Draft
Environmental Assessment
Stuart Mill Bay Fishing Access Site Timber Salvage Project

October 2012

Montana Fish, Wildlife & Parks

Region 2
3201 Spurgin Road, Missoula, MT 59804
Phone 406-542-5500

ENVIRONMENTAL ANALYSIS
MEPA/NEPA CHECKLIST

MISSION. Montana Fish, Wildlife & Parks, through its employees and citizen commission, provides for the stewardship of the fish, wildlife, parks, and recreational resources of Montana, while contributing to the quality of life for present and future generations.

All Montanans have the right to live in a clean and healthful environment. This brief environmental analysis is intended to provide an evaluation of the likely impacts to the human environment from proposed actions of the project cited below. This analysis will help Montana Fish, Wildlife & Parks to fulfill its oversight obligations and satisfy rules and regulations of both the Montana Environmental Policy Act (MEPA) and the National Environmental Policy Act (NEPA). The project sponsor has a responsibility to ensure that all impacts have been addressed. Some effects may be negative; others may be positive.

PART I. PROPOSED ACTION DESCRIPTION

1. Type of proposed action:
   - Development _____
   - Renovation _____
   - Maintenance _____
   - Land Acquisition _____
   - Equipment Acquisition _____
   - Other (Forest Management) __X__

2. If appropriate, agency responsible for the proposed action:
   Montana Fish, Wildlife & Parks

3. Name, address phone number and E-mail address of project sponsor:
   Montana Fish, Wildlife & Parks, 3201 Spurgin Road, Missoula, MT 59804; phone (406) 542-5500

4. Name of project:
   Stuart Mill Bay Fishing Access Site Timber Salvage Project

5. Anticipated timeline if applicable:
   Estimated construction/commencement date: November 30, 2012
   Estimated completion date: November 30, 2013
   Current status of project design (100% complete):
   Forest Health Prescription and Draft Environmental Assessment 100% complete;
   Implementation 0% complete

6. Location affected by proposed action (county, range and township):
   Section 19, T5N, R13W; Deer Lodge County, Montana.

7. Project size: estimate the numbers of acres that would be directly affected that are currently:

   (a) Developed:
   residential..... ___ acres
   industrial ..... ___ acres

   (b) Open Space/Woodlands/
   Recreation..... 80 acres

(c) Wetlands/Riparian
Areas ..... _0_ acres

(d) Floodplain..... ___ acres

(e) Productive:
irrigated cropland..... ___ acres
dry cropland..... ___ acres
forestry ..... 80 acres
rangeland..... ___ acres
other ..... ___ acres

8. Map/site plan: See Figure 1 and 2.

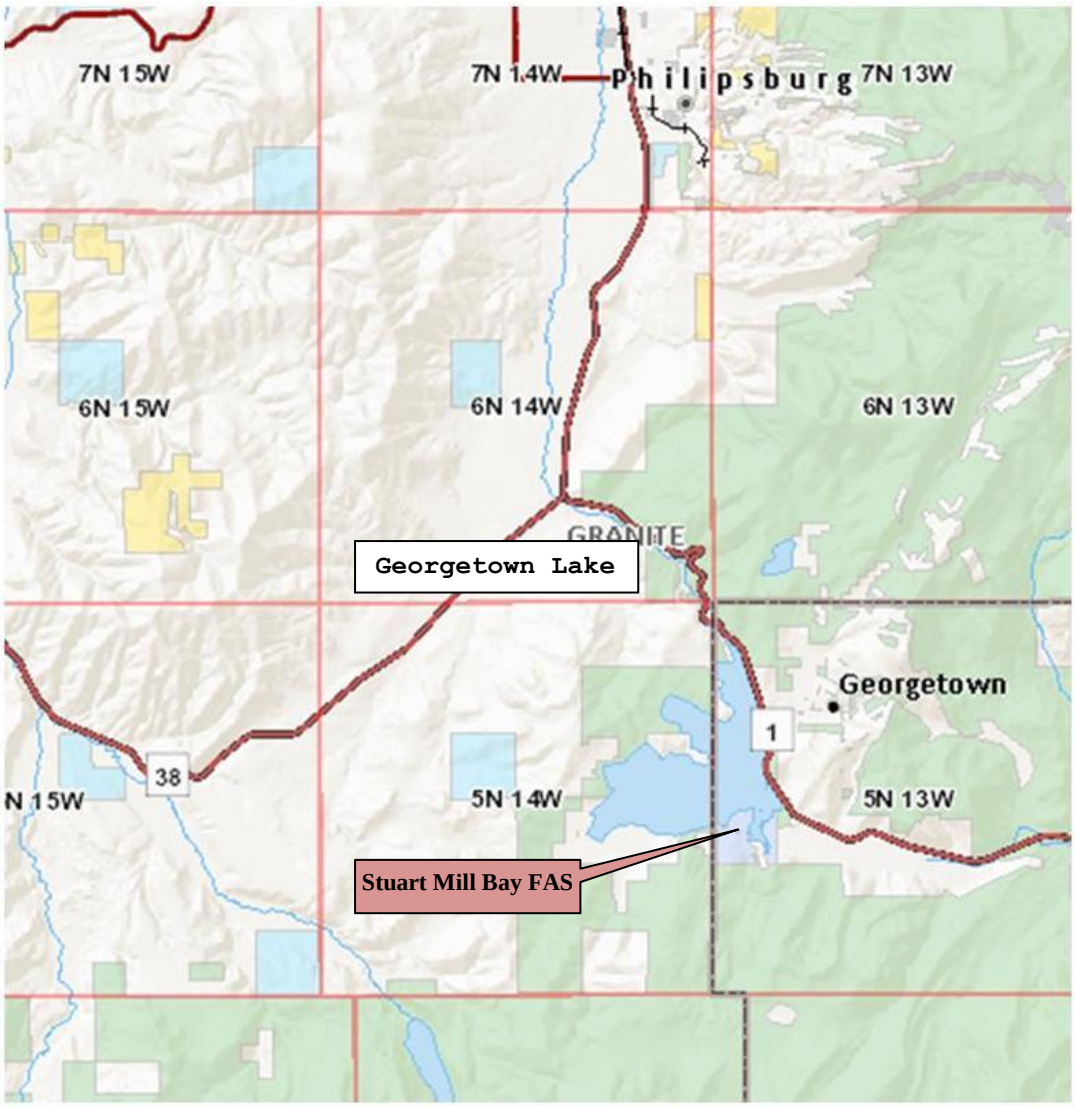

Figure 1. Project site location map

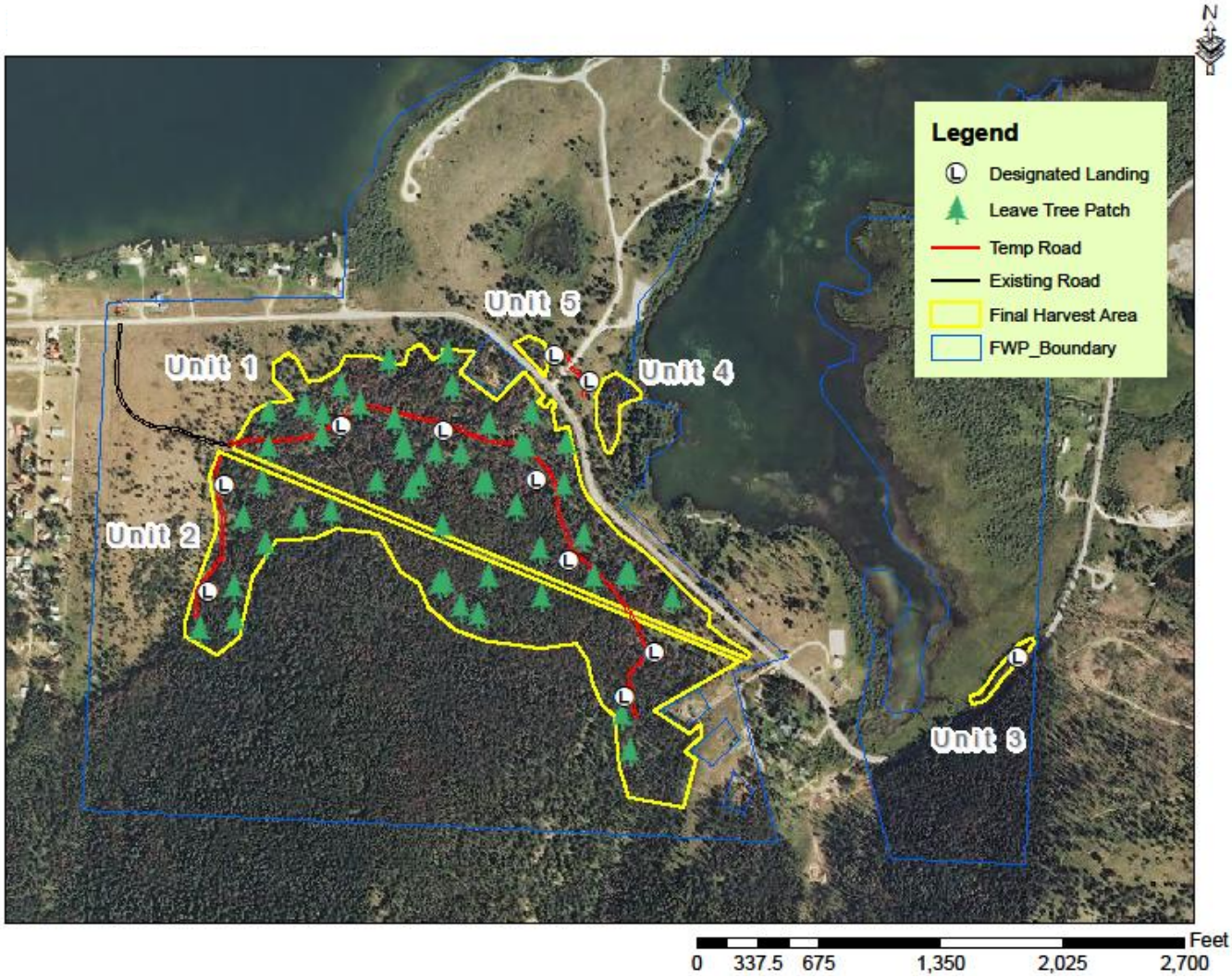

Figure 2. Proposed timber salvage areas at Stuart Mill Bay FAS

9. Narrative summary of the proposed action or project including the benefits and purpose of the proposed action:

The purpose of this action is to complete a forest salvage project (harvest of dead or dying timber) at Stuart Mill Bay Fishing Access Site (FAS), owned and managed by Montana Fish, Wildlife & Parks (FWP). The combined total acreage proposed for treatment is approximately 80 acres, which is approximately 40% of the approximately 200 forested acres on the property. The total acreage of the FAS is 362 acres. The majority of the forested habitat is being left untreated to maintain forest cover and diversity. Within the untreated area, although containing lodgepole pine, there is a Douglas-fir component which is not susceptible to pine beetle attacks. Harvesting therefore, in the untreated area is not as critical, as a Douglas-fir stand would still remain in the event that most of the lodgepole pine would be lost to pine beetles. Conversely, the treated area is primarily lodgepole pine and is currently severely infested with pine beetles.

The objective is to maintain the property over time so it: provides wildlife habitats; is a forest cover that is healthy and is insect, disease, and fire resistant while giving consideration to aesthetic values; and is safe for public use. Another objective of the project is to remove the dead and dying lodgepole pine along the portion of the stand nearest roads and private dwellings to reduce the threat of fire. A healthy new stand of lodgepole pine is anticipated to begin reestablishing the area within four to five years of harvest. Prior to the reestablishment of a new forest, the area would be grassland, an ecotype that has become less common due to forest encroachment in the Georgetown Lake area since fire suppression management.

Typically, once a stand of lodgepole pine grows to maturity it may be harvested commercially, or left unharvested, a stand would usually succumb to a natural event such as fire, wind throw, disease and/or insect attack. Lodgepole pine is a species that grows as an even-aged species, meaning all the individual trees within a given stand are essentially the same age. The stand of lodgepole pine at Stuart Mill Bay FAS has grown to maturity and is in the process of dying from a mountain pine beetle attack. Many trees are already dead, whereas others are alive, but are heavily infested and are likely soon to die. Some trees are currently uninfested. If the stand is left unharvested, the vast majority of lodgepole pine in the area is expected to die and fall. Regeneration of the forest would be delayed by the fallen timber, and the threat of a wildfire fueled by dead timber could jeopardize structures in the area. The Douglas-fir and the occasional Engelmann spruce component of the stand would not be harvested. The long-term goal is to regenerate the stand for wildlife cover as well as aesthetic reasons. The specific objectives of this project include:

a. Expedite the regeneration of the lodgepole stand and allow for expansion of Douglas-fir to provide a healthy forest environment by removing infested trees, and provide a grassland environment in the interim.
b. Create an environment that improves forest quality for wildlife and people.
c. Reduce fire fuel loads and lower the risk of fire in order to protect the FAS and neighboring private lands.
d. Remove trees that are potentially hazardous to visitors.
e. Improve the aesthetic value of the forested property.

Stuart Mill Bay FAS is located in an area that has seen significant development of year-round and seasonal home growth in recent years. The FAS property is surrounded on three sides by private property, all of which contain private dwellings. Minimal forest management has occurred in the area over the recent years due primarily to the fact that the primary forest type is lodgepole pine, which requires complete stand removal for proper regeneration. With much of the ownership in the area being privately held (many with dwellings), landowners have enjoyed the benefits of nearby forested lands for many decades. Harvesting trees on properties around Georgetown Lake was a rare occurrence and done typically for firewood gathering or hazard tree removal purposes. Conditions have changed dramatically with the arrival of mountain pine beetle outbreaks throughout the western US and specifically in western Montana. Georgetown Lake has had a high level of beetle infestation. Much of the area is mature lodgepole pine, an ideal forest condition in which a beetle outbreak can thrive. FWP, as well as many other owners in the immediate area are implementing land management plans to adapt to the changing forest conditions.

In 2011, FWP asked the Montana Department of Natural Resources and Conservation (DNRC) to examine the property to get a professional opinion as to options for forest/timber management alternatives. This subsequent environmental assessment (EA) is the result of FWP and DNRC collaboration, ultimately arriving at a plan to best address the dilemma of a severe outbreak of mountain pine beetle on an FWP site. The objective of the plan is to manage the infested stand of timber through harvesting practices while providing for critical wildlife cover, reducing forest fire risk, reducing hazard trees and improving the aesthetics of the property. It should be noted that the majority of the FAS property would not be treated even though the infestation exists throughout the property. There are several contributing factors as to why the entire property would not be treated, although careful consideration was given to treating the entire property. Being a property of great value to both wildlife and people, it is recommended that only the portions of the property that are the greatest fire threat and those areas that have the heaviest concentration of lodgepole pine would be harvested; these areas are roughly in the central portion of the western two-thirds of the FAS. Being aware of the degree to which harvesting is occurring on private and public lands elsewhere in the Georgetown area, there is a need to retain some cover for wildlife in the near term. Another reason for not harvesting much of the southern portion of the property is because Douglas-fir is intermixed amongst the lodgepole pine in the southern portion of the stand. Even though a large number of pine have died (or are expected to die) and would go unharvested in the southern portion of the stand, the dead standing timber, coupled with the healthy Douglas-fir would provide cover corridor for big game such as moose, elk and deer. Since this stand is one of the last undeveloped tracts of land in the area connecting larger tracts of public ground with Georgetown Lake, it is important to leave some cover to allow for wildlife movement in the area. Similarly, a portion of the stand (area south of Unit 3, Figure 2) would not be harvested.

It is important to realize that lodgepole pine is a species that needs to be harvested as an even-aged species, meaning "take all or none" in any given area. In order for lodgepole to properly regenerate, it ideally needs 100% sunlight to increase its chances of regenerating to a fully stocked stand. A "select tree cut" is not an option for lodgepole pine in most instances. Due to particular considerations of this project, a large portion of the stand would not be treated with a harvest prescription. Attention has been given to leaving a substantial number of wildlife snag trees in the timber harvest area. Harvest would occur during late fall or winter months to lessen impacts on humans and wildlife. Harvesting of commercial timber by a commercial operator would be expected to occur between November 30, 2012 and February 1, 2013. FWP would enter into an agreement with a post-commercial harvest hand-crew contractor to complete harvesting of unmerchantable stems.

Harvest treatment of merchantable timber would occur through a commercial timber sale using mechanical harvesters as well as chainsaws. Minimal necessary length of temporary haul roads would be constructed to transport harvested timber. Upon sale completion, the haul roads would be seeded. Vehicles would not be permitted to drive on temporary haul roads once the harvest is completed. Slash would be piled and burned when appropriate conditions exist.

Precautions would be taken to close roads during the project to prevent non-project vehicles from entering. Signs would be prominently displayed informing visitors of the project and potentially hazardous conditions. Areas would be closed to public access while work is being performed and machinery is being operated, or if conditions are deemed unsafe.

Weed Management:

All guidelines and recommendations for managing noxious weeds would be followed according to the Statewide Integrated Noxious Weed Management Plan. These include, but are not limited to:

a. Power washing any vehicle or equipment that would be driven off-road, prior to arrival on the property.
b. Any logging and thinning activities, which expose large areas of mineral soil, would be seeded with a native seed mix recommend by the USDA Natural Resource Conservation Service.
c. As needed, a combination of mechanical, biological and chemical controls would be utilized.

In Region 2, FWP typically hires a weed spray contractor on an annual basis to spray weeds at FASs in an attempt to eliminate or control the spread of weeds. Most FASs in the region are sprayed on an every-other-year schedule, with some sites addressed on an annual basis.

10. Description and analysis of reasonable alternatives:

Alternative A: No action.

Action: FWP would not initiate forest management practices at Stuart Mill Bay FAS and would let the natural progression of succession take place. Lodgepole regeneration and associated wildlife habitat would be delayed. Regeneration of a healthy lodgepole stand would be in jeopardy as the stand would die and remain uncut--a scenario that usually does not result in regenerating a fully stocked stand.

Mountain pine beetle infestation would continue to kill lodgepole pine. Dead trees would continue to deteriorate and fall, posing safety hazards to power lines, recreationists, adjacent landowners, and site improvements. FWP staff would be challenged in maintaining a safe FAS due to hazardous standing-dead timber.

Because beetle-infested trees would not be removed, beetles would continue to disperse from currently infected trees, resulting in more trees being attacked, with potential infestation spread on adjacent lands.

This area is rated "very high" for fire risk under the Deer Lodge County Wildfire Protection Plan. The dead fuel component would increase over time and reduce the potential of controlling a wildfire. Adjacent landowners and improvements such as roads and power lines would be at risk.

The long-term aesthetics of this tract of public land would be impacted as trees transition from a green color to a dead red and eventually fall, creating a tangle of dead downed timber.

Alternative B: Complete the timber harvest prescription as recommended.

Action: This alternative would address forest health and regeneration objectives by removing all lodgepole pine and creating a suitable seed bed for the next generation of lodgepole. In addition, healthy grassland would be established and managed with weed control practices. Patches containing 10-15 "leave" (unharvested) trees would be retained for wildlife habitat (especially birds) at the rate of one patch per one and a half acres.

With removal of the beetle-infested trees, various hazards associated with dead fall and fire would be reduced. Typically, in four to five years after harvest, a new stand of lodgepole pine would begin to establish. A mosaic of age classes often develop over time and forest health and forest diversity improve.

Because much of the forested portion to the south of the proposed harvest would remain unharvested, an older and species-diverse stand with a Douglas-fir component would remain. This area would also contain many dead trees that provide wildlife habitat.

Reducing fuels throughout the harvest area would improve access for emergency vehicles and provide a safer working environment for firefighters who could be involved with future fire suppression and structure protection in the vicinity. Efforts to reduce the fire hazard and improve overall forest health are intended to have long-term benefits for on-site recreationists as well as homeowners residing adjacent to the stand.

The implementation of this alternative would meet the requirements of the state's "Good Neighbor Policy" (23-1-126, Montana Code Annotated [MCA]) that seeks a goal of no impact upon adjoining private and public lands. Additionally, this alternative would be in keeping with the intentions of 87-1-201(9)(iv), MCA that requires FWP to address fire mitigation and pine beetle infestations on forested lands in excess of 50 acres.

11. List each local, state or federal agency that has overlapping or additional jurisdiction:

(a) Permits		
Agency Name: MT Dept. of Environmental Quality	Permit: Air Quality and Open Burning	Date Filed: Would be obtained prior to burning slash

(b) Funding	
Agency Name: MT Dept. of Fish, Wildlife & Parks	Funding Amount: The harvested stumpage revenues would generate income, thus funding is not needed. Income would be spent on post-harvest clean-up and restoration. The goal is to manage the resource as a "no-cost" project. Any revenue in excess of project costs would be deposited into the FWP Forest Management Account to implement forest management projects per 87-1-621, MCA.

(c) Other Overlapping or Additional Jurisdictional Responsibilities	
Agency Name:	Type of Responsibility:
MT Dept. of Natural Resources & Conservation	Wildfire Suppression
MT State Historical Preservation Office	Archeological & Cultural Site Protection
MT Natural Heritage Program	Species of Concern
US Fish & Wildlife Service	Bald & Golden Eagle Protection Act
US Fish & Wildlife Service	Migratory Bird Treaty Act
Montana Bald Eagle Working Group	Montana Bald Eagle Management Plan

12. List of agencies consulted during preparation of this Environmental Checklist:
    MT DNRC, Anaconda Unit
    MT State Historical Preservation Office
    MT Natural Heritage Program

13. Name of preparer(s) of this Environmental Checklist:
    Rory Zarling, FWP Region 2, FAS Program Coordinator, Missoula
    Sean Steinebach, DNRC, Service Forester, Anaconda

14. Date submitted: October 4, 2012

PART II. ENVIRONMENTAL CHECKLIST

1. LAND RESOURCES **Will the proposed action result in:**	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Soil instability or changes in geologic substructure?			X		Y	1a.
b. Disruption, displacement, erosion, compaction, moisture loss, or over-covering of soil which would reduce productivity or fertility?			X		Y	1b.
c. Destruction, covering or modification of any unique geologic or physical features?		X				1c.
d. Changes in siltation, deposition or erosion patterns that may modify the channel of a river or stream or the bed or shore of a lake?		X				1d.
e. Exposure of people or property to earthquakes, landslides, ground failure, or other natural hazard?		X				1e.
f. Other		X				

NARRATIVE DESCRIPTION AND EVALUATION:

Timber removal would occur during the late fall and/or winter to minimize ground disturbance, compaction or erosion. Any disturbed areas would be reseeded with prescribed grass seed mix to reduce erosion and compaction. Any invading noxious weeds would be managed according to the Montana Fish, Wildlife & Parks Statewide Integrated Noxious Weed Management Plan.

1a. A short-term effect caused by the use of mechanical equipment to harvest and transport trees to landings may lead to some soil compaction. Ground disturbance would be mitigated by seasonal operating restrictions (i.e., fall/winter conditions) by working with mechanical equipment on frozen ground when possible and operating on soils designated “moderately or well suited” for timber harvest under the Web Soil Survey. In the long term, areas of exposed mineral soils would be seeded with a native grass seed mix. Long term effects would be minimized with seasonal operating restrictions and mitigation measures.

1b. There is potential for short and long-term effects of soil compaction and erosion on temporary haul roads. Temporary haul roads would be used during winter conditions and compaction and soil erosion are expected to be at a minimum. Temporary roads would be made impassable and reseeded upon harvest completion.

1c. No unique geologic or physical features have been identified in the project area. The area identified for treatment is similar to surrounding terrain found outside the unit boundaries.

1d. No harvesting would occur in these water sensitive areas.

1e. Harvesting of timber in this location would not increase the chances of any of these disasters occurring.

2. AIR **Will the proposed action result in:**	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Emission of air pollutants or deterioration of ambient air quality? (also see 13 (c))			X		Yes	2a.
b. Creation of objectionable odors?			X		Yes	2b.
c. Alteration of air movement, moisture, or temperature patterns or any change in climate, either locally or regionally?			X		Yes	2c.
d. Adverse effects on vegetation, including crops, due to increased emissions of pollutants?			X		Yes	2d.
e. Any discharge that will conflict with federal or state air quality regs?		X				2e.
f. Other		X				

NARRATIVE DESCRIPTION AND EVALUATION:

2a & b: Machinery used during the timber removal project would create noise and emissions. This project would be done in the late fall or winter when recreational use is minimal to lessen perceived impacts. In addition, care would be taken to limit working hours to minimize disturbance to adjacent neighbors. All generated noise and emissions are temporary.

2c. A secondary effect of conducting a thinning or harvesting project within the FAS is the opening of the canopy which could lead to increases in ambient air temperature and increased wind movement. Due to the limited amount of acres involved in this project, the effect of thinning on temperature and air movement is considered minor.

2d. Burning of slash would result in temporary effects on air quality and create smoke which may impact adjacent neighbors. Burning would occur during periods when conditions are suitable for good air dispersion.

2e. All applicable air shed or burning permits would be acquired before any burning takes place.

3. WATER Will the proposed action result in:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Discharge into surface water or any alteration of surface water quality including but not limited to temperature, dissolved oxygen or turbidity?		X				
b. Changes in drainage patterns or the rate and amount of surface runoff?			X		Yes	3b.
c. Alteration of the course or magnitude of floodwater or other flows?		X				
d. Changes in the amount of surface water in any water body or creation of a new water body?		X				
e. Exposure of people or property to water related hazards such as flooding?		X				
f. Changes in the quality of groundwater?		X				
g. Changes in the quantity of groundwater?		X				
h. Increase in risk of contamination of surface or groundwater?		X				
i. Effects on any existing water right or reservation?		X				
j. Effects on other water users as a result of any alteration in surface or groundwater quality?		X				
k. Effects on other users as a result of any alteration in surface or groundwater quantity?		X				
l. Effects to a designated floodplain?		X				
m. Any discharge that will affect federal or state water quality regulations?		X				
n. Other:		X				

NARRATIVE DESCRIPTION AND EVALUATION:

3b. The majority of the harvesting operation would take place on the upland portion of the FAS. The cumulative effects on surface runoff would be minimal. In the short term there may be an increase in surface runoff due to skidding. This would be mitigated by conducting harvesting operations when the ground is snow-covered, frozen or firm.

4. VEGETATION Will the proposed action result in:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Changes in the diversity, productivity or abundance of plant species (including trees, shrubs, grass, crops, and aquatic plants)?			X		Yes	4a.
b. Alteration of a plant community?			X		Yes	4b.
c. Adverse effects on any unique, rare, threatened, or endangered species?		X				
d. Reduction in acreage or productivity of any agricultural land?		X				
e. Establishment or spread of noxious weeds?			X		Yes	4e.
f. Effects to wetlands or prime and unique farmland?		X				
g. Other:		X				

NARRATIVE DESCRIPTION AND EVALUATION:

4a & b. Over time, the cumulative effect of this project on the changes in diversity, productivity, and abundance of plant species is considered positive. In the short term, the 80 acre portion of the treatment would be changed from a forest to grassland, and in about 5-10 years a lodgepole forest would again begin to become established. It is believed that grassland was more common in the Georgetown Lake area prior to fire suppression management. The effects of this project would improve the health and vigor of the overall stand and increase the potential for regeneration and reduce potential catastrophic fire risk through fuel reduction.

4e: There is a possibility for the introduction of noxious weeds in disturbed soils. Disturbed soils would be reseeded where practical with native vegetation. Subsequent potential weed infestations would be addressed using methods outlined in the Statewide Noxious Weed Plan. In Region 2, FWP typically hires a weed spray contractor on an annual basis to spray weeds at FASs to attempt to contain, eliminate or control the spread of weeds. FWP would spray for weeds across the 80 acre treatment area.

5. FISH/WILDLIFE Will the proposed action result in:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Deterioration of critical fish or wildlife habitat?		X				5a.
b. Changes in the diversity or abundance of game animals or bird species?			X			5b.
c. Changes in the diversity or abundance of nongame species?			X			5c.
d. Introduction of new species into an area?		X				
e. Creation of a barrier to the migration or movement of animals?		X				
f. Adverse effects on any unique, rare, threatened, or endangered species?		X				
g. Increase in conditions that stress wildlife populations or limit abundance (including harassment, legal or illegal harvest or other human activity)?		X				
h. Adverse effects to threatened/endangered species or their habitat?		X				
i. Introduction or exportation of any species not presently or historically occurring in the affected location?		X				
j. Other:		X				

NARRATIVE DESCRIPTION AND EVALUATION:

5a. No harvesting activity would occur near the shoreline. Therefore there would be no effect on any fish habitat. No critical wildlife habitat would be affected. The harvest area in relation to the uncut forest acreage in the immediate vicinity is a small percentage. Regenerating eighty acres in this area would be beneficial as most of the area is currently mature or over mature.

5b & c. With the change in tree density, there may be some minor changes to the types or diversity of bird species in the area. Effect on the overall bird types or densities in the area would be insignificant. Groups of snag trees have been designated to be retained for wildlife purposes throughout the entire sale area. Species that prefer grassland habitat would likely be more common.

6. NOISE/ELECTRICAL EFFECTS Will the proposed action result in:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Increases in existing noise levels?			X			6a.
b. Exposure of people to severe or nuisance noise levels?			X			6b.
c. Creation of electrostatic or electromagnetic effects that could be detrimental to human health or property?		X				
d. Interference with radio or television reception and operation?		X				
e. Other:		X				

NARRATIVE DESCRIPTION AND EVALUATION:

6a & b: Machinery used during the timber removal project would create noise and emissions. This project would be done in the late fall or winter when visitation is at it's lowest to lessen disturbance. Workers would be exposed to intermittent noise levels that would require use of hearing protection. In addition, care would be taken to limit working hours to minimize disturbance to adjacent neighbors.

7. LAND USE Will the proposed action result in:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Alteration of or interference with the productivity or profitability of the existing land use of an area?		X				
b. A conflict with a designated natural area or area of unusual scientific or educational importance?		X				
c. A conflict with any existing land use whose presence would constrain or potentially prohibit the proposed action?		X				
d. Adverse effects on, or relocation of, residences?		X				
e. Compliance with existing land policies for land use, transportation, and open space?		X				
f. Increased traffic hazards, traffic volume, or speed limits or effects on existing transportation facilities or patterns of movement of people and goods?			X		Yes	7f.
g. Other:		X				

NARRATIVE DESCRIPTION AND EVALUATION:

7f. A temporary increase in industrial/commercial traffic would be associated with this project. Logging equipment and log hauling trucks would be active in the area for a few weeks. The project would occur during the lowest period of visitation. Additionally, appropriate traffic and hazard signing would be implemented to minimize conflict.

8. RISK/HEALTH HAZARDS Will the proposed action result in:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Risk of an explosion or release of hazardous substances (including, but not limited to oil, pesticides, chemicals, or radiation) in the event of an accident or other forms of disruption?			X		Yes	8a.
b. Effects on existing emergency response or emergency evacuation plan or create need for a new plan?		X				
c. Creation of any human health hazard or potential hazard?			X		Yes	8c.
d. Disturbance to any sites with known or potential deposits of hazardous materials?		X				
e. The use of any chemical toxicants?			X			8e.
f. Other:			X			8f.

NARRATIVE DESCRIPTION AND EVALUATION:

8a: The vehicles utilized during the timber operations contain various petroleum distillates, however the likelihood of an explosion or unwanted release of these hazardous substances is highly unlikely. The contractor must adhere to all applicable state laws, rules and regulations with respect to hazardous substances.

8c. This project would create temporary hazards associated with tree falling and equipment operation.
Professional personnel, knowledgeable in safety practices and procedures to protect themselves, would be used while completing this work. People with respiratory illness could experience a temporary health hazard resulting from smoke. Burning, when necessary, would occur during the period of lowest visitation. All applicable air shed and burn permits would be obtained.

8e. Herbicide application could create minor, temporary hazards during subsequent noxious weed treatments. Herbicide application would be conducted by state certified applicators and would follow all pertinent laws and restrictions.

8f. There would be a positive impact by lowering the risk of catastrophic wildfire due to reduction in potential fuels in the project area.

9. COMMUNITY IMPACT Will the proposed action result in:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Alteration of the location, distribution, density, or growth rate of the human population of an area?		X				
b. Alteration of the social structure of a community?		X				
c. Alteration of the level or distribution of employment or community or personal income?			X			9c.
d. Changes in industrial or commercial activity?		X				
e. Increased traffic hazards or effects on existing transportation facilities or patterns of movement of people and goods?			X		Yes	9e.
f. Other:		X				

NARRATIVE DESCRIPTION AND EVALUATION:

9c. There are no anticipated significant impacts to the community as a whole from these operations. However, work would be performed by contract, which would benefit the selected business and result in additional income to those involved with the project.

9e. A temporary increase in industrial traffic would be associated with this project. Logging equipment and log hauling trucks would be active in the area. Appropriate traffic and hazard signing would be implemented to minimize conflict.

10. PUBLIC SERVICES/TAXES/UTILITIES Will the proposed action result in:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. An effect upon, or result in a need for new or altered, governmental services in any of the following areas: fire or police protection, schools, parks/recreational facilities, roads or other public maintenance, water supply, sewer or septic systems, solid waste disposal, health, or other governmental services? If so, specify:		X				
b. Effects on the local or state tax base and revenues?		X				
c. A need for new facilities or substantial alterations of any of the following utilities: electric power, natural gas, other fuel supply or distribution systems, or communications?		X				
d. Increased used of any energy source?		X				
e. Other.		X				
Additional information requested:						
f. Define projected revenue sources.	See below					
g. Define projected maintenance costs.	See below					

NARRATIVE DESCRIPTION AND EVALUATION:

10f & g. It is planned to utilize the timber revenue from this project to further benefit the land resource by spending a large portion, if not all, of the income on seeding logging roads with native grasses, reclaiming (obliterating) temporary logging roads, falling residual unmerchantable stems, and other associated and beneficial activities.

11. AESTHETICS/RECREATION Will the proposed action result in:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Alteration of any scenic vista or creation of an aesthetically offensive site or effect that is open to public view?			X		Yes	11a.
b. Alteration of the aesthetic character of a community or neighborhood?			X		Yes	11b.
c. Alteration of the quality or quantity of recreational/tourism opportunities and settings? (Attach Tourism Report)			X		Yes	11c.
d. Adverse effects to any designated or proposed wild or scenic rivers, trails or wilderness areas?		X				
e. Other:		X				

NARRATIVE DESCRIPTION AND EVALUATION:

11a, b, & c: There would be temporary effects to visual quality during the course of harvesting operations. Timber harvesting would alter the current look. Whereas the current appearance is unsightly due to dead standing timber, a post-harvest appearance would be a more open environment. The more open environment over time would be replaced by a regenerating forest. Typically, in lodgepole timber types stands are either harvested, burn or left to decay. Harvested or burned stands need only a few years for regeneration to occur. Slash piles would be burned in a timely fashion to increase visual quality. To mitigate the impact of a severe immediate visual change, many of the trees along the highway would not be harvested.

Benefits include reduced fuel loads and the lowering of the risk of stand replacement fire, therefore increasing the tourism opportunities.

There would be no negative impact on tourism opportunities at the site.

12. CULTURAL/HISTORICAL RESOURCES Will the proposed action result in:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Destruction or alteration of any site, structure or object of prehistoric historic, or paleontological importance?		X				
b. Physical changes that would affect unique cultural values?		X				
c. Effects on existing religious or sacred uses of a site or area?		X				
d. Adverse effects to historic or cultural resources?		X				
e. Other:		X				

NARRATIVE DESCRIPTION AND EVALUATION:

12a-e. No effects on historical or cultural resources are anticipated. State Historic Preservation Office has been consulted.

13. SUMMARY EVALUATION OF SIGNIFICANCE Will the proposed action, considered as a whole:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Have impacts that are individually limited, but cumulatively considerable? (A project or program may result in impacts on two or more separate resources which create a significant effect when considered together or in total.)		X				
b. Involve potential risks or adverse effects which are uncertain but extremely hazardous if they were to occur?			X		Yes	13b.
c. Potentially conflict with the substantive requirements of any local, state, or federal law, regulation, standard or formal plan?		X				
d. Establish a precedent or likelihood that future actions with significant environmental impacts will be proposed?		X				
e. Generate substantial debate or controversy about the nature of the impacts that would be created?		X				
f. Have organized opposition or generate substantial public controversy?		X				
Additional information requested:						
g. List any federal or state permits required.						

NARRATIVE DESCRIPTION AND EVALUATION:

13b: Timber removal is hazardous. Precautions would be taken to keep the public out of the harvest area. Signs would be prominently displayed informing visitors of the project and hazardous conditions. Areas would be closed to public access while work is being performed and machinery is being operated.

The goals of this project uphold FWP's mandate to protect the State of Montana's natural resources by managing lands in a responsible manner. Timber harvesting for forest health and reduction of catastrophic fire risk fulfills a public need brought out by recent bark beetle outbreaks and fire events. There would be temporary short-term effects while areas recover from harvest activities. Long-term effects would be positive with resultant vigorous, insect and disease resistant forests with reduced catastrophic fire risk.

PART III. ENVIRONMENTAL CHECKLIST CONCLUSION SECTION

1. Discuss the cumulative and secondary effects of this project as a whole.

The project proposal of implementing a timber harvesting operation of approximately 80 acres in size would have no negative cumulative and secondary effects on the physical or human environment. This project has been designed to:

- Conserve outdoor recreation opportunities
- Create forest age-class diversification
- Create a variety of wildlife habitats
- Address FAS aesthetics
- Diminish fuel loads
- Reduce parasite and disease infestation of forest conifers
- Promote safer developed areas

FWP plans to use the timber revenue from this project to further benefit the land resource by spending a large portion, if not all, of the income on seeding logging roads with native grasses, reclaiming (obliterating) temporary logging roads, falling residual unmerchantable stems, and other associated and beneficial activities.

Visitors would experience a change of landscape within the treated area from effects including forest openings, stand harvesting, ground disturbance, and temporary closures or restrictions related to operational projects. Surrounding property owners would benefit as a result of reduced fuel loads and lower risk of wild fire and bark beetle infestation onto adjoining lands.

The cumulative effect of this project on the changes in diversity, productivity, and abundance of plant species is considered positive. The effects of this project would improve the health and vigor of the overall stand and increase the potential for regeneration and reduce potential catastrophic fire risk through fuel reduction.

Secondary effects include the possibility of noxious weed infestation where slash piles have been burned and where equipment has disturbed soils. This impact can be mitigated through seeding with native grasses and chemical treatment of locations if necessary.

2. Based on the significance criteria evaluated in this Environmental Checklist (Part II), is an EIS required?

No.

If an EIS is not required, explain why the current checklist level of review is appropriate.

Based upon the above assessment which has identified a limited number of minor impacts to the physical and human environment that would be either for short duration or that the affects of the proposed project can be mitigated below the level of significance, an EIS is not required and an environmental assessment is the appropriate level of review.

3. Describe the public involvement for this project.

The public would be notified in the following manners to comment on this current EA, the proposed action and alternative:

- One legal notice in each of these newspapers: *Anaconda Leader, Independent Record* (Helena), *Missoulian, Montana Standard* (Butte), and *Philipsburg Mail.*

- One statewide press release; and
- Public notice on the Fish, Wildlife & Parks web site: http://fwp.mt.gov/news/publicNotices.

Copies of this Draft EA (or email notification of its availability) would be distributed to the neighboring landowners and interested parties to ensure their knowledge of the proposed project. The EA would also be posted on FWP's website at http://fwp.mt.gov/news/publicNotices.

4. What is the duration of the public comment period?

The public comment period will extend for 30 days following the publication of the legal notice in area newspapers. Comments will be accepted until 5:00 p.m. on November 5, 2012.

Comments can be mailed to the following address:

FWP Region 2 Headquarters
Attn: Sharon Rose
3201 Spurgin Road
Missoula, MT 59804

Or emailed to: shrose@mt.gov

APPENDICES

A. House Bill 495 Project Qualification Checklist
B. Montana Natural Heritage Program Native Species Report
C. Tourism Report Department of Commerce
D. Best Management Practices for FAS --Department of Fish, Wildlife and Parks

APPENDIX A

HB 495
PROJECT QUALIFICATION CHECKLIST

Date September 15, 2012 **Person Reviewing** Rory Zarling

Project Location: Section 19, R13W, T5N Anaconda-Deer Lodge County, Montana

Description of Proposed Work: The purpose of this action is to complete a forest salvage project at Stuart Mill Bay Fishing Access Site.

The following checklist is intended to be a guide for determining whether a proposed development or improvement is of enough significance to fall under HB 495 rules. (Please check all that apply and comment as necessary.)

[Y] A. New roadway or trail built over undisturbed land?
Comments: Roadways would be reclaimed upon project completion.

[ ] B. New building construction (buildings <100 sf and vault latrines exempt)?

[ ] C. Any excavation of 20 c.y. or greater?

[ ] D. New parking lots built over undisturbed land or expansion of existing lot that increases parking capacity by 25% or more?

[ ] E. Any new shoreline alteration that exceeds a doublewide boat ramp or handicapped fishing station?

[ ] F. Any new construction into lakes, reservoirs, or streams?

[ ] G. Any new construction in an area with National Registry quality cultural artifacts (as determined by State Historical Preservation Office)?
Comments: No effects on historical or cultural resources are anticipated. State Historic Preservation Office has been consulted.

[ ] H. Any new above ground utility lines?

[ ] I. Any increase or decrease in campsites of 25% or more of an existing number of campsites?

[ ] J. Proposed project significantly changes the existing features or use pattern; including effects of a series of individual projects?

If any of the above are checked, HB 495 rules apply to this proposed work and should be documented on the MEPA/HB495 CHECKLIST. Refer to MEPA/HB495 Cross Reference Summary for further assistance.

Natural Resource Information System
Montana State Library
PO Box 201800
Helena, MT 59620-1800
(406)444-3009 mtnhp@mt.gov

APPENDIX B
Species of Concern Data Report

Visit http://mtnhp.org for additional information.

Report Date:
Tuesday, September 18, 2012

Aquila chrysaetos

View Species in MT Field Guide

Common Name: Golden Eagle
General Habitat: Grasslands
Description: Birds
Mapping Delineation:
Confirmed nesting area buffered by a minimum distance of 3,000 meters in order to be conservative about encompassing the entire breeding territory and area commonly used for renesting and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

Species Status

Click Status for Explanations

Natural Heritage Ranks:
State: S3
Global: G5

FWP CFWCS Tier: 2

MT PIF Code:

Federal Agency Status:
U.S. Fish & Wildlife Service: BGEPA; MBTA; BCC
U.S. Forest Service:
U.S. Bureau of Land Management: SENSITIVE

Species Occurrences

Species Occurence Map Label: 10011291
First Observation Date: 1993-06-09
Last Observation Date: 1993-06-09
SO Number: 73
Acreage: 6,951

Species Occurence Map Label: 10011290
First Observation Date: 1993-07-09
Last Observation Date: 1993-07-09
SO Number: 70
Acreage: 6,951

Nucifraga columbiana

View Species in MT Field Guide

Common Name: Clark's Nutcracker
General Habitat: Conifer forest
Description: Birds
Mapping Delineation:
Observations with evidence of breeding activity buffered by a minimum distance of 1,000 meters in order to be conservative about encompassing the spring/summer breeding territories of family groups and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

Species Status

Click Status for Explanations

Natural Heritage Ranks:
State: S3
Global: G5

FWP CFWCS Tier: 3

MT PIF Code: 3

Federal Agency Status:
U.S. Fish & Wildlife Service:
U.S. Forest Service:
U.S. Bureau of Land Management:

Natural Resource Information System
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(406)444-3009 mtnhp@mt.gov

Species of Concern Data Report

Visit http://mtnhp.org for additional information.

Report Date:
Tuesday, September 18, 2012

Species Occurrences

Species Occurence Map Label: 10014003

First Observation Date: 2001-07-11
Last Observation Date: 2001-07-11
SO Number: 2,015
Acreage: 772

Haemorhous cassinii

View Species in MT Field Guide

Common Name: Cassin's Finch
General Habitat: Drier conifer forest
Description: Birds
Mapping Delineation:
Observations with evidence of breeding activity buffered by a minimum distance of 300 meters in order to be conservative about encompassing the courtship and foraging distance from nesting areas and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

Species Status

Click Status for Explanations

Natural Heritage Ranks:

State: S3
Global: G5

FWP CFWCS Tier: 3

MT PIF Code: 3

Federal Agency Status:

U.S. Fish & Wildlife Service:
U.S. Forest Service:
U.S. Bureau of Land Management:

Species Occurrences

Species Occurence Map Label: 10016323

First Observation Date: 1993-07-24
Last Observation Date: 1993-07-24
SO Number: 47
Acreage: 972

Species Occurence Map Label: 10016338

First Observation Date: 1993-07-28
Last Observation Date: 1993-07-28
SO Number: 46
Acreage: 1,011

Oncorhynchus clarkii lewisi

View Species in MT Field Guide

Common Name: Westslope Cutthroat Trout
General Habitat: Mountain streams, rivers, lakes
Description: Fish
Mapping Delineation:
Stream reaches and standing water bodies where the species presence has been confirmed through direct capture or where they are believed to be present based on the professional judgement of a fisheries biologist due to confirmed presence in adjacent areas. In order to reflect the importance of adjacent terrestrial habitats to survival, stream reaches are buffered 100 meters, standing water bodies greater than 1 acre are buffered 50 meters, and standing water bodies less than 1 acre are buffered 30 meters into the terrestrial habitat based on PACFISH/INFISH Riparian Conservation Area standards.

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Species of Concern Data Report

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Report Date:
Tuesday, September 18, 2012

Species Status

Click Status for Explanations

Natural Heritage Ranks:

State: S2
Global: G4T3

FWP CFWCS Tier: 1

MT PIF Code:

Federal Agency Status:

U.S. Fish & Wildlife Service:
U.S. Forest Service: SENSITIVE
U.S. Bureau of Land Management: SENSITIVE

Species Occurrences

Species Occurence Map Label: 10046035

First Observation Date:
Last Observation Date:
SO Number:
Acreage: 3,160

Salvelinus namaycush

View Species in MT Field Guide

Common Name: Lake Trout
Description: Fish
General Habitat: Deep mountain lakes

Mapping Delineation:

Stream reaches and standing water bodies where the species presence has been confirmed through direct capture or where they are believed to be present based on the professional judgement of a fisheries biologist due to confirmed presence in adjacent areas. In order to reflect the importance of adjacent terrestrial habitats to survival, stream reaches are buffered 100 meters, standing water bodies greater than 1 acre are buffered 50 meters, and standing water bodies less than 1 acre are buffered 30 meters into the terrestrial habitat based on PACFISH/INFISH Riparian Conservation Area standards.

Species Status

Click Status for Explanations

Natural Heritage Ranks:

State: S2
Global: G5

FWP CFWCS Tier: 1

MT PIF Code:

Federal Agency Status:

U.S. Fish & Wildlife Service:
U.S. Forest Service:
U.S. Bureau of Land Management:

Species Occurrences

Species Occurence Map Label: 10046036

First Observation Date:
Last Observation Date:
SO Number:
Acreage: 3,160

Lasiurus cinereus

View Species in MT Field Guide

Common Name: Hoary Bat
Description: Mammals
General Habitat: Riparian and forest

Mapping Delineation:

Mistnet captures, definitively identified acoustic recordings, and definitively identified roosting individuals buffered by a minimum distance of 3,500 meters in order to be conservative about encompassing the maximum reported foraging distance for the congeneric Lasiurus borealis and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

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Species of Concern Data Report

Visit http://mtnhp.org for additional information.

Report Date:
Tuesday, September 18, 2012

Click Status for Explanations

Natural Heritage Ranks:

State: S3
Global: G5

FWP CFWCS Tier: 2

MT PIF Code:

Federal Agency Status:

U.S. Fish & Wildlife Service:
U.S. Forest Service:
U.S. Bureau of Land Management:

Species Occurrences

Species Occurence Map Label: 10020431

First Observation Date: 2009-08-05
Last Observation Date: 2009-08-05
SO Number: 611,747
Acreage: 9,462

Species Occurence Map Label: 10020430

First Observation Date: 2009-08-05
Last Observation Date: 2009-08-05
SO Number: 611,751
Acreage: 9,462

View Species in MT Field Guide

Common Name: Fisher
General Habitat: Mixed conifer forests
Description: Mammals

Mapping Delineation:

Confirmed area of occupancy based on the documented presence of adults or juveniles within tracking regions containing core habitat for the species. Outer boundaries of tracking regions are defined by areas of forest cover on individual mountain ranges or clusters of adjacent mountain ranges with continuous forest cover.

Species Status

Click Status for Explanations

Natural Heritage Ranks:

State: S3
Global: G5

FWP CFWCS Tier: 2

MT PIF Code:

Federal Agency Status:

U.S. Fish & Wildlife Service:
U.S. Forest Service: SENSITIVE
U.S. Bureau of Land Management: SENSITIVE

Species Occurrences

Species Occurence Map Label: 10000042

First Observation Date: 1983
Last Observation Date: 2006
SO Number: 4
Acreage: 1,803,120

Natural Resource Information System
Montana State Library
PO Box 201800
Helena, MT 59620-1800
(406)444-3009 mtnhp@mt.gov

Species of Concern Data Report

Visit http://mtnhp.org for additional information.

Report Date:
Tuesday, September 18, 2012

View Species in MT Field Guide

Common Name: Wolverine

General Habitat: Boreal Forest and Alpine Habitats

Description: Mammals

Mapping Delineation:

Confirmed area of occupancy based on the documented presence of adults or juveniles within tracking regions containing core habitat for the species. Outer boundaries of tracking regions are defined by areas of forest cover on individual mountain ranges or clusters of adjacent mountain ranges with continuous forest cover.

Species Status

Click Status for Explanations

Natural Heritage Ranks:

State: S3
Global: G4

FWP CFWCS Tier: 2

MT PIF Code:

Federal Agency Status:

U.S. Fish & Wildlife Service: C
U.S. Forest Service: SENSITIVE
U.S. Bureau of Land Management: SENSITIVE

Species Occurrences

Species Occurence Map Label: 10000029

First Observation Date: 1948
Last Observation Date: 2009

SO Number: 5
Acreage: 1,803,120

View Species in MT Field Guide

Common Name: Gillette's Checkerspot

General Habitat: Wet meadows

Description: Invertebrates

Mapping Delineation:

Confirmed breeding area based on the presence of a resident animal of any age/stage. Point observation location is buffered by a minimum distance of 2,000 meters in order to encompass documented travel distances of some butterfly species as well as adjacent habitat likely to support other individuals and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

Species Status

Click Status for Explanations

Natural Heritage Ranks:

State: S2
Global: G3

FWP CFWCS Tier:

MT PIF Code:

Federal Agency Status:

U.S. Fish & Wildlife Service:
U.S. Forest Service:
U.S. Bureau of Land Management:

Species Occurrences

Species Occurence Map Label: 10003525

First Observation Date: 1996-07-10
Last Observation Date: 1996-07-10

SO Number: 561,588
Acreage: 6,951

Natural Resource Information System
Montana State Library
PO Box 201800
Helena, MT 59620-1800
(406)444-3009 mtnhp@mt.gov

Species of Concern Data Report

Visit http://mtnhp.org for additional information.

Report Date:
Tuesday, September 18, 2012

Ranunculus orthorhynchus

View Species in MT Field Guide

Common Name: Straightbeak Buttercup

General Habitat: Wetland/Riparian (Montane)

Description: Vascular Plants

Mapping Delineation:

Individual occurrences are generally based upon a discretely mapped area provided by an observer and are not separated by any pre-defined distance. Individual clusters of plants mapped at fine spatial scales (separated by less than approximately 25-50 meters) may be grouped together into one occurrence if they are not separated by distinct areas of habitat or terrain features. Point observations are buffered to encompass any locational uncertainty associated with the observation.

Species Status

Click Status for Explanations

Natural Heritage Ranks:

State: S1S2

Global: G5

Federal Agency Status:

U.S. Fish & Wildlife Service:

U.S. Forest Service:

U.S. Bureau of Land Management:

Species Occurrences

Species Occurence Map Label: 44523

First Observation Date: 07/16/1966
Last Observation Date: 07/16/1966

SO Number: 1
SO Rank: H

Acreage: 531

APPENDIX C
TOURISM REPORT
MONTANA ENVIRONMENTAL POLICY ACT (MEPA)/HB495

The Montana Department of Fish, Wildlife and Parks has initiated the review process as mandated by HB495 and the Montana Environmental Policy Act in its consideration of the project described below. As part of the review process, input and comments are being solicited. Please complete the project name and project description portions and submit this form to:

Carol Crockett, Visitor Service Manager
Montana Office of Tourism-Department of Commerce
PO Box 200533
301 S Park
Helena, MT 59620-0533

Project Name: Stuart Mill Bay Fishing Access Site Timber Salvage Project

Project Location: Section 19, R13W, T5N Anaconda-Deer Lodge County, Montana

Project Description: The purpose of this action is to complete a forest salvage project at Stuart Mill Bay Fishing Access Site. The combined total acreage proposed for treatment is approximately 80 acres. The objective is to maintain the property over time for safe public use, with a forest cover that is healthy and is insect, disease, and fire resistant, to the extent possible, still giving major consideration to wildlife and aesthetic values. In consideration of fire behavior, part of the objective of the project is to remove the dead and dying lodgepole pine along the portion of the stand nearest roads and private dwellings to reduce the threat of fire. A healthy new stand of lodgepole pine is anticipated to replace the current mountain pine beetle infested stand of mature lodgepole. The Douglas-fir component of the stand would not be harvested. The long-term goal is to regenerate the stand for wildlife cover as well as aesthetic reasons. The specific objectives of this project include:

1. Create an environment that improves forest quality for wildlife and humans.
2. Reduce fire fuel loads and lower the risk of fire in order to protect the FAS and neighboring private lands.
3. Remove trees that are potentially hazardous to visitors.
4. Regenerate the stand to provide a healthy forest environment by removing infested trees.
5. Improve the aesthetic value of the forested property.

1. Would this site development project have an impact on the tourism economy?

NO **YES** If YES, briefly describe:

Yes, as described, the project has the potential to positively impact the tourism and recreation industry economy if properly maintained. We are assuming the agency has determined it has necessary funding for the on-going operations and maintenance once this project is complete.

2. Does this impending improvement alter the quality or quantity of recreation/tourism opportunities and settings?

NO **YES** If YES, briefly describe:

Yes, as described, the project has the potential to improve quality and quantity of tourism and recreational opportunities if properly maintained. We are assuming the agency has determined it has necessary funding for the on-going operations and maintenance once this project is complete.

Signature Carol Crockett, Visitor Services Manager Date September 17, 2012

APPENDIX D

MONTANA FISH, WILDLIFE AND PARKS
BEST MANAGEMENT PRACTICES FOR FISHING ACCESS SITES
Updated May 1, 2008

I. ROADS

A. Road Planning and location

1. Minimize the number of roads constructed at the FAS through comprehensive road planning, recognizing foreseeable future uses.
   a. Use existing roads, unless use of such roads would cause or aggravate an erosion problem.
2. Fit the road to the topography by locating roads on natural benches and following natural contours. Avoid long, steep road grades and narrow canyons.
3. Locate roads on stable geology, including well-drained soils and rock formations that tend to dip into the slope. Avoid slumps and slide-prone areas characterized by steep slopes, highly weathered bedrock, clay beds, concave slopes, hummocky topography, and rock layers that dip parallel to the slope. Avoid wet areas, including seeps, wetlands, wet meadows, and natural drainage channels.
4. Minimize the number of stream crossings.
   a. Choose stable stream crossing sites. "Stable" refers to streambanks with erosion-resistant materials and in hydrologically safe spots.

B. Road Design

1. Design roads to the minimum standard necessary to accommodate anticipated use and equipment. The need for higher engineering standards can be alleviated through proper road-use management. "Standard" refers to road width.
2. Design roads to minimize disruption of natural drainage patterns. Vary road grades to reduce concentrated flow in road drainage ditches, culverts, and on fill slopes and road surfaces.

C. Drainage from Road Surface

1. Provide adequate drainage from the surface of all permanent and temporary roads. Use outsloped, insloped or crowned roads, installing proper drainage features. Space road drainage features so peak flow on road surface or in ditches will not exceed their capacity.
   a. Outsloped roads provide means of dispersing water in a low-energy flow from the road surface. Outsloped roads are appropriate when fill slopes are stable, drainage will not flow directly into stream channels, and transportation safety can be met.
   b. For insloped roads, plan ditch gradients steep enough, generally greater than 2%, but less than 8%, to prevent sediment deposition and ditch erosion. The steeper gradients may be suitable for more stable soils; use the lower gradients for less stable soils.
   c. Design and install road surface drainage features at adequate spacing to control erosion; steeper gradients require more frequent drainage features. Properly constructed drain dips can be an economical method of road surface drainage. Construct drain dips deep enough into the sub-grade so that traffic will not obliterate them.
2. For ditch relief/culverts, construct stable catch basins at stable angles. Protect the inflow end of cross-drain culverts from plugging and armor if in erodible soil. Skewing ditch relief culverts 20 to 30 degrees toward the inflow from the ditch will improve inlet efficiency.
3. Provide energy dissipaters (rock piles, slash, log chunks, etc.) where necessary to reduce erosion at outlet of drainage features. Cross-drains, culverts, water bars, dips, and other drainage structures should not discharge onto erodible soils or fill slopes without outfall protection.
4. Route road drainage through adequate filtration zones, or other sediment-settling structures. Install road drainage features above stream crossings to route discharge into filtration zones before entering a stream.

D. Construction/Reconstruction

1. Stabilize erodible, exposed soils by seeding, compacting, rip rapping, benching, mulching, or other suitable means.
2. At the toe of potentially erodible fill slopes, particularly near stream channels, pile slash in a row parallel to the road to trap sediment. When done concurrently with road construction, this is one method to effectively control sediment movement and it also provides an economical way of disposing of roadway slash. Limit the height, width and length of these "slash filter windrows" so not to impede wildlife movement. Sediment fabric fences or other methods may be used if effective.
3. Construct cut and fill slopes at stable angles to prevent sloughing and subsequent erosion.
4. Avoid incorporating potentially unstable woody debris in the fill portion of the road prism. Where possible, leave existing rooted trees or shrubs at the toe of the fill slope to stabilize the fill.
5. Place debris, overburden, and other waste materials associated with construction and maintenance activities in a location to avoid entry into streams. Include these waste areas in soil stabilization planning for the road.
6. When using existing roads, reconstruct only to the extent necessary to provide adequate drainage and safety; avoid disturbing stable road surfaces. Consider abandoning existing roads when their use would aggravate erosion.

E. Road Maintenance

1. Grade road surfaces only as often as necessary to maintain a stable running surface and to retain the original surface drainage.
2. Maintain erosion control features through periodic

inspection and maintenance, including cleaning dips and cross-drains, repairing ditches, marking culvert inlets to aid in location, and clearing debris from culverts.

3. Avoid cutting the toe of cut slopes when grading roads, pulling ditches, or plowing snow.
4. Avoid using roads during wet periods if such use would likely damage the road drainage features. Consider gates, barricades or signs to limit use of roads during wet periods.

II. RECREATIONAL FACILITIES (parking areas, campsites, trails, ramps, restrooms)

A. Site Design

1. Design a site that best fits the topography, soil type, and stream character, while minimizing soil disturbance and economically accomplishing recreational objectives. Keep roads and parking lots at least 50 feet from water; if closer, mitigate with vegetative buffers as necessary.
2. Locate foot trails to avoid concentrating runoff and provide breaks in grade as needed. Locate trails and parking areas away from natural drainage systems and divert runoff to stable areas. Limit the grade of trails on unstable, saturated, highly erosive, or easily compacted soils
3. Scale the number of boat ramps, campsites, parking areas, bathroom facilities, etc. to be commensurate with existing and anticipated needs. Facilities should not invite such use that natural features will be degraded.
4. Provide adequate barriers to minimize off-road vehicle use.

B. Maintenance: Soil Disturbance and Drainage

1. Maintenance operations minimize soil disturbance around parking lots, swimming areas and campsites, through proper placement and dispersal of such facilities or by reseeding disturbed ground. Drainage from such facilities should be promoted through proper grading.
2. Maintain adequate drainage for ramps by keeping side drains functional or by maintaining drainage of road surface above ramps or by crowning (on natural surfaces).
3. Maintain adequate drainage for trails. Use mitigating measures, such as water bars, wood chips, and grass seeding, to reduce erosion on trails.
4. When roads are abandoned during reconstruction or to implement site-control, they must be reseeded and provided with adequate drainage so that periodic maintenance is not required.

III. RAMPS AND STREAM CROSSINGS

A. Legal Requirements

1. Relevant permits must be obtained prior to building bridges across streams or boat ramps. Such permits include the SPA 124 permit, the COE 404 permit, and the DNRC Floodplain Development Permit.

B. Design Considerations

1. Placement of boat ramp should be such that boats can load and unload with out difficulty and the notch in the bank where the ramp was placed does not encourage bank erosion. Extensions of boat ramps beyond the natural bank can also encourage erosion.
2. Adjust the road grade or provide drainage features (e.g. rubber flaps) to reduce the concentration of road drainage to stream crossings and boat ramps. Direct drainage flow through an adequate filtration zone and away from the ramp or crossing through the use of gravel side-drains, crowning (on natural surfaces) or 30-degree angled grooves on concrete ramps.
3. Avoid unimproved stream crossings on permanent streams. On ephemeral streams, when a culvert or bridge is not feasible, locate drive-throughs on a stable, rocky portion of the stream channel.
4. Unimproved (non-concrete) ramps should only be used when the native soils are sufficiently gravelly or rocky to withstand the use at the site and to resist erosion.

C. Installation of Stream Crossings and Ramps

1. Minimize stream channel disturbances and related sediment problems during construction of road and installation of stream crossing structures. Do not place erodible material into stream channels. Remove stockpiled material from high water zones. Locate temporary construction bypass roads in locations where the stream course will have a minimal disturbance. Time the construction activities to protect fisheries and water quality.
2. Where ramps enter the stream channel, they should follow the natural streambed in order to avoid changing stream hydraulics and to optimize use of boat trailers.
3. Use culverts with a minimum diameter of 15 inches for permanent stream crossings and cross drains. Proper sizing of culverts may dictate a larger pipe and should be based on a 50-year flow recurrence interval. Install culverts to conform to the natural streambed and slope on all perennial streams and on intermittent streams that support fish or that provide seasonal fish passage. Place culverts slightly below normal stream grade to avoid culvert outfall barriers. Do not alter stream channels upstream from culverts, unless necessary to protect fill or to prevent culvert blockage. Armor the inlet and/or outlet with rock or other suitable material where needed.
4. Prevent erosion of boat ramps and the affected streambank through proper placement (so as to not catch the stream current) and hardening (riprap or erosion resistant woody vegetation).
5. Maintain a 1-foot minimum cover for culverts 18-36 inches in diameter, and a cover of one-third diameter for larger culverts to prevent crushing by traffic.