Study Areas will be conducted in April-June by: 1) driving accessible roads and trails in the area, stopping at vantage points to look for nests and listen for calling adults; and 2) walking through appropriate habitats and looking for nests (stick nests, ground nests, tree



cavities and rock ledges/cavities) or breeding/territorial behavior of adult birds. Nests will be photographed, mapped and recorded in field notes.

## **2.7 Waterfowl and Shorebirds**

For the purposes of this study, waterfowl are defined as members of the order Anseriformes (geese, ducks and swans) while shorebirds are members of the orders Gaviiformes (loons), Podicipediformes (grebes), Pelecaniformes (pelicans and cormorants), Ciconiiformes (herons, bitterns, ibises, etc.), Gruiformes (cranes, rails, coots, etc.), Charadriiformes (plovers, snipe, sandpipers, avocets, phalaropes, gulls, terns, etc.) and Coraciiformes (kingfishers).

Aquatic habitats are limited throughout the Otter Creek Mine wildlife study area, and particularly in the Primary Study Area. The portion of Otter Creek in the Primary Study Area, as well as several ponds, will be examined in March-June for use by waterfowl and shorebirds. Shorebirds that might occur in upland habitats (e.g., killdeer, upland sandpiper and long-billed curlew) will be inventoried with opportunistic observations.

## **2.8 Landbirds**

For the purposes of this study, landbirds are defined as all species except upland game, raptors, waterfowl and shorebirds.

Farmer (2012, 2013, 2014) sampled a total of 23 landbird plots in Tract 2 and the proposed facilities area. Therefore no further quantitative sampling is proposed for this monitoring effort. Rather, all landbirds will be recorded by the habitat in which they are observed.

At such time that OCC applies for certain phases of bond release for reclaimed areas, landbirds may be quantitatively sampled if it is determined, in consultation with MDEQ, that such sampling is necessary to document reclamation success. To ensure comparability between data sets, sampling will follow the protocol used by Farmer (2012, 2013, 2014):

Landbird circular plots will be placed at representative locations to be determined prior to sampling. Plots will be divided into three areas (0-50 m, 50-100 m and >100 m). Plot radius

will be measured with a tape and pin flags. Notes will be taken on canopy height, canopy cover, etc.

Plots will be surveyed from about 0.5-hour after sunrise until mid-morning. Counts will last 10 minutes. Birds will be recorded by distance (0-50 m, 50-100 m, >100 m) and time (0-5 minutes, 5-6 minutes, 6-7 minutes, 7-8 minutes, 8-9 minutes and 9-10 minutes). If practicable and/or appropriate for the sampling objectives, each plot will be run three times (once on three different mornings), with the three samples divided throughout the sampling period, i.e., a plot will be run once early in the morning, once during the middle of the sampling period, and once late in the sampling period (mid-morning).

## **2.9 Medium-sized Mammals**

For the purposes of this monitoring plan, medium-sized mammals are defined to be animals from the size of a black-tailed prairie dog to the size of a coyote, and include some species that have legal status as “non-game species in need of management” (prairie dog, on public lands only; ARM 12.2.501(1)(e)), furbearers (beaver, muskrat, American mink and bobcat; 87-2-101(3) MCA) or predators (coyote, weasel and striped skunk; 87-2-101(11) MCA). All medium-sized mammals observed by direct sightings or evidence during all aspects of monitoring will be recorded by the habitat in which they are observed. Sightings of medium-sized mammals that have legal status will be mapped and recorded by species, date, time of day, habitat, number of animals, age and gender (if possible), and activity.

## **2.10 Small Mammals (excluding bats)**

For the purposes of this study, small mammals are defined as mammals up to the size of a ground squirrel (i.e., smaller than a black-tailed prairie dog). Farmer (2012) quantitatively sampled small mammals in Tract 2. No further sampling is proposed for this monitoring effort. All small mammals or their evidence (e.g., tracks, skulls in raptor casts, burrows) observed during other aspects of monitoring will be recorded by the habitat in which they are observed.

## **2.11 Bats**

Fifteen species of bats potentially occur in Montana; of these, 12 have been recorded in Powder River and/or Rosebud Counties (MTNHP 2014). As discussed by Farmer (2012), Continental Divide Wildlife Consulting (2011) inventoried bats in Tract 2 in 2011, and documented eight species, while Farmer (2012) observed a ninth species. In 2013 MTNHP, in cooperation with MDEQ, established a long-term bat acoustic monitoring station along Otter Creek near Tract 2. Consequently no further bat sampling will be undertaken by this monitoring program.

## **2.12 Amphibians and Reptiles**

Throughout field work, all amphibians and reptiles will be recorded by the habitat in which they are seen. Opportunistic searches will be conducted at water sources for amphibians (listening for displaying adults, looking for adults, egg masses or larvae) and at rock outcrops for reptiles (looking for basking adults, turning over rocks).

## **2.13 Endangered or Threatened Species**

As discussed by Farmer (2012, 2013, 2014), the U.S. Fish and Wildlife Service (FWS) maintains Montana county lists of species that are listed, proposed or candidates under the Endangered Species Act (ESA) of 1973, as amended. Farmer (2012, 2013, 2014) reported that potential habitat for only greater sage-grouse and Sprague's pipit is available in the Otter Creek Mine fish and wildlife resources inventory area. The Otter Creek Mine study area is on the border of currently occupied greater sage-grouse range, and there are no known active leks in the study area. Sprague's pipit habitat is very limited in Tract 2. No Sprague's pipits have been observed, and it is considered unlikely that this species would occur in the study area (Farmer 2012).

All listed, proposed or candidate species will be mapped and recorded by species, GPS location, date, time of day, habitat, number of animals, age and gender (if possible), and activity. OCC will confer with MDEQ and FWS if repeated sightings suggest continuous use of the study area by any such species.

## **2.14 Species of Concern**

Montana has established a list of vertebrate animal Species of Concern (MTNHP and MFWP 2014). This list changes irregularly, as species are added or deleted. All such species observed during fish and wildlife monitoring investigations will be recorded by the habitat in which they are observed and, if appropriate, their locations will be mapped.

### 3.0 Literature Cited

- Continental Divide Wildlife Consulting. 2011. Otter Creek Coal Tract 2 Bat Surveys. Tech. rep. for WESTECH Environmental Services, Inc.
- Farmer, P. 2012. Environmental Baseline Report 304K: fish and wildlife resources baseline inventory, Otter Creek Mine, Powder River County, Montana. Tech. rep. for Otter Creek Coal, LLC by WESTECH Environmental Services, Inc.
- Farmer, P. 2013. Supplement to Environmental Baseline Report 304K: fish and wildlife resources monitoring, 2011-2012, Otter Creek Mine, Powder River County, Montana. Tech. rep. for Otter Creek Coal, LLC by WESTECH Environmental Services, Inc.
- Farmer, P. 2014. Supplement B to Environmental Baseline Report 304K: fish and wildlife resources monitoring, 2012-2013, and Three-Year Summary, Otter Creek Mine, Powder River County, Montana. Tech. rep. for Otter Creek Coal, LLC by WESTECH Environmental Services, Inc.
- Montana Natural Heritage Program (MTNHP) and Montana Fish, Wildlife and Parks (FWP). 2013. Animal Species of Concern reports, Powder River and Rosebud Counties. Available at: <http://mtnhp.org/SpeciesOfConcern/?AorP=a>
- Montana Natural Heritage Program (MTNHP) and Montana Fish, Wildlife and Parks (FWP). 2014. Animal Species of Concern reports, Powder River and Rosebud Counties. Available at: <http://mtnhp.org/SpeciesOfConcern/?AorP=a>
- Stagliano, D. 2012. Baseline assessments for fish, macroinvertebrates and herpetofauna in the Otter Creek Coal Tracts area of Powder River County. Montana Natural Heritage Program tech. rep for WESTECH Environmental Services, Inc.
- Stagliano, D. 2013. 2012 survey assessments and analysis of fish, macroinvertebrates and herpetofauna in the Otter Creek Coal Tracts area of Powder River County. Montana Natural Heritage Program tech. rep for WESTECH Environmental Services, Inc.
- Stagliano, D. 2014. 2013 survey assessments and analysis of fish, macroinvertebrates and herpetofauna in the Otter Creek Coal Tracts area of Powder River County. Montana Natural Heritage Program tech. rep for WESTECH Environmental Services, Inc.