Outcomes Report
Integrated Transportation and Ecological Enhancements for Montana (ITEEM) Process Highway 83 Pilot Study
MDT PROJECT STPX 0002(884); CN 6438; ACCT 9702

Seeley Lake, Montana

Prepared for:

MONTANA DEPARTMENT OF TRANSPORTATION
2701 Prospect Ave
Helena, MT 59620-1001

Prepared by:

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820 North Montana Avenue, Suite A
Helena, MT 59601

June 2010

Project No: 100000537

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1.0 INTRODUCTION

This report documents the outcomes of the October 28-30, 2008 Integrated Transportation and Ecological Enhancements for Montana (ITEEM) process Highway 83 pilot study agency workshop, as well as preparatory meetings, coordination, and comment solicitation leading up to the workshop, a December 2009 follow-up meeting with workshop participants, and a spring 2010 public comment period. A separate ITEEM "process" report was prepared by PBS&J (2010) relative to this pilot study that discusses the specific ITEEM process successes, challenges, and recommendations for improvement.

In March 2008, PBS&J was contracted by the Montana Department of Transportation (MDT) to gather data for, facilitate, and document the results of the ITEEM pilot study process. The intent of the pilot study is to test and evaluate the ITEEM process, which encourages agencies to collaboratively and strategically plan infrastructure projects and related restoration / conservation opportunities with goals of conserving and connecting important habitats, while increasing predictability and transparency of transportation planning and regulatory agency processes. The ITEEM process is described in *Developing the "Integrated Transportation and Ecological Enhancements for Montana" (ITEEM) Process: Applying the Eco-Logical Approach* (Hardy et. al 2007) as follows:

The broad goal of the ITEEM process is to streamline transportation program delivery while applying more effective ecosystem conservation. More specifically, the goal of the ITEEM process is to collaboratively identify, within an identified region, issues and opportunities for larger scale ecological conservation or restoration projects to offset adverse impacts for multiple transportation projects within that given region. This goal will be achieved by integrating existing information from multiple sources to cooperatively identify cost-effective opportunities in the given region to offset adverse transportation impacts on ecosystem resources and fulfill environmental regulatory permitting requirements early in the planning process. Through earlier and more effective coordination, greater environmental benefits can be accomplished while maximizing efficient use of public funds and improving transportation program delivery. Desired outcomes of the ITEEM process include:

- *Conservation: Protection of larger scale, multi-resource ecosystems;*
- *Connectivity: Enhanced or restored habitat connectivity and reduced habitat fragmentation;*
- *Early Involvement: To the extent possible, early identification of transportation and ecological issues and opportunities;*
- *Cost Efficiency: Making the best use of transportation program funding by focusing mitigation efforts where they would be most effective;*
- *Cooperation: Finding solutions acceptable to all participating agencies;*
- *Predictability: Knowledge that commitments made early in the planning process by all agencies will be honored – that the planning and conservation agreements, results, and outcomes will occur as agreed; and*
- *Transparency: Better stakeholder involvement to establish credibility, build trust, and streamline infrastructure planning and development.*

The ITEEM process strives to balance environmental and transportation values. Participants share the responsibility of finding solutions that meet both transportation and ecosystem conservation goals. Schedule, cost, safety, quality, public input, regulatory requirements, ecological concerns and other factors will all be considered with no single factor dominating as the top priority.

Apart from testing the process itself, the main objectives of this Highway 83 pilot study are for participating agencies to collaboratively:

- Conduct early coordination and discuss / resolve and document natural resource and planning considerations relative to future potential MDT Highway 83 reconstruction projects along approximately 15 miles of Highway 83 (**Figure 1)**; between the community of Seeley Lake and the Clearwater River divide to the north; and
- Identify, discuss and prioritize terrestrial and aquatic natural resource restoration partnership opportunities (for which MDT would receive credit for its financial participation) in defined portions of the Seeley/Swan /Blackfoot watersheds (**Figure 1**).

The ITEEM process can be initiated by any participating agency. In this case, the pilot study is being sponsored by MDT and the Federal Highway Administration (FHWA). This pilot process strives for win-win outcomes in that:

- Resource management agencies are able to provide early input with respect to the highway projects and gain partners in accomplishing some agency-identified priority restoration projects; and
- MDT/FHWA gain early input into project development process, predictability in the permitting process, improved inter-agency relationships, and potential advanced mitigation considerations when, in fact, the future highway projects come to fruition.

In addition to MDT and FHWA, agencies participating in this pilot study include the Montana Department of Environmental Quality (MDEQ), Montana Fish, Wildlife & Parks (MFWP), Montana Department of Natural Resources and Conservation (MDNRC), U.S. Fish & Wildlife Service (USFWS), U.S. Forest Service (USFS), Environmental Protection Agency (USEPA), U.S. Army Corps of Engineers (USACOE), Missoula County Rural Initiatives Office (MCRIO), Seeley Lake Community Council (SLCC), and the Lake County Planning Department (LCPD). The Confederated Salish & Kootenai Tribes (CSKT) were also invited to participate, but declined at this time. Individual participants are listed in **Table 1**.

Each agency was invited to select staff to represent their agency at various stages of the process. While the Interagency Review Team (IRT) is comprised of individuals at the director level, the Interagency Review Team Working Group (IRTWG), comprised of MDT, FHWA, MDEQ, MDNRC, MFWP, USFWS, USFS, USEPA, and USACOE, represents the core ITEEM process working group (**Table 1**). IRTWG members are charged with attending periodic coordination meetings and distributing information to and coordinating appropriate staff (e.g., the Oversight Group and Technical Representatives as described below) with their respective agencies regarding application of the ITEEM process to specific projects or activities.

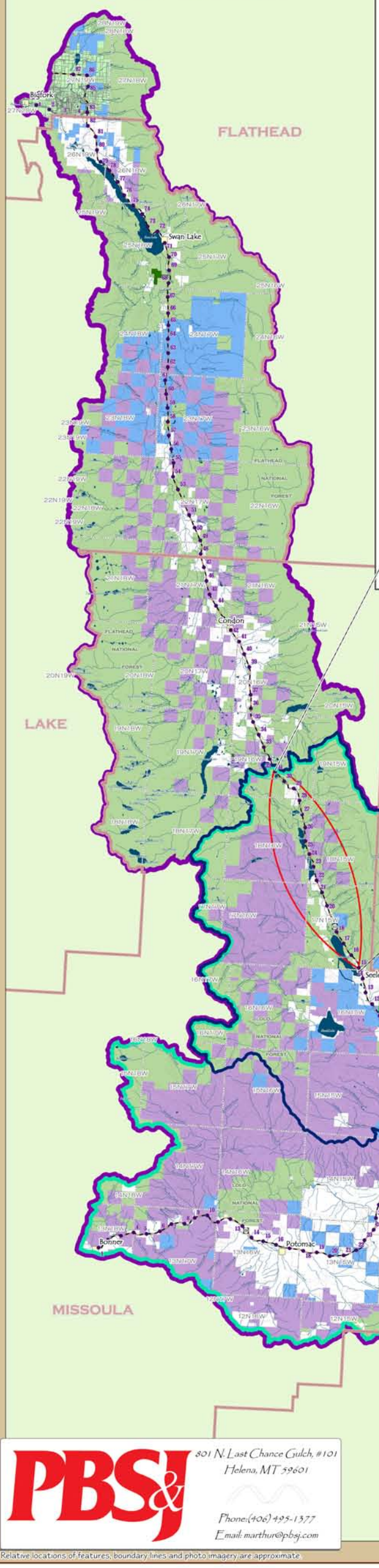
The Oversight Group is comprised of: core agency members empowered to speak and foster tentative agreements / commitments on behalf of their agency; and local agencies as appropriate to the specific location / nature of the particular project to which the process is being applied. In the case of this pilot study, additional Oversight Group agencies include the MCRIO, SLCC, and LCPD. Powell and Flathead County commissioners and planning departments were also contacted, but declined participation in the pilot study workshop. Oversight Group participants, along with the Technical Representatives (e.g., generally local resource experts within their agencies) that they chose to assist them, attended the ITEEM agency workshop. Not all individual participants attended the entire three days of the workshop (**Table 1**).

Figure 1.

ITEEM:

Integrated Transportation and Ecological Enhancement for Montana

Study Area



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Relative locations of features, boundary lines and photo imagery are approximate

Table 1: *ITEEM Highway 83 Pilot Study Agency Participants (2008)*

Agency	Interagency Review Team	Interagency Review Team Working Group	Attended October 28-30, 2008 Workshop	
			Oversight Group (agency decision-making and financial commitment authority)	Oversight Group Technical Representatives
FHWA	Kevin McLaury, Director	Craig Genzlinger, Operations Engineer *(in 2010 is Brian Hasselbach)*	Craig Genzlinger *(in 2010 is Brian Hasselbach)*	Gene Kaufman, Operations Engineer Lloyd Rue, Program Development Engineer
MDEQ	Richard Opper, Director *(Tom Livers alternate)*	Jeff Ryan, Water Quality / Wetlands Specialist	Jeff Ryan	Chris Romankiewicz, Water Quality Specialist
MDNRC	Mary Sexton, Director	Gary Frank, Resource Management Section Supervisor	Gary Frank **(28th only)**	None
MDT	Jim Lynch, Director	Tom Martin, Env. Bureau Chief Bonnie Gundrum, Resources Section Supervisor Pat Basting, Missoula District Biologist Deb Wambach, Butte District Biologist, ITEEM Project Manager	Jim Walther, Preconstruction Engineer	Bonnie Gundrum, Pat Basting **(28th, 30th),** Deb Wambach, Lesly Tribelhorn, Highways Bureau.
MFWP	Jeff Hagener, Director *(in 2010 is Joe Maurier)*	Glenn Phillips, Habitat Bureau Chief, Fisheries Division *(retired summer 2008)* Steve Knapp, Habitat Bureau Chief, Wildlife Division T.O. Smith, Coordinator, Comprehensive Statewide Fish and Wildlife Strategy	Mack Long, Regional Supervisor, Missoula Region **(28th only)** T.O. Smith **(28th only)**	Ladd Knotek, Fisheries Biologist **(28th only)** Jay Kolbe, Wildlife Biologist **(28th, 30th)** Mark Lere, Habitat Restoration Program Officer **(28th, 29th)**
USACOE	Allan Steinle, MT Program Manager *(in 2010 is Todd Tillinger)*	Todd Tillinger, Project Manager	Todd Tillinger	None
USEPA	John Wardell, Director, Region 8 *(in 2010 is Julie Dalsoglio)* Julie Dalsoglio, Deputy Director, Region 8 *(in 2010 is Ron Steg)*	Julie Dalsoglio, Region 8 Deputy Director *(in 2010 is Ron Steg)* Stephen Potts, NEPA Coordinator, Region 8	Stephen Potts	None
USFS	Joel Krause, Director, Engineering Bruce Fox , Director, Forest & Rangeland Management	Fred Bower, Transp. Planning Engineer James Claar , Carnivore Program Leader Kate Walker, Fish Program Leader	Tim Love, District Ranger, Seeley Lake Ranger District	Scott Tomson, Wildlife Biologist Shane Hendrickson, Fisheries Biologist
USFWS	Mark Wilson, Field Office Supervisor	Scott Jackson, Wildlife Biologist	Scott Jackson	Anne Vandehey, Wildlife Biologist Greg Nuedecker, Assistant State PFW Coordinator **(28th only)**
Missoula County Rural Initiatives Office	**NA**	**NA**	Carly Walker, Rural Landscape Scientist	None
Lake County	**NA**	**NA**	Sue Shannon, Planner **(28th only)**	None
Seeley Lake Com. Council	**NA**	**NA**	Jon Haufler, Chair	None

2.0 PRE-WORKSHOP COORDINATION AND DATA GATHERING

2.1 Coordination

ITEEM pilot study coordination conducted prior to the workshop is summarized in this section. The pilot project was initiated with a March 3 letter from MDT Director Jim Lynch to the directors or regional supervisors of MDEQ, MDNRC, USEPA, FHWA, MFWP, USACOE, USFS, and USFWS, inviting them to select Oversight Group representatives from their respective agencies to participate in the pilot study workshop.

An IRTWG ITEEM pilot study kickoff meeting was conducted on March 14, 2008 during which the process and objectives (see Section 1.0 above) were explained and discussed at length over several hours. On April 28, 2008 MDT submitted a letter to the IRTWG members requesting a list of the best available existing project corridor data that each agency wanted considered during the process, including relevant studies, reports, information, maps, and mapping data. The letter also requested the agencies to provide data contacts, and agency summaries of coarse-scale natural resources issues / concerns relating to the proposed highway project corridor and large-scale restoration / conservation partnership opportunities relating to the larger study area (**Figure 1**).

In late April 2008, MDT submitted a letter to each of the Missoula, Lake, Powell, and Flathead County Commissioners requesting their participation in the process, the same information requested of the IRTWG members (discussed above), and a list and description of any specific planning, zoning, or development projects (such as subdivisions) that could occur within the study area that may have the potential to affect the identification and prioritization of restoration/conservation opportunities. Also in late April, press releases were submitted and ads placed in local publications informing the public of an ITEEM process informational public open house scheduled for May 20, 2008 in Seeley Lake. Additionally, open house announcements were directly mailed to approximately 40 local non-governmental organizations (NGOs) considered potential stakeholders in the process.

On May 15, 2008 an IRTWG ITEEM status meeting was conducted, at which data needs / sources / contacts and the proposed open house were discussed at length. On May 20th, a public open house was conducted in Seeley Lake. Public attendance was relatively sparse, although attendants did include the MCRIO and two additional primary local NGOs (Clearwater Resource Council [CRC] and Trust for Public Land [TPL]). On June 23, the USFS and MFWP conducted an internal ITEEM data discussion meeting, which MDT and PBS&J also attended. At this meeting, the ITEEM process, local resource data, data contacts, and some potential (primarily aquatic) restoration opportunities were discussed.

Throughout this process, from approximately April through August 2008, PBS&J conducted individual interviews with local stakeholder groups to obtain their input, issues, and potential opportunities with respect to the ITEEM pilot study. These stakeholders included: Missoula County Rural Initiatives Office / Missoula County Planning, Powell County Commissioners (PCC), Clearwater Resource Council / Seeley Lake Community Council, Blackfoot Challenge (BC), Seeley Lake Chamber of Commerce (SL Chamber), Swan Ecosystem Center (SEC), Northwest Connections (NWC), Plum Creek Timber Company (PCTC), and American Wildlands (AW). Others were contacted, but either declined or were non-responsive. During this period PBS&J also directly contacted agency and NGO data staff and acquired, or attempted to acquire, study area electronic and hardcopy resource data as identified by agencies and other stakeholders.

On August 12, 2008 another IRTWG ITEEM status meeting was conducted. This was a substantive meeting, in that the comprehensive list of data received by PBS&J to date was reviewed and screened, and it was agreed as to which data "layers" would be compiled onto maps for discussion at the workshop. This was a consensus-based process, in that each available layer or source was in turn discussed and consensus achieved within the group as to which were likely most appropriately (and usefully) displayed on maps at the workshop, and which would simply be made available for examination at the workshop electronically or in hard copy report form, if needed (no layers or sources were dismissed from consideration). Additionally, each agency presented their respective issues and potential opportunities to be considered during the process. It was determined that PBS&J would summarize these issues and opportunities, identify which required additional information or explanation, and provide that list to the group for review in the form of a "straw man" agency issues and opportunities summary.

On August 25, 2008 MDT distributed the agency issues and opportunities summary / information needs document and the screened list of agreed-upon data layers to be included on workshop maps to IRTWG members for their review, comment, and further explanation (primarily of opportunities) by September 8th. This was re-submitted to the group by MDT on September 25, (requesting responses by October 1) as no responses had been received by that date.

On August 29, 2008 a conference call was conducted between MDT, USFS, FHWA, and PBS&J in order to clarify some USFS ITEEM process questions and issues. On September 5th, PBS&J mailed invitations to approximately 40 local NGO stakeholders soliciting their input and inviting them to make presentations at the October agency workshop. Five groups ultimately elected to make presentations at the workshop: Trust for Public Land, American Wildlands, Clearwater Resource Council, Swan Ecosystem Center, and the Blackfoot Challenge.

On October 14, 2008 a technical memorandum summarizing the process, data (including all maps as discussed in the following section), and all public, NGO, and agency input received as of that date was transmitted to all scheduled workshop participants in order to facilitate workshop preparation. The workshop itself was conducted October 28th, 29th, and 30th 2008 in Seeley Lake, Montana. A follow-up meeting to discuss the workshop participants' comments on the draft pilot study outcomes and process reports and further discuss unresolved issues was conducted on December 15, 2009 in Helena, Montana. Results of this 2009 meeting are indicated throughout this document as italicized "post-workshop notes". Public draft hard copies and electronic copies of this report were announced and made available for public comment from April 19 – May 21, 2010; no public comments were received.

2.2 Corridor Data and Maps

A comprehensive list of the mapped data compiled for the workshop during the coordination process described in the previous section is provided in **Table 2-1, Appendix B**. Map production relied on existing data; no project-specific studies or field data collection were undertaken specific to the ITEEM process. A list of other existing data compiled during the course of this effort and available for examination by workshop participants, but not included on map exhibits, is presented in **Table 2-2, Appendix B**. It should be noted that detailed metadata were not available for much of the gathered GIS data; however, available descriptive information regarding sources of mapped data is provided in **Table 2-1, Appendix B**. Original sources of data acquired from compilation documents, such as wildlife habitat linkage data from the Upper Swan Valley Landscape Assessment (SEC 2004) and Landscape Assessment for the Clearwater Valley of Montana (CRC 2006), are referenced in those original documents, but are not detailed separately in this report.

Data layers to be grouped on maps generated for workshop discussion were determined at the August 12, 2008 IRTWG meeting discussed in Section 2.1, and are highlighted in various colors on **Table 2-1**. These colors represent 11 primary map / data groups and include data that were available as of October 2008, as follows (**Figure 1** and **Figures 2-13**, **Appendix A**). **Figure 1** follows page 2 above, and **Figures 2-13** are presented in **Appendix A**.

- General group
  - Study area (**Figure 1**; roads, ownership, towns, counties, etc.)
  - USGS topographic information (**Figure 2**)
  - 2005 NAIP aerial photograph information (**Figure 3**)
- Wildlife habitat linkage group (**Figure 4**)
- Grizzly bear habitat group (**Figure 5**)
- Lynx habitat group (**Figure 6**; does not include 2/24/09 revised lynx critical habitat)
- Big game habitat group (**Figure 7**)
- Species of concern group (**Figure 8**)
- Bull trout / west-slope cutthroat habitat / streams group (**Figure 9**; does not include 1/13/10 proposed revised critical bull trout habitat)
- Wetlands group (**Figure 10**)
- Recreation sites group (**Figure 11**)
- Planning / land use group (**Figure 12**)
- Opportunities group (**Figure 13**)

3.0 PRE-WORKSHOP AGENCY, NGO, AND PUBLIC ISSUES AND OPPORTUNITIES

Issues and planning considerations (e.g., considerations that may translate into future highway project design features) relative to the 15-mile highway project corridor that were provided by agencies, NGOs, and the public in advance of the workshop are summarized in **Table 3, Appendix C**. Issues pertaining to the broader study area provided by these groups are also provided in **Table 3, Appendix C**, as are lists of all potential partnership opportunities received prior to the workshop. Sources of all comments and information are provided with each individual entry on **Table 3, Appendix C**.

All four of these comment / information categories (issues pertaining to 15-mile corridor, planning considerations pertaining to 15-mile corridor, issues pertaining to broader study area, and opportunities pertaining to broader study area) were grouped by the 11 map/data groups listed above in Section 2.2, in order to facilitate discussion during the workshop. Many of these listed opportunities were very general and potentially applied to several data/map categories, and were therefore listed repeatedly under several categories. These opportunities required further explanation by their respective suggesting agencies at the workshop.

4.0 WORKSHOP RESULTS

The workshop was conducted October 28th, 29th, and 30th 2008 at the Seeley Lake Community Center. Day 1 consisted of NGO and agency presentations; round-table data, issues, and opportunities review and discussion; and determination of opportunity areas to examine during the Day 2 field reconnaissance. On Day 2, the group visited the 15-mile highway corridor and some potential opportunity areas identified previous to and during Day 1. Day 3 was comprised of focused intensive issue and opportunity discussion and wrap-up. As mentioned above, some workshop participants were only able to attend Day 1, some only Days 1 and 2, and some only Days 1 and 3 (**Table 1**). This made

it challenging to maintain a consistent level of participation and solicit input from a single "voice" with respect to some agencies.

This section provides documentation of the workshop discussions and results, and includes: agency-stated goals for the ITEEM workshop / process; NGO and MDT presentation highlights; group field reconnaissance highlights; and primary (focused) highway corridor discussion summaries pertaining to issues/challenges, planning considerations, and opportunities.

4.1 Agency-Stated Goals for the ITEEM Workshop / Process

At the start of the workshop, a spokesperson from each participating agency was invited to state their goals for the workshop and/or overall ITEEM process. These stated goals are summarized below.

MDT: MDT **s**eeks predictability and streamlining in the environmental process as transportation projects move forward. The pilot study is an opportunity to develop this process to be applied in the future. MDT seeks to build relationships with agencies and strengthen identification of threats on the landscape, and to build partnerships and trust to accomplish meaningful mitigation / restoration projects. Early involvement and interagency partnerships will lead to better use of funds and the biggest ecological "bang for the buck" for all of the involved agencies. MDT is not seeking to necessarily increase mitigation, but rather to focus it. MDT would ultimately prefer to obtain an agreement documenting important design features, partnership opportunities, etc. so that MDT, and other agencies, are committed to these considerations.

MFWP: MFWP seeks to coordinate with MDT to identify issues early in the process and provide advance notice of concerns, especially with respect to terrestrial issues that may not be specifically protected or addressed by a permit or law (as are wetlands or fisheries, for example). MFWP is more focused on the general issues, and suggests that the group not necessarily become too fixated or loyal to specific measures, since the highway design may be 5-20 years out in the future and concerns and priorities change over time. MFWP initial considerations (with the caveat that issues these are not necessarily comprehensive and could change) include: land use planning and access management within the 15-mile corridor; maintenance of public access to recreational lands; fish and wildlife passage / movement (the entire 15 miles is an important wildlife crossing, not only riparian crossings); compliance with the Endangered Species Act; increased enforcement on the highway and with respect to fish and wildlife resources; riparian restoration along Salmon Lake; biologist involvement in design decisions; roadway salt & sand; general riparian protection; support for the Montana Legacy project; and support for a type of mitigation fund (ala FERC re-licensing; with a third party holder of funds).

MDEQ: MDEQ seeks for the regulatory agencies to provide predictability and consistency in the permitting process, a strategy to achieve exemplary mitigation in this corridor, and strengthened relationships.

USEPA: USEPA seeks to get ahead of the curve in this corridor via clear identification of threats, impact minimization, and analysis of mitigation opportunities.

USFS: USFS **s**eeks to understand the ITEEM process and its associated opportunities.

FHWA: FHWA seeks to build collaborative inter-agency partnerships.

USFWS: USFWS seeks collaborative partnerships, clarity and consensus building regarding what can constitute appropriate mitigation, determination of what types of mitigation and how much mitigation make sense for this geographic context, and for the process to achieve meaningful progress.

USACE: USACE seeks impact avoidance and minimization where possible and for all concerned to make better, more informed decisions about how to mitigate for unavoidable impacts on a "big picture", watershed basis. The USACE wanted the group to remember that there is still design-specific work to be completed in association with project (i.e., minimizing impacts, sizing pipes appropriately, etc.) despite what any resulting "mitigation" may be agreed upon.

MDNRC: MDNRC seeks to learn about and be brought up to speed on the ITEEM process.

LCPD: LCPD seeks to learn about the ITEEM process and contribute information about county planning, land-use, and resource protection.

MCRIO: MCRIO seeks to add insight into the process regarding local ecology and natural resources protection.

SLCC: SLCC **s**eeks to examine a full range of options for partnerships, and evaluate potential impacts of the highway project(s) on the Seeley Lake community.

4.2 Presentation Highlights

As a result of the coordination process previously described in Section 2.1, five non-governmental organizations requested to make presentations at the workshop relative to their respective objectives, efforts, concerns, ideas, and questions regarding the pilot study area and the ITEEM process. These NGOs were the Clearwater Resource Council, American Wildlands, Trust for Public Land, Swan Ecosystem Center, and the Blackfoot Challenge. Additionally, MDT presented an introduction to issues and activities typically associated with the road design process. Presentation summaries are provided below.

Clearwater Resource Council

- CRC was formed in 2003, and seeks to enhance, conserve, and protect natural resources and the rural lifestyle in the Clearwater Region.
- The Clearwater Valley supports unique biodiversity, and is comprised of 269,000 acres: USFS 45%, Plum Creek 33%, State 12%, private 8%, and lakes 2%.
- CRC completed the Clearwater Valley Landscape Assessment in December 2006; selected data from this effort were incorporated into the ITEEM data sets and maps (see **Table 2-1, Appendix B**).
- Threats to the Clearwater Valley include conversion to other uses, habitat fragmentation, degraded water quality, and exotic species.

Regarding ITEEM:

- The primary need for the ITEEM process is to facilitate the mitigation of Highway 83 impacts.
  Crossing structures for aquatic and terrestrial resources would minimize impacts to linkage across the highway.
  Truck traffic and high traffic speeds, especially at night, affect wildlife ability to cross the highway.
- CRC supports the Montana Legacy project and other local land conservation efforts.

- CRC suggests the establishment of a mitigation fund to target restoration needs over time, including:
  - exotic weeds
  - road decommissioning
  - culvert replacement
  - stream ecosystem restoration
  - forest ecosystem restoration

American Wildlands

- AW focuses on wildlife linkage and protection of connectivity areas.
- AW developed the Corridors of Life program to determine critical linkage areas; the ITEEM pilot study occurs in the Crown of the Continent linkage area.
- The Crown of the Continent Report should be complete in December 2008. ***Post-Workshop Note:*** *This report was published in 2009 [American Wildlands 2009] and, although not available for the workshop, is available for future use relative to the corridor).*
- Linkage areas are based on eight focal species, including carnivores and ungulates.
- The next steps regarding these linkage areas will include sharing information with agencies and groups. For each linkage area AW intends to meet, collaborate, and partner with agencies and local groups.
- Identified threats to habitat connectivity include:
  - -Private land development
  - -Transportation: railroads, highways
- Opportunities include
  - -Conservation easements
  - -Highways (crossing structures and other strategies)

Trust for Public Land; Montana Legacy Project

- A Montana Legacy Project summary handout was distributed and is included in **Appendix D**. ***Post-Workshop Note:*** *Updated February 2009 MLP maps are also included in* ***Appendix D***.
- The Montana Legacy Project is a $510 million, 312,500-acre purchase of Plum Creek lands in order to:
  -preserve & protect fisheries and wildlife habitats
  -preserve traditional public access (recreation)
  -preserve timber harvesting (sustainable)
- The purchase includes whatever rights Plum creek owns, but mineral rights are not included on some sections.
- Acquisition will occur over the next three years (phased through 08, 09, 10).
- TPL will govern forest management actions on lands it acquires, but does not intend to manage them long-term. TPL intends to dispose of properties to logical long-term owners (e.g. USFS, MDNRC).
- There is $250 million available in federal funding, but that amount of land value will need to be conveyed to the USFS.
  Timing: -depends when funding is available
  -depends what strings are attached
  -depends on fiber agreement considerations
- Swan Valley Legacy acres = approximately 66,000
- Clearwater Legacy acres = approximately 32,000; the "Marshall Block" (West Fork Clearwater River) is a high priority area.

Regarding ITEEM:

- TPL wants to remain in the communication loop, and wants the opportunity to continue with the process, especially regarding opportunities for conserving habitat.
- TPL recommends that there be a mechanism in the process to update and revise biological data as it changes.
- TPL is supportive of a mitigation fund concept that addresses changing priorities through time.

Swan Ecosystem Center

- Wildlife Committee - works with the public in the Swan Valley to reduce wildlife/vehicle mortality.
- "Bear Aware" program: promotes education, garbage pick-up, etc.
- Three grizzlies have been killed near Condon on Highway 83 in the last six years (see **Figure 4, Appendix A**):
  - Tied to (feeding on) deer road-kill: 1,500 deer were killed from 1998-2008 between MP 15-70.
  - Bears are wandering the highway corridor looking for road-kill or to resident's yards where the residents are feeding deer.
  - There is more deer movement in winter across the highway, as winter habitat has been modified over the years.
  - There is a need to restore habitat away from the highway in an effort to reduce highway crossings.
  - Thinning projects have been implemented along the highway to discourage deer use.
  - Garbage and road-kill disposal are key to reducing grizzly highway mortality.
  - MDT provided a blinking warning sign, but it was vandalized and had to be removed; a few days later a grizzly was killed in that spot.
  - Possible AM radio warning (of wildlife crossing highway) for Swan should be considered.
  - De-icer can encourage deer to stay on the highway during winter.
  - SEC has identified no key/main habitat linkage areas across the highway; movement is relatively dispersed across the Swan Valley.

Blackfoot Challenge

- BC was chartered in 1993.
- Objectives are to enhance, conserve, and protect habitat within the Blackfoot Watershed.
- Water quality, fish habitat restoration, weed management, and land acquisition/easements are primary issues / activities.
- BC would likely support ITEEM opportunity efforts and partner on them.
- There are many opportunities and BC would be interested in providing input.
- BC follows a four-pronged approach to fulfilling objectives:
  - Protection of the landscape (should be high-priority)
  - Management
  - Restoration
  - Education

Montana Department of Transportation

- The MDT program runs primarily on federal funding, with very limited state funding.
- Typical MDT highway projects progress through numerous sequential process phases, including a planning phase (variable timeframe), development phase (12 months), survey phase (8-24 months), design phase (15-24 months), right-of-way phase (6-12 months), and a construction phase (8-24 months).

- The ITEEM pilot study is being conducted far in advance of even the initial planning phase, as it would pertain to the potential Highway 83 projects being considered.
- Highway improvement is a balancing act between highway and public safety design, etc. and natural resource and other issues.
- The subject Highway 83 projects would be considered "rural reconstruction" projects due to their age. These segments were constructed to very old standards.
- Highways are typically designed for 75-year life under today's standards, and to accommodate projected 20-year traffic volumes.
- Providing fish passage, remedying perched culverts, etc. are currently standard MDT design practices.
- Single vehicle run-off road incidents are the most common cause of crashes and fatalities in Montana.
- Speed limits are set by the state legislature, but there are potential opportunities to change speed limits through local government. The Transportation Commission must approve any proposed speed limit changes.
- "Scenic byway" designation does not generally affect speed limits.
- Reduced speed limits only seem to function effectively with increased enforcement. Drivers generally drive the speed at which they are comfortable, according to the "culture" of a particular road.
- MDT is looking for special considerations that may apply to this corridor and these potential projects beyond the "standard" measures that are typically implemented.
- MDT typically makes the final design decisions, but with input from all applicable agencies and groups.

4.3 Group Field Reconnaissance Highlights

A general field review / reconnaissance was conducted by a portion of the group (**Table 1**) on October 29th to further familiarize the participants with the specific 15-mile highway corridor and selected potential opportunity areas (opportunity areas to be visited were determined by the group during the previous day's workshop session). Not all Day 1 individual participants attended the field review; however, with the exception of MDNRC and LCPD, all agencies participating on Day 1 were represented during the field review.

Field maps were distributed to all participants, and all large scale maps (**Figures 1-13**) were brought along on the field review. **Figure 4** (Wildlife Linkage) and **Figure 13** (Opportunities) were frequently referenced during the reconnaissance, as were two informal summaries of Highway 83 stream crossing issues between Seeley Lake and the Clearwater Divide prepared by MFWP ([MFWP 2003; MFWP undated], included in **Appendix D**).

The entire corridor was driven, with stops made at Rice Creek; Sawyer Creek; Benedict Creek; the Emily A Dam on the Clearwater River; Lake Inez; Richmond Creek; an existing "high fill" (topographical dip) area north of Richmond Creek; Clearwater / East Fork Clearwater Rivers (Highway 83 culvert and USFS sample bridge and culvert crossings); the MDT maintenance yard; a potential wetland mitigation site (parcel for sale) at Milepost 29; Summit Lake; and the general Marshall Block / West Fork Clearwater River area. Highlights from the field review discussions include the following:

- The current MDT structure under the highway at Rice Creek is an approximate four foot-diameter culvert. For rough example purposes, the USFS estimated that a structure design resulting from their application of aquatic organism passage (AOP) simulation techniques (a process that facilitates design enabling passage of all aquatic organisms at a given culvert or bridge) would result in an approximate nine-foot span at this location. The group examined an old USFS dam site a few hundred yards upstream from the highway as a potential restoration "partnership" opportunity. However, although originally considered for dam structure removal / fish passage provision by the USFS, the dam was determined to be an historic structure (and cannot be removed), the stream has subsequently cut around it, and fish passage is currently occurring during all periods. Consequently, no partnership opportunity exists in this location.

- Sediment input resulting from road sanding was observed and is an issue at virtually all stream crossings. BMPs to prevent road sand entry into streams were generally not observed. Agency concerns relating to sediment input include water quality and aquatic organism habitat degradation.

- The MDT Benedict Creek culvert is perched on the outlet end. Blockages occur upstream of the pipe on USFS land, which the USFS intends to address; some in the near term and some in the long term. CRC is seeking funding to identify and prioritize passage blockages by watershed. The group discussed the possibility of MDT providing a short-term passage "fix" in advance of the actual highway project. MFWP suggested the possibility of partnering with Future Fisheries to gain additional funding.

- The Emily A Dam on the Clearwater River (approximately 0.25 mile west of where Highway 83 crosses Benedict Creek) was originally constructed by MFWP to prevent rough fish from migrating upstream. The dam is structurally failing and needs to be addressed; several options for restoration are under consideration. Legislative funding has been requested for the project, so this does not present an immediate partnering opportunity. Should funding not be granted, however, the project would constitute a potential partnership opportunity. ***Post-Workshop Note:*** *Subsequent to the workshop, funding was obtained for this project, which is scheduled for implementation during summer 2010.*

- Under section 319 of the Clean Water Act, States, Territories, and Indian Tribes receive grant money which supports a wide variety of activities including technical assistance, financial assistance, education, training, technology transfer, demonstration projects, and monitoring to assess the success of specific nonpoint pollutant source implementation projects. Section 319 grant funding may be available from MDEQ relative to culvert removal and road obliteration at Richmond Creek, as this is a 303(d)-listed stream.

- New USFS AOP-simulated structures over the main stem and East Fork Clearwater Rivers above (east of) the highway have resulted in viable connection of the entire aquatic system above Rainy Lake (removal of Rainy Dam will occur in the next few years). This stresses the importance of the MDT replacement structure design at the Highway 83 East Fork Clearwater River crossing, which occurs downstream of the USFS structures and upstream of Rainy Lake. This structure was temporarily plugged in 1997. This crossing occurs within a high priority wildlife linkage corridor (see **Figure 4, Appendix A**). MDT indicated that there may be slight potential to replace this structure in advance of a highway project.

- At and immediately south of the MDT maintenance yard on the west side of the highway, there is an opportunity to "de-compact" and revegetate a reach of the north East Fork Clearwater River bank west of the highway. This could conceivably occur in advance of a highway project, and would be consistent with fisheries, wildlife linkage, and water quality objectives.

- The potential wetland mitigation site for sale near Milepost 29 occurs within the Clearwater watershed (Upper Clark Fork Watershed) and is therefore located within the acceptable aquatic mitigation area. MDT has credit available at other established wetland mitigation reserves in the Upper Clark Fork Watershed and interest by local resource management agencies in land acquisition of this type has lessened since local focus has shifted to recently acquired (or soon to be acquired) Montana Legacy Project lands. The site occurs within a general wildlife linkage area, is severely overgrazed, and removing cattle from the site may also benefit carnivores by removing attractants (calving, feed, etc.). ***Post-Workshop Note:*** *This site is no longer for sale and is therefore not available for acquisition as a wetland mitigation site.*

- The Marshall Block / West Fork Clearwater River "big block" area is included in the Montana Legacy Project. Lands east of Highway 83 will likely be acquired by the USFS, while lands west of Highway 83 will likely be acquired by MFWP. The area receives strong bull trout (adfluvial and resident), grizzly bear, and lynx use and has received MDEQ 319 grant funding. The area contains several potential terrestrial and aquatic restoration projects that could potentially make use of a "restoration fund".

- The "Heaven's Gate" property (T18N; R16W; Section 5), originally brought forth as a potential acquisition pursuit or conservation easement opportunity (although not for sale) (**Table 3**, **Appendix C**; see red section on inset, **Figure 13**, **Appendix A**), is currently subdivided into four 160-acre parcels. Under current draft land use plan designations, further division would not be recommended. Consequently, this was not carried forward as a priority concern for the resource management agencies during the workshop. ***Post-Workshop Note:*** *During the 12/09 follow-up meeting, MCRIO, SLCC, and USFS indicated that there was again interest in acquiring or securing a conservation easement on this property.*

4.4 Primary Highway Corridor Issues/Challenges and Planning Considerations

Pre-workshop summaries of issues and considerations (**Table 3, Appendix C**) were distributed to all workshop participants for review prior to the workshop. While none of these issues or considerations were officially "prioritized" or "eliminated from further consideration" by the group during the workshop as encouraged by the ITEEM process (Hardy et. al 2007), discussion focused on five primary subject areas: Safety / Wildlife Mortality; Linkage Areas (aquatic and terrestrial); Water Quality; Community Aesthetics; and Costs / Credit Tracking. These agreed-upon "primary" issues / challenges and planning considerations, as well as applicable comments, are presented in **Table 4**.

4.5 Primary Opportunities

Pre-workshop opportunities listed in **Table 3** (**Appendix C**) and depicted on **Figure 13** (**Appendix A**) were distributed to all workshop participants for review prior to the workshop. Similar to issues and planning considerations, no opportunities were officially "prioritized" or "eliminated from further consideration" during the workshop as encouraged by the ITEEM process (Hardy et. al 2007). However, discussion focused on five primary opportunities, which are listed and discussed in **Table 5**.

Table 4: ***Primary Issues/Challenges and Planning Considerations as Determined during the ITEEM Workshop***

Primary Issues and Challenges	Primary Highway Corridor Planning Considerations	Other Considerations / Comments
Safety and Wildlife Mortality		
28-35% of vehicle crashes in the corridor involve wildlife collisions. Need to reduce danger of human and animal mortality. Traffic use and volumes vary within two primary segments within the Seeley Lake to Summit corridor: 1. *Seeley Lake to the north end of Lake Inez* = heavy recreational / resident use, higher traffic volumes, higher deer/vehicle crash incidence density (see **Figure 4, Appendix A**), higher non-motorized use, etc. 2. *Lake Inez north to the Summit* = mostly public land, less use and lower traffic volumes, "snow belt" area with more general wildlife movement, but less deer on the road. Need to consider non-vehicle transportation safety (pedestrians, snowmobiles, bicycles, horses, etc); primarily along segment 1. Also see **Linkage Areas** section of this table below, as efforts to promote sub-highway small to mid-sized wildlife passage may also serve to promote safety and reduce wildlife mortality.	Consider exceptions to certain standards to reflect the uniqueness of this area. Consider design features differently in the two identified segments (highway footprint, clear zone width, method and extent of thinning, vertical & horizontal alignment, etc.). For segment #1, implement more "standard" safety considerations (e.g., sight distances), while still keeping the uniqueness of the area in mind. For segment #2, focus more on wildlife movement strategies supported by design features, including reduced clear zone and thinning, minimal alignment shift, contour grading, maximizing remnant clear zone groundcover, etc. Consider other ways to slow traffic (***Post-Workshop Note:*** *MDT recently reduced night-time speed limit on all of Highway 83 from 70 to 55 mph*): -alter roadside culture (e.g. frequent signage "you are entering a unique corridor", education). -reflective paint -rumble strips or possible surface roughening -perpetuate curvilinear alignment Consider strategies to keep animals off the road, including reducing salt in road sand (de-icer is used to keep sand piles thawed), mixing repellants with sand & salt (such as mint), and vegetating with non-palletable or non-preferred species. Consider danger of deer jumping out from behind guard rail); consider other types and length of guard rail; consider minimizing the footprint to the point where guardrail is not needed. MDT's carcass pick-up program is very good, including the compost site. Carcass pick-up is the very best measure to reduce wildlife mortality (at least	Highway 83 is within the third MDT / FHWA design tier (STPP – 36-40 foot top) and can therefore be afforded more flexibility in design standard application than higher-tier roadways. Community-based organizations could partner to ask Legislature to reduce speed limits from Lake Inez north, or request some type of Legislative special designation. CRC has petitioned/requested a speed limit study from Salmon Lake to Summit and the study has been approved. ***Post-Workshop Note:*** *MDT recently reduced night-time speed limit on all of Highway 83 from 70 to 55 mph* Removing Highway 83 from the "Primary Network" was mentioned, and although theoretically possible, would be very difficult and unlikely; counties won't want to pick up responsibility; may affect distribution of federal funds to MDT. Animal intelligent transportation devices (ITDs) were discussed, but would be most appropriate south of Seeley Lake. There may be an opportunity to test this technology north of the Clearwater Junction. MDT has been investigating this. DEQ is interested in working with MDT on future iterations of erosion control programs, etc. that deal with salt/sanding. The group discussed that private property sanitation issues (bear proof trash disposal) and any carcass dumps next to the highway (this is illegal) should be addressed. MFWP enforcement is being stepped-up. There are some impromptu carcass disposal sites on Cottonwood Lakes Rd that the USFS would like help with.

Primary Issues and Challenges	Primary Highway Corridor Planning Considerations	Other Considerations / Comments
Safety and Wildlife Mortality continued	for bears and eagles, etc.). This program has immediate affect on reducing predator/raptor mortality. Consider increasing the frequency of pick-ups, and establishing an additional compost site in the Swan. MDT developed a new toolbox publication on strategies to prevent wildlife mortality (available on-line) that they will apply to this corridor.	
Linkage Areas		
Linkage areas should be addressed at a macro-scale. Focus on the primary habitat linkage, or "core" areas: Between Lake Inez & Lake Alva; Between Lake Alva & Rainy Lake; and Between Rainy Lake & Summit (see **Figure 4, Appendix A**). Consider linkage for all-sized mammals and aquatic species. There is a significant need for a coordinated effort, as there are currently several parallel efforts occurring within this corridor.	Provide fish passage at stream crossings (consensus regarding specific methods for providing passage at specific streams using standard MDT vs. Aquatic Organism Passage (AOP) techniques was not pursued or achieved). At culvert locations, consider linkage in a tiered approach: -Design implementing AOP would address all aquatic species and small mammal considerations. -Design for larger mammal passage will accommodate smaller mammals. At riparian areas, consider providing passage for mid-sized and smaller animals. This may not pass deer, but would generally be acceptable. In core areas, implement design measures to facilitate cross-highway animal movement, including reduced clear zone, minimal alignment shift, contour grading, etc. Need to keep the entire stretch (including south of Inez) as permeable for terrestrial and aquatic species as possible.	MDT as a matter of practice will provide fish passage at all streams; however, the methods by which this would be achieved were not specifically discussed or agreed upon. MDT will look at using some of the pre-cast bridge type structures used by USFS, which may reduce cost. MDT's concern is that implementation of (USFS) AOP on <u>all</u> crossings would be cost prohibitive on these projects (preliminary estimate was that AOP would require about $300,000 additional funds per structure), and suggested formation of a sub-committee to address this issue in the future. The group suggested that MDT and other agencies could look for funding sources (e.g. future farm bill) to help pay for special highway design features to meet needs in designated corridors. Another suggestion was to examine the "savings" that may accrue from building a reduced scope project north of Lake Inez and using that money to upgrade structures, etc. The group agreed that these core areas should be formally recognized and prioritized. The Montana Legacy project has made it possible to plan ahead for land management on either side of highway from Lake Inez, north. MFWP is pursuing a conservation easement on 40,000 acres adjacent to the highway corridor in one of these areas. The group desires to: -Designate specific linkage corridors to direct

Primary Issues and Challenges	Primary Highway Corridor Planning Considerations	Other Considerations / Comments
Linkage Areas continued		landscape-scale joint agency improvements, maintenance, and management. -Where easements or purchases are enacted, formalize these designated corridors as an encumbrance on the property. ***Post-Workshop Note:*** *During the 12/09 follow-up meeting, the group decided not to seek formal recognition of core linkage areas pending availability and application of the MFWP Crucial Areas mapping service (should be available in 2010). When released, the agencies should consider how Crucial Areas mapping could apply to ITEEM planning considerations and opportunities.* ***Post-Workshop Note:*** *Conservation easements and acquisitions in general were re-identified as viable and desirable "opportunities" and mitigation approaches relative to wildlife habitat linkage by the group during the 12/09 follow-up meeting.* The group discussed development of a plan that creates a basis for the requests that are made of MDT and a basis for what happens on large blocks of Montana Legacy lands and to guide a set of strategies and address the full range of actions that can be taken (land management, community management, education, etc.). The possibility of creating an NGO/Agency charter to create commitment and focus and lead such a plan was discussed; MCRIO and CRC were discussed as potential leads. The Group discussed the potential need for research and monitoring to validate the decisions, such as conducting research through the lynx collar program to monitor crossing behavior and conditions associated with crossings. MDT is currently funding winter track surveys through these core areas (every other year).

Primary Issues and Challenges	Primary Highway Corridor Planning Considerations	Other Considerations / Comments
Water Quality		
Influx of sand, salt, runoff, and deck drainage into area streams from road maintenance and (potentially) new construction will negatively affect water quality. Cumulative water quality impacts are of primary concern in the corridor.	Enact BMPs and permanent erosion control during road construction and maintenance to eliminate or minimize road-generated sediment and other pollutants from entering streams. MDT Erosion Control Manual is excellent; key is to ensure that contractors follow it. Measures should be monitored. For small bridges, need to find a balance between the magnitude of the potential impact and the extent of the measure (consider what is "practicable"). Runoff and deck drainage are more important issues on larger structures, but incremental cumulative effects all sources need to be considered. Need to consider stream crossing structure from a water quality perspective as well as a connectivity / passage perspective. Inadequate crossings can have adverse water quality impacts, and may promote streambank and/or channel instability.	The group discussed the importance of land management practices on private land with respect to water quality, non-point private and public contaminant sources, and the benefits of potentially decommissioning old logging roads. Other than vegetated fill slopes, BMPs to minimize road sand entry into streams at road streams crossings were generally not observed during the field review.
Community Aesthetics		
It is important to encapsulate community "feel" in the project corridor and maintain the aesthetic values in the area.	Perpetuate the curvilinear alignment. Many of the considerations listed above under "Safety / Wildlife Mortality", such as minimization of the footprint, clear zone considerations, etc. would facilitate the perpetuation of the rural aesthetic character through the corridor. Maintain access to recreational areas. Informal recognition that this is a scenic area.	USFS could enhance this aesthetic and rural character.
Cost and Credit Tracking		
Concern that loading a highway project with many environmentally beneficial, yet very costly, features may be cost-prohibitive, rendering the project unbuildable from a funding standpoint. In this extreme scenario, none of the projected environmental improvements would then be implemented.	Include a realistic number of design considerations in order to develop an environmentally beneficial, yet buildable project or projects.	The group suggested that MDT and other agencies should look for funding sources (e.g. future farm bill) to help pay for special highway design features to meet needs in designated corridors. Another suggestion was to examine the "savings" that may accrue from building a reduced scope project north of Lake Inez and using that money to upgrade structures,

Primary Issues and Challenges	Primary Highway Corridor Planning Considerations	Other Considerations / Comments
Cost and Credit Tracking continued It is important to track the "credit" for features / opportunities that are agreed upon and/or implemented now, as to not lose track of them when a given project or projects are proposed.		etc. A record keeping sub-committee could be developed to track "crediting". FHWA will look into how this would work.

Table 5: ***Primary Opportunities as Determined during the ITEEM Workshop***

Primary Opportunities	Comments
Multi-Agency Corridor Restoration Fund	
Offsite mitigation / restoration opportunities may change through time, and a restoration fund would compliment the existing efforts such as the Montana Legacy Project by making restoration funds available to Project lands. A fund would allow flexibility and the ability to address restoration opportunities quickly. • Models: National Fish and Wildlife Foundation, FERC relicensing. • Would encompass several partners and maximize fund leverage; could use non-federal money to leverage federal money. • Would require formation of an Oversight Committee (members of the ITEEM group could sit on the Committee): 1. To establish criteria for selection of projects (link these to the ITEEM-identified issues) and define priority restoration areas and projects. 2. To seek funding (e.g. from Elk foundation, Trout Unlimited) that can serve as non-federal match. 3. To apply dollars to highest-priority projects. 4. To evaluate grant applications.	The group was generally very supportive of this concept. MDT contributions may be considered non-federal match for these purposes (this requires verification). Expenditure of MDT dollars must be approved by the Transportation Commission when they are directly associated with an MDT project. The fund would also need the regulatory and financial support of the other agencies. The group discussed whether there would be a possibility to use such a fund to help "upgrade" structure design at selected crossings (e.g., to AOP verses more standard MDT fish passage design approaches) to stretch funds and keep the project buildable from a funding standpoint. The issue was also raised that a proactive restoration fund may not be practical (e.g., MDT's commitment of up-front funds) if MDT cannot afford to implement items such as USFS-level AOP in conjunction with the project (see first comment in **Table 4** above under "Linkage Areas"). These matters require additional discussion. The point was also raised regarding the importance of how a mitigation fund would allow more flexibility for mitigation of terrestrial impacts, which are generally difficult to mitigate "on-project", as opposed to fisheries. ***Post-Workshop Note:*** *During the 12/09 follow-up meeting, the group continued to strongly support this concept. As the entity that would likely provide initial funding, FHWA was tasked (by spring 2010) with determining the feasibility of contributing to such a fund. If determined to*

Primary Opportunities	Comments
	be feasible, a number of specific follow-up steps were identified. *Also, conservation easements and acquisitions in general were re-identified as viable and desirable potential opportunities and mitigation approaches by the group during the 12/09 follow-up meeting. Funding for such easements and acquisitions could potentially be derived from the restoration fund, if feasible. If enactment of the fund is found to be infeasible, then key conservation easements and acquisitions in general would still be considered primary opportunities as they are identified and agreed-upon. The "Heaven's Gate" (T18N; R16W; Section 5) property and Plum Creek land (T16N; R15W; Section 26) north of Salmon Lake identified earlier in the process were again discussed as areas of interest.*
Culvert Fish Passage Evaluation / Restoration	
Although some culvert fish passage blockage data has been gathered (see **Figure 13, Appendix A** and **Table 2-1, Appendix B**), there is no current comprehensive melding of culvert data regarding where "high priority" blockages needing to be addressed occur in the Clearwater watershed. Such an effort would compliment the existing Montana Legacy Project by helping to prioritize restoration efforts on Project lands. Identifying priority restoration areas would generate projects leading to partnership opportunities.	Clean Water Act 104(b)(3) and 319 grants administered by DEQ and EPA are potential additional funding sources, although they require cost share and cannot be used for mitigation purposes. ***Post-Workshop Note:*** *During the 12/09 follow-up meeting, the group decided that such a study would best be completed outside of the ITEEM process. Once specific restoration "projects" were identified and prioritized, funding for their implementation could potentially be proposed through the ITEEM process. Consequently, the study itself was dropped as an identified primary opportunity.*
Access Management Plan	
There is potential opportunity for MDT and Missoula County to develop an access management plan for the highway corridor.	MDT will consider this and would work with the County. ***Post-Workshop Note:*** *Subsequent to the workshop, it was determined that access management constituted a highway design or planning feature more than it did a restoration "opportunity". Consequently, while retained as a planning consideration, it was dropped as an identified primary opportunity.*
Potential Wetland Mitigation Site	
A potential wetland restoration / mitigation site was identified by MDT at a parcel for sale at the north end of the corridor (Summit area, approximate Milepost 29) on the west side of Highway 83.	This occurs within the Clearwater watershed (Upper Clark Fork Watershed) and is therefore located within the acceptable aquatic mitigation area. However, MDT has other available wetland mitigation reserves in the Upper Clark Fork Watershed and interest by local resource management agencies was relatively low and more focused on Montana Legacy Project lands. The Corps indicated that this may be an opportunity

Primary Opportunities	Comments
	for a private commercial wetland bank. ***Post-Workshop Note:*** *This site is no longer for sale and is therefore not available for acquisition as a wetland mitigation site. Consequently, the site was dropped as an identified primary opportunity.*
Potential Short-Term Advance Remedies	
The group discussed the possibility of MDT providing a short-term fish passage "fix" in advance of the actual highway project at Benedict Creek and possibly other streams with perched culverts. MFWP suggested the possibility of partnering with Future Fisheries to gain additional funding.	MDT indicated that short-term fish passage fixes would be possible, working with maintenance forces and with MFWP and USFS cooperation. Additional coordination is needed.
The group discussed replacing the Highway 83 Clearwater River structure in advance of a highway project.	MDT indicated that there may be slight potential for this structure replacement in advance of a highway project.
At and immediately south of the MDT maintenance yard, there is an opportunity to "de-compact" and revegetate (riparian restoration) a reach of the north Clearwater River bank west of the highway in advance of a highway project. This action would be consistent with fisheries, wildlife linkage, and water quality objectives.	MDT indicated that the bank revegetation project would be possible, working with maintenance forces and with MFWP and USFS cooperation. ***Post-Workshop Note:*** *It was discussed during the 12/09 follow-up meeting that the USACOE Stream Mitigation Program Guidelines (Draft February 2005) crediting/debiting mechanism could be a means to track and allocate credits specific to stream restoration or crossing structures. The goal would be to focus efforts on a project that is a regional priority for FWP or the USFS and then to determine Corps' credits for the contribution. If terrestrial gains are made, additional mitigation crediting could be considered based on the pilot study outcomes. The next step is for the agencies to meet and set priorities among the three projects and then to cooperatively generate project proposals. MFWP, USFS, and MDT will work to set priorities among these three potential advance remedy projects. The CRC is willing to advise and participate, if desired. This interagency group can work on preparing grant applications; can propose a project for participation; and can solicit additional agency participation in the selected effort.*

5.0 UNRESOLVED ISSUES, CONCLUSIONS, AND FUTURE STEPS

5.1 Unresolved Issues

The following primary issues warrant further discussion in conjunction with the ITEEM process.

- The status of the potential MDT animal detection device test on Highway 83 north of the Clearwater Junction should be periodically updated to the group.

- The group initially agreed that core linkage areas specified in **Table 4** should be formally recognized and prioritized. The group desired to designate specific linkage corridors to direct landscape-scale joint agency improvements, maintenance, and management; and, where easements or purchases are enacted, formalize these designated corridors as an encumbrance on the property. The group discussed development of a plan that creates a basis for the requests that are made of MDT and a basis for what happens on large blocks of Montana Legacy lands and to guide a set of strategies and address the full range of actions that can be taken (land management, community management, education, etc.). The possibility of creating an NGO/Agency charter to create commitment and focus and lead such a plan was discussed; MCRIO and CRC were discussed as potential leads. ***Post-Workshop Note:*** *During the 12/09 follow-up meeting, the group decided not to seek formal recognition of core linkage areas pending availability and application of the MFWP Crucial Areas mapping service (should be available in 2010). When released, the agencies should consider how Crucial Areas mapping could apply to ITEEM planning considerations and opportunities.*

- Development of a record keeping sub-committee is needed to determine and track "crediting" associated with MDT's participation in the opportunities listed in **Table 5**. How would participation in these efforts translate to quantitative or qualitative "credit" and/or streamlining? If any of these are ultimately decided to be pursued, development of implementation plans and success measures, as recommended by the ITEEM process (Hardy et al. 2007), should be undertaken by the group. ***Post-Workshop Note:*** *During the 12/09 follow-up meeting, the group recognized that there is an existing aquatic credit system through the USACOE. There is continued interest in exploring a system for record-keeping/credit-tracking relative to indirect terrestrial species effects. However, until projects are identified, it is premature to establish a committee. Along these lines, it was also decided to revisit the issue of developing a project-specific MOA/MOU if it is relevant to a specific opportunity that is being implemented. Any MOA/MOU generated as a result of the ITEEM process should complement the most recent iteration of the IRT MOU. Preliminary ITEEM success measures were discussed by the group and would require further refinement upon pursuit of specific opportunities. These preliminary success measures are presented in* ***Appendix E***.

- Additional discussion and decisions are required regarding initiation, development, and administration of a Multi-Agency Corridor Restoration Fund. Initially, a decision should be made as to who will lead this effort. Determination would need to be made regarding whether MDT funds would be considered federal or non-federal match for these purposes. ***Post-Workshop Note:*** *During the 12/09 follow-up meeting, as the entity that would likely provide initial funding, FHWA was tasked with determining the feasibility of contributing to such a fund. If determined to be feasible, a number of specific follow-up steps were identified.*

- Additional information is required regarding the Culvert Fish Passage Evaluation / Restoration study for the Clearwater Watershed. Initially, firm funding requirements and needs should be established and communicated to the group. ***Post-Workshop Note:*** *During the 12/09 follow-up meeting, the group decided that such a study would best be completed outside of the ITEEM process. Once specific restoration "projects" were identified and prioritized, funding for their implementation could potentially be proposed through the ITEEM process.*

- MDT, as a matter of practice, will provide fish passage at all streams; however, the methods by which this would be achieved were not specifically discussed or agreed upon at this preliminary stage. During the project(s) design phase(s), MDT will consider using some of the pre-cast bridge type structures used by USFS, which may reduce costs. MDT's concern is that implementation of (USFS) AOP on all crossings would be cost prohibitive on these projects (a preliminary MDT estimate indicated that AOP would require about $300,000 of additional funds per structure). The group discussed whether there would be a possibility to use the Multi-Agency Corridor Restoration Fund to help "upgrade" structure design at selected crossings (e.g., to AOP verses more standard MDT fish passage design approaches) to stretch funds and keep the project buildable from a funding standpoint. This would need to be discussed as part of the fund set-up phase, along with the types of projects that would qualify for Fund participation. The issue was also raised that a proactive restoration fund may not be practical (e.g., MDT's commitment of up-front funds) if MDT cannot afford to implement items such as AOP in conjunction with the actual project(s). These matters require additional discussion. It was suggested that a sub-committee should be formed to address AOP issues in the future. ***Post-Workshop Note:*** *During the 12/09 follow-up meeting, the group decided that the issue of accommodating AOP will be addressed in MDT's culvert/bridge design guidelines and modifications to their standard practices. MDT, FHWA, and MFWP will lead a programmatic process to consider AOP. FHWA has issued recent (2009) draft guidance. The AOP issue will be revisited when closer in time to a nominated highway project.*

5.2 Conclusions and Future Steps

The pilot study application of the ITEEM process along Highway 83 was considered successful, although the outcomes were not necessarily those originally anticipated to result from strict application of the process. Rather than producing a prioritized list of large-scale ecological restoration opportunities; descriptions of how those opportunities would specifically apply to and offset impacts associated with highway improvements through the corridor; and written agreements documenting these items, the outputs, although still very useful, were much more conceptual in nature.

The pilot study process resulted in enhanced interagency understanding of missions, mandates, and processes; fostered interagency and agency-NGO relationships; facilitated the gathering of valuable public and agency input relative to the Highway 83 corridor and future highway design; and identified several general partnership opportunities for further pursuit that would meaningfully compliment ongoing large-scale restoration efforts and promote good will between MDT/FHWA and the resource and regulatory agencies. A separate report (PBSJ 2010) summarizes the pilot study process, its successes and challenges, and recommendations for process improvement.

The following next steps were recommended by the group during the workshop:

- A mini-workshop, sub-committee, or task force meeting should be conducted to address specific unresolved issues as discussed in Section 5.1 to the extent possible at this stage. All participants agreed that, due to the length of time involved before any highway project or projects are formally proposed in the 15-mile corridor (and the potential for shifting priorities in the interim), the outcomes of this pilot process will be more conceptual then all originally conceived, but there would be value in further resolution of specific unresolved issues. ***Post-Workshop Note:*** *A December 2009 follow-up meeting was conducted, and an additional follow-up meeting is proposed for spring 2010.*

- Two ITEEM reports should be issued: one evaluating the ITEEM process itself, and one that documents actual outcomes in the Seeley / Swan corridor resulting from the Highway 83 pilot study (e.g., this report). ***Post-Workshop Note:*** *Both reports are completed.*

- The group needs to determine how to transition the process from MDT and the consultant to a more permanent group; perhaps an NGO. MDEQ indicated that there is possible 319 grant money available for an organization to help play a role in continuing this process beyond the initial pilot study test phase. The project website could ultimately be expanded to include roles and responsibilities of each agency / entity, funding flows and sources, decision making authority, jurisdictions (e.g., over funding, over permitting, etc.). ***Post-Workshop Note:*** *Transition options discussed at the 12/09 follow-up meeting included: (1) a new entity (NGO) would lead; (2) ITEEM would morph into individual projects (opportunities) that emerged from the Pilot Study and the project champion(s) would lead on the particular project(s); or (3) responsibility for leading the ITEEM process could rotate yearly (or longer) among the IRT agencies, and the "outcomes" of that ITEEM application could then be overseen and implemented by the agency local/regional staff. As an example of Option 1, a scenario was discussed by the ITEEM group in which the CRC would integrate ITEEM elements into its current coordination efforts. MDT (through the Missoula District) and FHWA would be added to this existing coordination effort, without calling it ITEEM. If an appreciable outcome arises that brings funding and a credit accounting system to the table, then that outcome would be addressed separately through the identified champions. If the CRC were to expand into the management of a credit system, funding would be required to pay for CRC's additional work.*

- The group listed the following additional data that may assist future examination of the highway project corridor and opportunity areas: updated highway human fatality data, updated animal road-kill data, new ReGAP data (fine-scale habitat layer); updated Seeley Lake draft land use plan designation layers; updated Montana Legacy Project data; and comprehensive culvert / passage blockage data (see second opportunity listed in **Table 5**). ***Post-Workshop Note:*** *MFWP Crucial Areas mapping service outputs were added to this list during the 12/09 follow-up meeting.*

- A preliminary "check-back" meeting schedule should be developed. Future meetings would be needed to further discuss and refine any actual highway project design criteria. ***Post-Workshop Note:*** *A December 2009 follow-up meeting was conducted, and an additional follow-up meeting is proposed for spring 2010. Additionally, MDT is a signor on the Missoula County Land Managers MOU, and representatives meet quarterly to discuss topics of mutual interest. Ongoing cooperative efforts through the Blackfoot Challenge, Clearwater Resource Council, and Swan Ecosystem Center bring together agency field staff on an approximate quarterly*

basis to collaborate on watershed restoration prioritization projects, information-sharing, etc. MDT is invited and encouraged to attend all such meetings.

6.0 REFERENCES

Also see **Table 2-1** in **Appendix A** for descriptive information regarding mapped data sources.

American Wildlands. 2009. Priority Linkage Assessment: The Crown of the Continent Conservation Area. Technical Report. Version 1.0. http://www.wildlands.org/programs/corridors/pla

Clearwater Resource Council. 2006. Landscape Assessment for the Clearwater Valley of Montana. Seeley Lake, MT, December 2006. 41 pp plus appendices.

Hardy, A.R., James, C.J., and T.G. Burch. 2007. Developing the "Integrated Transportation and Ecological Enhancements for Montana" (ITEEM) Process: Applying the Eco-Logical Approach. Prepared for: Federal Highway Administration, Montana Division Office, Helena, MT. Western Transportation Institute - Montana State University (WTI), Bozeman, MT. 43 pp.

Montana Fish, Wildlife & Parks. 2003. Highway 83 Stream Crossings, July 7, 2003. Unpublished report. Missoula, MT. 5 pp.

Montana Fish, Wildlife & Parks. Undated. Highway 83 Stream Crossings - Seeley Lake to Clearwater-Swan Divide. Unpublished data. Missoula, MT. 3 pp.

Post, Buckley, Schuh & Jernigan (PBS&J). 2010. Process Summary Report - Integrated Transportation and Ecological Enhancements for Montana (ITEEM) Process Highway 83 Pilot Study, MDT Project STPX 0002(884); CN 6438; ACCT 9702. Prepared for: Montana Department of Transportation, Helena, Montana. 12 pp.

Swan Ecosystem Center. 2004. Upper Swan Valley Landscape Assessment, February 2004. Condon, MT.

Appendix A

2008 PROJECT AREA MAPS (FIGURES 2-13)

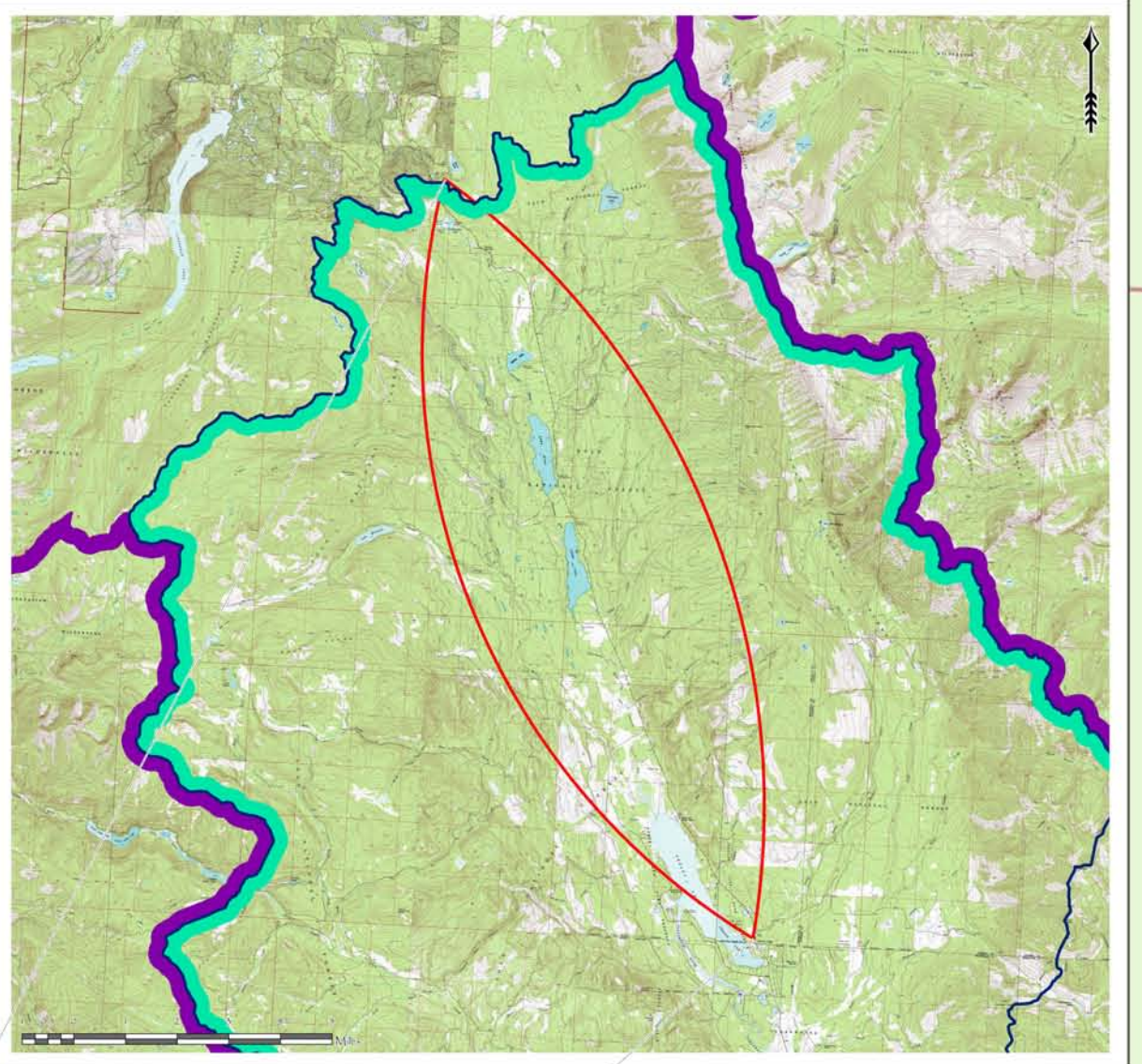
Outcomes Report: ITEEM Highway 83 Pilot Study

Figure 2.

ITEEM:

Integrated Transportation and Ecological Enhancement for Montana

Topo Map



GLACIER

FLATHEAD

LAKE

POWELL

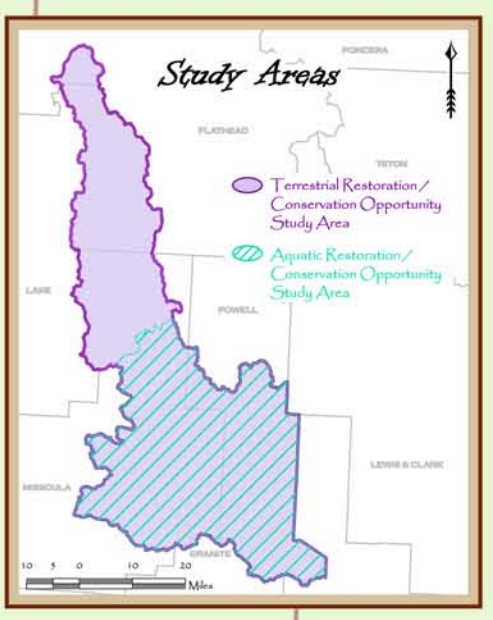
LEWIS & CLARK

MDT Missoula District (1)

MDT Great Falls District (3)

Legend

- Aquatic Restoration / Conservation Opportunity Study Area
- Terrestrial Restoration / Conservation Opportunity Study Area
- Highway Project Area
- Clearwater Watershed
- MDT Administrative Districts
- County Boundary



Bonner

MISSOULA

GRANITE

10 5 0 10 20

Miles

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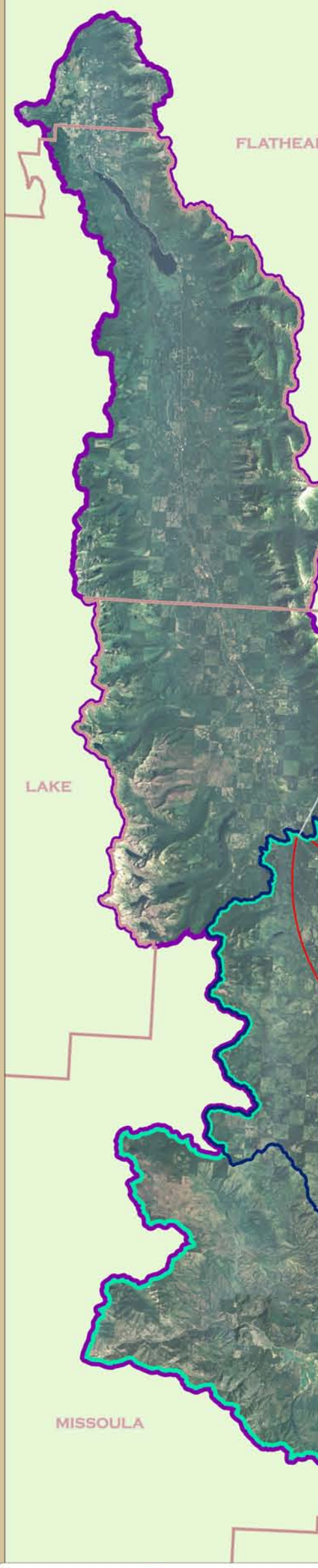
Relative locations of features, boundary lines and photo imagery are approximate

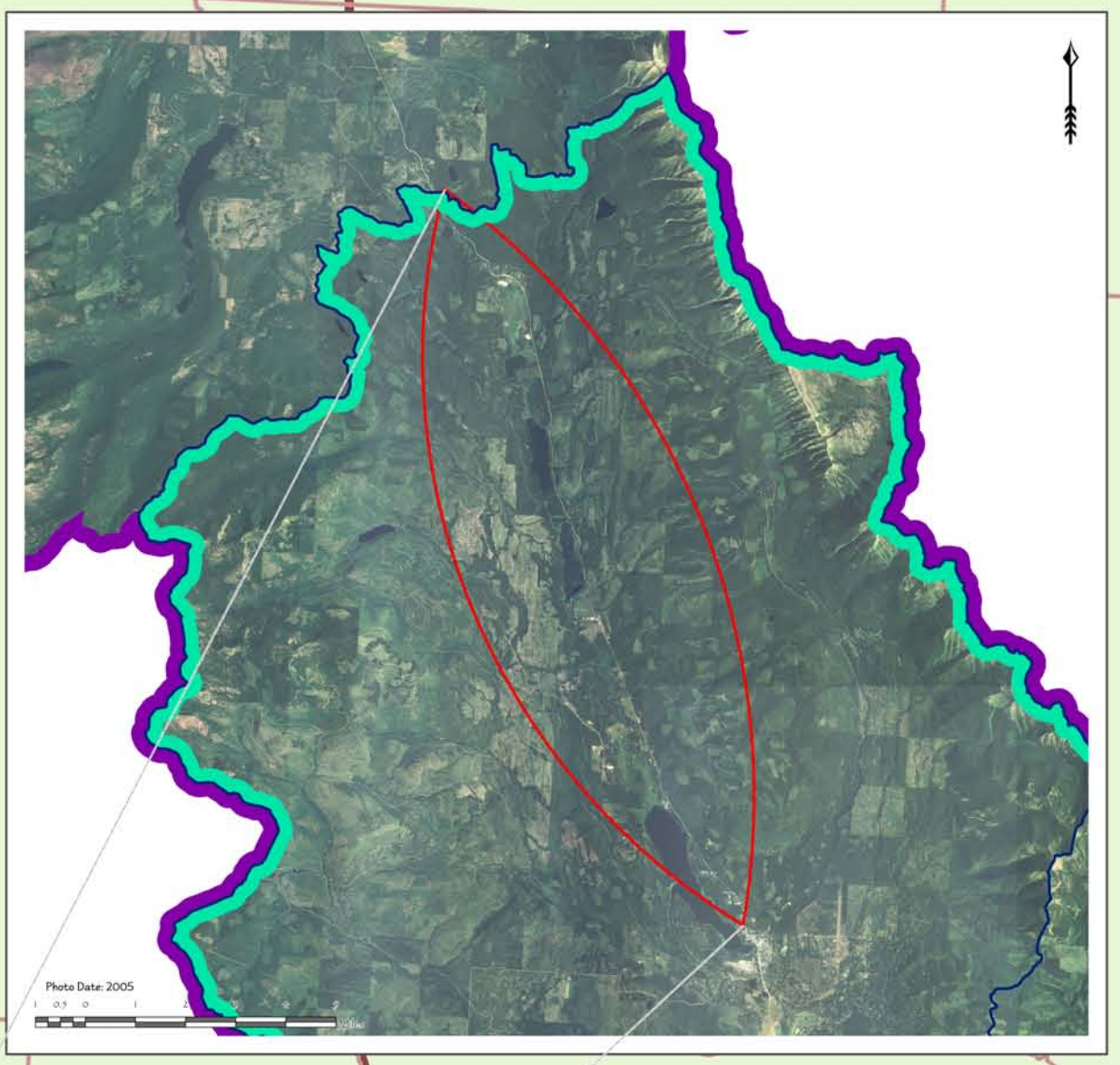
Figure 3.

ITEEM:

Integrated Transportation and Ecological Enhancement for Montana

2005 NAIP Photo Map





MDT Missoula District (1)

MDT Great Falls District (3)

Legend

- Aquatic Restoration / Conservation Opportunity Study Area
- Terrestrial Restoration / Conservation Opportunity Study Area
- Highway Project Area
- Clearwater Watershed
- MDT Administrative Districts
- County Boundary

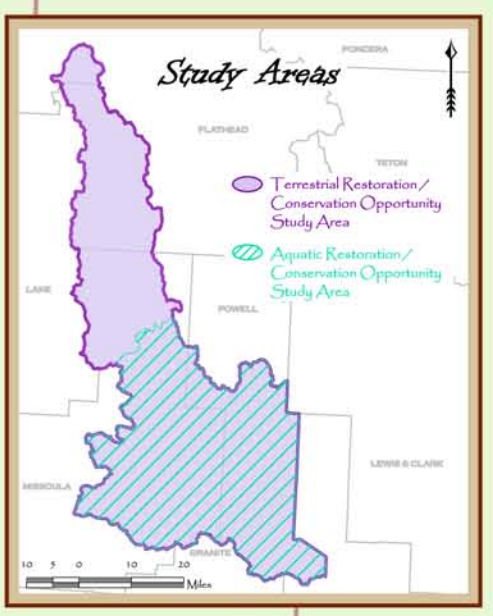


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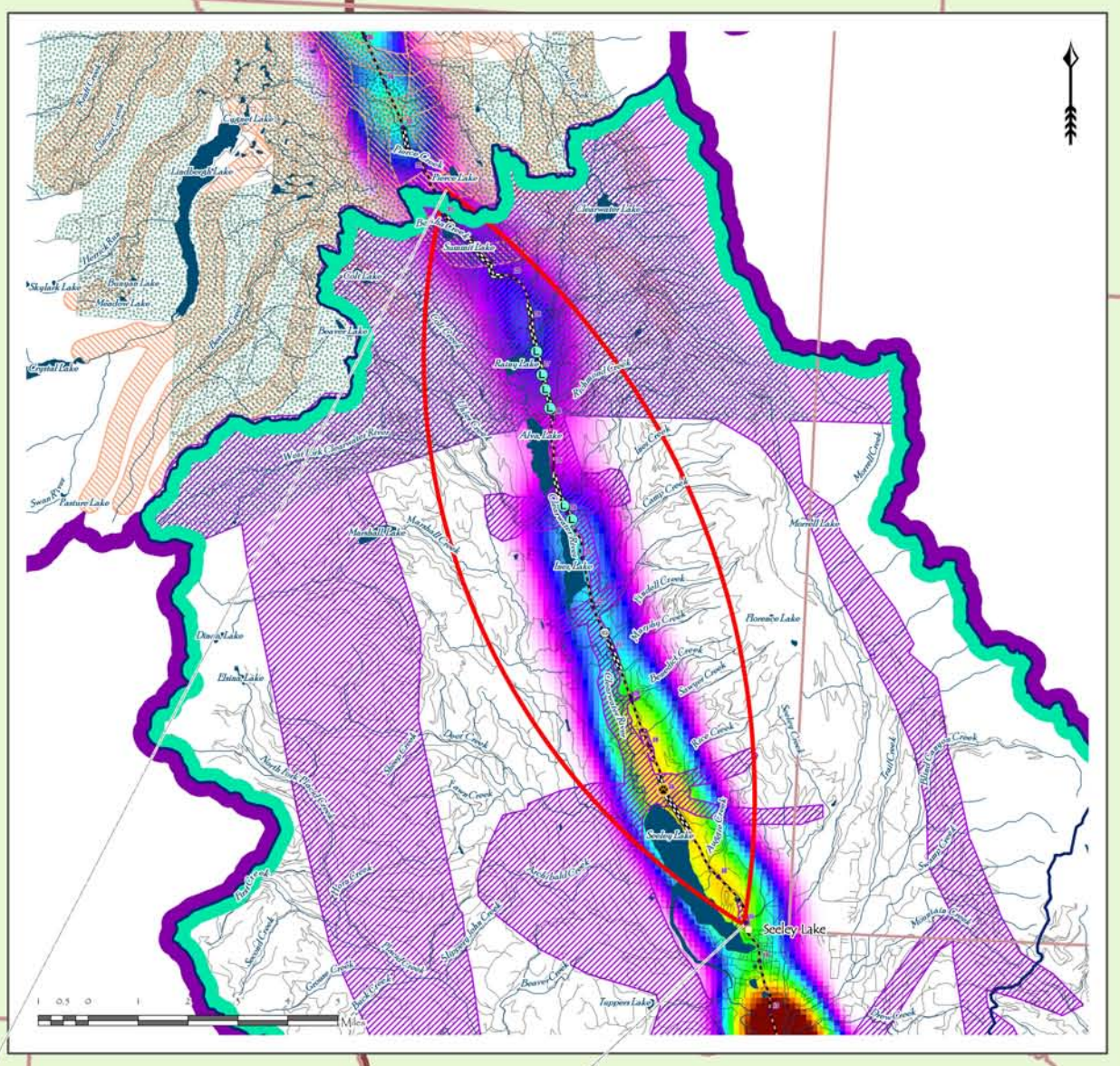
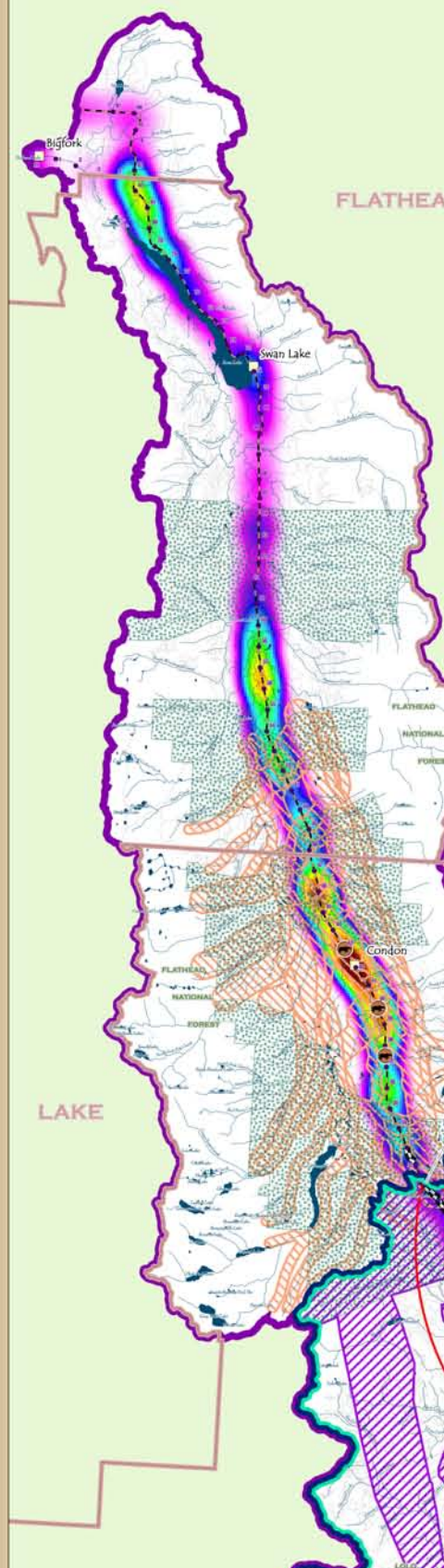
Figure 4.

ITEEM:

Integrated Transportation and Ecological Enhancement for Montana

Linkage Map





Legend

- Towns
- Mile Markers
- Grizzly Fatalities 2003 - 2008
- Documented Winter Lynx Crossings 2005-2006 (NWC)
- Documented Winter Wolf Crossing 2005 (NWC)
- Other Roads
- MT 83 / MT 200 / MT 141
- Streams
- Winter Track Survey Locations 2005-2006 (NWC)
- Aquatic Restoration / Conservation Opportunity Study Area
- Terrestrial Restoration / Conservation Opportunity Study Area
- Highway Project Area
- Clearwater Watershed
- MDT Administrative Districts
- County Boundary
- Wildlife Movement Areas (SEC 2004*)
- Wildlife Linkage Areas (CRC 2006*)
- Grizzly Linkage Areas (USFS 1994)
- Highway 200 Wildlife Crossings (Clough 2008)

Road-kill Density (all species) (American Wildlands 2008)

Higher Density ... Lower Density

(Road-kill density provided by American Wildlands for illustration purposes only - data are preliminary.)

*Refer to landscape assessment document for compiled data origins.

GLACIER
FLATHEAD
LAKE
POWELL
LEWIS & CLARK
MISSOULA
GRANITE
MDT MISSOULA DISTRICT (1)
MDT GREAT FALLS DISTRICT (3)

10 5 0 10 20 30 Miles

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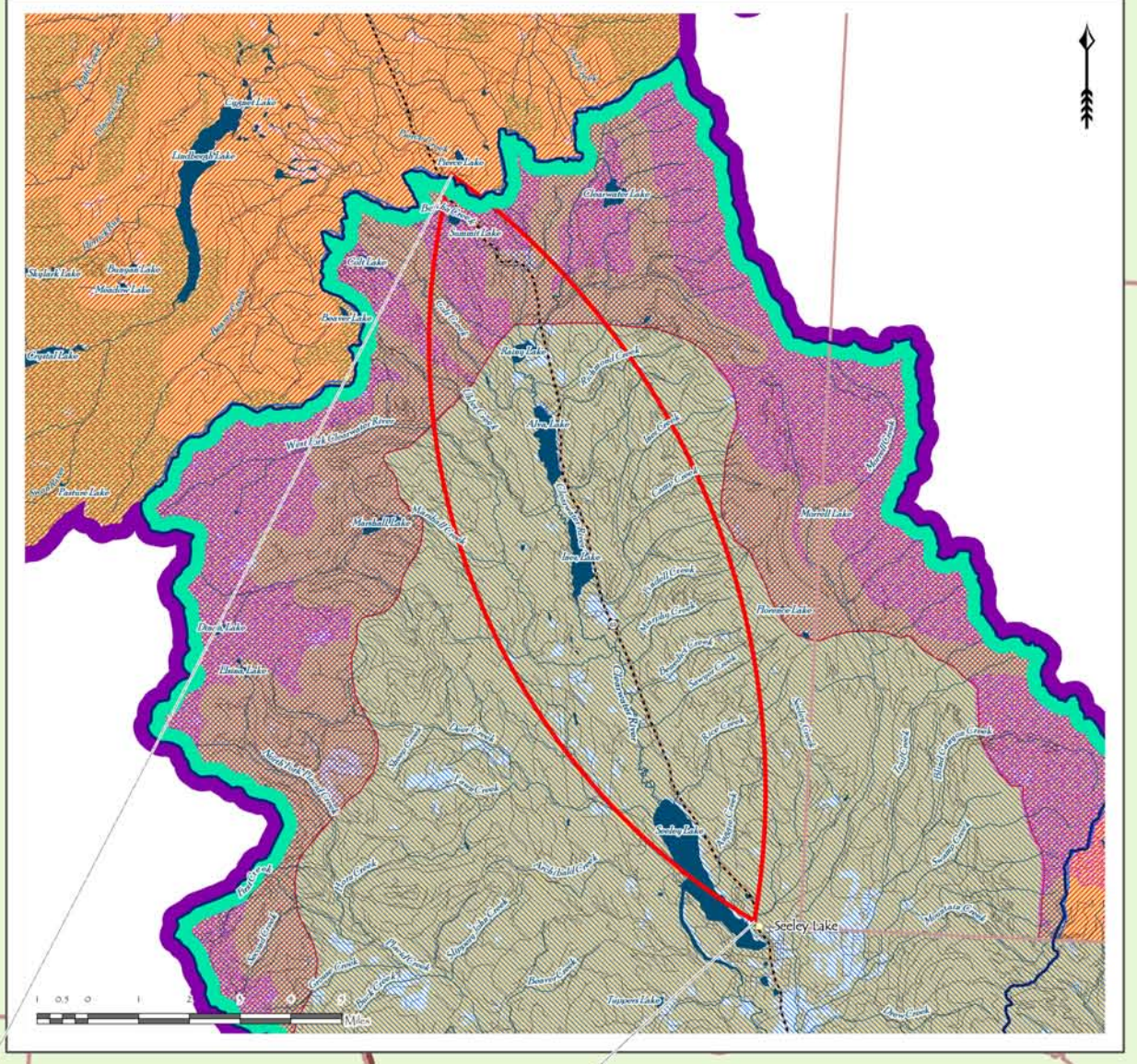
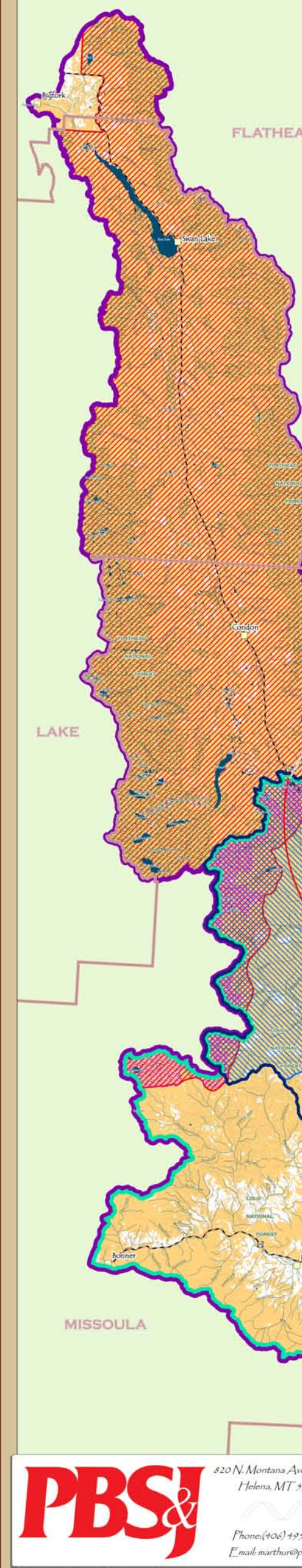
Figure 5.

ITEEM:

Integrated Transportation and Ecological Enhancement for Montana

Grizzly Habitat Map





GLACIER

FLATHEAD

LAKE

POWELL

LEWIS & CLARK

MDT Missoula District (1)

MDT Great Falls District (3)

MISSOULA

GRANITE

Legend

- Towns
- Other Roads
- MT 83 / MT 200 / MT 141
- Streams
- Aquatic Restoration / Conservation Opportunity Study Area
- Terrestrial Restoration / Conservation Opportunity Study Area
- Highway Project Area
- Clearwater Watershed
- MDT Administrative Districts
- County Boundary
- Lolo National Forest Grizzly Bear Core Area (USFS approx. 1990's)
- Flathead National Forest Potential Core Areas (USFS 2007)
- Grizzly Bear Occupied Area (CRC 2006)
- Grizzly Bear Recovery Area (USFWS 2002)
- Grizzly Bear Distribution (USFWS 2002)

10 5 0 10 20 30 Miles

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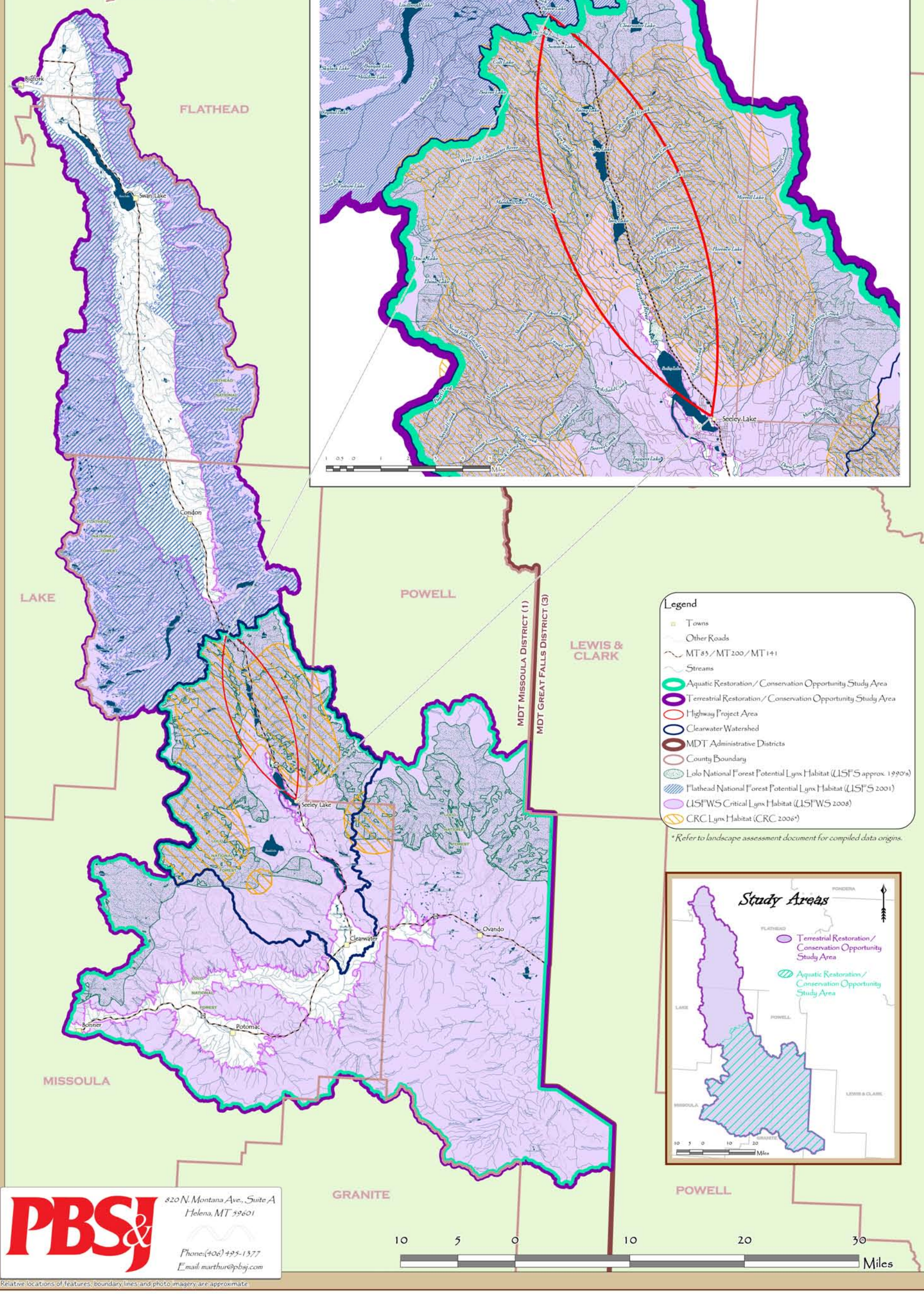
Figure 6.

ITEEM:

Integrated Transportation and Ecological Enhancement for Montana

Lynx Habitat



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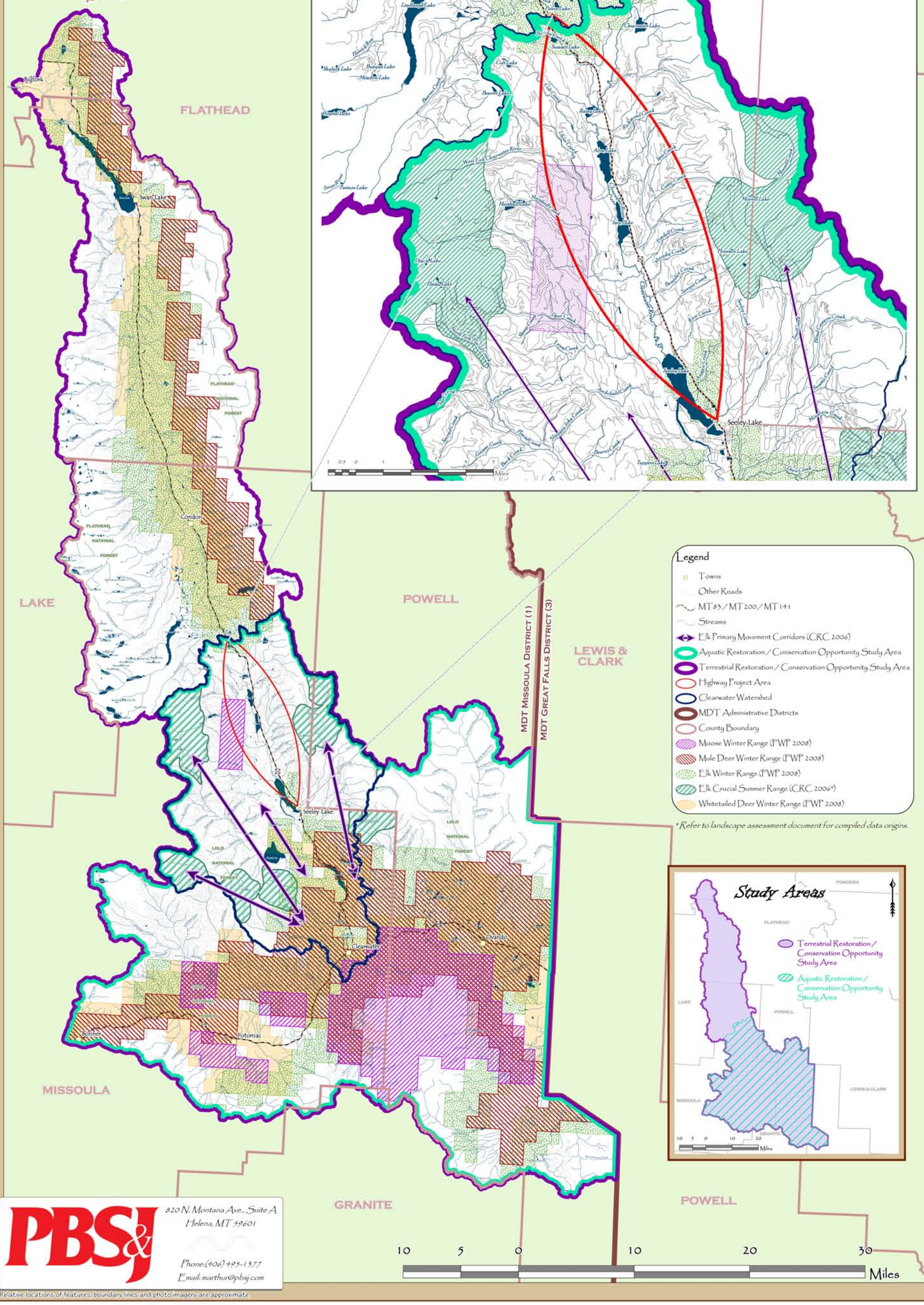
Relative locations of features, boundary lines and photo imagery are approximate

Figure 7.

ITEEM:

Integrated Transportation and Ecological Enhancement for Montana

Big Game Habitat



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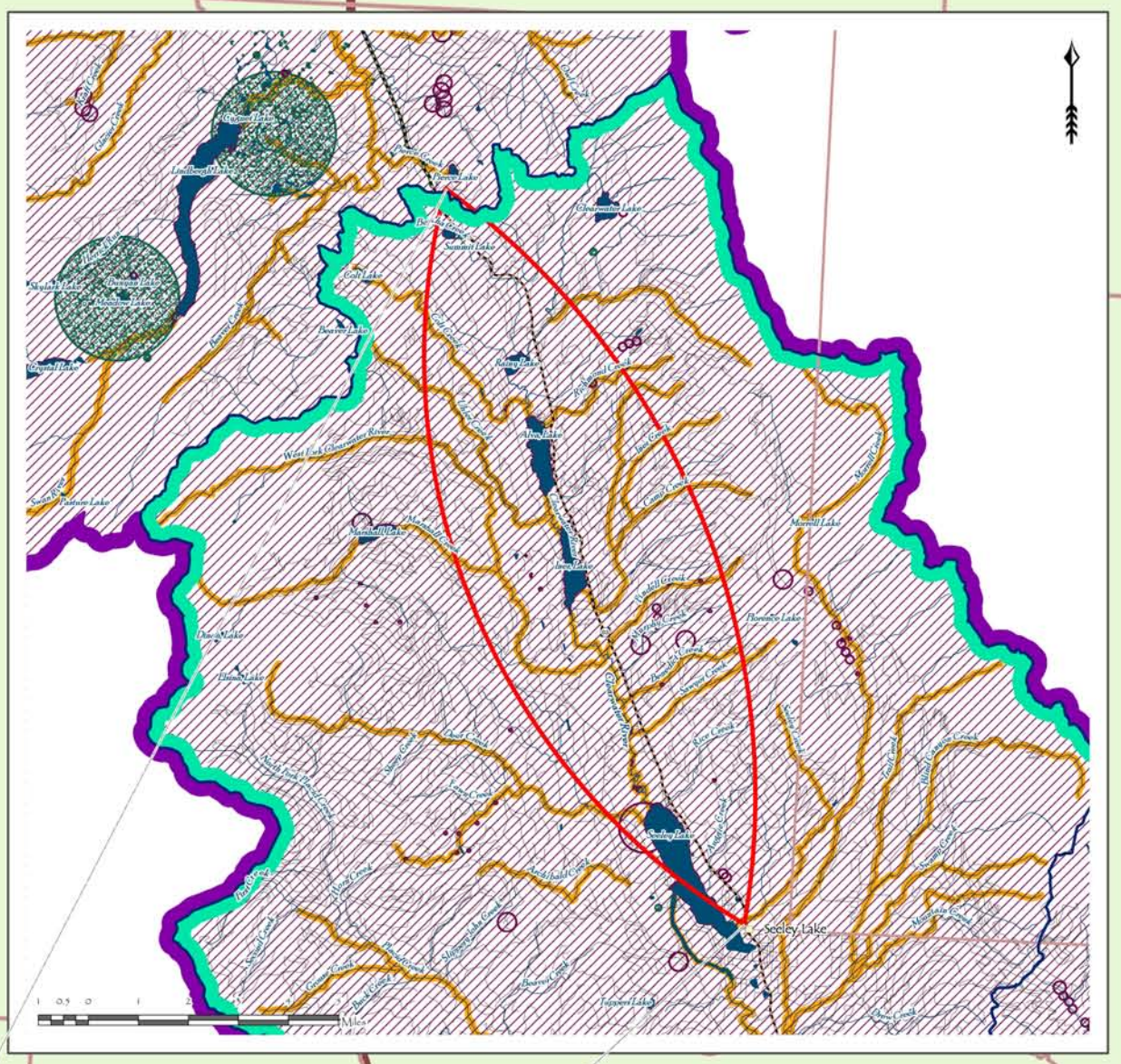
Relative locations of features, boundary lines and photo imagery are approximate

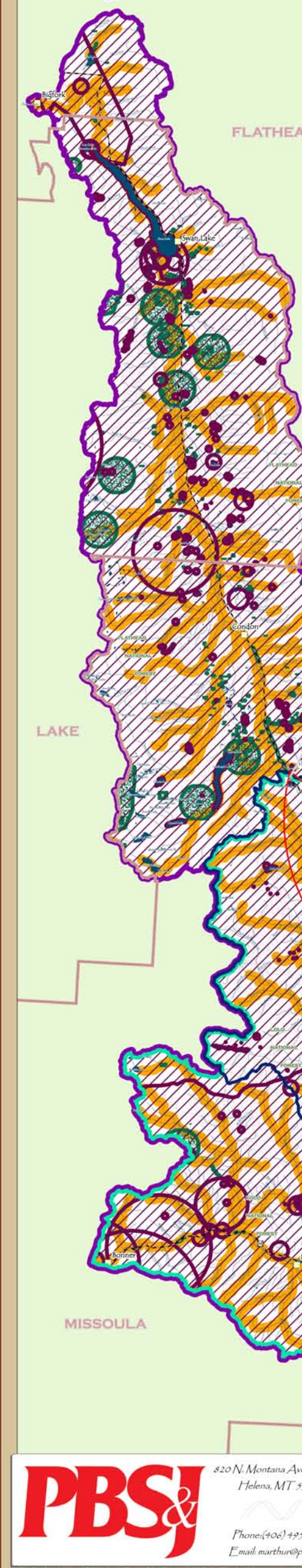
Figure 8.

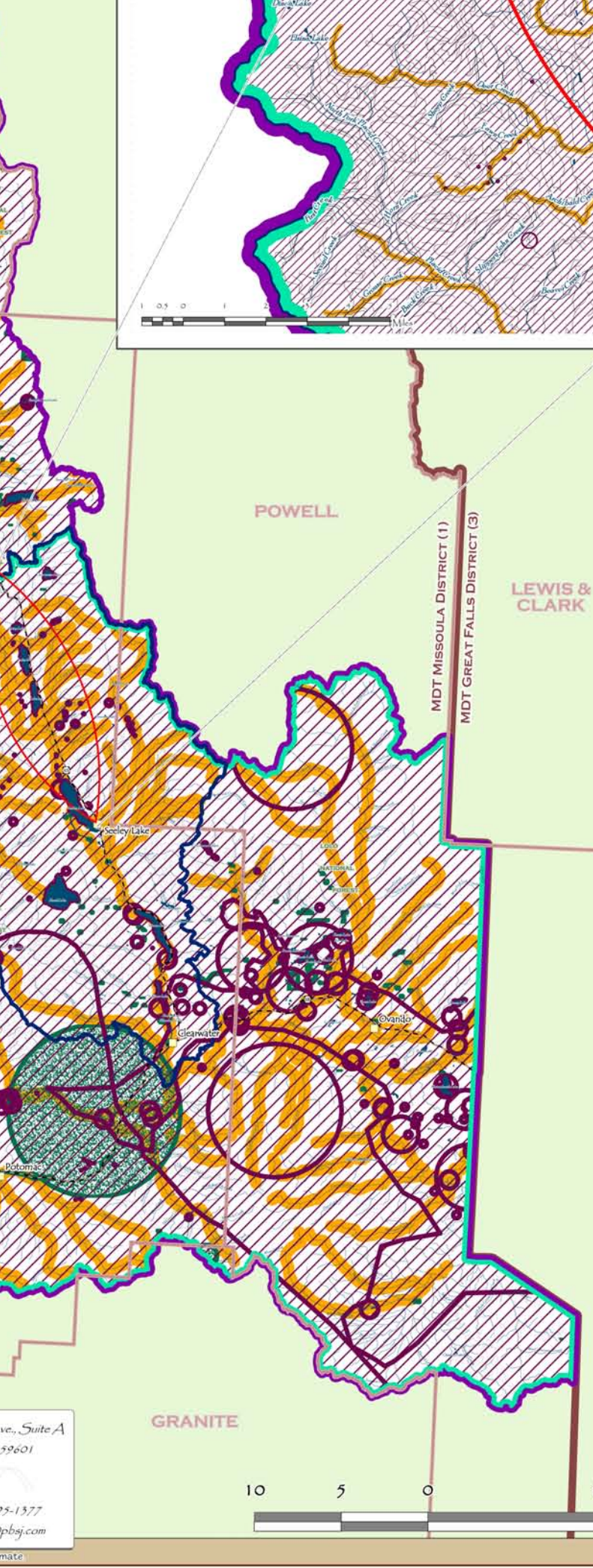
ITEEM:

Integrated Transportation and Ecological Enhancement for Montana

Species of Concern







Legend

- Towns
- Other Roads
- MT 83 / MT 200 / MT 141
- Streams
- Aquatic Restoration / Conservation Opportunity Study Area
- Terrestrial Restoration / Conservation Opportunity Study Area
- Highway Project Area
- Clearwater Watershed
- MDT Administrative Districts
- County Boundary
- Fish Species of Concern (MNHP 2008)
- Plant and Fungus Species of Concern (MNHP 2008)
- Animal Species of Concern (MNHP 2008)

10 5 0 10 20 30 Miles

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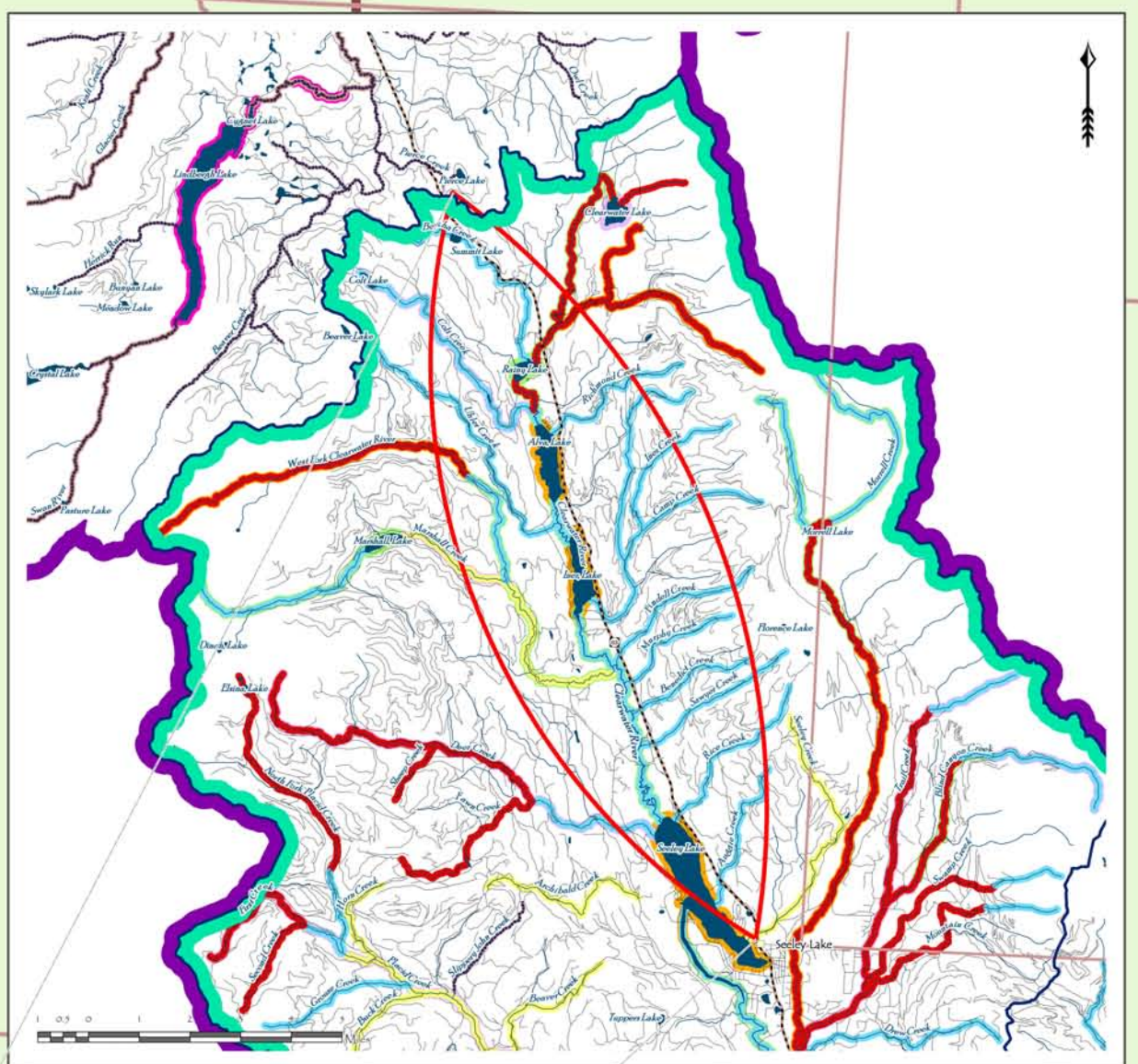
Relative locations of features, boundary lines and photo imagery are approximate

Figure 9.

ITEEM:

Integrated Transportation and Ecological Enhancement for Montana

BT/WSC Habitat Map



Legend

- Towns
- Other Roads
- MT 83 / MT 200 / MT 141
- Streams
- Presence of Westslope Cutthroat Trout (FWP 2005)
- Presence of Bull Trout (FWP 2005)
- Bull Trout Critical Habitat (Streams) (FWP 2005)

Westslope Cutthroat Trout Streams (Knotek 2008)

- Abundant
- Common
- Rare

Bull Trout Streams (Knotek 2008)

- Abundant
- Common
- Rare
- Aquatic Restoration / Conservation Opportunity Study Area
- Terrestrial Restoration / Conservation Opportunity Study Area
- Highway Project Area
- Clearwater Watershed
- MDT Administrative Districts
- County Boundary
- Bull Trout Critical Habitat (Lakes) (FWP 2005)

Bull Trout Lakes (Knotek 2008)

- Abundant
- Common
- Rare

Study Areas

10 5 0 10 20 30 Miles

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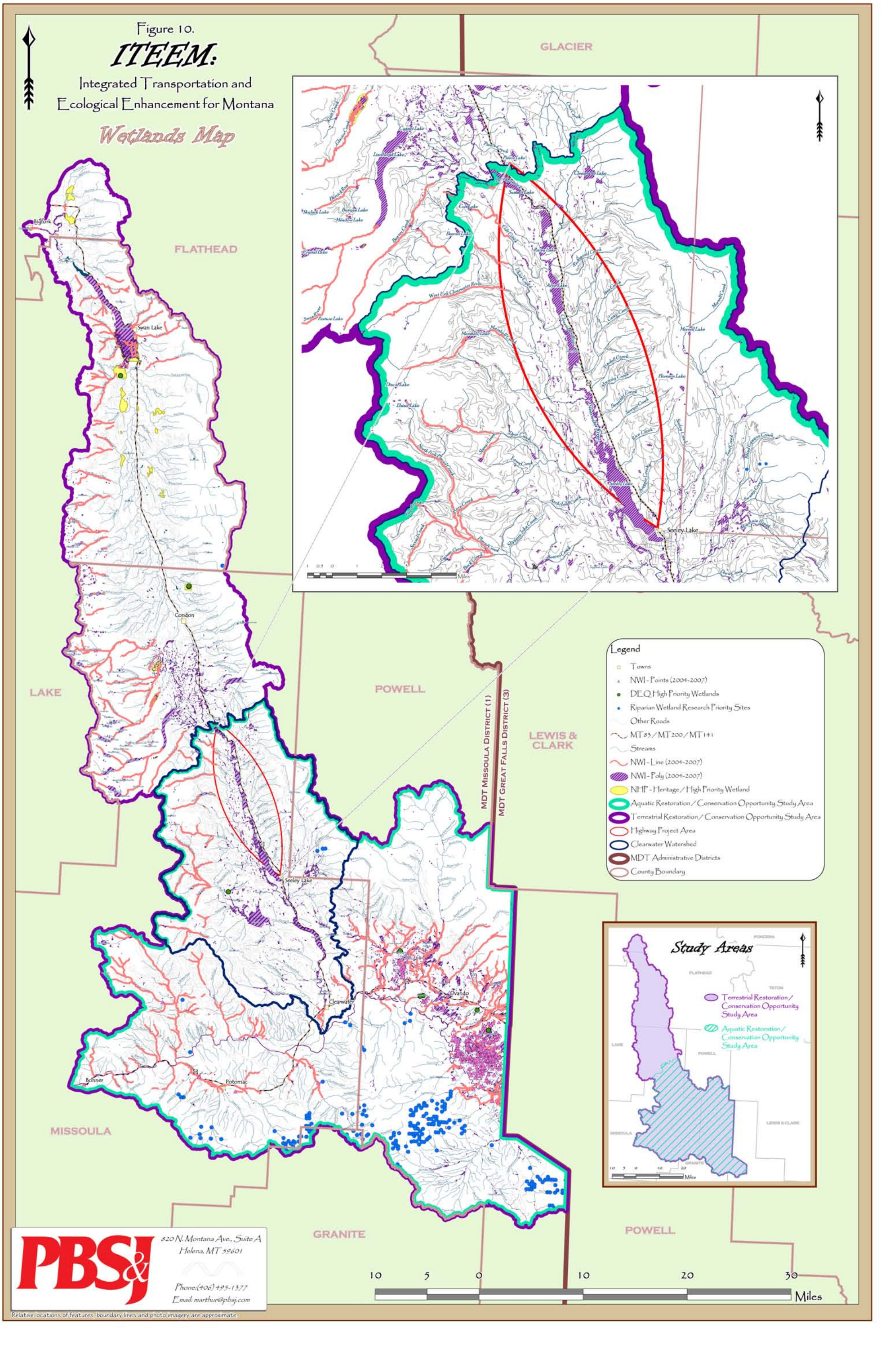
Relative locations of features, boundary lines and photo imagery are approximate

Figure 10.

ITEEM:

Integrated Transportation and Ecological Enhancement for Montana

Wetlands Map



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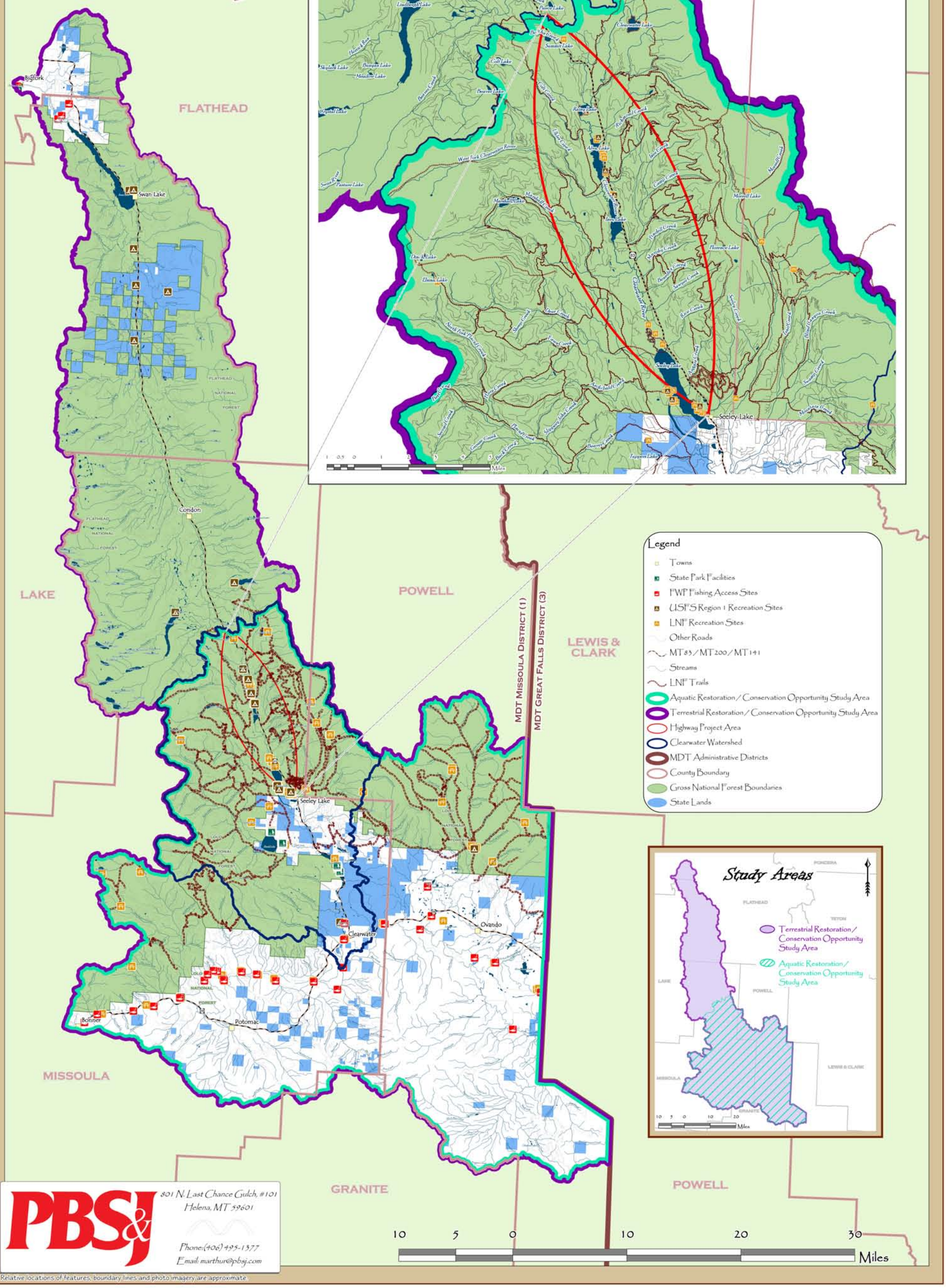
Relative locations of features, boundary lines and photo imagery are approximate

Figure 11.

ITEEM:

Integrated Transportation and Ecological Enhancement for Montana

Recreation Map



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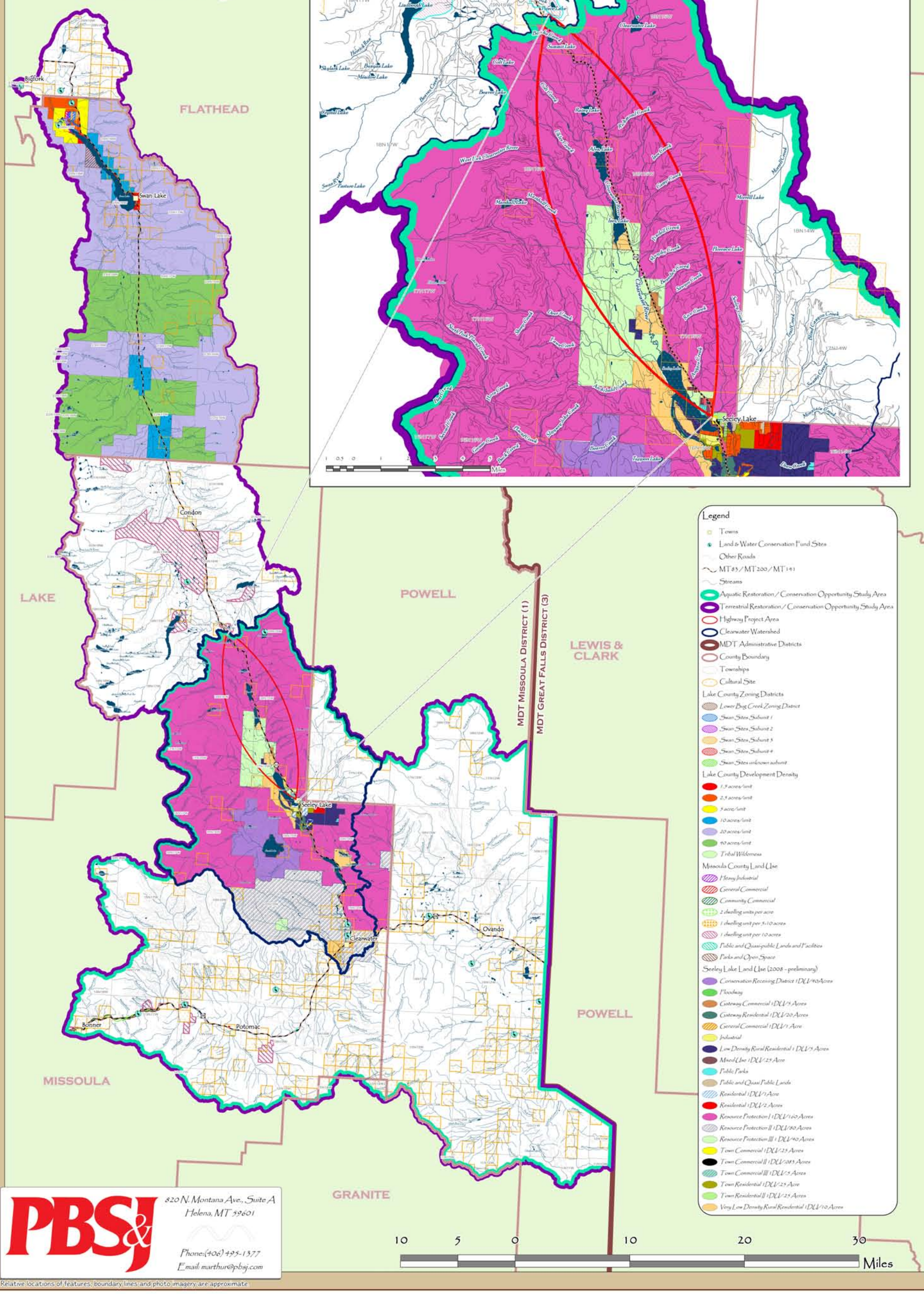
Relative locations of features, boundary lines and photo imagery are approximate

Figure 12.

ITEEM:

Integrated Transportation and Ecological Enhancement for Montana

Land Use Map



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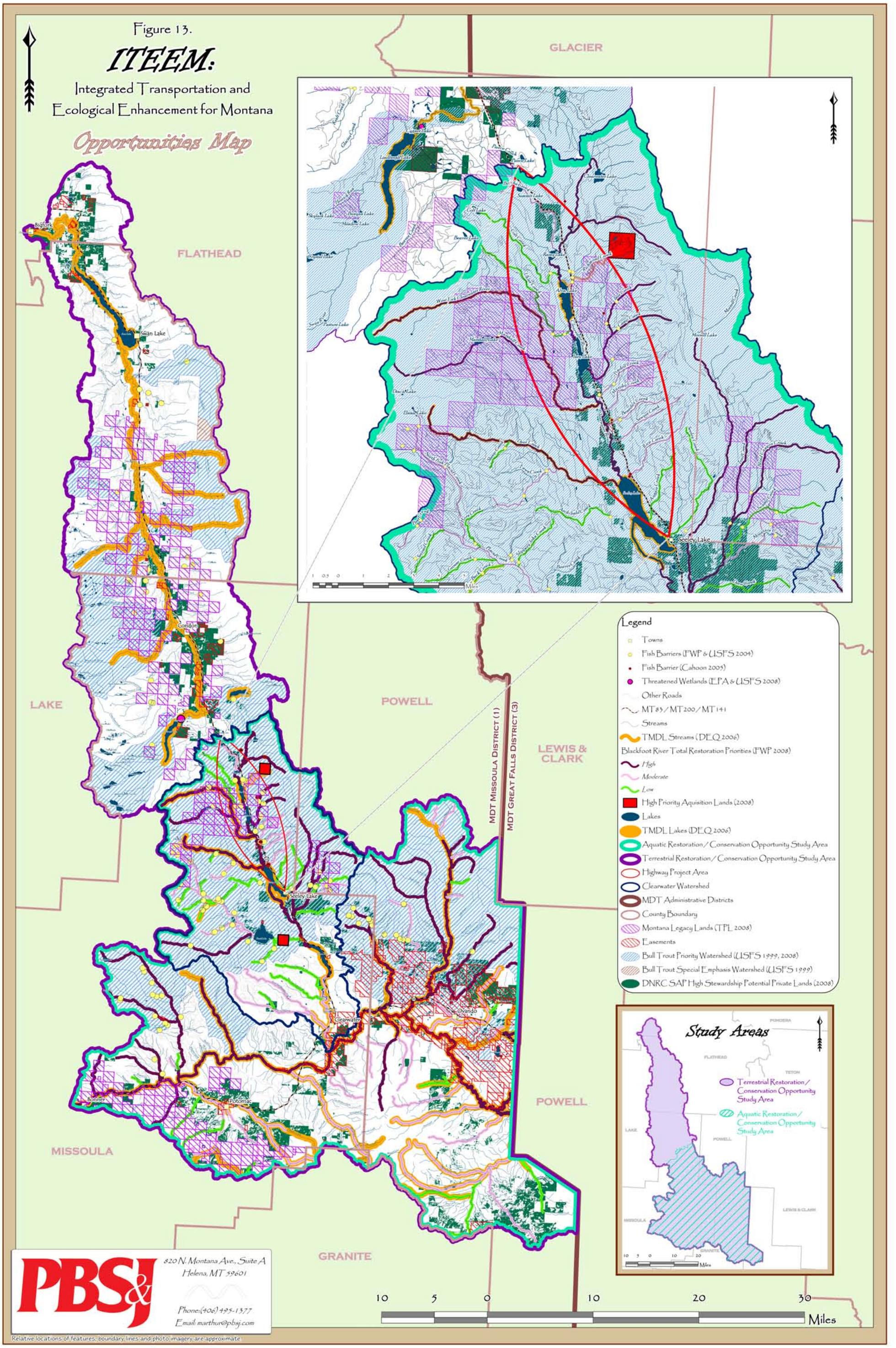
Relative locations of features, boundary lines and photo imagery are approximate

Figure 13.

ITEEM:

Integrated Transportation and Ecological Enhancement for Montana

Opportunities Map



Legend

- Towns
- Fish Barriers (FWP & USFS 2004)
- Fish Barrier (Cahoon 2005)
- Threatened Wetlands (EPA & USFS 2008)
- Other Roads
- MT 83 / MT 200 / MT 141
- Streams
- TMDL Streams (DEQ 2006)

Blackfoot River Total Restoration Priorities (FWP 2008)

- *High*
- *Moderate*
- *Low*

- High Priority Aquisition Lands (2008)
- Lakes
- TMDL Lakes (DEQ 2006)
- Aquatic Restoration / Conservation Opportunity Study Area
- Terrestrial Restoration / Conservation Opportunity Study Area
- Highway Project Area
- Clearwater Watershed
- MDT Administrative Districts
- County Boundary
- Montana Legacy Lands (TPL 2008)
- Easements
- Bull Trout Priority Watershed (USFS 1999, 2008)
- Bull Trout Special Emphasis Watershed (USFS 1999)
- DNRC SAF High Stewardship Potential Private Lands (2008)

Study Areas

- Terrestrial Restoration / Conservation Opportunity Study Area
- Aquatic Restoration / Conservation Opportunity Study Area

10 5 0 10 20 30 Miles

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Relative locations of features, boundary lines and photo imagery are approximate

Appendix B

TABLE 2-1: *ITEEM SCREENED DATA LIST AND COLOR-CODED WORKSHOP MAP GROUPS - OCTOBER 2008*

TABLE 2-2: *ITEEM DATA NOT INCLUDED ON WORKSHOP MAP EXHIBITS - OCTOBER 2008*

Table 2-1: *ITEEM Screened Data List and Color-Coded Workshop Map Groups - October 2008*

Source	Name	Acquired From	Map Group and Data Type
Natural Resources Information System	Montana Towns 2003	Downloaded from NRIS website	General map group; Shapefile
Natural Resources Information System	County Boundaries (GCDB) 2003	Downloaded from NRIS website	General map group; Shapefile
Natural Resources Information System	Township/Range 1996	Downloaded from NRIS website	General map group; Shapefile
PBS&J	ITEEM Highway 83 Project and Terrestrial/Aquatic Opportunity Study Area Boundaries 2008	Created by PBS&J	General map group; Shapefile
Flathead National Forest	Basic Roads Data	Kathy Ake, FNF	General map group; Geodatabase
Natural Resources Information System	NHD data (Streams, lakes) 2000	Downloaded from NRIS website	General map group; Shapefile
Natural Resources Information System	USGS DRGs	Downloaded from NRIS website	General map group; Tiffs/sids
Natural Resources Information System	2005 NAIP Photos	Downloaded from NRIS website	General map group; Tiffs/sids
Natural Resources Information System	MT Cadastral Database 2007-2008	Downloaded from NRIS website	General map group; Shapefile
Natural Resources Information System	MT Public Ownership 2007	Downloaded from NRIS website	General map group; Shapefile
Natural Resources Information System	National Forests and Ranger Districts 2002	Downloaded from NRIS website	General map group; Shapefile
Lolo National Forest	LNF Roads 2008	Downloaded from LNF website	General map group; Geodatabase
Montana Department of Transportation	On System Reference Posts (mile markers) - GPSED 2005	Provided by MDT upon request	General map group; Shapefile
Natural Resources Information System	MT Roads 2003	Downloaded from NRIS website	General map group; Geodatabase
Montana Department of Transportation	MDT Admin Districts and Mileposts	Provided by MDT upon request	General map group; Shapefile
Natural Resources Information System	Cultural Sites (sections)	Downloaded from NRIS website	Planning map group; PDF
Lake County	Zoning Districts	Downloaded from County website	Planning map group; Shapefile
Lake County	Development Densities	Downloaded from County website	Planning map group; Shapefile
Missoula County	Landuse	Casey Wilson, Missoula County	Planning map group; Shapefile
Missoula County	Draft Seeley Lake Regional Plan Landuse Designations 2008	Nancy Heil, Missoula County Rural Initiatives Office	Planning map group; Shapefile
Natural Resources Information System	Land and Water Conservation Fund Sites 2007	Downloaded from NRIS website	Planning map group; Shapefile
American Wildlands	Detailed Linkage Area Maps: Seeley-Clearwater, Swan Valley, Blackfoot-Clearwater, Gold Creek, Blackfoot Canyon **NOT AVAILABLE FOR WORKSHOP**	Requested from Sarah Olemb/Elizabeth Williamson (AW)	Linkage map group (not on current map); Data unavailable as of map production date; Type is unknown
Clearwater Resource Council	Wildlife Linkage Areas 2006	Jon Haufler, CRC - 2006 Clearwater Valley Landscape Assessment	Linkage map group; Shapefile
Rich Clough, Cottonwood Consulting; University of Montana; US Fish & Wildlife Service	Highway 200: Ovando Wildlife Crossings 2008	Pat Basting, MDT (PDF); Carly Walker, MCRIO (GIS)	Linkage map group; Shapefile.
Montana Department of Transportation	Highway 83 Grizzly Bear Mortality Locations 2003-2008	Pat Basting, MDT	Linkage map group; Tabular data.
Northwest Connections	Jan-March (monthly) 2005 and 2006 Clearwater Drainage Highway 83 Winter Track Survey Segments and Documented Canada Lynx and Wolf Highway Crossing Locations	Tom Parker, Melanie Parker, Adam Lieberg - NWC	Linkage map group; WORD and PDF files
Trust for Public Land	Upper Swan Valley Wildlife Movement Areas 2004	Robert Rassmussen, TPL - 2004 Upper Swan Valley Landscape Assessment	Linkage map group; Shapefiles / Grids
Flathead National Forest	Grizzly Bear Linkage Zones in Seeley/Swan Valleys 1994	Kathy Ake, FNF	Linkage map group; Geodatabase
American Wildlands	Preliminary Analysis Results for the Western MT Roadkill Density Hotspot Analysis 2008	Elizabeth Williamson (AW)	Linkage map group; Raster file
Flathead National Forest	FNF Potential Grizzly Bear Core Areas (>500m from roads, trails, etc) 2007	Kathy Ake, FNF	Grizzly habitat map group
Lolo National Forest	LNF Grizzly Bear Core Areas (undated; approximately mid-late 1990's)	John Anderson, LNF	Grizzly habitat map group; Core areas only (still need for FNF)
Clearwater Resource Council	Grizzly Bear Occupied Areas 2006	Jon Haufler, CRC - 2006 Clearwater Valley Landscape Assessment	Grizzly habitat map group; Shapefile
US Fish & Wildlife Service	Grizzly Bear Recovery Zone 2002	Provided by USFWS upon request	Grizzly habitat map group; Shapefile
US Fish & Wildlife Service	Grizzly Bear Distribution 2002	Provided by USFWS upon request	Grizzly habitat map group; Grid
Clearwater Resource Council	Canada Lynx Habitat 2006	Jon Haufler, CRC - 2006 Clearwater Valley Landscape Assessment	Lynx habitat map group; Shapefile
Flathead National Forest	Potential Canada Lynx Habitat 2001	Kathy Ake, FNF	Lynx habitat map group; Geodatabase
Lolo National Forest	Potential Canada Lynx Habitat (undated; approximately mid-late 1990's)	John Anderson, LNF	Lynx habitat map group
US Fish & Wildlife Service	Critical Canada Lynx Habitat 2008	Provided by USFWS upon request	Lynx habitat map group
Clearwater Resource Council	Elk Crucial Summer Range and Movement 2006	Jon Haufler, CRC - 2006 Clearwater Valley Landscape Assessment	Big game habitat map group; Shapefile
Montana Fish, Wildlife & Parks	Elk Winter Range 2008	Downloaded from FWP website	Big game habitat map group; Shapefile
Montana Fish, Wildlife & Parks	Moose Winter Range 2008	Downloaded from FWP website	Big game habitat map group; Shapefile
Montana Fish, Wildlife & Parks	Mule Deer Winter Range 2008	Downloaded from FWP website	Big game habitat map group; Shapefile
Montana Fish, Wildlife & Parks	White-tailed Deer Winter Range 2008	Downloaded from FWP website	Big game habitat map group; Shapefile
Montana Department of Natural Resources & Conservation	2008 MDNRC Restoration/Coordination Group Maps - Stewardship Assessment Potential High-Ranked Private Lands (included on map); USFS Restoration and Protection Priority Areas (not included on map)	Robert Ethridge, MDNRC	Opportunities map group; USFS data not included; were not available as of map production date; Type unknown

Source	Name	Acquired From	Map Group and Data Type
Montana State University	Fish Passage at Road Crossings in Montana Watersheds Providing Bull and Cutthroat Trout Habitat - Feb 2005 Montana State University Report. Includes:Map and List of Culverts with Fish Passage Concerns in the Clearwater Drainage.	Joel Cahoon, MSU	Opportunities map group; Hardcopy spreadsheets - points converted to GIS
Montana Fish, Wildlife & Parks	Big Blackfoot Fisheries and Restoration Investigations for 2006 and 2007 - Restoration Priorities Map (High, Moderate, Low Stream Restoration Priorities)	Ladd Knotek, FWP (hardcopy); Ron Pierce, FWP (GIS)	Opportunities map group;
Montana Fish, Wildlife & Parks	Culverts - Fish Passage Data - from 2004 Northern Regional Aquatic Passage Assessment (all of Swan Drainage, part of Clearwater Drainage, part of Blackfoot Drainage)	Provided by FWP	Opportunities map group; Shapefile - same as LNF fish passage data listed below (Hendrickson)
Trust for Public Land	Montana Legacy Project Lands Map 2008	Robert Rassmussen, TPL	Opportunities map group; Shapefile
Flathead National Forest	Bull Trout Priority Watersheds 1999	Kathy Ake, FNF	Opportunities map group; Shapefile
Lolo National Forest	Culverts - Fish Passage Data 2004	Shane Hendrickson, LNF	Opportunities map group; Shapefile - same as 2004 passage assessment listed above
Lolo National Forest	Bull Trout Priority Watersheds (LNF) 1998 (Baseline) & 2008	Shane Hendrickson & downloaded from LNF website	Opportunities map group; Geodatabase
US Environmental Protection Agency	Threatened Wetland (Fen) Location 2008	Steve Potts, USEPA	Opportunities map group; Email text
Clearwater Resource Council and Northwest Connections	High-Priority Acquisition Lands (privately owned) 2008	Jon Haufler-CRC; Tom Parker, Melanie Parker, Adam Lieberg-NWC	Opportunities map group; Hardcopy map
Natural Resources Information System	MT Lands with Conservation Easements 2007	Downloaded from NRIS website	Opportunites map group; Shapefile
Montana Department of Environmental Quality	2006 Surface Water Quality Assessment (Streams & Lakes) - TMDL	Provided by MDEQ	Opportunity map group; Shapefile
Montana Fish, Wildlife & Parks	Westslope Cutthroat Trout Streams in the Clearwater River Drainage with Rare, Common and Abundant Populations 2008	Ladd Knotek, FWP	BT/WSC habitat map group; converted to GIS
Montana Fish, Wildlife & Parks	Bull Trout Streams and Lakes in the Clearwater River Drainage with Rare, Common and Abundant Populations 2008	Ladd Knotek, FWP	BT/WSC habitat map group; converted to GIS
Montana Fish, Wildlife & Parks	Bull Trout Critical Habitat (Lakes) 2005	Downloaded from FWP website	BT/WSC habitat map group; Shapefile
Montana Fish, Wildlife & Parks	Bull Trout Critical Habitat (Streams) 2005	Downloaded from FWP website	BT/WSC habitat map group; Shapefile
Montana Fish, Wildlife & Parks	Swan & Blackfoot Drainage Bull Trout/West-slope Cutthroat Trout Distribution (Lakes 2005)	Downloaded from FWP website	BT/WSC habitat map group; BT/WSC trout distribution in Swan watershed only; Shapefile
Montana Fish, Wildlife & Parks	Swan & Blackfoot Drainage Bull Trout/West-slope Cutthroat Trout Distribution (Streams 2005)	Downloaded from FWP website	BT/WSC habitat map group; BT/WSC trout distribution in Swan watershed only; Shapefile
Montana Natural Heritage Program	Fish Species of Concern 2008	Provided by MNHP upon request	SOC map group; Shapefile
Montana Natural Heritage Program	Plant / Fungus Species of Concern 2008	Provided by MNHP upon request	SOC map group; Shapefile
Montana Natural Heritage Program	Animal Species of Concern 2008	Provided by MNHP upon request	SOC map group; Shapefile
Montana Fish, Wildlife & Parks	MT FWP Fishing Access Sites 2007	Downloaded from FWP website	Recreation sites map group; Shapefile
Montana Fish, Wildlife & Parks	MT FWP Fishing Access Sites (points) 2007	Downloaded from FWP website	Recreation sites map group; Shapefile / Geodatabase
Montana Fish, Wildlife & Parks	MT State Parks Facilities (Lines) 2008	Downloaded from FWP website	Recreation sites map group; Shapefile
Montana Fish, Wildlife & Parks	MT State Parks Facilities (Poly) 2007	Downloaded from FWP website	Recreation sites map group; Shapefile
Montana Fish, Wildlife & Parks	MT State Parks Facilities (Points) 2007	Downloaded from FWP website	Recreation sites map group; Shapefile
Montana Fish, Wildlife & Parks	FWP State Parks 2007	Downloaded from FWP website	Recreation sites map group; Shapefile
Natural Resources Information System	Gross USFS Boundaries 2002	Downloaded from NRIS website	Recreation sites map group;
Natural Resources Information System	State Lands 2007	Downloaded from NRIS website	Recreation sites map group;
US Forest Service	Recreation Sites for Region 1 (points) 2003	Downloaded from USFS website	Recreation sites map group; Shapefile
Lolo National Forest 2008	LNF Trails	Downloaded from LNF website	Recreation sites map group; Geodatabase
Lolo National Forest	LNF Recreation Sites (points, lines & polygons) 2003	Downloaded from LNF website	Recreation sites map group; Geodatabase
Natural Resources Information System	MDEQ High Priority Wetlands (undated)	Downloaded from NRIS website	Wetlands map group; Shapefile
Natural Resources Information System	MNHP Heritage / High Priority Wetlands (undated)	Downloaded from NRIS website	Wetlands map group; Shapefile
Natural Resources Information System	National Wetlands Inventory (points, lines & polygons) 2004-2007	Downloaded from NRIS website	Wetlands map group; Shapefile
Natural Resources Information System	Riparian Wetland Research Priority Sites (undated)	Downloaded from NRIS website	Wetlands map group; Shapefile

Table 2-2: *ITEEM Data Not included On Workshop Map Exhibits - October 2008*

Source	Name	Acquired From	Type
Administrative			
Montana Fish, Wildlife & Parks	Parks Administrative Regions	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	Wildlife Administrative Regions	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	Wildlife Management Areas	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	Wildlife Management Areas (points)	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	Fisheries Administrative Regions	Downloaded from FWP website	Shapefile
Natural Resources Information System	BLM Field Office Regions	Downloaded from NRIS website	Shapefile
Natural Resources Information System	County Boundaries (Tiger)	Downloaded from NRIS website	Shapefile
Natural Resources Information System	MT Legislative Districts 2004-2014	Downloaded from NRIS website	Shapefile
Natural Resources Information System	7.5 minute Quadrangles - MT	Downloaded from NRIS website	Shapefile
Natural Resources Information System	National Forests and Ranger Districts	Downloaded from NRIS website	Shapefile
Natural Resources Information System	MT State Line	Downloaded from NRIS website	Shapefile
Natural Resources Information System	MT Water Resource Division Districts	Downloaded from NRIS website	Shapefile
Natural Resources Information System	1 degree lat/long grid - MT	Downloaded from NRIS website	Shapefile
Natural Resources Information System	MT Conservation Districts	Downloaded from NRIS website	Shapefile
Natural Resources Information System	PLSS	Downloaded from NRIS website	Shapefile
US Forest Service	FS Administrative Boundary - Region 1	Downloaded from USFS website	Shapefile
Climate			
Natural Resources Information System	NOAA Climate Stations	Downloaded from NRIS website	Shapefile
Natural Resources Information System	MT Average Annual Precipitation, 1961-1990	Downloaded from NRIS website	Shapefile
Natural Resources Information System	MT Weather Stations	Downloaded from NRIS website	Shapefile
Natural Resources Information System	Windspeed Distribution of MT	Downloaded from NRIS website	Grid
Natural Resources Information System	SNOTEL Sites in MT	Downloaded from NRIS website	Shapefile
Natural Resources Information System	MT Average Daily Minimum Temperature, 1971-2000	Downloaded from NRIS website	Shapefile
US Forest Service	Air Impact Zones for MT & ID	Downloaded from USFS website	Shapefile
US Forest Service	Airshed Zones for MT & ID	Downloaded from USFS website	Shapefile
US Forest Service	Climate Zones - Region 1	Downloaded from USFS website	Shapefile
Cultural / Historical			
Natural Resources Information System	Campsites for Lewis & Clark Expedition	Downloaded from NRIS website	Shapefile
Confederated Salish & Kootenai Tribes	CSKT tribal cultural sites (unavailable)	Discussion with M. Pablo, CSKT	Unavailable
Natural Resources Information System	Route of the Lewis & Clark Expedition	Downloaded from NRIS website	Shapefile
Energy			
Natural Resources Information System	Potential Hydropower Sites in MT	Downloaded from NRIS website	Shapefile
Natural Resources Information System	Wind Energy Test Sites in the Pacific NW	Downloaded from NRIS website	Shapefile
Natural Resources Information System	MT Refined Products and Crude Oil Pipelines	Downloaded from NRIS website	Shapefile
Natural Resources Information System	Wind Power Distribution of MT	Downloaded from NRIS website	Grid
US Forest Service	Oil & Gas Potential in Region 1 (NF lands)	Downloaded from USFS website	Shapefile
US Forest Service	Oil & Gas Wells in Regions 1	Downloaded from USFS website	Shapefile
Features			
Natural Resources Information System	Geographic Names Information System	Downloaded from NRIS website	Shapefile
Fire			
Natural Resources Information System	Perimeters of Year 2000 Fires, MT	Downloaded from NRIS website	Shapefile
US Forest Service	Current Fire Severity for N. Idaho & W. Montana (2004)	Downloaded from USFS website	Grid
US Forest Service	Historical Fire Regimes for N. Idaho, W & C Montana	Downloaded from USFS website	Grid
US Forest Service	Fire History Points - Region 1 - 1985-2004	Downloaded from USFS website	Geodatabase
US Forest Service	Fire History Points - Region 1 - 1960-2000	Downloaded from USFS website	Shapefile
US Forest Service	Fire History for Region 1 (1940 - 2001)	Downloaded from USFS website	Shapefile

Source	Name	Acquired From	Type
US Forest Service	Fire History Polygons - Region 1 - 1985-2005	Downloaded from USFS website	Geodatabase
US Forest Service	Fire History Polygons - Region 1 - 1985-2006	Downloaded from USFS website	Shapefile
US Forest Service	Fire History Western Part of Region 1 - 1931-1969 (points)	Downloaded from USFS website	Shapefile
US Forest Service	Fire Regime Condition Classes (various)	Downloaded from USFS website	Geodatabase
US Forest Service	Fire Severity (various)	Downloaded from USFS website	Geodatabase
US Forest Service	Community Zones Threatened by Large Geographic Scale Fire	Downloaded from USFS website	Shapefile/Grid
US Forest Service	Fire Perimeters for year 2000 in Region 1	Downloaded from USFS website	Shapefile
US Forest Service	Northern Rockies Fire Weather Zones - Region 1	Downloaded from USFS website	Shapefile
US Forest Service	Forest Fire Perimeters, 2003 - Northern Regions	Downloaded from USFS website	Shapefile
	Fish / Wildlife		
American Wildlands	Corridors of Life Data	Sarah Olemb/Elizabeth Williamson (AW)	Grid
American Wildlands	Priority Linkage Assessment	Sarah Olemb/Elizabeth Williamson (AW)	Shapefile
American Wildlands	Aquatic Integrity (Western Montana)	Sarah Olemb/Elizabeth Williamson (AW)	Shapefile
Natural Resources Information System	Level III and IV Ecoregions of MT	Downloaded from NRIS website	Shapefile
Montana Department of Transportation	UM report summarizing camera and track study data for Clearwater Jct. N. overpass and underpass along Hwy 83 between RP 4 and 5.	Pat Basting, MDT	Hardcopy
Montana Department of Transportation	BA for MDT Clearwater Jct. N. project	Pat Basting, MDT	Hardcopy
US Forest Service and University of Montana	The Association Between Landscape Features and Transportation Corridors on Movements and Habitat Use Patters of Wolverines, RMRS and UM January 2004	Pat Basting, MDT	Hardcopy
Montana Department of Transportation	Interagency linkage map for Hwy 83 from Seeley to Clearwater Divide	Pat Basting, MDT	Hardcopy - hand-drawn
Western Transportation Institute	Animal-Vehicle Collisions and Habitat Connectivity Along Highway 83 in the Seeley-Swan Valley Feb 2006 Western Transportation Institute report. Includes:Maps with expert-based animal-vehicle collision and habitat linkage zones; maps of low and high frequency white-tailed deer collision zones for southern and northern MT 83; maps of reported WTD carcass clusters for MT 83	Requested GIS data from Marcel Huijser, WTI; GIS data has been lost.	Hard Copy - GIS data unavailable
Montana Department of Transportation	Wildlife-Highway Crossing Mitigation Measures and Associated Costs/Benefits: a Toolbox for Montana Department of Transportation	Downloaded from MDT website	PDF
Montana Fish, Wildlife & Parks	Antelope Overall Distribution and Winter Ranges	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	Bald Eagle Nest Site Buffers	Adam Messer, FWP	Unknown
Montana Fish, Wildlife & Parks	MT Aquatic Focus Areas 2005 - All Tiers	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	MT Aquatic Focus Areas 2005 - Tier 1	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	Black Bear Distribution	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	Blue Grouse Distribution	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	MT Blue and Red Ribbon Streams	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	Coincident Priority Conservation Areas	Downloaded from FWP website	
Montana Fish, Wildlife & Parks	MT Fish Plant Locations	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	Mountain Goat Overall Distribution and Winter Ranges	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	Gray (Hungarian) Partridge Distribution in MT	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	Fish Hatcheries	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	Seeley / Swan Grizzly Bear GPS Data (unspecified)	Contacted Rick Mace, FWP - no response	Unknown
Montana Fish, Wildlife & Parks	Native Range Database	Downloaded from FWP website	dbf (to link to Shapefile)
Montana Fish, Wildlife & Parks	National Wildlife Refuges in MT	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	Pheasant Habitat	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	Ruffed Grouse Distribution in MT	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	Sage Grouse Historic Distribution	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	Sharptail Grouse Distribution in MT	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	Bighorn Sheep Overall Distribution and Winter Ranges	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	Spruce Grouse Distribution in Montana	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	Montana Streams (to link with fish data)	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	MT Terrestrial Focus Areas 2005 - All Tiers	Downloaded from FWP website	Shapefile

Source	Name	Acquired From	Type
Montana Fish, Wildlife & Parks	MT Terrestrial Focus Areas 2005 - Tier 1	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	Wild Turkey Habitat	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	Westslope Cutthroat Trout Conservation Classes	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	MT Gray Wolf Distribution	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	White-tailed Deer Densities and Overall Distribution	Downloaded from FWP website	Shapefile
Montana Natural Heritage Program	Bird Distribution Point Observation Database	Provided by NHP upon request	Shapefile
Montana Natural Heritage Program	Animal Inferred Extent	Provided by NHP upon request	Shapefile
Montana Natural Heritage Program	Ecological Sites	Provided by NHP upon request	Shapefile
Natural Resources Information System	Wolf Experimental Population areas MT, WY, ID	Downloaded from NRIS website	Shapefile
Plum Creek	Culvert-Fish Passage Data	Contacted Ron Steiner, PC	Said to use USFS fish passage data
Trust for Public Land	Upper Swan Valley Primary Winter Range Boundaries Map,	Robert Rassmussen, TPL	Big Game habitat map
Trust for Public Land	Upper Swan Valley Bull Trout Map	Robert Rassmussen, TPL	BT/WSC habitat map
University of Montana	Montana Gap Analysis - Predicted Terrestrial Vertebrate Distributions (Grizzly)	Provided by UM upon request	Grid
US Forest Service	Canada Lynx Habitat (draft) for FS lands for the Northern Rockies Lynx Amendment Area	Downloaded from USFS website	Grid
US Forest Service	Aerial Insect and Disease Detection Surveys (2000 - 2005) - Region 1	Downloaded from USFS website	Geodatabase
US Forest Service	Aerial Insect and Disease Detection Surveys (2006)	Downloaded from USFS website	Geodatabase
US Forest Service	Aerial Detection Survey Boundaries - Region 1 - 2006	Downloaded from USFS website	Geodatabase
US Forest Service	Fly/ No Fly Zones for Aerial Surveys (2006)	Downloaded from USFS website	Geodatabase
US Forest Service	Aerial Insect and Disease Detection Surveys (2007)	Downloaded from USFS website	Geodatabase
US Forest Service	Beetle Infestation Aerial Detection Survey (ADS) 1999 - 2003 - Region 1	Downloaded from USFS website	Geodatabase
US Forest Service	Healthy Forests Restoration Act (HFRA) Wildland Urban (WUI) Interface (2004)	Downloaded from USFS website	Shapefile
US Forest Service	Ecological Unit Subsections, USFS, Northern Region	Downloaded from USFS website	Shapefile
US Forest Service	Restoration Priorities for Fish; Version 06-2	Downloaded from USFS website	Shapefile
US Forest Service	Seeley Lake Area Lynx GPS Point Data	John Squires, USFS	PDF of Lynx telemetry locations adjacent to HGWY 83
Flathead National Forest	Email regarding Highway 83 fish passage blockages (7 streams)	Beth Gardner, FNF	Email text
Flathead National Forest	FNF Lynx Analysis Units (LAU)	Kathy Ake, FNF	Geodatabase
Flathead National Forest	Grizzly BMUs and Subunits	Kathy Ake, FNF	Geodatabase
Flathead National Forest	Grizzly Modeled Denning Habitat	Kathy Ake, FNF	Geodatabase
Flathead National Forest	Grizzly Management Situation	Kathy Ake, FNF	Geodatabase
Flathead National Forest	1998 Grizzly CEM Baseline Run	Kathy Ake, FNF	XLS & Grid?
Flathead National Forest	A19 Motorized Access Report	Kathy Ake, FNF	Unknown
Flathead National Forest	Road Management Closure Devices	Kathy Ake, FNF	Unknown
Flathead National Forest	Wolf Modeled Denning	Kathy Ake, FNF	Geodatabase
Flathead National Forest	Wolverine Modeled Denning	Kathy Ake, FNF	Geodatabase
Lolo National Forest	LNF and MFWP brief fisheries comments on 11 streams crossed by MT 83	Shane Hendrickson, LNF	Hardcopy table
Lolo National Forest	LNF Grizzly Bear Occupied Habitat	Provided by LNF upon request	Shapefile
Lolo National Forest	LNF Lynx Analysis Units (LAU)	Downloaded from LNF website	Geodatabase
Lolo National Forest	BMUs for NCDE	John Anderson, LNF	Unknown
Lolo National Forest	LNF BMUs	John Anderson, LNF	Unknown
Lolo National Forest	LNF griz ecosystem boundaries	John Anderson, LNF	Unknown
Lolo National Forest	Lynx denning habitat (old)	John Anderson, LNF	Unknown
Lolo National Forest	Lynx foraging habitat (old)	John Anderson, LNF	Unknown
Lolo National Forest	Personal geodatabase for fish passage data	John Anderson, LNF	Geodatabase
US Fish & Wildlife Service	Grizzly Recovery Zone	Provided by USFWS upon request	Shapefile
US Fish & Wildlife Service	Grizzly Distribution	Provided by USFWS upon request	Grid
US Fish & Wildlife Service	Highway crossings by grizzly bears in the Swan Valley, 2000-2006	Scott Jackson, USFWS coordinating with Chris Servheen, USFWS	pdf figure - no GIS available

Source	Name	Acquired From	Type
US Fish & Wildlife Service	Bull Trout Critical Habitat	Scott Jackson, USFWS	Shapefile
US Fish & Wildlife Service	Bull Trout Key Recovery Habitat	Scott Jackson, USFWS	PDF
US Fish & Wildlife Service	Bull Trout Presence	Scott Jackson, USFWS	PDF - no GIS available
US Fish & Wildlife Service	2007 Wolf Pack Map	Scott Jackson, USFWS	PDF
Geology			
Montana Bureau of Mines and Geology	Geology (Butte 250K)	Downloaded from MBMG website	Shapefile
Natural Resources Information System	MT Faults, Dikes, and Ice Sheets	Downloaded from NRIS website	Shapefile
Natural Resources Information System	Geology of MT (500k)	Downloaded from NRIS website	Shapefile
USGS	Geology (Choteau 250k)	Downloaded from USGS website	Coverage
Groundwater			
Montana Bureau of Mines and Geology	GWIC Data	Downloaded from MBMG website	Shapefile
Natural Resources Information System	Public Water Supplies	Downloaded from NRIS website	Shapefile
Natural Resources Information System	Septic Density	Downloaded from NRIS website	Shapefile
Natural Resources Information System	Septic Land Application Sites	Downloaded from NRIS website	Shapefile
Hazmatsites			
Natural Resources Information System	National Priority List - 1999 Site Boundaries - CERCLIS	Downloaded from NRIS website	Shapefile
Natural Resources Information System	EPA Toxic Release Inventory	Downloaded from NRIS website	Shapefile
Natural Resources Information System	Landfills	Downloaded from NRIS website	Shapefile
Natural Resources Information System	Remediation Response Sites	Downloaded from NRIS website	Shapefile
Natural Resources Information System	RV Dump Sites	Downloaded from NRIS website	Shapefile
Natural Resources Information System	UST Facilities	Downloaded from NRIS website	Shapefile
Natural Resources Information System	LUST Facilities	Downloaded from NRIS website	Shapefile
Natural Resources Information System	MPDES Permitted Facilities	Downloaded from NRIS website	Shapefile
Natural Resources Information System	Hazardous Waster Reported to the MT DHES	Downloaded from NRIS website	Shapefile
Hydrology			
Natural Resources Information System	Digital Flood Insurance Rate Map Database, MT (Flathead)	Downloaded from NRIS website	Shapefile
Montana Fish, Wildlife & Parks	MT Lakes Bathymetry	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	MT Dewatered Streams	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	NWPPC Protected Areas	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	Wild and Scenic Rivers	Downloaded from FWP website	Shapefile
Natural Resources Information System	HUCS (4th - 6th codes)	Downloaded from NRIS website	Shapefile
Natural Resources Information System	MT Watershed Groups	Downloaded from NRIS website	Shapefile
Natural Resources Information System	USGS Streamflow Stations	Downloaded from NRIS website	Shapefile
Natural Resources Information System	Streams (2000000 scale)	Downloaded from NRIS website	Shapefile
Natural Resources Information System	MT SWSI Drought Index Basins	Downloaded from NRIS website	Shapefile
US Forest Service	Municipal Watersheds on Region 1 NFS Lands	Downloaded from USFS website	Shapefile
Landuse			
Natural Resources Information System	250000 scale land use from USGS	Downloaded from NRIS website	Shapefile
Natural Resources Information System	One-kilometer AVHRR Landcover Grid for MT	Downloaded from NRIS website	Shapefile
Powell County	Zoning Districts	Requested from Peggy Kerr, P County, unable to obtain	planning map group; unknown
Mining			
Natural Resources Information System	Abandoned and Inactive Mines Database	Downloaded from NRIS website	Shapefile
Natural Resources Information System	MT Mining Districts	Downloaded from NRIS website	Shapefile
Natural Resources Information System	Hydrologic Features for Abandoned Hardrock Mine Priority Sites	Downloaded from NRIS website	Shapefile
Natural Resources Information System	Water Samples for Abandoned Hardrock Mine Priority Sites	Downloaded from NRIS website	Shapefile
Natural Resources Information System	Sediment Samples for Abandoned Hardrock Mine Priority Sites	Downloaded from NRIS website	Shapefile
Natural Resources Information System	Priority Abandoned Hardrock Mine Sites for MT	Downloaded from NRIS website	Shapefile
Natural Resources Information System	Mines	Downloaded from NRIS website	Shapefile
US Forest Service	Active Mines for Region 1	Downloaded from USFS website	Shapefile

Source	Name	Acquired From	Type
	Ownership		
Montana Fish, Wildlife & Parks	MT FWP Managed Lands	Downloaded from FWP website	Shapefile
Natural Resources Information System	MT Indian Reservations	Downloaded from NRIS website	Shapefile
Natural Resources Information System	MT Lands w Conservation Leases	Downloaded from NRIS website	Shapefile
Natural Resources Information System	MT Managed Areas	Downloaded from NRIS website	Shapefile
	Population		
Natural Resources Information System	Census Blocks for the 2000 Census	Downloaded from NRIS website	Shapefile
	Recreation		
Montana Fish, Wildlife & Parks	FWP State Parks (points)	Downloaded from FWP website	Shapefile
Natural Resources Information System	MT Inventoried Roadless Areas	Downloaded from NRIS website	Shapefile
Natural Resources Information System	MT Designated Wilderness Areas	Downloaded from NRIS website	Shapefile
US Forest Service	Forest Visitor Maps (Various)	Downloaded from USFS website	Image
US Forest Service	Inventoried Roadless Areas And Special Designations	Downloaded from USFS website	Coverage
Lolo National Forest	Restricted Areas (wildlife, wilderness, research natural, experimental forest, botanical)	Downloaded from LNF website	Geodatabase
	Soils		
Lolo National Forest	LNF Land Systems Inventory	Downloaded from LNF website	Geodatabase
Natural Resources Information System	24k Soils Data (SSURGO & STATSGO)	Downloaded from NRIS website	Shapefile
	Structures		
Natural Resources Information System	Montana Dams	Downloaded from NRIS website	Shapefile
Natural Resources Information System	Montana Schools	Downloaded from NRIS website	Shapefile
Natural Resources Information System	MT Critical Structures database	Downloaded from NRIS website	Geodatabase
	Timber		
Lolo National Forest	LNF Timber Stands	Downloaded from LNF website	Geodatabase
	Topography		
Lolo National Forest	Peaks	Downloaded from LNF website	Geodatabase
Natural Resources Information System	Continental Divide	Downloaded from NRIS website	Shapefile
Natural Resources Information System	NED Montana	Downloaded from NRIS website	Grid
	Transportation		
Lolo National Forest	LNF Snow Trails	Downloaded from LNF website	Geodatabase
Montana Department of Transportation	Administrative Construction Districts	Provided by MDT upon request	Shapefile
Montana Department of Transportation	Administrative Distrcits	Provided by MDT upon request	Shapefile
Montana Department of Transportation	Financial Districts	Provided by MDT upon request	Shapefile
Montana Department of Transportation	Maintenance Districts	Provided by MDT upon request	Shapefile
Montana Department of Transportation	MT Railroads (railroad companies, Rail in Transportation Planning, BTS)	Provided by MDT upon request	Shapefile
Montana Department of Transportation	Parking and Rest Areas	Provided by MDT upon request	Shapefile
Natural Resources Information System	MT Airports	Downloaded from NRIS website	Shapefile
Natural Resources Information System	MT Railroads	Downloaded from NRIS website	Shapefile
Natural Resources Information System	MT Roads from Tiger/Line Files	Downloaded from NRIS website	Shapefile
Natural Resources Information System	Montana Highways (Tiger Data)	Downloaded from NRIS website	Shapefile
Natural Resources Information System	MT Railroads from the National Rail Network	Downloaded from NRIS website	Shapefile
	Vegetation		
Montana Fish, Wildlife & Parks	MT FWP Access Site Noxious Weed Inventory Locations (2005-2007)	Downloaded from FWP website	Shapefile
Montana Fish, Wildlife & Parks	MT Weed Survey and Mapping System Project	Downloaded from FWP website	Shapefile
Natural Resources Information System	GAP Data	Downloaded from NRIS website	Grid
Natural Resources Information System	Montana Climax Vegetation	Downloaded from NRIS website	Shapefile
US Forest Service	Vmap Data (Various)	Downloaded from USFS website	Grid
US Forest Service	Potential Natural Vegetation Classification for Western and Central MT, and N. Idaho	Downloaded from USFS website	Grid
US Forest Service	Vegetation (SILC 2 & 3) (various)	Downloaded from USFS website	Grid
US Forest Service	Vegetation Typers (Major Historic) for Region 1	Downloaded from USFS website	Shapefile
Natural Resources Information System	NLCD for MT	Downloaded from NRIS website	GRID

Source	Name	Acquired From	Type
Water Quality			
Montana Department of Environmental Quality	TMDL Discussion on HGWY 83: Road Pollutant Loading, Habitat Alteration, and Suggested Improvement Measures	Taylor Greenup, Jeff Ryan, MDEQ	Hardcopy
Montana Department of Environmental Quality	Water Quality Protection Plan and TMDLs for Swan Lake Watershed	Taylor Greenup, Jeff Ryan, MDEQ	Hardcopy
Natural Resources Information System	Corp. 404	Downloaded from NRIS website	Shapefile
Natural Resources Information System	2002 Surface Water Quality Assessment (Streams and Lakes) - TMDL	Downloaded from NRIS website	Shapefile
Natural Resources Information System	STORET Water Quality Sites	Downloaded from NRIS website	Shapefile
Natural Resources Information System	USGS Surfacewater Sites	Downloaded from NRIS website	Shapefile
US Forest Service	Watershed Restoration Priorities	Downloaded from USFS website	Shapefile
Water Rights			
Natural Resources Information System	DNRC Places of Use, Points of Diversion database	Downloaded from NRIS website	Shapefile

Appendix C

TABLE 3: *PRE-WORKSHOP HIGHWAY PROJECT CORRIDOR ISSUES / PLANNING CONSIDERATIONS, BROADER STUDY AREA ISSUES, AND OPPORTUNITIES RECEIVED FROM AGENCIES, NGOS, AND THE PUBLIC*

Outcomes Report: ITEEM Highway 83 Pilot Study

Table 3: ***Pre-Workshop Highway Project Corridor Issues / Planning Considerations, Broader Study Area Issues, and Opportunities Received from Agencies, NGOs, and the Public.***

15-Mile Highway Project Corridor Issues	15-Mile Highway Project Corridor Planning Considerations	Broader Study Area Issues	Opportunities
Wildlife habitat linkage data group			
Terrestrial wildlife mortality / linkage (FWP, USFS, EPA, DEQ, NWC, SEC). General wildlife / carnivore passage and highway permeability; carnivores are of special interest (USFWS) Maintain wildlife linkages as much as possible in conjunction with development (MCRIO). Wildlife connectivity for wide-ranging species (ungulates and carnivores) (AW). Concern that highway improvements may impact grizzly bear movement across the highway and increase collisions with vehicles (NWC). Key wildlife movement area immediately south of Summit Lake and on north side of summit. Highway guardrail may be inhibiting some wildlife movement in this area. This may be a good location for a wildlife crossing in the future (NWC). Private landowner fencing adjacent to the highway is affecting wildlife movement (NWC). Dips in roadway create poor driver site distance and more collisions with wildlife (NWC). A 70-acre property on east side of highway at MP 29 contains high-quality wildlife movement habitat within a TNC conservation easement that should be preserved (Aresty - public). Traffic speeds / wildlife mortality (USFWS); high traffic speeds on 83 are responsible for many animal/vehicle collisions (NWC, SEC). Driveway at MP 70 runs close to the highway for about the first quarter of its 3/4 mile length. It would be seemingly impossible to relocate without grading a new road through the forest, specifically forbidden by conservation easement. Any proposed straightening of the highway facilitates higher speeds, more traffic noise, and more car vs animal encounters. Traffic around the curve area at the northern edge of the study area should be more strongly advised to slow down. (Aresty - public).	Efforts should be made to minimize additional adverse impacts to wildlife mortality and connectivity, by providing wildlife passage, fencing, signs, speed limits, and other measures as much as practicable (EPA). Highway crossing structures (AW). Roadway Animal Detection Systems (AW); wildlife alerts on Highway to prevent animal-vehicle collisions (MCRIO). MDT was going to review accident data from MP 70 area, perhaps looking to post chevron signs around some of the most severe curves (Aresty - public).	Human safety is threatened by animal-vehicle interactions (PCC). Right of way should be cleared of brush so drivers can see animals on the side of the road. Encourage thinning on side of highways (83 and 200) on both public and private land to increase visibility (PCC). Keep the Northern Rockies ecologically intact by restoring and maintaining connections between key habitats for healthy populations of wildlife (Safe Passages Program) (AW). High wildlife mortality location between Owl Creek and Beaver Creek; high wildlife mortality location between Swan Lake and Porcupine Creek (AW). Heavy wildlife mortality (mainly deer and elk) on Highway 83 near Clearwater Junction and on Highway 200 both east and west of Clearwater Junction. The area near the Paws Up Ranch was identified as a key mortality and wildlife crossing area (BC). Wildlife and human safety would be better protected by reducing the speed limit, especially in the Salmon Lake area – too fast of a speed limit for the use patterns and wildlife density (MCRIO). High traffic speeds on 83 are responsible for many animal/vehicle collisions (NWC). Grizzly bear highway fatalities have been reported at MP 37.5 (2007), 39.5 (2008), and 43 (2003 or 2004)(MDT).	Wildlife fencing with underpasses would be great but may be too expensive (PCC). Highway crossing structures (AW); consider wildlife crossings on Highway 200 and wildlife fencing along the highway (BC). Roadway Animal Detection Systems (AW); consider "Driver Be Aware" project that lets drivers know when an animal is near the roadway (animal detection system) (BC); wildlife alerts on Highway to prevent animal-vehicle collisions (MCRIO). Consider having Rich Clough do a wildlife use pattern assessment on Highway 83 (similar to Highway 200) (AW). Montana Legacy Lands- 23K-acre priority area near 15-mile project highway corridor (FWP). Heavens Gate Land Sale (T18N;R16W; Section 5). CRC is going to recommend no development on this section through land use planning efforts. Plum Creek sold this section to a private developer. The section is located at the north end of Richmond Ridge, east of Highway 83 and is located in extremely valuable wildlife habitat. NWC considers this section of high priority to try to acquire. NWC is concerned about the substantial infrastructure improvements that will be needed to access the property and also the impacts of housing development in this area (CRC, NWC). Plum Creek land in Section 26 north of Salmon Lake (includes the road from Highway 83 to Placid Lake) is a high priority for acquisition. This is a heavily used wildlife corridor (CRC). Large piece of Plum Creek land west of Lake Inez and Lake Alva is a priority for acquisition and restoration (NWC, SEC). Montana Legacy Lands- TPL (and several other groups/agencies) has put in a substantial time identifying and prioritizing conservation opportunities in the area and is eager to find partners (i.e., matching funds) as land acquisitions move forward. These Plum Creek lands include very valuable fish and wildlife habitat on both sides of the Swan/Clearwater divide (USFWS). DNRC is participating in some HCPs in the corridor for a number of listed species and may (as ITEEM members) have some ideas as to what relevant conservation opportunities exist on their lands in that area (USFWS). DNRC Restoration / Coordination Group areas – led by Robert Etheridge, DNRC Forest Management Division in Missoula – looking for pilot project in 2011 – Blackfoot area is a potential frontrunner for this (FWP). Possible land acquisition in WF Clearwater block, Morrell Creek block, Gold Creek area, Placid Lake Dam area (FWP).

15-Mile Highway Project Corridor Issues	15-Mile Highway Project Corridor Planning Considerations	Broader Study Area Issues	Opportunities
			Forest road decommissioning on both Plum Creek and Forest Service lands in the Clearwater drainage as well as reforestation needs on a significant amount of land where extensive logging has occurred in the past (CRC). Collaboration to fund lynx movement study relative to highway 83 (Squires, USFS).
Grizzly / Lynx habitat data group			
Secondary development impacts; especially with regard to grizzly bear habituation (possibly lynx and wolves also) (USFWS). Grizzlies are drawn to the highway corridor to feed on road-killed deer (NWC).	*No specific comments provided.*	Plum Creek lands development – an identified area of concern is Mount Henry area (AW). DNRC land sales – especially around Placid Lake and E. Clearwater (AW). Poor sanitation practices at some recreational and home sites in the Clearwater and Blackfoot is leading to animal/human conflicts (BC).	Montana Legacy Lands- 23K-acre priority area (FWP). Plum Creek land in Section 26 north of Salmon Lake (CRC). Plum Creek land west of Lake Inez and Lake Alva (NWC, SEC). Montana Legacy Lands (USFWS). Heavens Gate Land (T18N;R16W; Section 5) (CRC, NWC). FWS Partners Program may be aware of opportunities in area (USFWS). DNRC HCPs in the corridor (USFWS). DNRC Restoration / Coordination Group – Blackfoot (FWP). Collaboration to fund lynx movement study relative to highway 83 (Squires, USFS). Possible land acquisition in WF Clearwater block, Morrell Creek block, Gold Creek area, Placid Lake Dam area (FWP). Forest road decommissioning and reforestation (CRC). Funding and working with bear specialists and groups dealing with sanitation issues including NWC and SEC (USFWS); Sanitation mitigation – road-kill cleanup, dump site security, residential and commercial education program (trash, birdfeeders, pet food etc.) (AW); MDT could partner on a project to purchase bear-proof garbage containers or other means for minimizing conflicts in Blackfoot and Clearwater drainages (BC).
Big game habitat data group			
Impacts to big game species habitat (FWP).	*No specific comments provided.*	White-tailed deer population is not near historic highs. Development and overharvest of surrounding Plum Creek lands has caused shifts in deer behavior and habitat utilization. Deer are being forced into the valley bottom, thus resulting in increased animal/vehicle collisions on HWY 83 (NWC). Buck Creek/Rumble Creek drainage is heavily deforested in a primary big game migration route. (NWC, SEC).	Deer carcasses are currently being taken to compost area near Clearwater Junction. NWC and SEC would like to see the carcasses utilized by scavengers in the project area. Where to take the carcasses is the tough question. Suggested perhaps a large private land owner could designate a spot for disposal (NWC, SEC). Montana Legacy Lands- 23K-acre priority area (FWP). Plum Creek land in Section 26 north of Salmon lake (CRC). Plum Creek land west of Lake Inez and Lake Alva (NWC, SEC). Montana Legacy Lands (USFWS). FWS Partners Program may be aware of opportunities in area

15-Mile Highway Project Corridor Issues	15-Mile Highway Project Corridor Planning Considerations	Broader Study Area Issues	Opportunities
			(USFWS). DNRC HCPs in the corridor (USFWS). DNRC Restoration / Coordination Group – Blackfoot (FWP). Possible land acquisition in WF Clearwater block, Morrell Creek block, Gold Creek area, Placid Lake Dam area (FWP). Forest road decommissioning and reforestation (CRC).
Species of concern data group			
Impacts to species of concern habitat (FWP).	*No specific comments provided.*	*No specific comments provided.*	Montana Legacy Lands- 23K-acre priority area (FWP). Plum Creek land in Section 26 north of Salmon lake (CRC). Plum Creek land west of Lake Inez and Lake Alva (NWC, SEC). Montana Legacy Lands (USFWS). FWS Partners Program may be aware of opportunities in area (USFWS). DNRC HCPs in the corridor (USFWS). DNRC Restoration / Coordination Group – Blackfoot (FWP). Possible land acquisition in WF Clearwater block, Morrell Creek block, Gold Creek area, Placid Lake Dam area (FWP).
Bull trout / west-slope cutthroat habitat data group			
Impacts to bull trout and westslope cutthroat habitat (CRC). Fish passage is needed at all project area structures (FWP, DEQ, COE, EPA, USFS, USFWS, CRC). Provide passage for all aquatic species (COE). Ecosystem / watershed health (COE). Potential impacts to water quality should be fully evaluated and considered (EPA, DEQ). Road projects that may impact water quality impaired waters listed by the State under Section 303(d) of the Clean Water Act should not be further degraded (EPA, DEQ). Projects in watersheds of 303(d) listed streams should be planned, designed and constructed in a manner protective of water quality, and consistent with Total Maximum Daily Loads (TMDLs) that are developed to improve water quality and restore full support for beneficial water uses. The West Fork Clearwater River has a partial impairment of primary contact recreation uses as a result of algal growth, probably due to excess nutrients. The mainstem Clearwater River has not yet been assessed (EPA, DEQ). Would like to see impacts to stream quality minimized during	Design culverts to pass 100-year flood event, avoid floodplain constriction, and pass fish (where desired by MFWP) (DEQ). Provide fish passage at all project area structures: Fish Creek; Morrell Creek (needs bridge without center pier, strict construction timing restrictions, primary bull trout and cutthroat spawning tributary); Seeley Creek; Auggie Creek (remove asphalt check dams below culvert); Rice Creek; Sawyer Creek (wooden weir at pipe inlet is fish barrier, no substrate); Benedict Creek (large outlet drop is fish barrier, high velocities); Murphy Creek (need site survey); Findell Creek (undersized box culvert); Camp Creek (jersey barriers at inlet – erosion, stream actively using overflow pipe upstream of primary crossing); Unnamed tributary (Section 30) (FWP, USFS). Replace all structures using stream simulation techniques with the objectives of meeting condition for pattern, profile, and dimension (FWP, USFS). Provide road stream crossings (bridges, culverts, etc.) that are adequately sized, designed, and constructed to pass flood flows, bedload, flood-borne debris, and provide for fish passage (EPA). Implement BMPs with the goals of reducing sediment from ditches and snowplowing (FWP, USFS). Appropriate sediment and erosion control practices (i.e., BMPs) should be incorporated into highway project planning, design and construction, as well as road maintenance (EPA, DEQ).	Fish passage across highway (CRC). In 2002, crew examined all major Flathead National Forest stream crossings on Highway 83 for fish passage. They examined all the named streams but not the smaller ones. This would have covered about 90% of fish habitat along the highway and missed one or two small brook trout streams. All culverts/bridges were modeled to pass all life stages of fish except: (from south to north): 1. Buck Creek. May be blocking cutthroat trout in certain flows. Needs investigation. 2. Rumble Creek. Blocks juvenile fish. (mostly brook trout). 3. Cooney Creek. This would be a high priority for further investigations. It may be blocking bull trout. Conversely, it may be a beneficial barrier in that it helps protect cutthroat trout. Note Buck, Rumble and Cooney creek are very close to each other and could be studied simultaneously. 4. Perry Creek. Modeled as blocking juvenile fish. (do not know whether it contains fish). 5. Cilly Creek. Modeled as total barrier. (primarily brook trout) 6. Patterson Creek. Modeled as partial barrier. Probably is beneficial to help protect cutthroat trout but needs further investigation. 7. Peterson Creek. Total barrier. Probably is beneficial but needs investigation.(USFS). Road sanding in Swan / Swan Lake drainage (especially Jim and Goat Creeks) (DEQ).	There are several culverts on cost-share (PCTC and FS) roads that the KNF (Beth Gardner) and LNF (Shane Hendrickson) want to replace (PCTC). Emily A fish passage (FWP, USFS). Rainy Dam fish passage (FWP, USFS). Increased enforcement (FWP, USFS). Replace or remove key forest road culverts / road relocation; provide fish passage (off-highway) at identified passage blockage areas (FWP, USFS). Road analysis at the Clearwater River Watershed scale that reflects County, DNRC, PCTC, private road impacts (FWP, USFS). Ongoing restoration projects in area (FWP, USFS). There is a partial fish barrier where the highway crosses Cooney Creek (may be a full barrier at certain flows). There are a few bull trout upstream, but connectivity may be an issue. (USFWS) A potential large-scale mitigation opportunity would be to install a weir or barrier on Holland Creek. Lake trout have invaded Swan Lake and it may be only matter of time until they swim upstream into Holland Lake (if they haven't already). USFWS searched for a potential site, but didn't find one due to the low

15-Mile Highway Project Corridor Issues	15-Mile Highway Project Corridor Planning Considerations	Broader Study Area Issues	Opportunities
and after construction (CRC). Aquatic impacts and encroachment (COE, EPA). Riparian zones (stream crossings) along highway corridor (MCRIO). Compensatory aquatic mitigation (EPA, COE).	Minimize aquatic impacts where practicable. Pull in slopes, reduce footprint, minimize culvert length (COE). Avoid and/or minimize encroachment upon streams, riparian areas and wetlands as much as possible (EPA). Provide adequate mitigation (compensation) for unavoidable losses to aquatic habitat (streams and wetlands (EPA). MDT has already purchased wetland mitigation credits from the Upper Clark Fork Wetland Mitigation Bank. The geographic service area for that bank includes the study corridor. There is also a stream mitigation bank at the same location (Nevada Spring Creek), which has available credits for stream impacts. The availability of these credit options does not preclude MDT's participation in a different aquatic resource mitigation project, should the ITEEM process identify more highly regarded opportunities (COE).	Consider BMPs to reduce highway pollutant loading in Swan, Clearwater / Middle Blackfoot (e.g., along Salmon Lake) and Flathead Lake drainages (DEQ). MDT should design construction to minimize runoff into surface waters (PCC).	gradient. A possible low-head check dam could be used to create a weir (keeping fish from migrating upstream) and an associated wetland (similar concerns for Lindbergh Lake, but even more problematic) (USFWS). CRC is working with landowners in the Morrell Creek drainage on streamside restoration activities. This might serve as a partnership opportunity.(CRC). Possible TMDL implementation, may be opportunity to use 319 money (DEQ). Prioritizing TMDL measures in the project area (possibly accelerating implementation schedule) – focus mainly on stream restoration opportunities (DEQ). Projects at impaired streams in Middle Blackfoot Watershed: Blackfoot River, Frazier Creek, Wales Creek, Ward Creek, Warren Creek, Yourname Creek, Rock Creek, Monture Creek, Kleinschmidt Creek, Richmond Creek, Deer Creek, Blanchard Creek (DEQ). Corrections to non-identified pollution sources that repair impairment cause are appropriate opportunities, as are projects that reduce loads to non-impaired tributary streams that contribute to impaired streams (DEQ). COE and EPA recently released a joint rule on compensatory mitigation that could have some bearing in the way mitigation options are evaluated. The new rule clearly establishes a mandate to consider mitigation within a watershed context, which seems to be what the ITEEM process is designed to accomplish. MDT has already been doing that to some extent through the reserve program, but now has opportunity to do it at the project level. While USACE still has a general preference for in-kind mitigation, it also has the latitude to consider out-of-kind options, particularly if that is the recommendation of a watershed group. The new rule also establishes criteria for when preservation is appropriate (a significant resource under threat of destruction or adverse modification), and seems to leave some room for considering the preservation of uplands if their importance to aquatic resources protection in a given watershed can be documented. Even with that latitude, in MT USACE will still be looking at uplands primarily as buffers, but will be open to recommendations from watershed groups (COE).
Wetlands data group			
Aquatic impacts and encroachment (COE, EPA, DEQ, NWC). A large SS wetland between Summit Lake and Roveros property abuts the roadway in a few places and is high value wetland. NWC is concerned about sediment and de-icer impacts from the highway and potential impacts during highway construction. Occurs within previously identified wildlife movement area (NWC). 70-acre property on east side of highway at MP 29 contains high-quality wetlands within a conservation easement with	Minimize aquatic impacts where practicable. Pull in slopes, reduce footprint, minimize culvert length. (COE). Avoid and/or minimize encroachment upon streams, riparian areas and wetlands as much as possible (EPA). Provide adequate mitigation (compensation) for unavoidable losses to aquatic habitat (streams and wetlands (EPA). MDT has already purchased wetland mitigation credits from the Upper Clark Fork Wetland Mitigation Bank. The geographic service area for	*No specific comments provided.*	Fen in Swan valley near Lindbergh Lake, partially on USFS and private land, contains many sensitive plants, landowner wants to excavate pond – possible opportunity for conservation easement (EPA). COE and EPA recently released a joint rule on compensatory mitigation that could have some bearing in the way mitigation options are evaluated. The new rule clearly establishes a mandate to consider mitigation within a watershed context, which seems to be what the ITEEM process is designed to accomplish. MDT has already been doing that to some extent through the reserve

15-Mile Highway Project Corridor Issues	15-Mile Highway Project Corridor Planning Considerations	Broader Study Area Issues	Opportunities
TNC that should be preserved (Aresty). Compensatory wetland mitigation (COE, EPA).	that bank includes the study corridor. There is also a stream mitigation bank at the same location (Nevada Spring Creek), which has available credits for stream impacts. The availability of these credit options does not preclude MDT's participation in a different aquatic resource mitigation project, should the ITEEM process identify more highly regarded opportunities (COE).		program, but now has opportunity to do it at the project level. While USACE still has a general preference for in-kind mitigation, it also has the latitude to consider out-of-kind options, particularly if that is the recommendation of a watershed group. The new rule also establishes criteria for when preservation is appropriate (a significant resource under threat of destruction or adverse modification), and seems to leave some room for considering the preservation of uplands if their importance to aquatic resources protection in a given watershed can be documented. Even with that latitude, in MT USACE will still be looking at uplands primarily as buffers, but will be open to recommendations from watershed groups (COE).
Recreation sites data group			
Recreational site access / turning lanes; examples include Rainy Lake and Clearwater Loop access (FWP). Bicycle paths are needed on Hwy 83 (NWC, SEC). Need wider shoulder or bike path on Highway 83 for bicyclists/pedestrians (Adventure Cycling dropped this route from their program due to unsafe route through Seeley-Swan)(MCRIO). Entire stretch from Clearwater J. to the summit (watershed divide) needs a bike/pedestrian trail – would encourage geotourism (cycling tourists) which is popular but is not done on this stretch due to danger (Adventure Cycling cancelled this trip from roster because of danger) (SL Chamber). We have a 13-mile trail route around Seeley Lake and snowmobile trail radiating from the town. The Lake Loop trail route crosses Highway 83 in the vicinity of Auggie Creek and many snowmobiles cross there as well. There has been concern that this crossing should be formalized and located at the best location for safety (Seeley Lake Historical Society). Pedestrian walkway on Highway 83 through Seeley Lake (MCRIO).	*No specific comments provided.*	Bicycle use has long been common on this stretch of highway, but most residents shudder about their safety. Most of the bicycle traffic is by non residents on long distance trips. This summer our museum has been visited by people riding from the west coast (CA, Portland, Seattle) to Glacier Park. Several of the Great Divide Mountain Bike Route riders from Canada to Mexico use some of the Highway in lieu of the difficult, off highway route thru Richmond Saddle (SL Historical Society).	*No specific comments provided.*
Planning data group			
Secondary development impacts (FWP). Secondary development impacts – especially with regard to grizzly bear habituation (possibly lynx and wolves also) (USFWS). Land use and growth and development trends and patterns in the area served by the highway should be evaluated. We encourage use of smart growth concepts that consider effects of roads and road capacity on growth patterns, and planning/coordinating road improvements with local government land use planning to direct growth to desired areas, and away from environmentally sensitive areas (EPA). We are particularly concerned about potential impacts associated with changes in timber/silvicultural uses on Plum Creek Timber Company lands to real estate development in the Seeley Lake area. The extent to which the Highway 83	*No specific comments provided.*	Cultural Sites and 6(f) Lands – Contact with Dale Becker (CSKT), Marsha Pablo (Tribal Historical Officer) and Mark Baumler (SHPO) indicated that these entities did not have data to bring to the table up front in the ITEEM process, but would be interested in assessing cultural impacts/benefits once some priority conservation/restoration areas have been identified and with regard to the future highway projects (FHWA, MDT). Area just north of Double Arrow is important viewshed to preserve; goal of community to maintain that as the “gateway” impression of the town (MCRIO). Concern that Plum Creek development in an area will lead to large intersection with Highway 83 to handle traffic. Examples include Boy Scout Road, Woodworth (MCRIO). Plum Creek land development (MCRIO).	Montana Legacy Lands- 23K-acre priority area (FWP). Plum Creek land in Section 26 north of Salmon lake (CRC). Plum Creek land west of Lake Inez and Lake Alva (NWC, SEC). Montana Legacy Lands (USFWS). Heavens Gate Land (T18N;R16W; Section 5) (CRC, NWC). FWS Partners Program may be aware of opportunities in area (USFWS). DNRC HCPs in the corridor (USFWS). DNRC Restoration / Coordination Group – Blackfoot (FWP). Possible land acquisition in WF Clearwater block, Morrell Creek block, Gold Creek area, Placid Lake Dam area (FWP).

15-Mile Highway Project Corridor Issues	15-Mile Highway Project Corridor Planning Considerations	Broader Study Area Issues	Opportunities
improvement project may be affected by this change in land use or may affect this change in land use should be evaluated and considered (EPA). Several years ago there was a cooperative agreement between the Forest Service, Missoula Electric Cooperative and MDT aimed at preserving the scenic values along the Highway 83 Corridor between Seeley Lake and Swan Lake. We hope objectives of that effort continue to be respected (SL Historical Society). We hope your methods, materials and structures will be in keeping with a style appropriate with the surrounding environment (SL Historical Society).		Plum Creek lands sold in Swan and Blackfoot have set-back covenants on fish-bearing streams and in grizzly habitat (PCTC). Plum Creek will likely not own any lands in the Seeley-Swan within 3 years (except some in Placid Lake area if not sold yet); responsibility of those lands will be TNC/TPL, Forest Service or State (PCTC). Improvements to Seeley Lake infrastructure, including municipal water system and sewer, will encourage development (MCRIO). Zoning and land use planning has to factor in resource protection and open space plus allow large landowners flexibility (MCRIO).	Forest road decommissioning and reforestation (CRC). This route started as a wagon road almost 100 years ago. It had probably been used as a trail route long before that. It appears on old 1900 GLO maps as the Swan Valley - Ovando Wagon Road. As it was improved it later became County Route 66. Several short segments of the old road are still visible and offer an interpretive opportunity for early days travel (SL Historical Society). We have heard that there was once some kind of War or Presidential Memorial somewhere around Summit Lake or Summit Springs. We hope your cultural resource survey can verify where and what that memorial was. It may be nice to revamp it (SL Historical Society).
Other			
Concerns that if MDT partners on an off-site mitigation project in advance of the highway projects, that they will not then address the pressing issues associated with the immediate roadway. For example, they do not want MDT to state that they are not going to build a wildlife underpass because they already used their available funding to mitigate at an offsite location (CRC, BC). Noxious weed management (MCRIO). Driver safety (MCRIO). Non-wildlife related crashes in S-curves near Lake Alva (NWC, SEC). Encourage foot traffic (SL Chamber).	Consider lower speed limit from Double Arrow to Big Larch campground (SL Chamber).	Intersection of Woodworth Road and Highway 83 is dangerous due to truck traffic waiting to turn left to go the dump site on Woodworth (MCRIO). Provide public safety (PCC). Seeley Lake has Highway 83 as a “Main Street”, currently. Local residents want to see an off-highway main street that would be better for parking, traffic, aesthetics and safety (MCRIO). Consider moving “Main Street” Seeley Lake from Highway 83 to Pine Street one block to east (SL Chamber). Consider access management off the highway to keep approaches to a minimum from development (MCRIO). Public transportation system in Seeley Lake (Double Arrow to Lake Inez?) – development of expensive/large vacation homes generates many more trips due to people employed daily at these homes (gardeners, chefs etc.). Homes >5000 square feet are shown to generate more trips due to this (MCRIO). County would like to see ITEEM results provided as an interactive website or able to generate PDF maps for their use (MCRIO). MDT should contract services such as catering to local vendors in Seeley Lake during construction activities, not give all the contracts to out of town vendors (SL Chamber). Traffic counts during August 2007 highway closure (Jocko Lakes fire) reflect the impact to businesses when MDT closes the highway (SL Chamber).	Group could potentially partner on weed control issues in the Clearwater watershed. There are various on-going weed management projects in the Clearwater at this time (CRC). Assisting with weed control and erosion/runoff as a result of the 2007 Jocko Lakes fire that burned approximately 36,000 acres. Might be opportunities for group to partner (CRC).

Appendix D

MONTANA LEGACY PROJECT SUMMARY AND MFWP SEELEY LAKE – CLEARWATER DIVIDE STREAM INFORMATION

Outcomes Report: ITEEM Highway 83 Pilot Study

THE MONTANA LEGACY PROJECT

A cooperative project of The Naure Conservancy, The Trust for Public Land and many state, federal and private partners

The Montana Legacy Project

The Montana Legacy Project aims to conserve important forestland currently owned by Plum Creek Timber Company in northwestern Montana. The goals of the project are:

- To preserve vital wildlife habitat and water resources
- To conserve traditional access for hunting, fishing, and other forms of recreation
- To keep sustainable harvesting operations in the forests and timber in local mills

Purchase and Sale Agreement

The Legacy Project partners (The Nature Conservancy and The Trust for Public Land) reached an agreement with Plum Creek to purchase approximately 312,500 acres of timberland for just over $500 million, or about $1,600 per acre on average. The transaction is structured as a three-phased purchase to take place over the next two years. The first closing is scheduled to occur in December 2008, and the acquisition is to be completed by December 2010. The sale is subject to financial and other contingencies typical in a transaction of this size and complexity. The Legacy Project partners also obtained an exclusive three-year option to purchase an additional 13,800 acres in Lincoln County.

While the Legacy Project partners may be required to hold a portion of these lands temporarily, ultimately all lands will be conveyed into a mix of federal, state and private ownership. The exact disposition will be determined based on adjacent ownership and management considerations, funding for acquisition, agency priorities, and community interests. Lands sold into private ownership will have conservation easements that will restrict undesirable development and provide for sustainable timber harvest and public access.

Funding

The Legacy Project partners will raise funds from federal, state and private sources to implement this project. Federal funding, through a provision in the 2008 Farm Bill, could total as much as $250 million; resulting in an equivalent value of land that would be conveyed to the US Forest Service. State elected officials have indicated their support for the Legacy Project and their interest in acquiring select lands for the benefit of Montana and its citizens, the exact amount to be determined. The remainder of the funding will be raised through a combination of private investments and philanthropic donations.

The Land

Lands included in this purchase are within the Swan Valley, the upper Clearwater Valley near Seeley Lake, the Lolo Valley, the Mill Creek area, Fish Creek and Petty Creek west of Missoula, the Rock Creek area and in the Garnet Mountains between Potomac and Interstate 90. The Trust for Public Land and The Nature Conservancy also have an option to purchase land between Libby and the Yaak Valley.

The lands span five Western Montana counties. Approximate acreages per county are: Missoula (230,440 acres), Mineral (42,800 acres), Lake (35,500 acres) and Powell (3,900 acres). [Lincoln Co. option: 13,800 acres]

These lands contain some of the best water, wildlife and working forests in our country. They are part of what is known as the Crown of the Continent, one of the largest, most intact ecosystems remaining in the United States. The landscape provides habitat and habitat linkages for several threatened and endangered species including grizzly bears, lynx, and bull trout. Many of the lands are low elevation lands that are critical for big game species and highly susceptible to development pressures.

Generations of Montanans and Americans have worked and recreated in these forests. They have long been accessible for hikers, hunters, snowmobilers, campers and other outdoor enthusiasts. The loss of these areas to development would be a severe blow to the western Montana way of life.

Fiber Supply Agreement

An important part of The Montana Legacy Project is an agreement to provide timber from the project lands to Plum Creek mills. Beginning in 2009, a Fiber Supply Agreement (FSA) between Plum Creek and the Legacy Partners will provide for the harvest of approximately 92 million board feet of merchantable timber over a 10-year period, which would be sold to Plum Creek. Any net proceeds from the sale of the timber will be used to cover the harvesting costs and restoring the land. After the terms of the FSA are satisfied, timber and other wood fiber can be supplied to other area mills. At the current rate of regeneration, approximately 29 million board feet of new timber growth accumulates annually on these lands.

Public Access

One of the main goals of this project is to maintain public recreational access on these lands, and make permanent the public access for hunting, fishing, camping and recreation that Montanans have always enjoyed under Plum Creek ownership.

Public agencies will be responsible for managing their land for public access. While exact details are still to be negotiated, our intent is that the lands going into private ownership will have conservation easements placed on them that allow access to the public These agreements will be dependant on securing necessary funding.

Local Economies

Working lands, including private timberlands, support local economies by providing job opportunities and resource values such as clean water and outdoor recreation. They also provide a positive balance to local government funds, as they only require 31 cents on the dollar to provide services. Development of these lands could swing this balance sharply into the red, costing taxpayers $1.94 for services (such as education, fire service, and roads) for every dollar generated in tax revenue (Source: Headwaters Economics).

Ultimately, the Montana Legacy Project is about protecting the qualities that make Montana such a desirable place to live, work and play—the very activities that drive our local economies.

Please Visit **www.TheMontanaLegacyProject.org** for updates.
Contact Chris Bryant at 543-6681 or **cbryant@tnc.org** if you have any questions or comments.

Last updated: September 23, 2008

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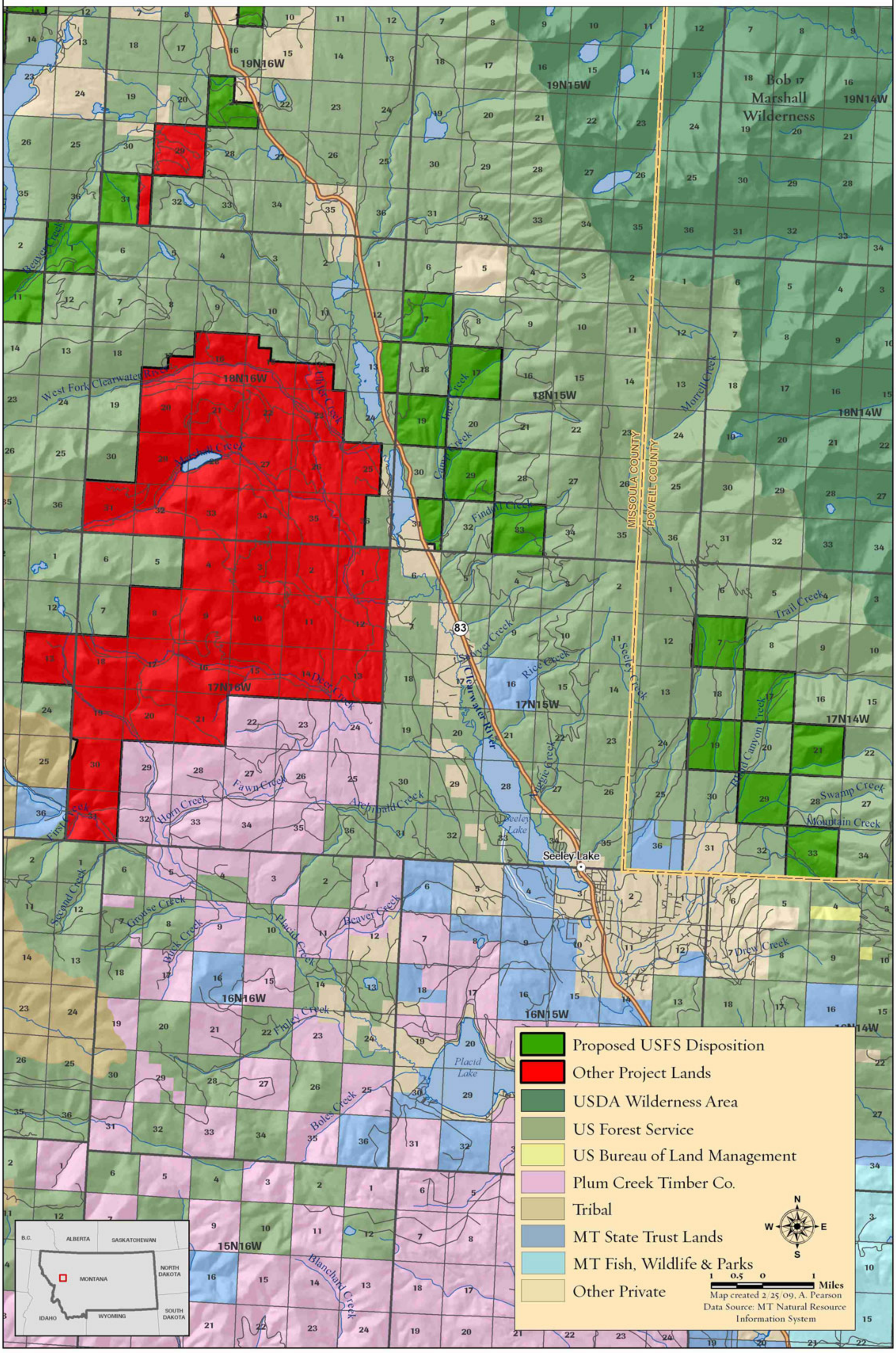
Montana Legacy Project
~ Clearwater ~



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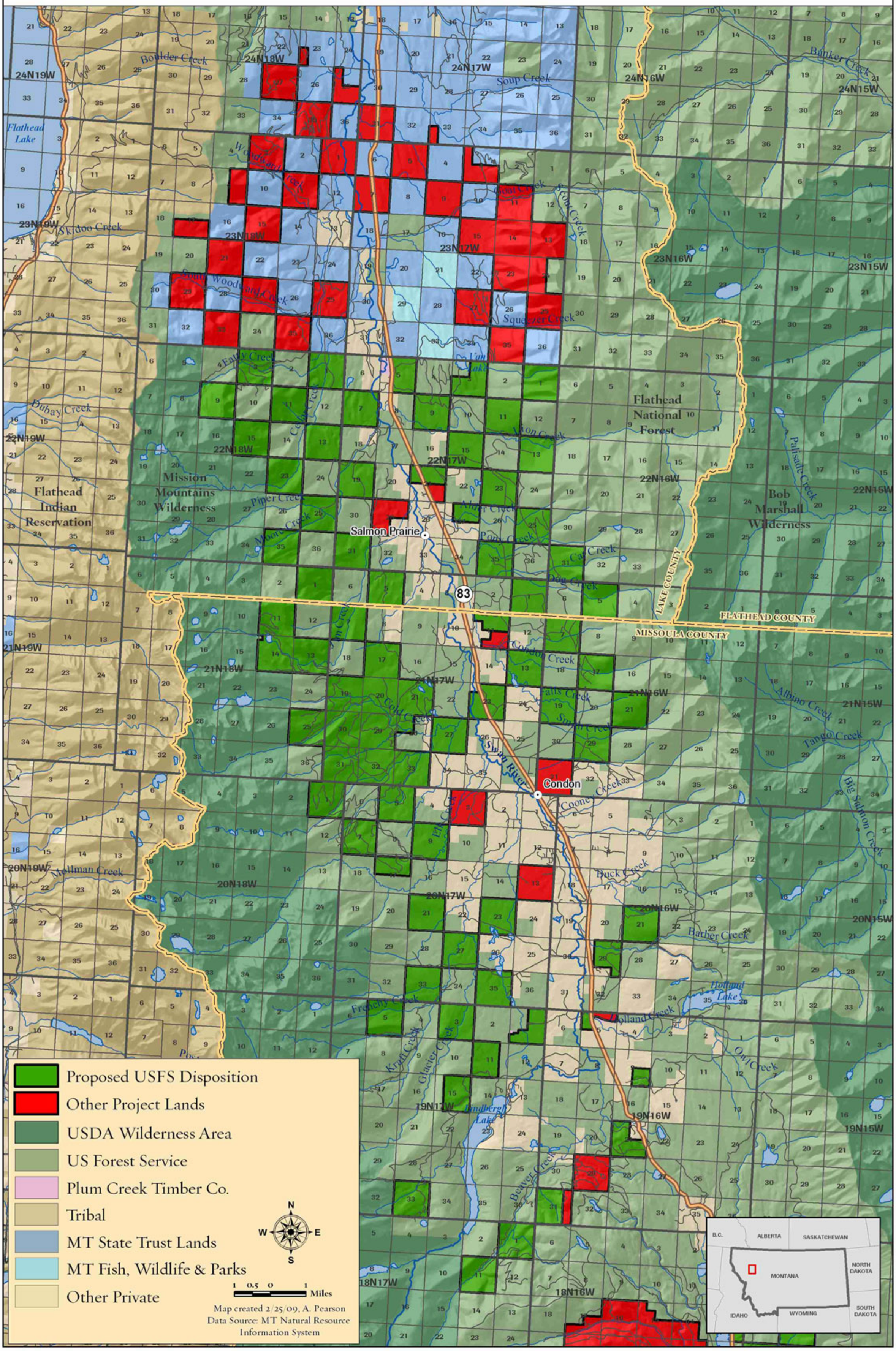
CONSERVING LAND FOR PEOPLE

MONTANA LEGACY PROJECT
~ SWAN WATERSHED ~



Map created 2/25/09, A. Pearson
Data Source: MT Natural Resource Information System

Hwy 83 Stream Crossings – Seeley lake to Clearwater-Swan Divide

1. **Seeley Creek – High Priority**
   Location: Cottonwood Lakes Rd intersection (Morrell Cr. Rd) –Seeley Lake city
   Culvert Type: Double Box Culvert
   Fish Species: WCT, EBT, Brook Stickleback
   Concerns: Outlet drop, double culvert debris catcher, high velocities on concrete floor at high flows, SEDIMENT SIDE-CAST!
   Pictures: See Lolo NF File
   Recommendation: Replace with stream simulation crossing
   Related Crossings: SOS Rd intersection with Cotonwood Lakes Rd ~ 0.25 miles upstream of Hwy 83 – Damaged, undersized culvert that also needs upgrade

2. **Auggie Creek**
   Location: ~ MM 16.5
   Culvert Type: Concrete 3.9 ft culvert
   Fish Species: Stream intermittent at Hwy 83, likely perennial & fish upstream (?)
   Concerns: Long, undersized culvert, SEDIMENT SIDE-CAST!, concrete weirs in stream just upstream of crossing
   Pictures: See Lolo NF File
   Recommendation: Replace with stream simulation crossing
   Related Crossings: USFS Crossing upstream

3. **Rice Creek**
   Location: At Seeley Lake Ranger Station
   Culvert Type: Concrete 3.9 ft culvert
   Fish Species: WCT, EBT – small stream
   Concerns: Long, undersized culvert, SEDIMENT SIDE-CAST! Culvert is on flat grade and has maintained natural stream substrate
   Pictures: See Lolo NF File
   Recommendation: May be partial barrier - Replace with stream simulation crossing when culvert life up
   Related Crossings: At least 3 other crossings - USFS crossing far upstream likely a barrier

4. **Sawyer Creek – High Priority**
   Location: ~ MM 19.1
   Culvert Type: Concrete 4'W x 6'H box culvert
   Fish Species: WCT, EBT – small stream
   Concerns: Long, undersized culvert, with CONCRETE WEIR barrier inside culvert (see photo), SEDIMENT SIDE-CAST!
   Pictures: See Lolo NF File
   Recommendation: Remove concrete weir ASAP - Replace with stream simulation crossing
   Related Crossings: None

5. **Benedict Creek – High Priority**

Location: ~ mm 20.1
Culvert Type: Concrete 3.9 ft culvert
Fish Species: BULL TROUT,WCT, EBT, Brook Stickleback
Concerns: Concrete box culvert with ~ 3 ft perch at downstream end, SEDIMENT SIDE-CAST!
Pictures: See Lolo NF File
Recommendation: Complete Barrier - Replace with stream simulation crossing that is on grade
Related Crossings: Vastly undersized double culverts ~ 100 m upstream of Hwy 83 – Also definitely need to be replaced, 2 USFS crossings upstream

6. **Murphy Creek**

Location: ~ mm 20.7
Culvert Type: Double concrete box culvert
Fish Species: WCT – small stream
Concerns: Outlet drop (~6 inches), double culvert debris catcher, high velocities on concrete floor at high flows, SEDIMENT SIDE-CAST!
Pictures: None
Recommendation: Replace with stream simulation crossing
Related Crossings: 2 USGS crossings upstream

7. **Findell Creek - High Priority**

Location: ~ mm 21.3
Culvert Type: 6'H x 4'W concrete box culvert
Fish Species: WCT, EBT – small stream
Concerns: Long, steep concrete bottom culvert, high velocities on concrete floor at high flows, SEDIMENT SIDE-CAST!
Pictures: See Lolo NF File
Recommendation: Replace with stream simulation crossing
Related Crossings: Perched culvert upstream on USFS

8. **Camp Creek**

Location: ~ mm 22.1
Culvert Type: Low clearance box culvert
Fish Species: WCT, EBT, likely bull trout – larger stream
Concerns: Aggrading at HWY 83, Jersey rails in stream, SEDIMENT SIDE-CAST!
Pictures: See Lolo NF File
Recommendation: Replace with bridge
Related Crossings: Multiple inheadwaters

9. **Un-named Trib**
   Location: ~ mm 24.3
   NEEDS TO BE EVALUATED – UNDER SNOW

10. **Richmond Creek - High Priority** UNDER SNOW
   Location: ~ mm 26 (?)
   Culvert Type: culvert (?)
   Fish Species: WCT, EBT, Excellent cutthroat stream!
   Concerns: ?? Listed as barrier by Burford – needs further evaluation
   Pictures: None
   Recommendation:
   Related Crossings: Possible partial barrier upstream

11. **Un-named Trib**
   Location: ~ mm 26.5
   NEEDS TO BE EVALUATED – UNDER SNOW

12. **E. Fork Clearwater River - High Priority** UNDER SNOW
   Location: ~ mm 27.7
   Crossing Type: Large box culvert - 4-6" lip at outlet
   Fish Species: WCT, EBT, Bull Trout Excellent bull trout and cutthroat stream!
   Concerns: Lip on downstream side - box culvert collects debris
   Pictures: See Lolo NF File
   Recommendation: Replace with bridge
   Related Crossings: Several USFS crossings upstream – several recent replacements and fish passage corrective measures

13-14. **Two additional un-named tribs upstream**
   Location: ~ mm 28.9 & 29
   NEED TO BE EVALUATED – UNDER SNOW

Other Significant Fish Passage Problems at Crossings in the Clearwater Drainage

1. Colt Creek
2. N. Fork Placid Creek
3. Upper Trail Creek

Highway 83 Stream Crossings
July 7, 2003

Seeley Creek: Seeley Creek is located in Township 17 North and Range 15 West in the southeastern quarter of section 34. The culvert type is a box with a height of 3 feet and a width of 4 feet. The length of the culvert is 32 feet on a 2% slope. The pipe is made of concrete. The average upstream bankfull channel width is 6.925 feet. The channel gradient both upstream and downstream is estimated to be 1.5-2%. The Rosgen channel type both upstream and downstream is $C_{3/4}$. The concrete is beginning to deteriorate on the outlet and the sand from the road drains into the stream.

Seeley Creek Inlet

Seeley Creek Outlet

Too Narrow

Data Source	Location	Survey Date	Fish Presence
Montana Fish Wildlife and Parks	T 17 N, R 14 W, S 35	6/21/1995	Westslope Cutthroat, Brook Trout, and Rainbow Cutthroat Hybrid

Auggie Creek: Auggie Creek is located in Township 17 North and Range 15 West in the northwestern quarter of section 34. The culvert type is circular with a height of 3.8 feet and a width of 3.9 feet. The length of the culvert is 73 feet on a 3% slope. The pipe is made of concrete. The average upstream bankfull channel width is 4.975 feet. The channel gradient upstream is estimated to be 10% and downstream is estimated to be 3%. The Rosgen channel type upstream is A_3 and downstream is B_3. Sand from the road drains into the stream. A series of log weirs exist about 50 feet upstream.

Auggie Creek Inlet

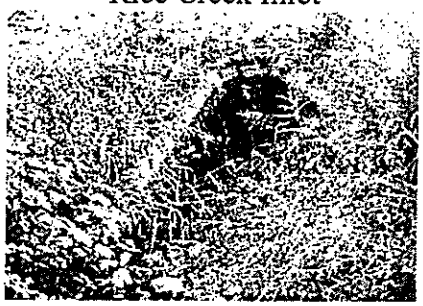
Auggie Creek Outlet

Too Narrow

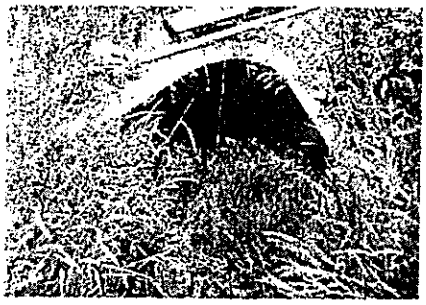
mm 16.5

Rice Creek: Rice Creek is located in Township 17 North and Range 15 West in the northwestern quarter of section 21. The culvert type is circular with a height of 3 feet and a width of 3.9 feet. The length of the culvert is 58 feet on a 1% slope. The pipe is made of concrete. The average upstream bankfull channel width is 6.275 feet. The channel gradient upstream is estimated to be 4-5% and downstream is estimated to be 3.5-4%. The Rosgen channel type upstream is B_{3a} and downstream is B_{3a}.

Rice Creek Inlet



Rice Creek Outlet



Sawyer Creek: Sawyer Creek is located in Township 17 North and Range 15 West in the northeastern quarter of section 17. The culvert type is a box with a height of 6 feet and a width of 4 feet. The length of the culvert is 36 feet on a 3% slope. The pipe is made of concrete. The average upstream bankfull channel width is 6.2 feet. The channel gradient upstream is estimated to be 4.5% and downstream is estimated to be 7%. Large amounts of fine sediment enter the stream from the road. A twelve inch wooden weir exists at the culvert inlet and may be a fish barrier. Water velocity has been compromised and was immeasurable at culvert inlet.

Sawyer Creek Inlet

Sawyer Creek Outlet

Data Source	Location	Survey Date	Fish Presence
Montana Fish Wildlife and Parks	T 17 N, R 15 W, S 17	6/22/1995	Westslope Cutthroat and Rainbow Cutthroat Hybrid

Benedict Creek: Benedict Creek is located in Township 17 North and Range 15 West in the northwestern quarter of section 8. The culvert type is a box with a height of 4 feet and a width of 6 feet. The length of the culvert is 32 feet on a 3% slope. The pipe is made of concrete. The average upstream bankfull channel width is 6.275 feet. The channel gradient upstream is estimated to be 8% and downstream is estimated to be 3%. Large amounts of road silt and sand enter the stream from the road. The outlet cascade is a fish barrier.

Benedict Creek Inlet

Benedict Creek Outlet

Data Source	Location	Survey Date	Fish Presence
Montana Fish Wildlife and Parks	T 17 N, R 15 W, S 8	6/19/1995	Rainbow Trout, Rainbow Cutthroat Hybrid, and Brook Trout

MM 20.1

Murphy Creek: Not surveyed. MM 20.7

Findell Creek: Findell Creek is located in Township 17 North and Range 15 West in the northeastern quarter of section 6. The culvert type is a box with a height of 6 feet and a width of 4 feet. The length of the culvert is 44 feet on a 6% slope. The pipe is made of concrete. The average upstream bankfull channel width is 4.9 feet. The channel gradient upstream is estimated to be 6% and downstream is estimated to be 3%. Large amounts of road sediment enter the stream from the road.

Findel Creek Inlet

Findell Creek Outlet

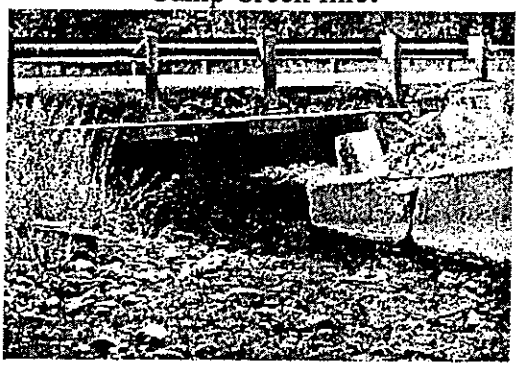
Too Narrow

Data Source	Location	Survey Date	Fish Presence
Forest Service	T 17 N, R 15 W, S 6	1991	Westslope Cutthroat, Whitefish

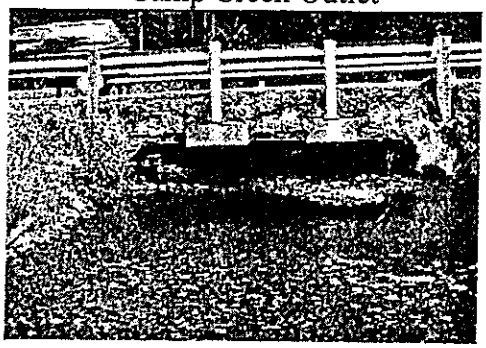
MM 21.3

Camp/Inez Creek: Camp/Inez Creek is located in Township 18 North and Range 15 West in the southeastern quarter of section 31. The culvert type is a box with a height of 2 feet and a width of 16 feet. The length of the culvert is 32 feet on a 2% slope. The pipe is made of concrete. The average upstream bankfull channel width is 8.0 feet. The channel gradient upstream is estimated to be 8% and downstream is estimated to be 2%. Large amounts of road sediment enter the stream from the road.

Camp Creek Inlet



Camp Creek Outlet



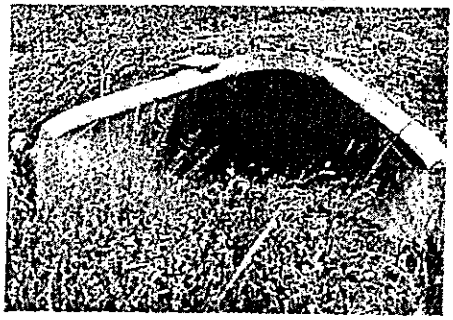
Data Source	Location	Survey Date	Fish Presence
Forest Service	T 18 N, R 15 W, S 32	1996	Westslope Cutthroat, Brook Trout

Unnamed Tributary in Section 30: This unnamed tributary is located in Township 18 North and Range 16 West in the southwest quarter of section 30. The culvert type is circular with a height of 16 feet and a width of 16 feet. The length of the culvert was not measured, nor was the slope. The pipe is made of corrugated metal.

Unnamed Tributary in Section 24: This unnamed tributary is located in Township 18 North and Range 16 West in the southwest quarter of section 24. The culvert type is circular with a height of 3.5 feet and a width of 7 feet. There is an 8 inch perch at the outlet. The length of the culvert is 74 feet on a 3% slope. The pipe is made of concrete. The average upstream bankfull channel width is 5.65 feet. The channel gradient upstream

Unnamed Inlet

Unnamed Outlet



is estimated to be 5.5% and downstream is estimated to be 3%. This tributary may have had a historic fish population.

Richmond Creek:

Data Source	Location	Survey Date	Fish Presence
Forest Service	T 18 N, R 16 W, S 2	1991	Westslope Cutthroat

mm 26

Unnamed Tributary in Section 12: No data.

mm 26.5

Clearwater River: Bridge. mm 27.7

Data Source	Location	Survey Date	Fish Presence
Montana Fish Wildlife and Parks	T 19 N, R 16 W, S 36	8/14/1995	Bull Trout, Rainbow Cutthroat Hybrid, and Westslope Cutthroat
	T 18 N, R 16 W, S 1	8/10/1995	Westslope Cutthroat
	T 18 N, R 16 W, S 1	8/11/1995	Bull Trout, Rainbow Cutthroat Hybrid, and Westslope Cutthroat
Forest Service	T 18 N, R 16 W, S 1	1998	Westslope Cutthroat, Brook Trout, Bull Trout
	T 18 N, R 16 W, S 1	1991	Westslope Cutthroat, Bull Trout
	T 19 N, R 16 W, S 36	1998	Westslope Cutthroat, Bull Trout

Unnamed Tributary to Bertha, Section 35: No data. mm 28.9 + 29

Note: All culvert crossings have large amounts of road sediment entering the stream channels. The streams are ordered from south to north.

Appendix E

PRELIMINARY SUCCESS MEASURES

Outcomes Report: ITEEM Highway 83 Pilot Study

HIGHWAY 83 ITEEM PILOT STUDY EXAMPLE SUCCESS MEASURES and GRADING
DECEMBER 2009

SUCCESS MEASURES

Conservation Opportunities (Ecosystem Outcomes)

- Substantive ecosystem benefits were realized. 4 3 2 1 NA
- Mitigation leveraged other resources to achieve a greater good. 4 3 2 1 NA
- Actions taken served to expedite the environmental review and approval process. 4 3 2 1 NA

Restoration Fund:

- A restoration fund of meaningful size (____ dollars) was established by_____ (date). 4 3 2 1 NA
- A mechanism to access restoration funds was developed and adopted by _____(date). 4 3 2 1 NA
- Funding was received from _____ (number) of sources. 4 3 2 1 NA
- Funding was leveraged to bring additional funding to restoration projects. 4 3 2 1 NA
- The parameters for using the funds were clear and meaningful. 4 3 2 1 NA
- _____ (number) of projects were undertaken and completed. 4 3 2 1 NA
- MDT received credit for its participation in the fund. 4 3 2 1 NA

Advance Remedies:

- Fish passage for ____ age classes of ____ species during _____(dates) was provided at the Highway 83 crossing of Benedict Creek. 4 3 2 1 NA
- Riparian restoration was implemented along the north Clearwater River bank adjacent to the MDT maintenance yard. 4 3 2 1 NA
- _____ (number) of potential sites improved. 4 3 2 1 NA
- _____ (number) of entities/agencies participated in the remedies. 4 3 2 1 NA
- The remedies made cost-effective use of available resources. 4 3 2 1 NA
- MDT received credit for its participation in this effort. 4 3 2 1 NA

ITEEM Process

Data Assimilation:

- Project study area was clearly identified. 4 3 2 1 NA
- % of data received by proponent by the agreed-upon date. 4 3 2 1 NA
- Agency data were presented to proponent in usable formats. 4 3 2 1 NA
- Maps produced by proponent were usable and contained appropriate data. 4 3 2 1 NA
- % of agencies participating in providing data, as applicable. 4 3 2 1 NA
- Agencies provided data that were "new" to other agencies. 4 3 2 1 NA
- Data revealed potential issues and opportunities. 4 3 2 1 NA

Workshop Preparation:

- Participants received preparatory materials in advance of the workshop. 4 3 2 1 NA
- Materials produced by proponent were usable and contained appropriate data. 4 3 2 1 NA
- % of participant agencies attending preparatory meetings. 4 3 2 1 NA
- Participants were prepared for discussion and decisions. 4 3 2 1 NA
- If desired by Group, pre-workshop interviews were conducted and useful. 4 3 2 1 NA
- Participants informed/consulted with others within their respective agencies in order to bring agency perspective and ideas to the table. 4 3 2 1 NA

Coarse-Scale Identification of Issues and Opportunities:

- Proponent adequately solicited preliminary issues and opportunities. 4 3 2 1 NA
- Preliminary issues and opportunities were provided to proponent according to agreed-upon schedule. 4 3 2 1 NA
- Preliminary issues/opportunities were realistic and appropriate relative to the process context. 4 3 2 1 NA

- Preliminary issues/opportunities were considered in sufficient advance detail by agencies to facilitate field review. 4 3 2 1 NA
- Appropriate public input was received. 4 3 2 1 NA

Field Review to Refine Issues and Opportunities:

- There was adequate time in the field review to visit the "project" as well as opportunities. 4 3 2 1 NA
- % of the highest-priority opportunities reviewed. 4 3 2 1 NA
- Agency "sponsors" of specific opportunities were prepared to guide Group to and discuss the opportunities in sufficient detail. 4 3 2 1 NA
- Field review participants learned useful information. 4 3 2 1 NA

Prioritization Approaches:

- A set of criteria for prioritization of issues and opportunities was agreed-upon. 4 3 2 1 NA
- Issues were prioritized by the group. 4 3 2 1 NA
- Opportunities were prioritized by the group. 4 3 2 1 NA
- Consensus was achieved regarding issues. 4 3 2 1 NA
- Consensus was achieved regarding opportunities. 4 3 2 1 NA
- Prioritization led to initiation of action. 4 3 2 1 NA
- Success measures were developed / approved by the group. 4 3 2 1 NA

Documentation and Reporting:

- Reports adequately captured the results of the process and outcomes. 4 3 2 1 NA
- Agency comments were received by proponent according to the agreed-upon schedule. 4 3 2 1 NA
- Reports were delivered to the Group according to the agreed-upon schedule. 4 3 2 1 NA

Agency Representation and Involvement:

- All agencies that agreed to participate were meaningfully engaged in the process. 4 3 2 1 NA
- The appropriate agency representatives were designated to the process. 4 3 2 1 NA
- Participants informed / consulted with others within their respective agencies in order to bring agency perspective and ideas to the table. 4 3 2 1 NA

Agency Follow-Through on Commitments:

- A check-back meeting schedule was developed. 4 3 2 1 NA
- Agency follow-through occurred relative to designated tasks. 4 3 2 1 NA
- Follow-through was conducted per agreed-upon timeframes. 4 3 2 1 NA
- Agency commitments were honored. 4 3 2 1 NA
- Proponent commitments were honored. 4 3 2 1 NA
- Recommendations that emerged from the process received agency endorsement and support. 4 3 2 1 NA

EXAMPLE GRADING SYSTEM KEY

Answer to Individual Success Measure Questions	Points
100% or Strongly Agree	4
75-99% or Generally Agree	3
50-74% or Generally Disagree	2
< 50% or Strongly Disagree	1
Not Applicable	NA

Comments:_____
_____
_____
_____
_____
_____
_____