Montana Wetland Council Meeting

Thursday January 6, 2011 9:00 am – 4:00 pm
DEQ Directors Conference Room
1520 East 6th Avenue, Helena Montana.

Lynda Saul, DEQ Wetland Program Coordinator, welcomed everyone and opened meeting with:

Wetland Council announcements:

1. The Montana Wetland Council and Watershed Coordination Council Stewardship Awards ceremony will be May 26th, 2011 in Helena at the State Capitol. Nominations are due March 11. The next Wetland Council meeting will be jointly held with the Watershed Coordination Council and follow the award ceremony. It will focus on riparian protection. Please plan to attend and submit award nominations.

2. The US Army Corps of Engineers has updated and regionalized the 1987 manual for wetland delineations. The Wetland Council is working with the Montana and Omaha COE Office to host Regional Supplement Seminars in Montana. These free day-long seminars will be April 26 in Missoula and April 28 in Billings. Mark your calendar and look for an agenda and announcement soon.

3. The Rocky Mountain Chapter of the Society of Wetland Scientist is being revitalized with field trips and/or a travelling speaker series in Bozeman, Missoula, and potentially Billings. You can join online http://www.sws.org/regional/rockymountain/ or contact Cat McIntyre of MTNHP 444-5381 to participate or help organize events.

4. The "Strategic Framework" for Montana's wetlands and riparian areas, the new "Common Native and Invasive Wetland Plants in Montana" book and other resources are available on the resource table or contact lsaul@mt.gov for copies.

5. The public comment period on the draft update to the National Wetland Plant list is now open (1/6/11 – 3/7/11). The update process was published in the Federal Register (http://frwebgate3.access.gpo.gov/cgi-bin/PDFgate.cgi?WAISdocID= UNRWzi/0/2/0&WAISaction=retrieve) The National Wetland Plant List (NWPL) is used to delineate wetlands under the Clean Water Act and for other wetland-related activities. A process for updating the NWPL was initiated several years ago by the four federal agencies responsible for management of the list (USACOE, EPA, USFWS, NRCS). The updated indicator status ranks for wetland plant species are now available for review and comment on the U.S. Army Corp of Engineers website at: http://wetland_plants.usace.army.mil/. Montana is included within three Army Corps Regions: Western Mountains and Valleys, Great Plains, and Arid West. Scott Mincemoyer, Botanist at the Montana Natural Heritage Program, has been involved in the update process as part of Regional Panels. If you have questions concerning the update process or submitting comments please contact Scott at smincemoyer@mt.gov.

Round robin introductions and participant announcements followed:

Please see the Wetland Council sign-in list on the back page of this summary for a full list of those present.

Megan Burns, MTNHP received a WPD grant to conduct their rotating basin assessment in Southeast Montana this year. MTNHP has also created a new wetland webpage on their website http://mtnhp.org/wetlands/default.asp. Available on the website are the handouts from the last wetland council meeting focusing on monitoring and assessment, look for two new reports soon.

Bob Sander, Ducks Unlimited. Introduced new farm bill biologist, Abby Rokosch.

John Weaver, conservation scientist with Wildlife Conservation Society, currently partnering with WCS Canada's cows and fish project to education landowners about the importance of beaver, he is also currently writing book on beaver and their role in the ecosystem. Please see his educational flyer on the WCS website at: http://www.wcscanada.org/DesktopModules/Bring2mind/DMX/Download.aspx?EntryId=4774&PortalId=42&DownloadMethod=attachment. The Council is also pleased to note that Dr. Weaver was just awarded the winner of the Wilburforce Foundation's Conservation Leadership Award. The award recognizes Dr. Weaver's many years of field research and conservation efforts in several areas of the Yellowstone-to-Yukon region.

Wade Salyards - Is a new wetland mitigation biologist at MDT.

Larry Sickerson, MDT Glendive District. They worked with Don Sasse, one of today's speakers on relocating beaver to the Ashland forest.

Brian Sandefur, Confluence Consulting, Is currently planning a wetland mitigation bank with the possibility of relocating beaver along the Jefferson River.

Larry Urban, MDT wetland mitigation biologist conducting work around the state. MDT has the current wetland mitigation site monitoring information posted on their website. They are also pleased to announce that construction on Shriver meadows mitigation site between Libby and Kalispell will begin this summer as well as one other mitigation site.

Beau Downing is the new stream protection act coordinator at DFWP.

Scott Mincemoyer, NHP, as part of an EPA grant through DEQ's wetland program the plant species of concern have been updated on the Heritages tracker website. Included with this are added information, photos, habitats and distributions for wetland specific plants. Scott has been representing Montana on updating the National Wetland Plant List that will came out for public comment January 6th. http://wetland_plants.usace.army.mil/.

Dave Stagliano, NHP, as part of an EPA grant through DEQ's wetland program has developed protocol for using macro-invertebrates to assess wetlands. Information is on MTNHP website.

Scott Spalding, USFS fisheries biologist, interested in the roll of beavers on the riparian areas.

Spencer Paddock is a prospective graduate student that is looking to model the hydrologic impact beaver have in a watershed and the potential effects of relocations.

Dave Taylor with Montana for trap free public lands, is working to stop trapping on public lands.

Mike Philbin, BLM, is working on new policy regarding water quality and integrating watershed planning and TMDL planning on BLM Lands.

Catherine Wightman, DFWP coordinator of the Montana Bird Conservation Partnership, says one of the partnership's priorities is to use the black birds as a focal species for prioritizing conservation action.

Rebecca Ramsey, Ruby watershed coordinator, works with ranchers on beaver relocation.

Bryce Maxwell, Announced NHP webinars being held in the near future. On January 25 webinar titled: Overview of MT Natural Heritage Program Data Resources, On February 15th titled: Wetland Data Resources, and February 23rd titled: Using the Natural Heritage Map Viewer and Tracker applications to access animal, plant species occurrence, land cover , and stewardship data. Sign up at this link: http://mtnhp.org/about/announce.asp .

Wetland Strategic Framework Working Group Updates

Steve Carpenedo, DEQ, chairs the professional training and public education working group. In 2010 DEQ received an EPA WPD grant to develop an accredited professional training program with Montana Water Center at Montana State University. Initially two courses will be provided that are tentatively titled "Local, State and Federal Regulation and Permits Regarding Wetlands" and "Wetland Restoration and Management with a Focus on Monitoring for Success". These courses will be offered in 2011 and 2012. Participants will be eligible for continuing education credits or applied credits toward professional certifications.

Tom Hinz, Department of Fish Wildlife and Parks, chairs the voluntary restoration working group. In addition to the Montana Wetlands Legacy Partnership, Tom is working with DEQ's Wetland Program and two watersheds on a pilot project to integrate wetlands into watershed restoration plans. This program is to demonstrate the process for identify wetland restoration and protection opportunities to improve water quality issues identified in a watershed's TMDL plan.

Linda Vance, Montana Natural Heritage Program, chairs the wetland mapping, monitoring and assessment working group. MTNHP Wetland and Riparian Mapping Center is mapping wetlands in Montana with funding to map around 65 percent of state. They are working on a 5-year rotating basin state wide assessment of wetlands and riparian areas. They are putting together a crosswalk of wetland and riparian ecological classification of ecosystems for better understanding between the different classification systems in use.

Lynda Saul, DEQ, chairs public policy, vulnerable wetlands, and Council effectiveness working group. Working w/ the Association of state floodplain managers to research and develop a final report and recommendations to improve floodplain management in Montana for

the protection of the natural and beneficial functions of floodplains while at the same time reducing the cost and impact of flooding. A Technical Advisory Committee composed of 15 Montana professionals guide this project. Research includes interviews with 20 Montana experts, review of floodplain development case studies, and assessment of existing tools (laws, policies, programs and practices) in Montana and compared to progressive tools used in other states. Meeting to discuss draft recommendation include Assoc of MT Floodplain Managers in Lewistown March 8 and in Helena March 11, 9:00-11:00 am at DEQ. All are welcome to attend.

Work is ongoing within DEQ to evaluate and strengthen state wetland program: integrate wetlands into watershed, the federal Clean Water Act and Montana Water Quality Act programs, water quality standards, non point source, 401 certification, and definition of state waters and wetlands. The CWA calls for the restoration and maintenance of the "chemical, physical, and biological integrity of the nation's waters." The DEQ Wetland Program provides state leadership to conserve wetlands for their water quality, water quantity, habitat, and flood control benefits.

DEQ submitted Wetland Program Plans to EPA Region 8 the end of November to address EPA's 4 core elements of a comprehensive state wetland program: regulations, standards, voluntary restoration, monitoring and assessment.

Meeting Focus: Beavers, Water Storage and Wetland Development.

Beaver reintroduction has been used in the past, is ongoing in Montana to a limited extent, and is being explored on a broader scale as a method of contributing to water storage, restoring lost or degraded ecological functions, and aid in wetland development. This Wetland Council meeting addresses these issues with science, field experience, and working with landowners. PowerPoints slides for the following 7 presentations are linked to the titles below.

What Do 100 Years of Stream Gaging Say About the Ephemeral Streams of Montana?
***Kyle Blasch, PhD, Assistant Director USGS, Helena*.**
The U.S Geological Survey has operated numerous stream flow gaging stations on ephemeral streams in Montana since the late 1890s. A brief back of the digital envelope analysis of discharge for these stations has produced regional trends in peak flows, duration of ephemeral flows, number of ephemeral stream flow events per annum, and other information that may be of value to water resource agencies. Talk highlighted some of these trends, provided a brief introduction to stream flow ephemeralization, and describe examples from similar work in Arizona.

Kyle defined perennial versus non-perennial streams (zero flow at some time in hydrograph) and explained that this definition is not the same as a regulatory definition used for instance by the US Corps of Engineers to determine jurisdiction for Clean Water Act administration.

USGS has a network of stream gage stations in Montana including: Nearly 240 real-time sites (available on web in real time) and over 90 crest-stage gages. Data for Montana is published in an online report and available through NWISWeb

A stream flow duration assessment method was developed as a scientific tool by the U.S. Army Corps of Engineers (Corps) and the EPA to help identify waters that may be subject to Corps and EPA regulatory jurisdictions

References: (http://yosemite.epa.gov/R10/ecocomm.nsf/wetlands/oregonstreamflow) . The method provides a rapid assessment framework to distinguish between ephemeral, intermittent and perennial streams. The information helps determine whether a stream may be subject to jurisdiction under Section 404 of the Clean Water Act. The method contains information on biological indicators that can be used to assess the degree of intermittency of stream reaches especially stream reaches that lack any monitoring data.

Additional field methods for determining intermittency:

Identification methods for the origins of intermittent and perennial streams, Version 3.1. North Carolina Department of Environment and Natural Resources, Division of Water Quality, Raleigh, NC, 2005http://h2o.ehnr.state.nc.us/ncwetlands/documents/NC_Stream_ID_Manual.pdf

Field Operations Manual for Assessing the Hydrologic Permanence and Ecological Condition of Headwater Streams, Fritz, K.M., Johnson, B.R., and Walters, D.M., 2006. EPA/600/ R-06/126. U.S. Environmental Protection Agency, Office of Research and Development, Washington DC http://www.epa.gov/eerd/manual/headwater/HISSmanual-cover.pdf

USGS develops routine non-perennial streamflow statistics such as below and are able to generate other statistics that might be useful for other investigations or regulatory practices.

- Annual and monthly number of No Flow / Flow days
- Number of ephemeral streamflow events
- Duration of streamflow events
- Peak flows
- Mean/Median event durations
- Mean/Median annual and monthly days of No Flow/ Flow
- Median and mean flow

Current Issues and Projects Regarding Beaver in Montana.

Steve Carpenedo, Wetland Environmental Science Specialist, MT DEQ Wetland Program.

From historic accounts we know that beaver were found statewide in greater numbers and distribution than today and influenced the structure of streams and fish and wildlife populations. How have landscape patterns, riparian habitat, and streams changed as a result of reduced beaver populations? What projects are currently being undertaken in Montana to address these changes? DEQ has developed a Habitat Suitability Model as a planning tool to identify potential beaver relocation sites. This presentation explored these topics and provided some food for thought to generate further discussion about the potential for beaver reintroduction

Questions: Has anyone done cultural studies on beavers for social reasons of relocations? Steve did not specifically look for research concerning relocating communities of beaver for the social organization of family groups. The importance of relocating a complete family group is important as the kits are the “glue” that will hold the family group together and increase the success of any relocation.

Steve's presentation included detailed notes about the historic occurrence and management of beaver in Montana, their influence on the landscape, and several other recent beaver reintroduction projects not detailed in other presentations. Please see the linked PowerPoint presentation for these notes.

Beaver Creation of Amphibian Breeding, Foraging, and Overwintering Habitat.
***Bryce Maxell, Interim Director, Montana Natural Heritage Program*.**
A statewide assessment of over 10,000 wetlands for lentic breeding amphibians found beaver to create a significant portion of breeding habitat on the landscape; 10-15% of sites across much of the state, but as high as 42% of sites in some regions. Although often ephemeral in nature, beaver created impoundments may persist for decades, often provide breeding, foraging, and overwintering habitat, and enhance landscape connectivity at the local watershed scale (e.g., 6th code HUC watersheds). While regional beaver populations have recovered from the fur trapping era, we found a number of watersheds with senescent beaver impoundments that no longer had willow cover. Re-establishment of willow cover may be necessary in these watersheds in order to support colonization or reintroduction of beaver. Resource managers can access information on observations of beaver and amphibians, amphibian survey locations, and digital photographs of sites surveyed at http://nhp.nris.state.mt.us/Tracker.

Questions: Is there an aspect where breeding generally is concentrated? Amphibians will generally breed in the northwest corner as this is the first section of a pond to become ice free and warm up the most.

Links to Resources on Montana's Amphibians and Reptiles:
Powerpoint overview of Montana's amphibian and reptile species, including identification, habitat use, site occupancy rates, and Maxent and CART model outputs:
http://mtnhp.org/animal/presentations/060709_MT_Herps_ID_Status_files/frame.htm
MT Amphibian and Reptile Status Assessment, Literature Review, and Conservation Plan:
http://mtnhp.org/reports/Amphibian_Reptile_Conservation_Plan.pdf
Montana Field Guide
http://fieldguide.mt.gov/

Beaver Reintroduction in the Elkhorn Mountains, Montana.
***Tom Hinz, Coordinator, Montana Wetlands Legacy Partnership*.**
Project overview of beaver reintroduction in September 2010, including: initial site assessment; use of GIS/NAIP imagery to identify relocation sites; literature review; partner site visits; draft proposal to FWP Region 3; public scoping/MEPA process; location of source beaver colonies; trapping and translocation; monitoring relocated beaver including documenting riparian and wetland impacts, and follow-up management actions required. Presentation wrapped up with lessons learned and issues to consider for future reintroductions in this and other watersheds.

Tom presented some wisdom/learning from this project – Issues for Future Reintroductions:
- Geographic Scope
- Level of MEPA Review/Compliance
- Practical considerations of moving beaver into "new" areas
- Responding to the "NO" voice

Programmatic approach by FWP
Disease Concerns
Property Damage Concerns
Habitat needs for beaver at time of release
Beaver Sources - "who" and how many
Permitting – 310, 404, Cultural Resources, others

Beaver Reintroduction in Eastern Montana for Post Fire Sediment Control.
***Don Sasse, Wildlife Biologist, Custer National Forest*.**
The Stag Wildfire of 2000 resulted in the stand-replacement of about 70,000 acres of ponderosa pine forest. As part of post-fire restoration, beaver were relocated to establish dams for sediment control and to improve wildlife habitat. Beaver were relocated from the Tongue River to small streams on the Ashland Ranger District from 2003 to present resulting in the establishment of several colonies, numerous dams, and an elevated water table. Discussion of lessons learned will include release site preparation, trapping, consideration for family groups, unintended consequences (bull frogs), and monitoring.

Question: Is there documentation of a hard release verses soft release? Was not in the literature. Don referred to MDFWP Guidelines for the Reintroduction of Beaver into SW Montana Streams. – John Vore, 1993 and identified the following highlights from that report:

Keystone – pivotal in role in healthy riparian areas.
Stream gradient <6%, > 150 ft valley width.
4 adult beaver / 2 each sex
> success if habitat prepared beforehand (construct dam and lodge)
Food - native vs. supplemental
Best move beaver late summer/ fall – food cache
Notify private landowners <10 km

Notable about the Custer National Forest successful reintroduction project was the advanced work involved in making suitable reintroduction habitat: lodges and start to dam building. This also created a opportunity for a community effort and involvement in the reintroduction project, such as signage at the relocation site. Please refer to his PowerPoint to see pictures and lessons learned. Conclusions from this successful project included :

Increased the "Wet Sponge" Area At Dams
Beaver Relocations Increased Surface Water
Dams Trapped Some Sediments from Wildfire
Maintain Dams to Collect Sediment in the event of a future wildfire
Improved Aquatic Habitat – Pool Habitat

Working with Landowners to Incorporate Beaver as a Restoration Tool.
Amy Chadwick, Senior Watershed Scientist, Watershed Consulting LLC.
Working with landowners to incorporate beaver as a way to restore water supply, fisheries, and stream and wetland habitat involves challenges and opportunities. This presentation will focus on the planning phase of reintroducing beaver and processes that have been effective in Montana and neighboring states.

Question: Where can you get instructions for the beaver deceiver?.
http://www.beaverdeceivers.com/ is the website for Skip Lisle, the inventor of the Beaver Deceiver. This website is currently under construction. Pictures from a project where a beaver

deceiver was installed in Washington can be viewed at http://www.co.king.wa.us/environment/animalsAndPlants/beavers/solutions/control/beaver_conflicts.aspx?print=1.

Her presentation provided description and discussion of useful marketing tools:

- Give overview of Stream Ecology basics: why beaver are important
- Give Historical Perspective: How few there are now and widespread effects of beaver removal
- Show examples of beaver influence on landscape
- Outline Beaver Management Considerations: Benefits and Detriments
- Provide tools to manage detriments

Also provides talking points and example of tools to prevent and mitigated the detrimental effects of beaver. Please see the linked PowerPoint for highlights of imitations and obstacles, information gaps and what has been working in other areas.

Role of Beaver in Climate Resiliency and Efforts to Educate Landowners to the Importance of Beaver.

John Weaver, PhD., Senior Conservation Scientist, Wildlife Conservation Society.

As climate change becomes ever more apparent, we will need to catch and store water more effectively. This presentation explored the role of beaver in providing some resiliency during climate change. To that end, outreach to private landowners to explain the many benefits of accommodating beavers is paramount. In collaboration with the acclaimed Cows & Fish Program in Alberta, WCS has produced a fact sheet about beaver and the ecosystem services they provide.

Handout of Pamphlet on dealing with landowners on the benefits of beavers. Pamphlet is available: http://www.wcscanada.org/DesktopModules/Bring2mind/DMX/Download.aspx?EntryId=4774&PortalId=42&DownloadMethod=attachment

John is currently reviewing a peer reviewed paper on the ecosystem services provided by beaver. In this paper the ecosystem services pervaded by beaver equate to $2,000 per acre for a low value and $6,700 per acre for a high value.

Questions: As with mitigation banking instruments do you see any possibilities for using beaver in this way? And where do you see this? You need to build social network and understanding of the benefits of beaver for the ecosystem. If there is anyplace it will happen first, it will probably be in Alberta due to their progressive nature and social acceptance of beaver would probably be first.

Facilitate Discussion with Council Participants and Presenters

Next Steps: Form a Beaver Working Group

Amy Chadwick, Watershed Consulting, LLC. amy@watershedconsulting.com (406) 250-4024 has volunteered to lead the Beaver Working Group. Other volunteers include: Don Sasse, USFS Custer; Darin Watschke, USFS Beaverhead-Dillon, Madison Ranger District; Tom Hinz,

DFWP; John Weaver, Wildlife Conservation Society; Bryce Maxell, Montana Natural Heritage Program; Pete Husby, Natural Resources Conservation Service; Anja Heister, Footloose Montana; Steve Carpenedo, Montana Department of Environmental Quality; Mary Manning, USFS Region 1; Claire Gower, DFWP Region 3 Biologist. Amy will contact several trappers to invite their participation on the working group. Please contact Amy if you are interested in participating in the working group,.

Projects/Task for the Working Group

1) **Update Living with Wildlife Brochure** and information to include both positive information about the ecosystem services beaver can restore and how to manage the impacts and challenges of living with beaver. Examples include:

John Weavers' "A Pond of Gold: Storing Water, Naturally" brochure
http://www.google.com/search?sourceid=navclient&ie=UTF-8&rlz=1T4ADBF_enUS297US297&q=a+pond+of+gold+storing+water+naturally

The Alberta Riparian Habitat Management Society, more commonly known as 'Cows and Fish'
http://www.cowsandfish.org/

2) Collect and develop **information about the advantages of dispersed water storage and of restoring beaver** where appropriate, and share with those interested in water storage - such as Montana Association of Conservation Districts

3) Encourage land managers, field biologists, others to **enter beaver information into the Montana Natural Heritage Tracker system.**

The various ways of entering and submitting beaver observations are described below and all can be found at the links at: http://mtnhp.org/observations.asp
Natural Heritage Tracker
Good for entering a few observations via a map-based interface, but a little slow and has a bit of a learning curve to use it at first. However, it is very powerful in terms of showing information and once you are familiar with it, it is easy to use if you are on a reasonably fast connection.
Simple Web-based Animal Observation Form
Very easy to use to get tabular information to us, but can't be used to map where you were. Best to use this if you are on a slow connection and only have a few to a few dozen observations.
Nonbird Animal Observation Excel Spreadsheet
Excel spreadsheet for entering nonbird animal observations. Only use this if you have a large number of nonbird animal observations. You can then email this to Bryce Maxell at bmaxell@mt.gov

4) Host **trainings about using non-lethal devices to trap and manage beaver** including water elevations, prevent culvert blocking and other management challenges. Examples include http://www.beaverdeceivers.com/ and http://www.beaversww.org/solving-problems/ A beaver deceiver is in use in the swan. Can be seen and has worked for a couple of years.

5) Identify and promote **research and science needs and encourage graduate students** to address these needs. Several grad students present at meeting. Help to identify professors, funding, and research projects. Amy's presentation included a good list of research needs. Identified some professors that would take on these type of water storage and habitat related research projects? Jack Stanford , Lisa Eby, Gary Forbsman, Bill Woessner, Johnny Moore, and Clayton Marlow were named.

6) Need **Beaver recovery and management plans**. Need to have habitat recovery before putting beaver back into the habitat. Designate areas for recovery and plan for recovery and needs. Assess and evaluate approaches to address the "chicken or the egg problem" of beaver needing habitat to get established, yet one of the benefits of beaver reintroduction is for them to naturally restore willow and riparian habitat. Review existing beaver management plans to find information useful for Montana. Address permitting, water rights, and other issues that may arise.

7) Review Bryce Maxell's beaver bibliography ftp://nris.mt.gov/Beaver/ . Contact Bryce, he has some of these articles.

8) Work with TMDL program to outline next steps, information needs to **determine how beaver can be considered in TMDL restoration plans.** Nutrient and sediment issues are big issues with TMDL's. Beavers could help address many of the problems. Has there been any research on beavers and whirling disease? There are concerns regarding temperature and also tubifix worms. Acknowledged that Beaver may not be the solution in some situations.

Other issues discussed

Fisheries - On cutthroat and brook trout issues the beaver can be beneficial or detrimental. This is a case by case situation. Need to look into the literature.

Water Storage - Conservation districts and others are concerned with water storage. Using the beaver where appropriate as distributed water storage may be a good topic for MACD. Governor's Task Force for Riparian Protection may be a way to identify as a partial solution to water storage.

Water rights – water rights maybe be an issue regarding beaver restoration. Need to be mindful of this issue in our work. Science may show that the ponds will be a benefit to the irrigator. MDT has lost law suits due to restoration of wetland and loss of water.

Tracking - NHP would like a program to such as the Tracker program to identify locations of beavers. Field workers will need to be willing to populate a data base on observed beaver locations. Tom talked about flying over the Yellowstone and counting caches of beaver colonies. This worked well on large rivers but not on small. We will need to decide on a process for this. Larry suggested we contact Beau Downing as he gets a lot of requests for beaver removal. When it comes to dams do you want to document active verses non active. The heritage Tracker database has a field for active and inactive beaver dams and both should be

documented. Bryce Maxell will send out some notes to follow and how to enter data, the NHP webinars will also provide a background on this program and how to submit your data.

Other states - Oregon, Idaho, Washington and Wyoming have had beaver reintroduction programs.

Planning - Need Beaver recovery and management plans. In some cases, need to have habitat recovery before putting beaver back into the habitat. Designate areas for recovery and plan for recovery and needs. Need to establish a good process for beaver reintroduction. It might be consider stream mitigation. Need to look at other management practices when doing this, such as regeneration of willows prior to relocations and impacts on other species. Need to make sure all stressors are considered. Need to identify where the loss of willows has occurred due to agriculture and where this could be restored.

Landowner outreach - Revise the FWP Living with Beavers brochure and nongame webpage. Include habitat management and how to manage the undesirable effects of beavers such as protecting ornamental/landscape trees and plugged culverts, water levels. Include information as to the benefits of beaver on the landscape. Also there is a need to make outreach material more attractive and attention grabbing. Wetland Legacy Partnership could include a link for beaver recovery on his legacy website

Birds - Beavers as a tool to link bird conservation and wetland/ bird habitat conservation.

Eastern Montana – beavers provide fire breaks. Also sediment in the old beaver ponds has a connection to grazing meadows and groundhogs.

Scientific information - Synthesis on the vast scientific information on beavers. There are hundreds of papers out there and could put together research questions. See Bryce Maxell's bibliography. John Weaver is also compiling much of the available information in a book.

Historic photos- comparisons regarding the willow density and distribution. Ghost beaver dams are totally grassed over and there is no water. Did the beaver leave because it dried out? Could photos identify some of these issues?

For some levity – here's a link to that dam beaver letter that has been circulating on the web http://www.getipm.com/personal/dam.htm

Meeting adjourned at 4:00 pm. Next Council meeting in conjunction with the Wetland and Watershed Stewardship Award Ceremony May 26, 2011 in Helena. Please plan to attend.