

Transboundary Flathead Research Needs Workshop
November 3, 2005
Meeting Notes

Introductions

- Jack Potter welcomed participants.
 - \$100,000 available from the Park Service to support the priorities that come out of this workshop.
 - Steve Thompson presented the policy context for the workshop discussions. Policy and the Role of Science in the Transboundary Flathead

Historical Premise of IJC Report

- Brace Hayden: Overview of the history of coalfield development proposals in the transboundary Flathead.
 - Early 1980s Cabin Creek Coal Mine proposal and the subsequent IJC study and report recommending denial of that proposal.
 - Efforts to implement the IJC's recommendation that *the Governments consider, with the appropriate jurisdictions, opportunities for defining and implementing compatible, equitable and sustainable development activities and management strategies in the upper Flathead River Basin.*
 - 2004-2005 proposals for coalfield development.

Research Synopsis by Workshop Participants

- Marilyn Wood and Maria Mantas: The Nature Conservancy's Canadian Rockies Ecoregional Planning Process.
 - The Conservancy began looking at biological hot spots, including the Flathead watershed.
 - Goal: Enable strategies that effectively conserve the viability of the conservation targets identified in the plan.
 - Identified the most important elements for understanding the health of the watershed.
 - Developed a suite of conservation targets, compiled 19 maps, assessed the viability, conditions and threats to each target, and developed strategies to address the threats.
 - Conservation targets include:
 - Bull trout
 - Adfluvial floodplain
 - Tailed frogs (mottled sculpin)
 - Threats to these targets are prioritized in the conservation area planning
 - Work expected to be completed this fall or winter.

- Dean Sirucek : Cooperative project which the Flathead National Forest is conducting with UM's Wildlife Spatial Analysis Lab.
 - Satellite imagery land classifications for an area that includes all of Western Montana and Northern Idaho (they expect to complete the project next summer)
 - Four map products: life forms, tree canopy cover, tree diameter, and dominance type.
 - The National Vegetation Inventory is available for forested areas of the U.S. Includes forest vegetation, sizes, classes and amounts summarized by county, state or basin. The inventory is renewed every ten years nationwide.
 - The Upper Columbia River Assessment included a vegetation-referenced condition analysis process conducted by the Pacific NW Research Station at Corvallis, Oregon. Provides the historical or natural range and variability of vegetation structure and patterns.
 - The Flathead Forest has conducted additional sampling and analysis for the three forks of the Flathead River and the Swan River basins. There are eight additional study subwatersheds in the North Fork. It includes Forest Service, Glacier National Park, and private lands. The oldest aerial photos available, from 1922-1924, were used for this project.
 - Older databases include seven stream monitoring sites in the North Fork with between one and 15 years of water quality and quantity information, a fisheries study on five streams with information from sediment coring and redd counts or population densities, and the Flathead Forest Riparian Land Type Inventory, which describes wetland and riparian systems.

- Peter Jalkotzy: B.C. mine application process and the Cline Mining permit application.
 - He compared the Section 10 (small mine <250,000 tons) permit process with the full assessment process.
 - Believes those differentiations are not content oriented, but process oriented.
 - The information Cline presents in its permit application and environmental assessment will include everything needed for a full (large mine) assessment.
 - The average strip ratios for the mine would be very small and the entire footprint of the mine is about three square kilometers
 - Zero discharge from coal processing -they will manage runoff from the site with ponds.
 - The application will include a comprehensive reclamation and monitoring plan.
 - Provided a copy of a recent application for which his firm conducted a third party review for First Nations as an example.
 - In response to a question about whether there were any areas where he would like to have more information, he said he would like to see more data on water and fisheries. He said they have a good handle on habitat potential and capability.
 - In response to a question asking for more explanation of the stripping ratios, he said the stripping ration is 2:1; the coal is virtually at the surface.

- Estimated that the coal depth is three to four meters
 - The life of the mine will be 20 to 30 years
 - The main constraint will be delivering the product to market.
- Jack Stanford: Flathead Lake Biological Station
- Prepared a North Fork Report in 2000 that summarizes all the water quality information for the North Fork.
 - There is a lot of data on the U.S. side, but not as much on the Canadian side.
 - Important to understand the groundwater and surface water connections.
 - There has been no information available about the coal seam water quality and quantity.
- Pat Shaw and Jody Frenette: Environment Canada and BC Ministry of the Environment
- Hydrometric data was collected at the border between 1929 and 1995, with additional data collected in 2004:
http://www.wsc.ec.gc.ca/hydat/H2O/index_e.cfm
 - Water quality monitoring was conducted from 1979 to 1995, with monthly sampling for a wide variety of parameters. This information was again collected in 2003-2004:
<http://waterquality.ec.gc.ca/waterqualityweb/stationOverview.aspx?stationId=BC08NP0003>
 - A 1985 Environment Canada report includes a compendium of data sets including trace metals in invertebrates, benthos, fish, metals and sediment data.
 - The Ministry of Energy and Mines Environmental Research Information Project began in 2004 and includes water quality data - only one of the sites is in the Flathead.
 - Fisheries information was collected in 1991 describing the distribution of west slope cutthroat trout and bull trout.
- Wayne Berkas: US Geological Survey USGS-Water Resources Discipline Monitoring Activities on the North Fork Flathead River.
- Both discharge and water quality data have been collected on the North Fork at the border and at Columbia Falls during various periods. The data is available on the USGS web site.
- Clint Muhlfeld: MT Fish, Wildlife and Parks
- Fisheries monitoring has been conducted by Montana FWP since the 1980s.
 - Much of the information is included in reports by Fraley, Shepard and Graham
 - Describe baseline basin-wide fisheries characteristics.
 - Annual monitoring program, conducted from 1980 to the present, includes redd counts for bull trout and west slope cutthroat trout.
 - In Montana they conduct an index of streams every year.
 - Every five years they count redds in every stream that bull trout reproduce in, six of which are in B.C.

- Information from 2003 indicates that the Canadian portion of the drainage accounts for more than 55% of all bull trout redds in the basin.
 - The North Fork immediately downstream from Foisey Creek accounts for 27% of redds in the basin.
 - They were unable to do counts in B.C. this year due to the weather.
 - FW&P also does juvenile estimates and sediment coring in the US North Fork every year.
 - Working with MSU to develop life history trajectory models for bull trout in the North Fork.
 - Fish that move into the North Fork use the entire drainage as critical rearing habitat.
 - FW&P is also tracking genetic distribution of west slope cutthroat trout and are seeing hybridizing in some U.S. populations.
 - Sampled a dozen streams in the B.C. North Fork for presence/absence of bull trout and cutthroat trout. These species are widely distributed throughout the North Fork and every sample came back genetically pure.
 - B.C. portion of the watershed is the genetic stronghold for westslope cutthroat trout
- Erin Sexton described the basic monitoring done last summer in the Foisey Creek area.
- Worked with two FLBS students to collect water chemistry samples in and around Foisey Creek.
 - Data showed characteristics of a pristine water system.
 - Dramatic differences between streams
- Carol Hartwig Ecodomain Consulting
- 2003 SAR inventory report for Natural Resources Canada.
 - Included wildlife and fisheries in the Dominion Coal Blocks to develop an inventory strategy (Maps are available on CD)
 - Examined species at risk, critical habitat and endangered ecosystems in the coal blocks. The coal blocks include two land parcels at high elevation in rugged terrain in the upper part of the North Fork drainage.
 - Interviewed 45 people in 20 government agencies, industry and the public.
 - 1991 study is the only systematic assessment for fish.
 - Extensive work has been done on grizzlies, but nothing specific to the coal block lands. Developed maps that show where various species are likely to be found based on the habitat characteristics.
 - Identified nine groups in need of inventory: bighorn sheep, grizzly bears, mid-size carnivores, small mammals, fish, plants, plant cover, and birds (great blue heron, peregrine falcon), butterflies (checkerspot).
 - Since 2003, only two of the recommended inventories have been conducted (tailed frogs and mid-size carnivores)
 - The value of the project lies in its bibliography, the strategy for inventories and the mapping system.

- Billy Schweiger of the U.S. Park Service ³Preliminary / Strawman Plan for Baseline Water Quality and Bioassessment of the North Fork of the Flathead Basin; Flowing Surface Waters.²
 - Part of a National Park Service effort to develop protocols and a monitoring plan for indicators, or ³vital signs.²
 - Project is results oriented and will provide information to park managers to help them make decisions.
 - The Rocky Mountain Network is halfway through the planning process and has selected general vital signs
 - Glacier National Park is working on a vegetation map for the entire park, based on the National Vegetation Classification System

- Diane Boyd
 - Ungulate and predator research projects conducted in the North Fork watershed.
 - 6 species of ungulates, 8 species of carnivores
 - The proposed mining area is key wolf habitat and key critical elk calving habitat.
 - Ray Demarchi commented that “In that little area is the largest number of ungulates and predators anywhere in North America.”

- Rick Mace: MT FWP
 - Grizzly bear population and habitat monitoring in the Northern Continental Divide Ecosystem in Montana.
 - Populations are located in
 - the Missoula to Canadian border area and
 - Yellowstone Park area.
 - Although there have been small, site-specific studies in the NCDE, there has never
 - been an ecosystem-wide investigation.
 - Since the grizzly was listed as threatened in 1975, a conservation strategy is required. In order to build a conservation strategy it is important to understand their demography and
 - habitat condition. Currently that information is not available.
 - A study began in 2004 to investigate population trends.
 - Goals include monitoring survival and reproduction rates, estimating population trends,
 - monitoring distribution of bears, providing a clearinghouse for data, summarizing and archiving research and management information, coordinating research activities with Canada, and preparing annual summaries of population and habitat measures. Partners include MT FW&P, U.S.F&WS, NPS, USGS, U.S.F.S, and the Blackfoot Tribe.
 - Study includes monitoring at least 25 females annually in the U.S. and four females in Canada, and a DNA study to estimate population size (hair snagging).

Thirty-one females in the U.S. and four in Canada were radio collared. Of the 31 in the U.S., 21 collars are currently operating.

- Kyran Kunkel referred to his handout listing large mammal projects conducted by the University of Montana, which includes databases and publications

Other studies mentioned by participants include: Bruce McClellan's research on grizzlies in the transboundary Flathead, Ken Poole's (B.C. consultant) research on moose, and Tony Ruth's work on cougars.

Lunch Break Presentations

- Ray Demarchi
 - Impacts of scale and the need for a common language in order to overcome barriers and reach a common understanding of the transboundary ecosystem and how to protect its natural values.
 - Scientists use different terminology, for example, Crown of the Continent, Northern Continental Divide Ecosystem, and Southern Interior Mountain Ecosystem.
 - Described the need for a seamless map of the Flathead, which shows that the Flathead is not an island.
- Jack Stanford
 - Emphasized the importance of looking at the landscape context and understanding the processes that drive the system, not just relying on inventories. A key zone, arguably the most important, is the alluvial floodplain, he said.
 - Hot spot for productivity and biological diversity.
 - Cultural context and the importance of understanding human population movement and impacts.
 - Described the process drivers as “interactive ecosystem moderators,” which include landscape change, climate change, immigration and emigration, stream and lake regulation, and government policies and legal frameworks.
 - FLBS is proposing to create a web site that would be a spatially explicit data management system, including a central repository for uploading and downloading information, maps and publications.
 - Proposed a suite of focused environmental studies to fill the knowledge gaps, which would include:
 - Coalfield groundwater and runoff
 - An ecosystem change monitoring program using new and existing remote sensing tools, and computer simulations of system structure and function in relation to environmental, demographic, and economic change and influences from adjacent areas and systems.

See Aquatic and Terrestrial Breakout Notes

- Jack Potter – Concluding remarks
 - Next benchmark might be to review the Crown of the Continent Workshop white paper when it is available to see how that broader perspective integrates with the more focused perspective of the transboundary Flathead watershed taken in today's workshop.
 - White paper draft expected before Christmas - paper will include a list of
 - recommended research projects.
 - Potter asked the participants to engage in taking the priority recommendations from ideas the next step, to developing research projects, identifying strategies for funding and submitting funding proposals.
 - Keep the dialogue going between Montana and B.C.