CHECKLIST ENVIRONMENTAL ASSESSMENT

Project Name:	Barrett Salvage Timber Sale
Proposed Implementation Date:	August 2010
Proponent:	DNRC/ Dillon
Location:	S2S2 Section 24 and Section 25, Township 10 South, Range 13 West
County:	Beaverhead

I. TYPE AND PURPOSE OF ACTION

DNRC, Dillon Unit, is proposing a commercial timber sale to harvest an estimated 850 MBF of Douglas-fir sawtimber from approximately 97 acres. Approximately 2.1 miles of minimum standard temporary spur road construction and 0.3 miles of existing road reconstruction would be needed to access the harvest units. The purposes of the action are to: generate revenue for the common school trust; improve the health, vigor and productivity of the forest stands through the removal of overstocked and unhealthy timber; and reduce susceptibility to insect and disease and fire in the proposed project area. (See Attachment A for site specific locations).

Lands involved in this proposed project are held by the State of Montana in trust for the Common Schools (Enabling Act of February 22, 1889: 1972 Montana Constitution, Article X Section 11). The Board of Land Commissioners and the DNRC are required, by law, to administer these trust lands to produce the largest measure of reasonable and legitimate return over the long run for these beneficiary institutions (Section 77-1-202, MCA). The DNRC would manage lands involved in this project in accordance with the State Forest Land Management Plan (DNRC 1996), the Administrative Rules for Forest Management (ARM 36.11.401 through 450), and all other laws applicable to timber harvest activities on State lands.

II. PROJECT DEVELOPMENT

1. PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED:

Provide a brief chronology of the scoping and ongoing involvement for this project.

DNRC Resource Management Supervisor G. Frank, DNRC Soil Scientist J. Schmalenberg, DNRC Fisheries Program Specialist J. Bower and DNRC Forester C. Barone conducted a field review in October 2008.

Additional field reviews conducted in July 2008 by DNRC Silviculturalist T. Spoelma, DNRC Technical Services Supervisor B. Long, DNRC GIS Analyst J. Hogland, DNRC Unit Manager T. Eagan and DNRC Forester C. Barone and in June 2009 by FWP Area Fisheries Biologist R. Oswald, FWP Wildlife Biologist C. Fager, DNRC Resource Management Supervisor G. Frank, DNRC Fisheries Program Specialist J. Bower and DNRC Forester C. Barone.

Individual scoping notices were sent in October 2008. (See Attachment H – List of scoping notices).

Publication of a Legal Notice in the Dillon Tribune on April 29th and May 6th 2009 and the Montana Standard on April 26th and May 3rd 2009.

Other contacts:

DNRC, Archaeologist, P. Rennie

DNRC, Wildlife Biologist, R. Baty

FWP, Wildlife Biologist, C. Fager

FWP, Area Fisheries Biologist, R. Oswald

Lessee, Centennial Livestock, Inc.

Montana Natural Heritage Program

Montana Fisheries Information System

2. OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:

The Beaverhead County Weed Board administers the State weed laws in Beaverhead County. The Weed Board is contacted by the DNRC and given a weed plan for each project.

A Beaverhead County burning permit would be required if slash burning is done.

Access to the State parcel would require a temporary road use agreement with two private landowners.

3. ALTERNATIVES CONSIDERED:

No Action Alternative: Current management actions would be maintained and forest management and harvesting actions would be deferred. These tracts are currently leased for grazing.

Action Alternative A: Harvest approximately 850 MBF of overstocked and unhealthy timber from an estimated 97 acres of State land, located on Sections 24 and 25, T10S, R13W.

Stand treatments would consist of harvesting trees of all age classes exhibiting signs of insect/disease, poor health and/or poor tree form characteristics. Additionally, overall stand density would be reduced by 55-70% of the merchantable volume, targeting shade tolerant species and trees exhibiting overstocked/suppressed conditions, utilizing group selection/selection/seed tree harvests. This stand density reduction would be concentrated in areas of the stands containing younger-aged/small to medium sized trees while retaining some of the healthy older trees. Desirable dominant/co-dominant trees would be left for seed source. Approximately 2.1 miles of minimum standard temporary new road construction and 0.3 miles of minor road reconstruction would be needed to access the harvest units. Excess slash would be consolidated at landings and burned.

III. IMPACTS ON THE PHYSICAL ENVIRONMENT

- *RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.*
- *Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.*
- *Enter "NONE" If no impacts are identified or the resource is not present.*

4. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:

Consider the presence of fragile, compactable or unstable soils. Identify unusual geologic features. Specify any special reclamation considerations. Identify any cumulative impacts to soils.

The proposed project area is underlain by Medicine Lodge volcanic rocks consisting of basaltic andesites of Eocene age. Some ashflow tuffs and flow breccias were observed to be transported to localized areas by fluvial means. No slope instability was observed during field review. The landscape is moderately steep with harvest unit slopes averaging 35% with short steep pitches exceeding 45%. Hillslopes are mainly concave in profile with ephemeral draw features only slightly incised with the exception of bedrock controlled landforms surrounding Barrett creek. Numerous outcrops are well exposed on ridges and southern exposures where soils are poorly developed.

In general, these soils are very gravelly to extremely gravelly, very well drained silt loams covered on average by 1-2 inches of duff material. These silt loam soils typically grade to more clay loams with depth and spatially on depositional surfaces surrounding drainage features. These soils have low productivities and typically support Douglas fir habitat types with a low site index. Soil erosion hazard for this area is low to moderate dependant on slope position, local slope gradient and vegetative cover. Soil compaction and displacement hazard is also low within the project area due to the very gravelly nature of the soil. Displacement hazard will increase slightly as slopes exceed 40%.

Coarse and fine woody material levels within the project area vary by aspect and slope, but are generally low, ranging from 2-10 tons/acre. A large portion of the project area was historically range land with fire suppression and range encroachment transitioning portions of the watershed to forested areas.

Detrimental soil impacts resulting from compaction, displacement and erosion would be expected on approximately 15% or less of each harvest unit and would be localized to primary skid trails and log landing sites. Modeling results showed no sediment being transported through vegetative buffers adjacent to stream channels. Increased erosion rates are expected to be minor and for short durations. With the implementation of Best Management Practices and recommended soil and erosion control mitigation measures, no long-term impacts to soil productivity from compaction and displacement are expected and no measurable or detectable effects from off site erosion is expected to impact soil productivity.

Biomass removal as a result of timber harvest will have no effects of on soil productivity due to the low existing conditions of productivity within the project area. There is a low risk of cumulative effects to soil resources within project area due to minimal grazing use and the absence of prior timber management activities.

(See Attachment C – Geology and Soil Assessment)

5. WATER QUALITY, QUANTITY AND DISTRIBUTION:
Identify important surface or groundwater resources. Consider the potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality. Identify cumulative effects to water resources.

The proposed project area is located in the headwaters of the Barrett Creek drainage on moderately steep and partially forested upper mountain slopes and ridges. Barrett Creek drains a watershed area of approximately 11,134 acres. The drainage area consists of primarily non-forested rangelands, alluvial fans, stream terrace features and broad valley bottoms. Only about 1688 acres or approximately 15% of the watershed is forested. This area is drained by several perennial, intermittent and ephemeral tributaries that flow into three different unnamed forks of Barrett Creek. The mainstream of Barrett Creek is a third order, perennial, class I tributary to Horse Prairie Creek in the Beaverhead River Basin. The entire surface discharge of Barrett Creek is typically diverted into a system of irrigation ditches and there does not appear to be any direct surface discharge from Barrett Creek to Horse Prairie Creek.

The Missouri River drainage, including tributaries to the Beaverhead River draining the proposed timber sale project area, is classified as B-1 in the Montana Surface Water Quality Standards. The B-1 classification is for multiple use waters suitable for domestic use after conventional treatment, growth and propagation of cold-water fisheries, associated aquatic life and wildlife, agricultural, and industrial uses. Among other criteria for B-1 waters, no increases are allowed above naturally occurring concentrations of sediment, which will prove detrimental to fish or wildlife. The State has adopted Forestry Best Management Practices through its Nonpoint Source Management Plan as the principle means of controlling nonpoint source pollution from silvicultural activities. Downstream beneficial uses in Barrett Creek include existing water rights for domestic (well), irrigation, and livestock. Barrett Creek also supports a known cold-water fishery. Barrett Creek has not been identified on the State's 303(d) list of impaired bodies of water.

The proposed harvest area is located in the largely undeveloped headwaters of Barrett Creek. Existing activities in this portion of the watershed include livestock grazing, hunting and other dispersed recreation, and a small amount of recent timber harvest. Existing road in the proposed project area is limited to a low standard road located on the adjacent private ranchland. This road would also be used to access the proposed harvest area. Several segments of this road do not currently meet minimum BMP requirements. However, there is low risk of erosion and subsequent sediment delivery to streams. There is low risk of cumulative watershed impacts due to sediment yield caused by existing roads in the Barrett Creek drainage. Road density levels are well below those levels that are normally associated with cumulative watershed impacts due to increased sediment yields from road sources. No direct road sources of sediment delivery were observed and the risk of a measurable increase in sediment delivery due to roads is low.

Past timber harvest within Barrett Creek is relatively low. There are approximately 225 acres of recent timber harvest within last 40 years. This level of harvest represents only 2% of the total watershed area and only 13%

of the forested watershed area. These levels are well below the levels of forest crown removal that are normally associated with detrimental increases in water yield. It is unlikely that there are substantial impacts on stream flow regimes (water yield, magnitude, and duration of peak flows) due to existing timber harvests in the Barrett Creek drainage.

Existing direct, indirect and cumulative impacts to water resources in Barrett Creek appear largely due to livestock grazing. Current and historic grazing practices have led to widespread levels of bank trampling, increased stream channel instability, and increased levels of in-stream sedimentation. These grazing related effects have likely caused moderate to high levels of direct, indirect and cumulative impacts to water quality, and aquatic life support and cold-water fisheries beneficial uses. Grazing has caused impacts to riparian vegetation (stream canopy cover) and bank trampling have inevitably caused direct, indirect and cumulative impacts to stream temperature regimes throughout Barrett Creek. Existing direct, indirect and cumulative impacts in the upper elevations of the watershed including those streams located within the proposed harvest area appear to be associated with both livestock grazing and large concentrations of elk.

The proposed action alternative would result in approximately 97 acres of timber harvest, 2.1 miles of new road construction, 0.3 miles of road reconstruction, and improve surface drainage on 9.4 miles of existing road located on private ranchland that would be used to access the proposed timber sale area.

The primary concerns regarding water quality is the potential for increased levels of erosion and subsequent sediment delivery to streams from roads, road stream crossings and constructed skid trails. The proposed action includes the construction of four new road stream crossings. Several of these crossings would utilize temporary culvert installation designs. Installation of either permanent or temporary culverts and removal of temporary structures may lead to erosion of road surface and fill slope materials and subsequently increase levels of fine sediment delivery to streams. Low levels of increased sediment delivery can be expected to occur at stream crossing sites during and immediately following the construction of road stream crossings and the removal of temporary stream crossing structures. These increases are expected to be minimal, limited in spatial extent and temporary. Road reconstruction, construction and stream crossings would implement all applicable forestry BMP's and requirements of the Montana Stream Protection Act (124 Permit), Montana Streamside Management Zone Law (SMZ Law) and DNRC Forest Management ARMS. No direct or direct impacts to water quality are expected to occur from existing roads or proposed reconstruction and new road construction.

No direct or indirect impacts to water quality due to increased rates of sediment delivery are expected to result from the proposed timber harvest. Most of the proposed timber harvest units are located on gentle to moderate slopes ranging from 10 to 35%. Portions of Harvest Unit #6 and Unit #7 have steeper slopes of approximately 40-50%. These limited areas will be at higher risk for surface erosion. However, these areas are well buffered from stream channels and ephemeral drainage features. Sediment delivery to stream channels is not expected to result from the proposed timber harvest or ground based skidding. All streams channels and other ephemeral drainage features located within and immediately adjacent to the proposed harvest units would be well buffered from all harvest activities. All requirements of the Streamside Management Zone (SMZ) law and Forest Management ARMS to Riparian Management Zones (RMZ) and Wetland Management Zones (WMZ) will be implemented into the design of these buffers. Timber harvest and road activities would implement all applicable forestry BMP's to avoid or minimize the risk of soil erosion and potential for sediment delivery.

The proposed levels of timber harvest are not expected to contribute to adverse cumulative watershed impacts due to increased water yield, increased duration or magnitude of peak flows in Barrett Creek. The levels of cumulative harvests that would occur due to the proposed harvest would be well below those levels normally associated with detrimental increases in water yield, peak flow, or duration of peak flows. Subsequently, the risks of additional cumulative impacts to water quality or beneficial uses due to bank destabilization and in-stream sedimentation is low under the proposed action.

(See Attachment D – Watershed Assessment)

6. AIR QUALITY:
What pollutants or particulate would be produced? Identify air quality regulations or zones (e.g. Class I air shed) the project would influence. Identify cumulative effects to air quality.

The project includes piling and burning of logging slash. Localized short duration particulate emissions occur during slash burning. Slash burning is normally conducted in late October through November. The DEQ and the Cooperative Airshed groups regulate particulate emissions during this period. Burning times are coordinated to 1) limit burning periods of acceptable smoke dispersion and 2) to limit the cumulative generation of particulates.

DNRC is a member of the Montana/Idaho Airshed Group, which coordinates burning activities related to forest management among the group's members in order to minimize impacts from smoke generated by those activities. As a member of the Airshed Group, DNRC agrees to burn only on days approved for good smoke dispersion as determined by the Smoke Management Unit in Missoula, MT.

DNRC is classified as a major open burner by the Montana Department of Environmental Quality (DEQ), and is issued a permit from the DEQ to conduct burning activities on State lands managed by the DNRC. As a major open burning permit holder, DNRC agrees to comply with all of the limitations and conditions of the permit.

7. VEGETATION COVER, QUANTITY AND QUALITY:
What changes would the action cause to vegetative communities? Consider rare plants or cover types that would be affected. Identify cumulative effects to vegetation.

The proposed harvest area is located toward the southern end of the Beaverhead Mountains along the forest/grassland ecotone. The two State parcels encompassing the project area are 1280 acres of which approximately 435 acres are forested. Adjacent ownership to the north and south is the BLM and to the east and west is private.

Lands within the proposed project area occur in open, rolling country with generally broad and gentle ridge tops. Vegetation is a complex of grass range with mosaic stands of Douglas fir and lodgepole pine. Ridgelines and exposed southerly aspects are essentially rangeland and are either nonforested or sparsely stocked with noncommercial timber stands. Where aspen stands are present, conifer encroachment is overtaking these stands. Slopes range from 10-70% with an elevation range of 7,200 feet to 8,000 feet.

Stands of timber occur predominately on north facing slopes and are primarily a Douglas-fir cover type. Douglas-fir/pine grass habitat types (Psme/Caru) are found on the drier sites with Douglas-fir the climax dominant and lodgepole pine as a minor seral species. Stand composition ranges from dense mature forest to heavily overstocked and stagnant forest to open mature and young encroachment forest. Regeneration is sparse with moderate understory vegetation and coarse woody debris present. Subalpine fir/grouse whortleberry habitat types (Abla/Vasc) are found on the cooler, moister sites with subalpine fir the apparent climax species but Douglas-fir and lodgepole pine tend to dominate the stands as major serals. These stands are comprised of densely stocked and moderately stocked forest. Regeneration and understory vegetation is moderate with moderate to heavy coarse woody debris and cattle use is heavy in all stands. The absence of fire, in combination with encroachment, has resulted in overstocked and suppressed stands. These conditions make the stands more susceptible to fire and attack from insects and disease. There is currently more total forest cover in Beaverhead County than in prior historical conditions.

Old trees do occur within the proposed project area but are generally found as small clumps of old relic trees (<5 acres) and scattered individuals with the exception of a small stand of old growth Douglas-fir (~10 acres) found in Unit 7, which is presently being affected by Douglas-fir bark beetle. Historically, these remnants were typically naturally fragmented, open-park like communities maintained by frequent low intensity fires. Of the 97 acres in the proposed project harvest units, ~10 acres would meet the DNRC definition of old growth. Where applicable, stands not meeting old growth definition would be treated to retain healthy older trees and stand attributes suitable for old growth development. Large, older trees would be harvested while still retaining many of the old growth characteristics of the existing stands. Large live trees, snags and coarse woody debris, which are important attributes associated with old growth and future development of old growth, would be retained in sufficient quantities when applicable. The harvest of old growth under this proposal would reduce the total old growth within the project area by ~10 acres and have a negligible cumulative effect on the percentage of old growth remaining on State lands in Beaverhead and Madison Counties.

Douglas-fir bark beetle is present in Units 3, 4, 6 and 7. The larger, older Douglas-fir trees have been most affected and are showing a high mortality. Moderate to heavy spruce budworm damage is apparent in the stand upper crowns of all the harvest units. High stand densities, multi-storied stand structure, and climax host

species, in conjunction with a prolonged drought, has provided for a more serious insect and disease outbreak and elevated risk to the remaining stand. The majority of the unhealthy trees are in the larger, older age classes. Open stands where tree growth and vigor is encouraged and a variety of age classes are developed are more resistant to insect and disease infestations.

There would be no human development that would decrease linkage value and proposed activities would not impede wildlife movements across the landscape, valley or mountain ranges. The proposed project would harvest within a total of 97 acres, over seven harvest units, and increase the amount of open, park-like forest in the area. Species of wildlife preferring less dense forest conditions would benefit from the creation of additional habitat, whereas species adversely affected by decreased forest density would not. Due to the small number of acres harvested, expected effects would be minor. Endemic species that occur in this area would likely not be affected appreciably, as most likely evolved with naturally fragmented forest conditions, created by natural disturbance events. The proposed project would utilize existing roads and temporary new road construction to access the harvest units. Any roads that were in a previously closed condition and all new road construction would be physically obstructed and effectively closed upon completion of the project. Average patch size of existing forested acreage would be reduced within the proposed project area but the general configuration of patches would be retained. Stand density and forest canopy structure within the proposed harvest units, however, would be reduced.

The majority of the unhealthy trees are in the older age classes and would be targeted for harvest while the younger age classes would be favored for the residual stand. Trees of all age classes exhibiting signs of insect/disease, poor health and/or poor tree form characteristics would be designated for harvest. Additionally, overall stand density would be reduced by 55-70% of the merchantable volume, targeting shade tolerant species and trees exhibiting overstocked/suppressed conditions, utilizing group selection/selection/seed tree harvests. This stand density reduction would be concentrated in areas of the stands containing younger-aged/small to medium sized trees while retaining some of the healthy older trees. A regeneration harvest would be utilized within 75-100' of aspen colonies for aspen restoration. Submerchantable trees and shrubs would be protected and retained for visual screening.

No rare plants or cover types have been noted by the Montana Natural Heritage Program or observed within the project area.

The DNRC requires the washing of equipment, seeding of grass and monitoring of disturbed areas to minimize the potential of noxious weeds being introduced. There is low risk of direct, indirect, or cumulative impacts due to weeds.

Harvesting an estimated 850 MBF of timber would alter the forest cover on approximately 97 acres. Harvest prescription would reduce overstocking and suppression, fire hazard, and susceptibility to additional insect and disease; recover value from timber affected by insect/disease; open the stands to encourage natural regeneration of shade intolerant species; maintain Douglas-fir cover type while bringing the stands back to a more historic open, park like condition; and promote existing aspen stands. Natural regeneration would be expected. Due to the size, duration and harvest method of the proposed project, road closures and additional recommended mitigation measures, impacts to vegetative communities and cover are expected to be minimal.

(See Attachment E – Vegetative Analysis/Stand Prescription)

8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:
Consider substantial habitat values and use of the area by wildlife, birds or fish. Identify cumulative effects to fish and wildlife.

A variety of big game, small mammals, raptors and songbirds potentially use this area. Streams within the immediate harvest area and new road construction are non-fish bearing.

The project area lies within the Tendoy Elk Management Unit and Hunting District 328. Hunter crowding and better hunter access are primary concerns expressed by DFWP in this hunting district. This area also "provides important fall habitat for elk" (C. Fager, FWP, Letter, November 25, 2008).

Although security cover is limited in the proposed project area, impacts to wildlife are anticipated to be minimal due to the type of silvicultural prescription, the size of the proposed harvest units and physical closure of any new road construction and skid trails. Entry through the main access route is limited due to private ownership, which would help minimize any potential increase in elk vulnerability.

Due to the size, season, duration and harvest methods of the proposed project, road closure and additional recommended mitigation measures, minimal impacts are expected to wildlife and fisheries habitats.

(See Attachment B, D & F – Fisheries Assessment; Watershed Assessment; Checklist for Endangered, Threatened and Sensitive Species)

9. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:
Consider any federally listed threatened or endangered species or habitat identified in the project area. Determine effects to wetlands. Consider Sensitive Species or Species of special concern. Identify cumulative effects to these species and their habitat.

No threatened or endangered species are known to have been documented within the proposed project area.

Occasional Grizzly Bear use of the Beaverhead Mountains may occur, however, the project area is generally considered outside of their normal occupied habitat. Preferred habitat for grizzly bear is not present or marginal within the proposed project area. Adverse direct, indirect and cumulative impacts to Grizzly Bear's as a result of this project are expected to be minimal.

The proposed project lies within the Central Idaho Nonessential Experimental Wolf Recovery Area. The nearest packs in the vicinity of the project area are the Black Canyon (Idaho) and Horse Prairie (Montana) packs. Individuals from these packs or transients from other packs could occasionally use portions of the project area; however, due to the size, nature and location of the proposed project, activities associated with this proposal are expected to have minimal effect on wolves and recovery efforts.

The proposed project area is located along the fringes of preferred lynx habitat. Habitats high in coarse woody debris that are preferred for denning, and large acreages of dense conifer regeneration at high elevations that are preferred for foraging are not present in the project area. Lynx habitat is marginal due to naturally induced fragmentation, and the high level of interspersion of native grassland habitat and dry forest types. Lynx habitat is marginal within the proposed project area due to the lack of highly desirable habitat conditions for lynx and their primary prey, snowshoe hares. Adverse direct, indirect or cumulative impacts to lynx as a result of this project are expected to be minimal.

The proposed project area falls within the range of wolverines. The DNRC is not aware of any specific observations of wolverines associated with the proposed project area, however, periodic or transient use of the proposed project area could occur. Due to the size, nature, duration and location of the proposed project, activities associated with this proposal are expected to have minimal effect on wolverines.

Sagebrush semi-desert habitats suitable for use by Sage Grouse do occur within one mile of the project area. No leks are known to occur within two miles of the proposed project or haul route. Should sage grouse be present in the vicinity of the project area, any effects to habitat or disturbance-related effects would be expected to be minimal, due to the late start-up date of activities (i.e., post June 15), and preferred sagebrush habitat would not be appreciably altered. Impacts to Sage Grouse would not be anticipated.

The only fish species known to occur in the analysis area is westslope cutthroat trout (WCT). WCT are listed as a Class-A Montana Animal Species of Concern and identified by the Department of Natural Resources and Conservation (DNRC) as a sensitive species. Existing direct, indirect, and cumulative impacts to WCT populations and habitat features in the Barrett Creek watershed are widespread and moderate to high in severity. Existing impacts are primarily related to ongoing grazing and habitat connectivity issues. Foreseeable direct and indirect impacts to historic and potential fish habitats from the proposed actions are unlikely to occur and would be very low or low. No direct or indirect impacts would occur in reaches known to support WCT. Although existing cumulative impacts are high, additional cumulative impacts to fisheries resources in the watershed as a result of implementing the proposed actions would be very low or negligible.

No other sensitive species/species of special concern have been documented or observed within the proposed project area.

(See Attachments B, D & F – Fisheries Assessment; Watershed Assessment; Checklist for Endangered, Threatened and Sensitive Species)

10. HISTORICAL AND ARCHAEOLOGICAL SITES:
Identify and determine effects to historical, archaeological or paleontological resources.

A Class I (literature review) level review was conducted by the DNRC staff archaeologist. This entailed inspection the DNRC's sites/site leads database, land use records, General Land Office maps, and control cards for potential cultural resources in the proposed project area. A search of the State Historic Preservation Office's (SHPO) Cultural Resource Information System (CRIS) and Cultural Resource Annotated Bibliography System (CRABS) was also requested. That series of searches indicated that no cultural or paleontological resources have been identified. Because of the comparatively steep terrain (from an archaeological perspective), no additional archaeological investigative work is recommended. Proposed timber harvest activities are expected to have *No Effect* to *Antiquities*.

11. AESTHETICS:
Determine if the project is located on a prominent topographic feature, or may be visible from populated or scenic areas. What level of noise, light or visual change would be produced? Identify cumulative effects to aesthetics.

The proposed project area is not visible to any heavily populated area but portions of the sale area can be seen from the town of Grant and segments of State Highway 324. Due to the aspect and topography of the proposed sale area and proposed harvest design and marking specifications, impacts concerning aesthetics are not expected.

12. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY:
Determine the amount of limited resources the project would require. Identify other activities nearby that the project would affect. Identify cumulative effects to environmental resources.

None.

13. OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA:
List other studies, plans or projects on this tract. Determine cumulative impacts likely to occur as a result of current private, state or federal actions in the analysis area, and from future proposed state actions in the analysis area that are under MEPA review (scoped) or permitting review by any state agency.

DNRC developed the State Forest Land Management Plan (SFLMP) in 1996, a programmatic plan that outlines the approach and philosophy guiding land management activities on forested school trust lands throughout the state of Montana.

DNRC adopted the Administrative Rules for Forest Management on March 13, 2003, applicable to management activities on forested school trust lands.

In May 1994, the JeffMed Forest Management Project EA was completed addressing the harvest of 931 MBF of sawtimber from 94 acres in Section 36-T10S-R13W. In January 2004, the Centennial Livestock Guest Ranch Proposal EA was completed addressing "working ranch" clients conducting ranch related activities on State Trust Lands in Sections 13, 14, 23, 24, 25 and 26-T10S-R13W.

A range evaluation was conducted in August 2002.

No cumulative impacts are expected.

IV. IMPACTS ON THE HUMAN POPULATION

- *RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.*
- *Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.*
- *Enter "NONE" If no impacts are identified or the resource is not present.*

14. HUMAN HEALTH AND SAFETY:
Identify any health and safety risks posed by the project.

NONE

15. INDUSTRIAL, COMMERCIAL AND AGRICULTURE ACTIVITIES AND PRODUCTION:
Identify how the project would add to or alter these activities.

NONE

16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:
Estimate the number of jobs the project would create, move or eliminate. Identify cumulative effects to the employment market.

People are currently employed in the wood products industry. Due to the relatively small size of the timber sale program, there will be no measurable direct, indirect, or cumulative impact from this proposed action on employment.

17. LOCAL AND STATE TAX BASE AND TAX REVENUES:
Estimate tax revenue the project would create or eliminate. Identify cumulative effects to taxes and revenue.

People are currently paying taxes from the wood products industry in the region. Due to the relatively small size of the timber sale program, there will be no measurable direct, indirect, or cumulative impact from this proposed action on tax revenues.

18. DEMAND FOR GOVERNMENT SERVICES:
Estimate increases in traffic and changes to traffic patterns. What changes would be needed to fire protection, police, schools, etc.? Identify cumulative effects of this and other projects on government services.

There will be no measurable direct, indirect, or cumulative impacts related to demand for government services due to the small size of the timber sale program, the short-term impacts to traffic and the small possibility of a few people temporarily relocating to the area.

19. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:
List State, County, City, USFS, BLM, Tribal, and other zoning or management plans, and identify how they would affect this project.

In March 2003, DNRC adopted the Administrative Rules for Forest Management ARM 36.11.401 through 36.11.450 (the “Rules”). This project is planned under the requirements of the Rules.

20. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:
Identify any wilderness or recreational areas nearby or access routes through this tract. Determine the effects of the project on recreational potential within the tract. Identify cumulative effects to recreational and wilderness activities.

Persons having legal access to the tracts and possessing a valid state lands recreational use license or FWP conservation license may conduct recreational activities on the tracts. The proposed project would not affect the existing access for the general public.

21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:
Estimate population changes and additional housing the project would require. Identify cumulative effects to population and housing.

There will be no measurable direct, indirect, or cumulative impacts related to population and housing due to the relatively small size of the timber sale program, and the fact that people are already employed in this occupation in the region.

22. SOCIAL STRUCTURES AND MORES:
Identify potential disruption of native or traditional lifestyles or communities.

NONE

23. CULTURAL UNIQUENESS AND DIVERSITY:
How would the action affect any unique quality of the area?

NONE

24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:
Estimate the return to the trust. Include appropriate economic analysis. Identify potential future uses for the analysis area other than existing management. Identify cumulative economic and social effects likely to occur as a result of the proposed action.

The estimated return to the trust would be $25,168.50 (850 MBF of tractor sawtimber @ $29.61/MBF). This estimate is intended for comparison of alternatives, not as an absolute estimate of return.

Income from grazing license's of $1,964.02/year for 283 AUM of use would continue with or without the harvest proposal.

EA Checklist Prepared By:	**Name:** Chuck Barone	**Date:** March 29, 2010
	Title: Dillon Unit Forester	

V. FINDING

25. ALTERNATIVE SELECTED:

Action Alternative A: Harvest approximately 850 MBF of overstocked and unhealthy timber from an estimated 97 acres of State land, located on Sections 24 and 25, T10S, R13W.

Stand treatments would consist of harvesting trees of all age classes exhibiting signs of insect/disease, poor health and/or poor tree form characteristics. Additionally, overall stand density would be reduced by 55-70% of the merchantable volume, targeting shade tolerant species and trees exhibiting overstocked/suppressed conditions, utilizing group selection/selection/seed tree harvests. This stand density reduction would be concentrated in areas of the stands containing younger-aged/small to medium sized trees while retaining some of the healthy older trees. Desirable dominant/co-dominant trees would be left for seed source. Approximately 2.1 miles of minimum standard temporary new road construction and 0.3 miles of minor road reconstruction would be needed to access the harvest units. Excess slash would be consolidated at landings and burned.

26. SIGNIFICANCE OF POTENTIAL IMPACTS:

MEASURES RECOMMENDED TO MITIGATE POTENTIAL IMPACTS:

1) Compliance with Forestry Best Management Practices (BMP's), Streamside Management Zone (SMZ) laws, the Montana Stream Protection Act (124 Permit) and applicable DNRC Forest Management Administrative Rules.
2) Limit equipment operations to periods when soils are dry (less than 20% soil moisture), frozen or snow covered (12 inches packed or 18 inches unconsolidated) to minimize soil compaction, rutting, vegetative disturbance and maintain drainage features. Control erosion by installing adequate drainage on roads and skid trails.
3) The Forest Officer shall approve a plan for felling, yarding and landing location in each harvest unit prior to the start of operations in the unit. The locations and spacing of skid trails and landings shall be designated and approved by the Forest Officer prior to operations and skid trails will not be spaced less than 60 feet. Retain all fine litter as feasible and 5-10 tons/acre of large woody debris >3" diameter. Minimize soil disturbance by general skid trail planning and limit tractor skidding to slopes≤ 50%. Limit scarification to 30-40%. Slash would be left in the harvest units where feasible, and distributed on skid trails upon completion of use, for nutrient cycling, to control erosion and to provide shade and protection for seedlings.
4) For slope stability on the road construction segments, construct cutslopes at 1:1 (run/rise) in common material and 1/4:1 for rock. Install adequate road drainage to control erosion concurrent with harvest activities and road opening and new construction. Provide effective sediment filtration along drainage features near crossing sites. New construction and major skid trails of State lands would be closed with slash and debris and/or barriers, and adequate drainage provided.
5) All road and logging equipment would be power washed and inspected prior to being brought on site. Sale area would be monitored for weeds following harvest and a treatment plan would be developed should noxious weeds occur. All road-stream crossings would be monitored for sedimentation and deterioration of road prism.
6) At sale closure, grass seed roads, skid trails (where needed) and landings with an appropriate seed mixture.
7) One snag and one snag recruit per acre, of the largest diameter class, would be retained where applicable. Cull live trees and cull snags would be retained where applicable.
8) Retain live, healthy older trees and stand attributes suitable for old growth development where available and applicable.
9) Contact DNRC wildlife biologist should any threatened or endangered species be encountered within the proposed project area.

27. NEED FOR FURTHER ENVIRONMENTAL ANALYSIS:

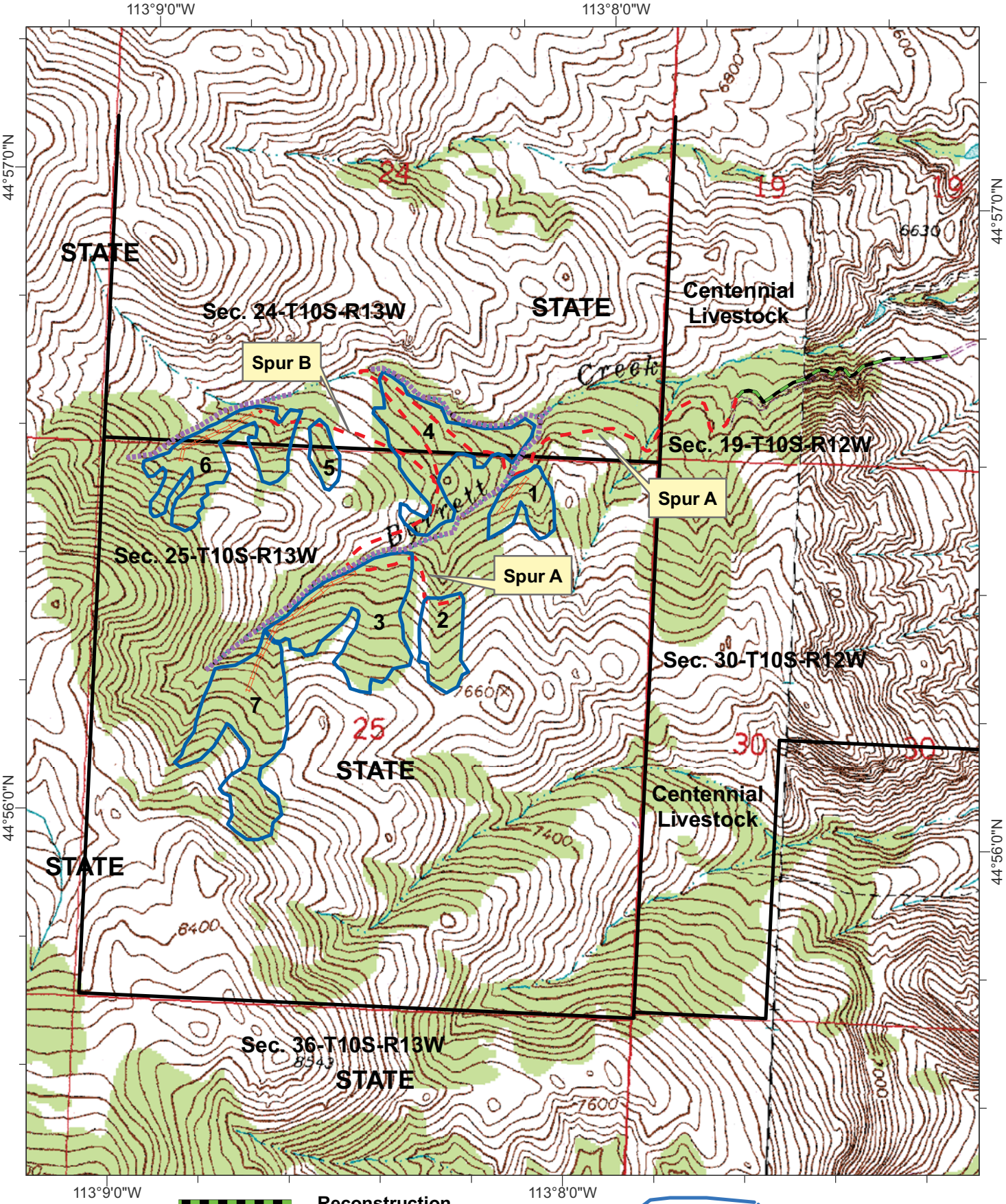
[ ] EIS [ ] More Detailed EA [X] No Further Analysis

EA Checklist Approved By:	Name: Tim Egan Title: Dillon Unit Manager	
Signature: /S/ Timothy Egan		Date: March 29, 2010

ATTACHMENTS

A – Vicinity/Site Specific Map
B – Fisheries Assessment
C – Geology and Soils Assessment
D – Watershed Assessment
E – Vegetative Analysis/Silvicultural Prescription
F – Checklist for Endangered, Threatened and Sensitive Species
H – List of Individual Scoping Notices

ATTACHMENT A
Proposed Barrett Salvage Timber Harvest



Reconstruction

New Construction

Designated Skid Trail

Harvest Unit

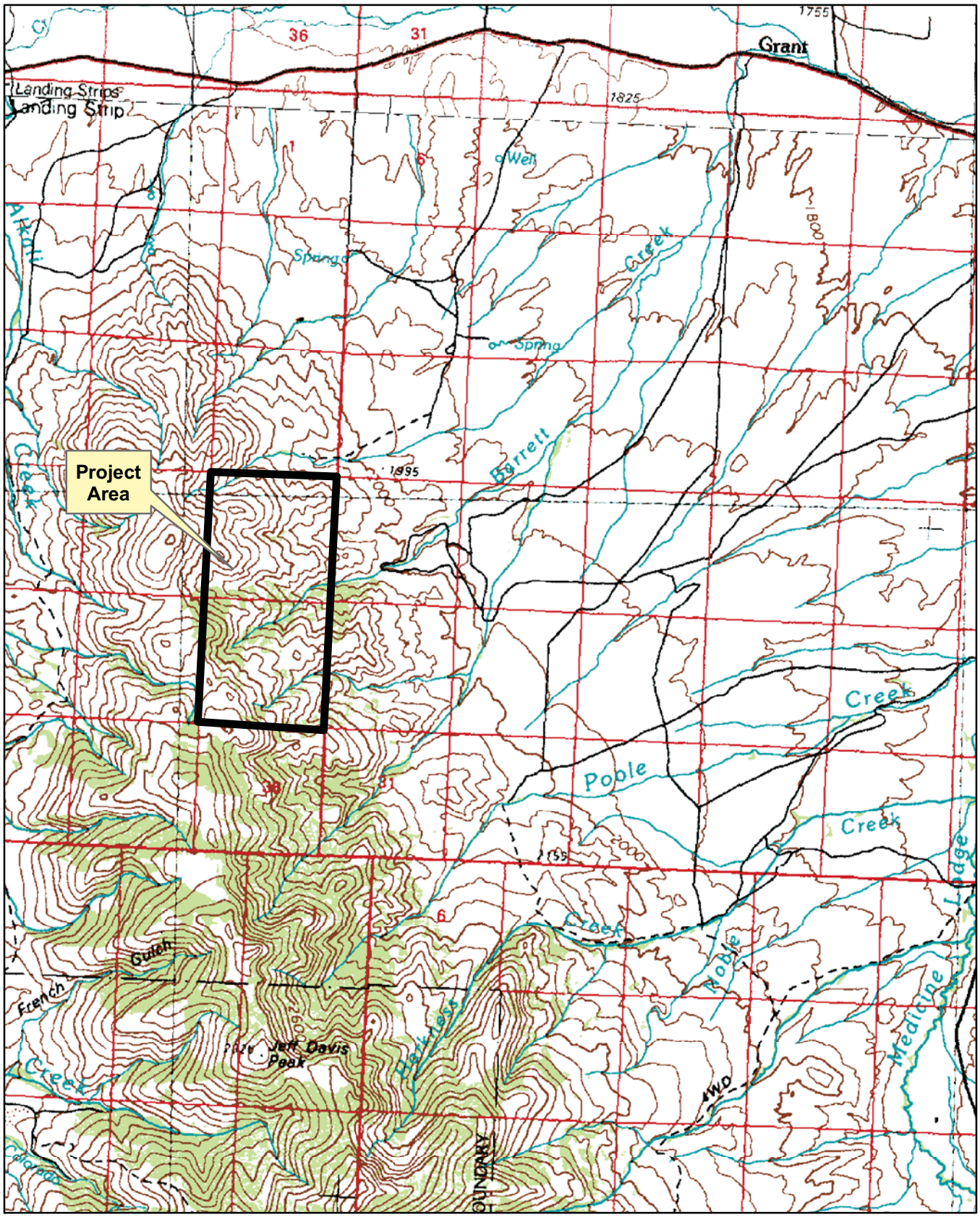
SMZ

0 0.15 0.3 0.6 Miles

1:15,000

Chuck Barone 4/27/09

ATTACHMENT A
Barrett Salvage Timber Harvest Vicinity Map



Project Area

0 550 1,100 2,200 3,300 4,400 Meters

ATTACHMENT B

FISHERIES ASSESSMENT

PROPOSED BARRETT SALVAGE TIMBER SALE

Jim Bower

1/6/10

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1 INTRODUCTION

The purpose of this assessment is the analysis of foreseeable environmental effects to fisheries and related habitat resources in the proposed Barrett Timber Sale project area.

1.1 PROJECT AREA

The Barrett Timber Sale project area includes State Trust Lands within T10S R13W Sections 24 and 25 which lie within the Barrett Creek watershed.

1.2 FISHERIES ANALYSIS AREA

The Barrett Creek watershed (scale: 6th code HUC, number 100200011305) is the single analysis area that will be used to evaluate the existing and potential impacts to fisheries and fisheries resources associated with the proposed project. The analysis area was chosen because it includes (1) the watershed of fish-bearing streams and (2) the proposed harvest units and haul routes that could have foreseeable measurable or detectable impacts to those fish-bearing streams.

Barrett Creek and its tributaries are not identified on the 2008 Montana 303(d) lists as impaired streams. Surface waters in the Barrett Creek watershed are classified as B-1 in the Montana Surface Water Quality Standards (ARM 17.30.608(b)(i)). For more details on these regulations, water quality standards, and beneficial uses (other than cold-water fisheries) please see the Hydrology Analysis.

1.3 SPECIES

The only fish species known to occur in the analysis area is native westslope cutthroat trout (*Oncorhynchus clarki lewisi*) (WCT). Montana Fish, Wildlife and Parks (FWP) surveys during 1994 found genetically pure WCT in the unnamed, south fork tributary to Barrett Creek. WCT are listed as a Class-A Montana Animal Species of Concern. A Class-A designation is defined as a species or subspecies that has limited numbers and/or habitats both in Montana and elsewhere in the North America and elimination from Montana would be a significant loss to the gene pool of the species or subspecies (FWP, Montana Natural Heritage Program, and Montana Chapter American Fisheries Society Rankings). The Department of Natural Resources and Conservation (DNRC) has also identified WCT as a sensitive species (ARM 36.11.436).

1.4 FISHERIES ISSUES RAISED DURING SCOPING

Issues, in respect to this environmental analysis, are not specifically defined by either the Montana Environmental Policy Act or the Council on Environmental Quality. For the purposes of this environmental analysis, issues will be considered actual or perceived effects, risks, or hazards as a result of the proposed alternatives.

One letter containing fisheries-related issues was received by DNRC during the scoping process (see FWP, R. Oswald, 11/5/08.) Issues stated in the letter are:

- The proposal has the potential to represent significant risk of damage to aquatic habitats or fisheries within the project area.
- Habitat condition is an area of concern, especially the limited abundance of quality pool habitats.
- The proposal holds the potential to add cumulative fine sediments into a system already compromised in habitat quality and adds to the risk of extinction for the WCT population.

Issues raised internally include: the proposed actions may adversely affect fisheries habitat features, including channel forms and stream temperature.

1.5 ANALYSIS METHODS

The *EXISTING CONDITIONS* of fisheries resources will be described for the analysis area. The *ENVIRONMENTAL EFFECTS* section will compare the existing conditions to the anticipated effects of the proposed No-Action and Action Alternatives to determine the foreseeable impacts to associated fisheries resources.

Analysis methods are a function of the types and quality of data available for analysis, which varies among the different analysis areas. The analyses may either be quantitative or qualitative. The best available data for both populations and habitats will be presented for the analysis area. In order to adequately address the issues raised in Section 1.4 (Fisheries Issues Raised during Scoping) the existing conditions and foreseeable environmental effects to fisheries in the analysis area will be explored using the following outline of issues and subissues. Sedimentation will be addressed through an analysis of effects to channel forms.

- Fisheries Populations – Presence/Absence
- Fisheries Habitat – Channel Forms
    - Fisheries Habitat – Sediment
    - Fisheries Habitat – Flow Regimes
    - Fisheries Habitat – Woody Debris
- Habitat – Stream Temperature
    - Fisheries Habitat – Stream Shading
- Habitat – Connectivity
- Cumulative Effects

2 ALTERNATIVES

2.1 PROPOSED ACTION ALTERNATIVE AND RELATED MITIGATIONS

Up to 97 acres of total harvest area is proposed through 7 different harvest units. New road construction would total 2.1 miles, road reconstruction would occur on 0.3 miles of existing road, and surface drainage improvements would occur on 9.4 miles of existing road located on private ranchland used to access the proposed project area. Four new permanent and temporary road-stream crossings would be built on non-fish-bearing stream reaches. The haul route through private lands would cross the unnamed, south fork tributary to Barrett Creek at an existing bridge site. SMZ harvest would occur adjacent to approximately 1,950’ of Class 1, non-fish-bearing stream channel and adjacent to approximately 2,100’ of Class 2 stream channel.

Fisheries related resource mitigations that would be implemented with the proposed Action Alternative include: (1) applying all applicable Forestry BMPs (including the SMZ Law and Rules) and Forest Management Administrative Rules for fisheries, soils, and wetland riparian management zones (ARMs

36.11.425 and 36.11.426), (2) applying the SMZ Law and Rules to all non-fish-bearing streams, and (3) monitoring all road-stream crossings for sedimentation and deterioration of road prism.

3 EXISTING CONDITIONS

In terms of the risk that an impact may occur, a low risk of an impact means that the impact is unlikely to occur. A moderate risk of an impact means that the impact may or may not (50/50) occur. A high risk of an impact means that the impact is likely to occur.

A very low impact means that the impact is unlikely to be detectable or measurable, and the impact is not likely to be detrimental to the resource. A low impact means that the impact is likely to be detectable or measurable, but the impact is not likely to be detrimental to the resource. A moderate impact means that the impact is likely to be detectable or measurable, and the impact is likely to be moderately detrimental to the resource. A high impact means that the impact is likely to be detectable or measurable, and the impact is likely to be highly detrimental to the resource.

Cumulative impacts are those collective impacts on the human environment of the proposed action when considered in conjunction with other past, present, and future actions related to the proposed action by location or generic type (75-1-220, MCA). The potential cumulative impacts to fisheries in the analysis areas are determined by assessing the collective anticipated direct and indirect impacts, other related existing actions, and future actions affecting the fish-bearing streams.

3.1 BARRETT CREEK ANALYSIS AREA

Approximately 1.2 miles of stream in the watershed are known to support WCT. Approximately 9.6 miles of additional stream channel in the watershed likely historically supported WCT but either currently do not support WCT or have not been surveyed to determine the extent of species presence.

Potential fisheries within and immediately downstream the project area were field reviewed by a DNRC fish biologist in 2008 and 2009. Potential fish habitats on Barrett Creek within the project area extend approximately 0.2 miles upstream in SE1/4 SE1/4 of T10S R13W Section 24 to a 30' barrier waterfall. The 0.2 mile reach within the project area and the 0.3 mile reach immediately downstream on private lands were found to be non-fish-bearing; however, based on flow regime, channel geomorphology, and foreseeable channel form development, this 0.5 mile reach of Barrett Creek is presumed to have historically supported WCT.

The existing conditions of channel forms in known and potential fish-bearing reaches are addressed by evaluating the collective characteristics of sediment, flow regime, and woody debris features. DNRC field reviews of the project area and numerous other locations throughout the watershed occurred during 2008 and 2009. Considering the stream morphologies of the watershed, field reviews found that relative proportions of surface substrate size classes appear to be representative of the expected ranges of substrates that would be found in unmanaged watersheds. However, virtually all observed channel form features (e.g. pools, undercut banks, riffles) are heavily aggraded due nearly exclusively to sedimentation inputs from channel bank erosion. The channel bank erosion throughout the watershed is a primary result of grazing hoof shear and trampling. In addition to filling in pool and other channel scour features, the grazing impacts to streambanks have widened the existing channel in many places, which reduces hydrologic shear stress and stream energy needed to flush additional sediment inputs and maintain the channel form features normally expected with associated stream morphologies. This sediment condition applies to the historically occupied stream habitat within the project area (approximately 0.2 stream miles) and the known WCT occupied habitats. [WCT are consequently adversely affected by the condition through the reduced frequencies and greatly diminished qualities of wintering, spawning and rearing habitats.] The Hydrology Analysis estimates that sedimentation from roads in the watershed is low and not measureable. The Hydrology Analysis has also determined that an existing departure in flow regime in the watershed is unlikely. Field reviews of the watershed did not find any existing impacts to the [large] woody debris component of

fisheries habitats. Considering existing sediment conditions, flow regime, and [large] woody debris recruitment rates, a high risk of moderate to high impacts to channel forms occurs in the analysis area. Existing impacts to channel forms are due exclusively from adverse levels of sedimentation.

Many different variables affect the natural fluctuations and ranges of stream temperatures (e.g. groundwater inflows, loss of flow, canopy closure, stream gradient, stream width to depth ratio, volume). Important variables affected by management activities within the Barrett Creek watershed include shading from riparian shrub components, [large] woody debris canopy closure, and sedimentation. No impacts to [large] woody debris canopy closure were observed during field reviews, but mixed levels of grazing of riparian shrub components were observed at numerous locations. Based on existing sedimentation impacts and mixed grazing of riparian shrubs, a moderate risk of moderate impacts to stream temperatures likely exists in the analysis area.

Connectivity is the measure of fish passage or migration potential throughout a stream system. At least 9 road-stream crossings and water diversions occur on known and potential fish-bearing reaches within the analysis area. Seven of the structures likely limit WCT connectivity either partially or entirely. An existing moderate risk of moderate impacts to WCT connectivity likely occurs in the analysis area.

Other related existing actions within the analysis area include past timber harvest activities (see Hydrology Analysis), in-stream flow diversions, and road maintenance. Other actions related to grazing that may occur include trampling of WCT redds and adverse nutrient effects to water quality. All of these other related existing actions are expected to have a general moderate impact to fisheries in the analysis area.

Considering a high risk of moderate impacts to channel forms, a moderate risk of moderate impacts to stream temperature and connectivity, and a general moderate impact from other related actions, an existing high cumulative impact to WCT populations and habitat features likely occurs in the analysis area.

4 ENVIRONMENTAL EFFECTS

Descriptions of impact assessments can be found under Section 3, Existing Conditions.

4.1 BARRETT CREEK ANALYSIS AREA

4.1.1 NO-ACTION ALTERNATIVE

As a result of implementing the No-Action Alternative, no direct or indirect effects to fisheries resources would occur in the analysis area beyond those described in the Existing Conditions.

Future related actions considered part of cumulative impacts include continued, various, widespread grazing impacts, in-stream flow diversions, and private road maintenance effects. Foreseeable cumulative impacts to WCT populations and habitat features are expected to be very similar compared existing impacts.

4.1.2 ACTION ALTERNATIVE

Effects to channel forms in fish-bearing reaches will be addressed by evaluating the collective potential impacts to sediment, flow regime, and large woody debris features. An increase in the proportion of fine substrates is an impact that would be expected to adversely affect channel forms. Short-term and long-term impacts to substrates comprising stream channel forms are not expected to occur as a result of adjacent upland harvest near contributing non-fish-bearing streams (see Soils and Hydrology analyses). Short-term, limited sedimentation is expected in non-fish-bearing headwater streams to Barrett Creek as a result of the installation and removal of 4 permanent and temporary road-stream crossings; a long-term, low risk of low impacts to sedimentation is expected. The short-term impacts

are expected to be minimal, spatially disconnected, and temporary (see Hydrology Analysis.) During the crossing construction and deconstruction turbidity may slightly increase for a very short period (a low impact) in the nearest downstream potentially occupied WCT habitat (approximately 0.3 miles), but short-term impacts to stream sediments in the same reach are not expected to be detectable or measureable. No sediment impacts would occur in the approximate 1.2 mile stream reach known to support WCT (unnamed, south fork tributary to Barrett Creek.) The Hydrology Analysis also indicates a low risk of very low impacts to flow regime is expected from the limited harvest area. No impacts to woody debris would occur from the Action Alternative. Considering potential effects to sediment from road construction and no expected impacts to flow regime and woody debris recruitment, a low risk of low direct and indirect impacts to channel forms is expected beyond those described in the Existing Conditions.

SMZ harvest would occur adjacent to approximately 1,950' of a perennial stream connected to downstream potential fish habitats (approximately 0.3 miles downstream). Due to the expected levels of canopy closure retention from implementing the SMZ Law and Rules and the spatial separation from potential fish-bearing habitats, the SMZ harvest is not expected to have more than a low risk of very low impacts to downstream temperatures.

No impacts to connectivity would occur from the Action Alternative.

Future related actions considered part of cumulative impacts include continued, numerous, widespread grazing impacts, in-stream flow diversions, and private road maintenance effects. Although direct and indirect impacts from the Action Alternative may be very low or low, the possibility of measuring or detecting these levels of impact in potential fish-bearing reaches would be extremely difficult, if not impossible. This scenario would occur due to the inability to observe potential effects from the Action Alternative when compared to other ongoing, watershed-wide, extensive impacts. The potential effects would therefore not be expected to be sufficient to have further adverse impacts to WCT populations and habitat features. Actual potential or foreseeable impacts, if they occur in fish-bearing reaches, would have a very low or negligible additional impact to cumulative effects due the existing high degree and scope of cumulative effects in the watershed.

SUMMARY

Existing direct, indirect, and cumulative impacts to WCT populations and habitat features in the Barrett Creek watershed are widespread and moderate to high in severity. WCT are known to occur in only approximately 11% of the potential habitable stream reaches in the watershed. Existing impacts are primarily related to ongoing grazing and habitat connectivity issues. Foreseeable direct and indirect impacts to historic and potential fish habitats from the proposed actions are unlikely to occur and would be very low or low. No direct or indirect impacts would occur in reaches known to support WCT. Although existing cumulative impacts are high, additional cumulative impacts to fisheries resources in the watershed as a result of implementing the proposed actions would be very low or negligible.

ATTACHMENT C

GEOLOGY AND SOILS ASSESSMENT

PROPOSED BARRETT SALVAGE TIMBER SALE

Jeff Schmalenberg, Soil Scientist, DNRC

August 26, 2009

Geology and Soils Resource Effects Analysis
Barrett Salvage Timber Sale
T 10S R 13W Sec 24 & 25

Introduction and Proposed Actions

The follow document contains the effects analysis to geologic and soil resources from the proposed actions of the Barrett Salvage timber sale. The gross project area is 1287 acres consisting of two State owned section described by the legal description listed above. Two proposed actions will be analyzed within this report. The action alternative proposes a combination of silvicultural treatments, including seedtree and shelterwood harvests, to harvest approximately 97 acres within these two sections. In conjunction with this harvest, it would be necessary to construct approximately 2.1 miles of new, low standard road on State and privately owned lands.

Both existing conditions and environmental effects to geologic and soil resources within the project area for both the no action and action alternatives will be addressed. Environmental effects will include direct, indirect and cumulative effects. The following analysis is based on coarse-filter screening, professionally published soils and geologic surveys, modeling exercises and on-site evaluation of the project area by DNRC resource specialists in October of 2008.

Potential Issues

Potential issues affecting geologic and soil resources were identified from both public and internal scoping with the identified issues being the focus of the following effects analysis. The identified issue statements are presented below.

- Road construction and log landings can displace and compact surface soils and permanently change the land use of these impacted areas from forest products to transportation.

- Removal of both coarse and fine woody material off site during timber harvest operations can reduce nutrient inputs required for future forest stands and can affect the long-term productivity of the site.

- Ground-based harvest techniques can displace and compact soils which can adversely affect the hydrologic function and long-term productivity of the impacted area.

- Reduced infiltration capacity of an impacted soil can result in overland flow and off site erosion typically localized to road surfaces, main skid trails and log landings.

Analysis Area

The analysis area for the Barrett Salvage timber sale will include all harvest units, log landing areas and temporary and permanent road locations. Potential erosion effects will be analyzed at the watershed scale which will include the watershed area draining the headwaters of main stem Barrett Creek to the downstream State property boundary. This analysis area will allow for effects from the proposed actions to adequately be forecasted in relation to the issues listed above.

Analysis Methods

Methods for disclosing impacts to soil resources relied on information from multiple data sources. Data sources included field evaluation and verification, the Horse Prairie-South Valley Area, Part of Beaverhead County, Montana Soil Survey (NRCS 2009), geologic map of the eastern part of the Leadore 30' x 60' quadrangle, Montana and Idaho (Ruppel et al. 1993), DNRC soil monitoring data (DNRC 2005) and professional training and judgment.

Information from these various sources was used to describe the geologic structure and physical soil properties within the project area which help forecast potential forest management limitations. Soil variables that were considered when forecasting potential impacts included soil texture, soil depth, percent coarse fragments, plasticity index, liquid limit, and Unified classification. The risk of adverse effects to soils resources resulting from the proposed action was then qualitatively assessed using this information as well as soil monitoring data collected on over 90 monitoring sites spanning 20 years of DNRC timber sales projects.

GeoWEPP (Flanagan et al. 1995) was also used to describe base erosion rates within the project area as well as any potential increases resulting from forest management activities. Landscape attributes, climate variables, soil properties and all other assumptions used within the model can be found within the project file.

Relevant Plans, Rules, and Mitigations

Developed in 1996, the State Forest Land Management Plan (SFLMP) is a programmatic plan that outlines the approach and philosophy guiding land management activities on forested school trust lands throughout the state of Montana (DNRC 1996). Within this plan, detrimental soil disturbance is defined and recommends that projects implemented by DNRC should strive to maintain the long-term soil productivity of a site by limiting detrimental soil impacts to 15 percent or less of a harvest unit and retain adequate levels of both coarse and fine woody material to facilitate nutrient retention and cycling.

To accomplish these goals and objectives contract stipulations and site specific Best Management Practices (BMPs) are developed by resource specialists to provide protection for soil resources in a project area. The Forest Management Rules [ARM 36.11.422 (2) (2) (a)] state that appropriate BMPs shall be determined during project design and incorporated into implementation. ARM 36.11.414 mandates that adequate coarse woody debris shall be left on site to facilitate nutrient conservation and cycling. To ensure the incorporated BMPs are implemented and site productivity maintained, specific requirements are incorporated into the DNRC timber sale contracts. The following are some general BMPs and mitigations that would be incorporated into the proposed action to ensure adequate soil protection and long-term productivity of the site is maintained.

- Limit equipment operations to periods when soils are relatively dry, (less than 20% soil moisture), frozen or snow covered (12 inches packed or 18 inches

unconsolidated) to minimize soil compaction and rutting, and maintain drainage features.

- The Forest Officer shall approve a plan for felling, yarding and landing location in each harvest unit prior to the start of operations in the unit. The locations and spacing of skid trails and landings shall be designated and approved by the Forest Officer prior to operations and skid trails will not be spaced less than 60 feet.
- Levels of coarse and fine woody material will be retained on site as prescribed by the forest officer and recommended by the project soil scientist using guidance from the best available science (Graham et al. 1994). 5-10 tons/acre of material >3" is recommended for the Barrett Salvage project area with as many needles and fine material as possible.

These general BMPs along with site specific mitigations designed during contract development have been monitored for effectiveness by DNRC since 1988 and have repeatedly been shown to be an effective measure to achieve objectives described in the SFLMP (*DNRC 2005*).

Existing Conditions

Climate
Average annual precipitation within the Barrett Salvage project area ranges from 15-17 inches with approximately 35-40% delivered as snowfall during winter months. The CLIGEN climate model was used in conjunction with GeoWEPP to simulate rainfall event magnitudes and recurrence intervals for the project area. This simulated climate uses data from weather stations surrounding the project area and adjusts outputs for specific elevations of the predicted zone. These outputs are presented in ***Figure 1; Barrett Salvage Project Storm Return Period Analysis and respective sediment yields*** **located below.**

Return Period *(years)*	**Daily Precipitation** *(inches)*	**Event Probability** *(%)*	**Sediment Yield** *(Tons)*
1	0.78	100%	2.7
2	0.97	50%	4.8
4	1.22	25%	7.7
5	1.29	20%	13.5
10	1.54	10%	32.6
20	1.68	5%	128.2
25	1.76	4%	361.8
50	2.17	2%	405.4

Figure 1: Barrett Salvage Project Area Storm Return Period Analysis and respective sediment yields.

Storm return period analysis shows that summer convective thunderstorms are not as prevalent within the project area as in other geographic regions of Montana. Base erosion rates were modeled at 31.8 tons/yr leaving the State managed land or 0.05 tons/acre/year. This data helps to frame the base erosion rates of the project area as well as the probability of erosive climatic events happening during the implementation of the proposed actions.

Geology and Landscape Morphology
The Barrett Salvage project area is underlain by Medicine Lodge volcanic rocks consisting of basaltic andesites of Eocene age. Some ashflow tuffs and flow breccias were observed to be transported to localized areas by fluvial means but were localized within and adjacent to drainage features. No slope instability was observed during field review.

The landscape is moderately steep with harvest unit slopes averaging 35% with short steep pitches exceeding 45%. Hillslopes are mainly concave in profile with ephemeral draw features

only slightly incised with the exception of bedrock controlled landforms surrounding Barrett creek. Numerous outcrops are well exposed on ridges and southern exposures where soils are poorly developed.

Soils
Only one soil map unit has been identified by the Horse Prairie-South Valley Part of Beaverhead County, Montana Soil Survey though field observations identified local variations. This soil map unit is the Rocko, stoney-Poin, extremely stoney rock-outcrop complex on 15-50% slopes and is mapped for the entire project area. In general, these soils are very gravelly to extremely gravelly, very well drained silt loams covered on average by 1-2 inches of duff material. These silt loam soils typically grade to more clay loams with depth and spatially on depositional surfaces surrounding drainage features. These soils have low productivities and typically support Douglas fir habitat types with a low site index.

Soil erosion hazard for this map unit is low to moderate dependant on slope position, local slope gradient and vegetative cover. Small areas were observed to have excessive trampling from elk migration with highly degraded to non-existent vegetative cover. In these locations, typically upslope areas, minor amounts of sheet erosion were observed but were not contributing to any drainage features. This low erosion hazard is also reflected in modeling efforts as reported in ***Figure 1***; ***Barrett Salvage Project Area Storm Return Period Analysis and respective sediment yields***. Base erosion rates were modeled at 31.8 tons/year over a 100 year model run which is an acceptable/accurate rate for the precipitation regime on these parent materials. Please refer to watershed and hydrology analysis for a more detailed analysis on non-point sediment sources within the project area.

Soil compaction and displacement hazard is also low within the majority of the project area due to the very gravelly nature of the soil. Displacement hazard will increase as slopes exceed 40%.

Coarse and fine woody material levels within the project area vary by aspect and slope, but are generally low, ranging from 2-10 tons/acre. A large portion of the project area was historically range land with fire suppression and range encroachment transitioning portions of the watershed to forested areas.

Environmental Effects

No Action Alternative – Direct and Indirect Effects

Under the no-action alternative, all forest management activities would be deferred to a later time and no timber harvest would occur. Grazing licenses would continue on these parcels. Forest stands would continue to age with natural mortality expected to increase as insect and disease outbreaks continue to flourish in southwest Montana. Soil resources would continue on a stable trend with no new impacts from displacement, compaction or additional erosion. This would result in no net increase or decrease in soil productivity. Wildlife migration and cattle trampling of trails in the project area would continue and sheet erosion from these areas would be expected to continue as well. No increases in base erosion rates would be expected.

No Action Alternative – Cumulative Effects

Cumulative effects of the no action alternative would be the same as those described under direct and indirect effects of the no action alternative and refer the reader to this section for potential effects.

Action Alternative - Direct and Indirect effects

Detrimental soil impacts resulting from compaction, displacement and erosion would be expected on approximately 15% or less of each harvest unit and would be localized to primary skid trails and log landing sites. Soil monitoring conducted on soils similar to those in the project area have found that the above listed mitigation measures are effective in meeting soil protection guidelines in the SFLMP (DNRC 2005). If recommended soil mitigation measures are implemented, moderate levels of long-term impacts to soil productivity from compaction and displacement are expected due to some steep, localized areas planned to be harvested with traditional methods.

Assuming 15% of all harvest units (97 acres) will be detrimentally impacted, this would result in approximately 15 acres of harvest related impacts within the project area. Employing Disturbed WEPP (Elliot et al. 1997) on these 14 acres yields a base erosion rate increase from 0.05 to 0.1 ton/acre. This erosion rate increase would be expected for approximately 1-2 years until vegetative cover can be reestablished on primary skid trails and landings. As a result, the net watershed base erosion rate would increase to 32.5 tons/acre or approximately 2.2% for a period of 1-2 years. Model results also showed no sediment being transported through vegetative buffers adjacent to stream channels. Due to these modeling results as well as additional recommended mitigation measures to be implemented for erosion control such as grass seeding and providing cover for skid trails with slash, no measurable or detectable effects from off site erosion is expected to impact soil productivity. Increased erosion rates are expected to be minor and for short durations.

The land use within the clearing limits of new road construction would be permanently converted from forest products to transportation and would include approximately 7.6 acres of land assuming an average clearing limit of 30 feet. For further analysis of sediment production and delivery from roads, please refer to the hydrology and watershed resource analysis.

5-7 tons/acre of course and fine woody material would be recommended for retention with harvest units. This level of woody material would facilitate nutrient cycling, micro growing site creating and moisture retention until canopy closure is achieved from future stands. Biomass removal as a result of timber harvest will have no effects of on soil productivity due to the low existing conditions of productivity within the project area.

Action Alternative - Cumulative Effects

Cumulative effects by definition are the collective impacts on the human environment of the proposed action when considered in conjunction with other past, present and future actions related to the proposed action by location or generic type. For an impact to soil resources to be cumulative they must overlap a least twice in both time and space. Impacts to soil resources from grazing practices were observed to be minimal. Impacts to soil resources from grazing are expected to continue on this trend. This is supported by the short period of time that the license permits grazing as well as the relatively low soil moisture conditions during summer months when the parcel is grazed. Given the above mentioned constraints defining cumulative effects, minimal grazing use within the project area and the absence of prior timber management activities within the Barrett Salvage project area, there is a low risk of cumulative effects to soil resources within the Barrett Salvage project area.

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ATTACHMENT D

WATERSHED ASSESSMENT

PROPOSED BARRETT SALVAGE TIMBER SALE

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Introduction

The analysis summarized in this report was conducted in order to disclose the existing conditions and the anticipated effects of the proposed Barrett Salvage Timber Sale on water resources within and immediately downstream of the proposed project area.

Potential issues affecting water resources within and immediately downstream of the proposed Barrett Salvage Timber Sale project area were identified from both public and internal scoping. These issues are summarized in the following issue statements:

- Timber harvesting and road construction has the potential to increase water yield, which, in turn, may affect stream channel stability and sediment delivery.
- Timber harvesting and road construction may increase sediment delivery into streams and impact water quality and downstream beneficial uses.
- Timber harvesting activities may adversely affect stream shading and stream temperature.

Stream shading and stream temperatures will be addressed in the fisheries analysis. The other two remaining issues will be the focus of this report.

Analysis Methods

In order to address these issues various data sources were utilized to identify the existing water resources within the watershed analysis area (see following section for a description of the watershed analysis area). A coarse filter approach was first used to gather pertinent background information from various sources including: Montana's Natural Resource Information System, Department of Environmental Quality, Montana Fish, Wildlife and Parks, as well as DNRC. Field reviews of the proposed timber sale were conducted during October of 2008 by a DNRC hydrologist, soil scientist and fisheries biologist. During these field reviews the existing access roads, all proposed road locations, stream crossing sites and harvest units were evaluated for erosions risk and the potential for sediment delivery. All stream channels and larger ephemeral drainage features were also inventoried and evaluated for channel stability and erosion risks. The data collected and observations made during the field reconnaissance were also incorporated into this analysis and used to document existing watershed effects and to predict the potential for direct, indirect and cumulative impacts expected to result from the proposed actions.

Analysis Area

The Barrett Creek watershed was selected as the most appropriate analysis area because the proposed timber sale is located entirely within the drainage area of this watershed. Barrett Creek drains a watershed area of approximately 11,134 acres. The drainage area consists of primarily non-forested rangelands, alluvial fans, stream terrace features and broad valley bottoms. Only about 1688 acres or approximately 15% of the watershed is forested. The proposed project area is located in the headwaters of the drainage on moderately steep and partially forested upper mountain slopes and ridges. This area is drained by several perennial, intermittent and ephemeral tributaries that flow into three different unnamed forks of Barrett Creek. The mainstream of Barrett Creek is a third order, perennial, class I tributary to Horse Prairie Creek in the Beaverhead River Basin. The entire surface discharge of Barrett Creek is typically diverted into a system of active and inactive irrigation ditches which eventually flow into

the Paiment irrigation ditch. There does not appear to be any direct surface discharge from Barrett Creek to Horse Prairie Creek.

Water Uses and Regulatory Framework

The Missouri River drainage, including tributaries to the Beaverhead River draining the proposed timber sale project area, is classified as B-1 in the Montana Surface Water Quality Standards. The B-1 classification is for multiple use waters suitable for domestic use after conventional treatment, growth and propagation of cold-water fisheries, associated aquatic life and wildlife, agricultural, and industrial uses. Among other criteria for B-1 waters, no increases are allowed above naturally occurring concentrations of sediment, which will prove detrimental to fish or wildlife. Naturally occurring includes conditions or materials present from runoff on developed land where all reasonable land, soil, and water conservation practices have been applied. Reasonable practices include methods, measures, or practices that protect present and reasonably anticipated beneficial uses. The State has adopted Forestry Best Management Practices through its Nonpoint Source Management Plan as the principle means of controlling nonpoint source pollution from silvicultural activities.

Downstream beneficial uses in Barrett Creek include existing water rights for domestic (well), irrigation, and livestock. Barrett Creek also supports a known cold-water fishery (see fisheries report for more information). Barrett Creek has not been identified on the State's 303(d) list of impaired bodies of water in need of TMDL development.

Existing Conditions

The proposed harvest area is located in the largely undeveloped headwaters of Barrett Creek. Existing activities in this portion of the watershed include livestock grazing, hunting and other dispersed recreation, and a small amount of recent timber harvest. Existing road in the proposed project area is limited to a low standard road located on the adjacent private ranchland. This road would also be used to access the proposed harvest area. Several segments of this road do not currently meet minimum BMPs requirements. However, there is low risk of erosion and subsequent sediment delivery to streams. No direct sediment delivery to stream channels observed. The existing access road also contains a bridge crossing of Barrett Creek. The risk of erosion and sediment delivery are also low at this bridge site for the current low levels of occasional use by passenger vehicle traffic. However, several improvements to the bridge deck and road approaches will be necessary to safely accommodate log hauling traffic.

There is low risk of cumulative watershed impacts due to sediment yield caused by existing roads in the Barrett Creek drainage. There are approximately 18.5 miles of existing road within the Barrett Creek watershed. This represents a relatively low road density of approximately 1.06 miles of road per square mile of watershed. This level is well below those levels that are normally associated with cumulative watershed impacts due to increased sediment yields from road sources. It is unlikely (low risk) that there are measurable increase sediment delivery due to roads since existing road densities are low and no direct road sources of sediment delivery were observed.

Also based on aerial photo analysis, it appears that the level of past timber harvest within Barrett Creek is relatively low. There are approximately 225 acres of recent timber harvest (within last 40 years). This level of harvest represents only 2% of the total watershed area and only 13% of the forested watershed area. These levels are well below the levels of forest crown removal that are normally associated with detrimental increases in water yield. Therefore, it is unlikely that there are substantial impacts on stream flow regimes (water yield, magnitude, and duration of peak flows) due to existing timber harvests in the Barrett Creek drainage.

Existing direct, indirect and cumulative impacts to water resources in Barrett Creek appear largely due to livestock grazing. These impacts are readily apparent throughout the lower and middle portions of the

watershed. Current and historic grazing practices have led to widespread levels of bank trampling, increased stream channel instability, and increased levels of in-stream sedimentation. These grazing related effects have likely caused moderate to high levels of direct, indirect and cumulative impacts to water quality, and aquatic life support and cold-water fisheries beneficial uses. Grazing has caused impacts to riparian vegetation (stream canopy cover) and bank trampling have inevitably caused direct, indirect and cumulative impacts to stream temperature regimes throughout Barrett Creek.

Existing direct, indirect and cumulative impacts in the upper elevations of the watershed including those streams located within the proposed harvest area appear to be associated with both livestock grazing and large concentrations of elk. Heavy elk use has also caused trampling of stream banks and springs, widespread hillside erosion.

ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION

The proposed action alternative would result in approximately 97 acres of timber harvest, 2.1 miles of new road construction, 0.3 miles of road reconstruction, and improve surface drainage on 9.4 miles of existing road located on private ranchland that would be used to access the proposed timber sale area. All of these proposed activities are located within the Barrett Creek watershed.

The primary concerns regarding water quality is the potential for increased levels of erosion and subsequent sediment delivery to streams from roads, road stream crossings and constructed skid trails. The proposed action includes the construction of 4 new road stream crossings utilizing both steel and plastic culverts. Several of these crossings will utilize temporary culvert installation designs. Installation of either permanent or temporary culverts and removal of temporary structures may lead to erosion of road surface and fill slope materials and subsequently increase levels of fine sediment delivery to streams.

Low levels of increased sediment delivery can be expected to occur at stream crossing sites during and immediately following the construction of road stream crossings and the removal of temporary stream crossing structures. These increases are expected to be minimal (only slightly above background levels), limited in spatial extent (only detectable for a short reach downstream) and temporary (lasting only one runoff period following construction or removal). All requirements of the Montana Stream Protection Act (124 Permit), Montana Streamside Management Zone Law (SMZ Law) and other applicable DNRC Forest Management ARMS will be fully implemented during the construction and use of these crossings. Road construction and stream crossings would also implement all applicable forestry BMPs to avoid or minimize the risk of sediment delivery.

No direct or direct impacts to water quality are expected to occur from all of the other segments of existing roads or proposed new road construction.

No direct or indirect impacts to water quality due to increased rates of sediment delivery are expected to result from the proposed timber harvest. Most of the proposed timber harvest units are located on gentle to moderate slopes ranging from 10 to 35%. Portions of Harvest Unit #6 and Unit #7 have steeper slopes of approximately 40-50%. These limited areas will be at higher risk for surface erosion. However, these areas are well buffered from stream channels and ephemeral drainage features. Therefore, sediment delivery to stream channels is not expected to result from the proposed timber harvest or ground based skidding.

All streams channels and other ephemeral drainage features located within and immediately adjacent to the proposed harvest units would be well buffered from all harvest activities. All requirements of the Streamside Management Zone (SMZ) law and Forest Management ARMS to Riparian Management Zones (RMZ) and Wetland Management Zones (WMZ) will be implemented into the design of these buffers. Timber harvest and road activities would implement all applicable forestry BMPs to avoid or minimize the risk of soil erosion and potential for sediment delivery.

The proposed levels of timber harvest are not expected to contribute to adverse cumulative watershed impacts due to increased water yield, increased duration or magnitude of peak flows in Barrett Creek. The levels of cumulative harvests that would occur due to the proposed harvest would be well below those levels normally associated with detrimental increases in water yield, peak flow, or duration of peak flows. Subsequently, the risks of additional cumulative impacts to water quality or beneficial uses due to bank destabilization and in-stream sedimentation is low under the proposed action.

ATTACHMENT E

Vegetative Analysis/Stand Prescription

Forest Vegetation:

The proposed harvest area is located toward the southern end of the Beaverhead Mountains along the forest/grassland ecotone. The two State parcels encompassing the project area are 1280 acres of which approximately 435 acres are forested. Adjacent ownership to the north and south is the BLM and to the east and west is private.

Lands within the proposed project area occur in open, rolling country with generally broad and gentle ridge tops. Vegetation is a complex of grass range with mosaic stands of Douglas fir and lodgepole pine. Ridgelines and exposed southerly aspects are essentially rangeland and are either nonforested or sparsely stocked with noncommercial timber stands. Where aspen stands are present, conifer encroachment is overtaking these stands. Slopes range from 10-70% with an elevation range of 7,200 feet to 8,000 feet.

Stands of timber occur predominately on north facing slopes and are primarily a Douglas-fir cover type. Douglas-fir/pine grass habitat types (Psme/Caru) are found on the drier sites with Douglas-fir the climax dominant and lodgepole pine as a minor seral species. Stand composition ranges from dense mature forest to heavily overstocked and stagnant forest to open mature and young encroachment forest. Regeneration is sparse, except for scattered areas of old logging, with moderate understory vegetation and coarse woody debris present.

Subalpine fir/grouse whortleberry habitat types (Abla/Vasc) are found on the cooler, moister sites with subalpine fir the apparent climax species but Douglas-fir, spruce and lodgepole pine tend to dominate the stands as major serals. These stands are comprised of densely stocked and moderately stocked forest. Regeneration and understory vegetation is moderate with moderate to heavy coarse woody debris.

Dominant trees heights: 65-95', co-dominants: 45-60'. Age: 80 to 250 years. Yield capability: 45-65 cu. ft/ac/yr. Common understory species include: pine grass, elk sedge, spirea, kinnikinnick, arnica and sagebrush.

Older trees (>150 years), predominately Douglas-fir, occur throughout most of the stands in small pockets and scattered individual trees. A patch of old growth Douglas-fir is found in Unit 7 (~10 acres), which is presently under attack by Douglas-fir bark beetle. Large snags and suitable snag recruitment trees (≥21" dbh) are available within the proposed harvest units. Encroachment occurs readily along edges of mature forest into areas that were non-forested grasslands around the turn of the century.
The predominate management activity is grazing. ~20 acres of the private lands adjoining the State parcels were commercially harvested ~25 years ago. Harvesting on the State parcels occurred ~50 years ago for railroad ties and was limited to a few scattered small patches.

<u>Cumulative Effects</u>

The No Action alternative would leave all vegetation undisturbed. Over time forest encroachment would continue to occur and forest patches would expand into native rangeland. The risk of fire and additional insect and disease infestation in overstocked and suppressed stands would continue to increase.

The Action alternative of harvesting 97 acres would alter ~22% of the forested acres on the two State tracts within the proposed project area. Stand treatments would reduce the risk of fire and additional insect and disease infestation while restoring the forest to more open, younger aged stands. Data summaries (Losensky 1997) for Beaverhead and Madison Counties were compared with the inventory of State forested lands and anticipated changes under the Action alternative. The data comparison

indicates that for either alternative there would be a higher percentage of the forest in older age classes than anticipated by Losensky.

Fire History/Ecology:

Stands within the project area fall into fire groups 6 and 7 (Fischer and Clayton 1983) and have mean fire intervals ranging from 20 to 60 years on the drier sites to about 50 to 150 years on the cooler sites. Fuel loadings are typically 13-15 tons/acre but can easily exceed this (Fischer and Clayton 1983).

Historically, disturbance in these stands ranged from low intensity ground fires to intense, mixed-severity events (Losensky 1997), which maintained mature stands in scattered patches and a more open condition. Severe fires probably occurred in the denser, fuel heavy stands resulting in stand replacement.

The presence of scattered old, open-grown Douglas-fir were likely the result of frequent fires burning at lower intensities on gentler slopes and indicate that much of the project area was likely influenced by relatively frequent fire events. Existing trees that are less than 150 years old appear to represent forest encroachment due to forest succession and lack of fire disturbance during the past century. Fire suppression efforts have led to an increase in forest cover over the past 100 years. This is readily seen with comparisons of photographs taken in the late 1800's/early 1900's with photographs taken in the 1980's (Gruell 1983) showing a significant increase in forest cover.

Cumulative Effects

The No Action alternative would result in no appreciable change in the forest cover types or stand structures in the near term. Current successional patterns would continue. The stands would continue to be dominated by Douglas-fir, with a gradual trend to increase the number of more shade tolerant species, such as subalpine fir and spruce, in the understory. Tree mortality from insect and disease infestations would contribute to site factors that would be conducive to stand replacement fires. Such an event would likely revert the forest stands back to a grassland-sage cover type with a few scattered old remnant trees that would have survived due to micro-site conditions or location.

The Action alternative would not change the classification of forest types within the proposed project area. Harvest treatments for all units would be primarily group selection and selection harvests focusing on removing unhealthy and overstocked/suppressed trees while leaving approximately 30-45% of the merchantable stand volume as individual seed trees or small clumps of trees. Regeneration harvests would be utilized in portions of the units where Douglas-fir bark beetle is present and stand composition is predominantly subalpine fir. These treatments scattered across a landscape would emulate natural small-scale disturbance events. Harvest treatments would reduce the likelihood of stand replacement events from occurring by removing existing beetle killed/infested timber, reducing stand susceptibility to additional insect and disease infestations and reducing fuel loads of the treated stands. Minor cumulative effects of shifts in age class distribution would be expected at the watershed level. The shifts would be towards the younger age classes as the older age classes are presently the most affected by insect and disease.

Insect and Disease:

Douglas-fir bark beetle is present in Units 3, 4, 6 and 7. The larger, older Douglas-fir trees have been most affected and are showing a high mortality. Moderate to heavy spruce budworm damage is apparent in the stand upper crowns of all the harvest units. High stand densities, multi-storied stand structure, and climax host species, in conjunction with a prolonged drought, has provided for a more serious insect and disease threat and elevated risk to the remaining stands. Open stands where tree growth and vigor is encouraged and a variety of age classes are developed are more resistant to insect and disease infestations. However, the majority of the unhealthy trees are in the larger, older age classes. These trees are exhibiting chlorotic foliage, thin and poorly formed crowns, high stem defect and infestations of insect and disease.

Cumulative Effects

Under the No Action alternative stands would be susceptible to continued insect and disease infestations due to overstocked and suppressed conditions.

The Action alternative would reduce the potential of infestation in the harvested units with post treatment stands being less susceptible since primarily healthy, open stands would remain. Open stands where tree growth and vigor is encouraged are more resistant to insect and disease infestations. As the majority of the unhealthy trees are in the larger, older age classes, these trees would be targeted for harvest and the younger age classes would be favored for the residual stand.

Successional Stages:

The proposed project area falls under climatic section 13 (Section M332E) (Losensky 1997), which encompasses the southwest corner of Montana and the upper Salmon and Lemhi drainages of Idaho, and includes Beaverhead and Madison Counties. In this climatic section, forested cover types were historically found on about 39% of the area, with the remainder being grassland and shrubland. At the turn of the century, 10% of the timber in the climatic section and 19% of the Beaverhead and Madison County timber was old forest >150 years old.

Current forest inventory data on State lands in the Beaverhead and Madison Counties can be used to compare the current age structure of each forest cover type to Losensky's evaluation of conditions that existed in 1900. A complete stand level inventory of all the forested State lands in Beaverhead or Madison County is presently not available. An estimate of age structure is available on approximately 67% of the forested State lands. However, the data available is on the majority of lands that have potential for timber harvest activity and therefore would tend to represent stands that have had human disturbance during the last century and consequently younger age classes are likely represented. Comparison of the data indicates the current age structure of the forested State lands is substantially older than would be expected from Losensky's data. Currently approximately 59% of the forested stands on State lands are greater than 100 years of age. Also, there is currently a greater than expected percentage (39%) of old stands on State land when compared to the historic estimate of 19% on all lands in 1900. High representation of old stands is consistent with the belief that modern fire suppression policies have limited the natural disturbance role played by fire in this region and that human caused disturbances have not approached historic levels of disturbance.

Cumulative Effects

The No Action alternative would result in continued succession toward a climax vegetation condition unless fire or other disturbance intervened to move succession back to the non-stocked and seedling/sapling stage.

The Action alternative would move 97 acres of Douglas-fir cover types, distributed over 7 units, to more open, healthier stands. By removing mainly trees of older age classes, the current age structure of the stands would be converted to a younger age structure, comprised of fewer trees.

Old Growth:

The Forest Management Rules state that DNRC shall manage old growth to meet biodiversity and fiduciary objectives, and shall consider the role of all stand age classes in the maintenance of biodiversity when designing harvests and other activities. DNRC defines old growth as forest stands that meet or exceed the minimum number, size, and age of those large trees as noted in "Old-Growth Forest Types of the Northern Region" by P. Green, J. Joy, D. Sirucek, W. Hann, A. Zack, and B. Naumann (1992, USFS Northern Region, internal report).

Old trees do occur within the proposed project area but are generally found as small clumps of old relic trees (<5 acres) and scattered individuals with the exception of a small stand of old growth Douglas-fir (~10 acres) found in Unit 7, which is presently being affected by Douglas-fir bark beetle. Historically, these remnants were typically naturally fragmented, open-park like communities maintained by frequent low intensity fires. Of the 97 acres in the proposed project harvest units, ~10 acres would meet the DNRC definition of old growth.

Cumulative Effects

The No Action alternative would likely result in an appreciable change in the older age structure and the present high representation of older trees over historic levels. As the majority of the unhealthy trees are represented by the larger, older age classes, these trees would eventually succumb to the present and future effects of insect and disease. All stands would remain at a higher susceptibility to insect and disease, and possible stand replacing fire.

The Action alternative would move the older stand structure to younger aged, more open stands where tree growth and vigor is encouraged and are more resistant to fire and insect and disease infestations. Approximately 85 acres of the 97 acres in the proposed harvest currently would not meet old growth definition. Where applicable, stands not meeting old growth definition would be treated to retain healthy older trees and stand attributes suitable for old growth development. Large, older trees would be harvested while still retaining many of the old growth characteristics of the existing stand. Large live trees, snags and coarse woody debris, which are important attributes associated with old growth and future development of old growth, would be retained in sufficient quantities to meet or exceed the SFLM Rules where available and applicable. The harvest of old growth under this proposal would reduce the total old growth within the project area by ~10 acres and have a negligible cumulative effect on the percentage of old growth remaining on State lands in Beaverhead and Madison Counties.

Fragmentation and Corridors:

The abundance of old trees with fire scars found on the proposed project area indicates that parent trees and stands were likely influenced by relatively frequent fire events historically. The presence and absence of forest and non-forest patches would have been dynamic, shifting through time. Periodically, sites where conifers presently occur would have appeared more as non-forest meadows than forest. Surviving individual trees and clumps of trees in cool areas and gentle ridge tops served as seed sources that would have promoted the periodic regeneration of young-aged stands, that may or may not have survived subsequent fire events. Historic fire events likely contributed to a naturally fragmented patchy distribution of forest stands at the landscape level. Historic fires, climate and land forms have contributed to the existing patchy distribution of dense, mature forest habitat. Existing forest cover is located in foothill habitats with broken forest canopies and exhibits a low level of habitat connectivity across a network of sparse to densely forested stringers and habitat patches.

Cumulative Effects

Under the No Action alternative, habitat conditions would not change in the near term from their current condition. Forested habitat patches within the project area would remain at their current size and shape and offer the greatest level of habitat security and lower proportional amounts of edge habitat. Wildlife species adapted to use larger patches of mature forest would be expected to benefit from this alternative, albeit slightly as existing forest patches are inherently small. Over time, influences of forest succession would be expected to decrease habitat availability for species that are adapted to thrive in open forest and edge habitats, or for those that use such habitats for meeting their life requisites.

Under the Action alternative, there would be no human development that would decrease linkage value and proposed activities would not impede wildlife movements across the landscape, valley or mountain ranges. The proposed project would harvest a total of 97 acres, over seven harvest units, and increase the amount of open, park-like forest in the area. Species of wildlife preferring less dense forest conditions would benefit from the creation of additional habitat, whereas species adversely affected by decreased

forest density would not. Due to the small number of acres harvested, expected effects would be minor. Endemic species that occur in this area would likely not be affected appreciably, as most likely evolved with naturally fragmented forest conditions, created by natural disturbance events. The proposed 2.1 miles of new road construction would have minimal expected adverse impact on fragmentation of habitat or increases in human activity as it would be physically obstructed and effectively closed upon project completion. Cumulative effects related to the proposed road construction on the project area would be minimal due to the small area affected and closure that is planned upon project completion. Average patch size of existing forested acreage would be reduced little within the proposed project area, as the general configuration of patches would be retained. Stand density and forest canopy structure within the proposed harvest units, however, would be reduced. Cumulative fragmentation effects associated with the proposed project would be minor as other appreciable amounts of harvestable timber are absent within the proposed project area.

Noxious Weeds:

Currently there has been no noxious weed infestations detected on the State tracts.

Cumulative Effects

Under the No Action alternative, noxious weeds could become established on 4 wheel drive roads and onto dry vegetation sites by vehicle or animal use.

The Action alternative would involve ground-disturbing activities that have the potential to introduce or spread noxious weeds in susceptible habitat types. An Integrated Weed Management (IWM) approach, combined with prevention and revegetation, is considered the most effective weed management treatment. To reduce the possible introduction and spread of weeds associated with this proposed project; the following mitigation measures would be implemented:

Soil scarification would be kept to a minimum to limit potential noxious weed impacts. All newly disturbed soils on road cuts and fills and obliteration measures would be promptly seeded to site adapted grasses. All road construction and logging equipment would be power washed and inspected prior to being brought on site. DNRC would monitor the project area for two years after the completion of the harvest activities to identify if noxious weeds occur on the site. If noxious weeds do occur, a weed treatment plan would be developed and implemented.

Transportation/Roads:

The existing road access begins at the State road and proceeds southwest through the Hansen Livestock Company and then through Centennial Livestock. Segments of existing access roads with inadequate drainage would be improved to reduce erosion, sediment delivery and provide adequate drainage to meet BMP's. Existing roads on State lands are primitive two-tracks, range type roads that historically have been used for ranching purposes and during the hunting season. The roads have been established over time, are poorly located and lack drainage or erosion control features. All roads on State lands within the proposed project area are administratively closed to motorized vehicle use (except seasonal use by snowmobiles) for recreational purposes. Roads on adjacent ownerships may be open, have seasonal restrictions or closed to motorized use. System roads that are open to the public are under the jurisdiction of the BLM. No system roads exist on the State ownership

Cumulative Effects

Under the No Action alternative, roads would remain in there primitive conditions. Sedimentation from road sources is expected to continue.

The Action alternative would construct ~2.1 miles of new road. Standard drainage features would be implemented to stabilize roads and control erosion concurrent with the proposed operations. After

completion of harvest, temporary roads would be closed with long-term drainage features installed and reseeded with site-adapted grass. Selected segments of the new construction would be effectively closed through obliteration and/or slashing. This closure process would result in no net increase of open roads in the area. Selected segments of the existing access road on private lands would be improved through implementation of mitigation measures. The existing two-track roads on State lands would remain administratively closed to motorized vehicle use for recreational purposes, as described, to meet departmental management objectives for resource protection and assist with FWP management goals.

Stand Prescriptions:

Harvesting an estimated 850 MBF of timber would alter the forest cover on approximately 97 acres. The majority of the unhealthy trees are in the older age classes and would be targeted for harvest while the younger age classes would be favored for the residual stand. Unhealthy older, large trees would be harvested while still retaining many of the old growth characteristics of the existing stands. Large live trees, live cull trees, snags, cull snags, and coarse woody debris and fine materials would be protected and retained in sufficient quantities where applicable. Submerchantable trees and shrubs would be protected and retained for visual screening.

Severity of stand conditions would dictate harvest method used, emulating low to moderately severe ground fire to stand replacing fire. Harvest prescription would reduce overstocking and suppression, fire hazard, and susceptibility to additional insect and disease; recover value from timber affected by insect/disease; open the stands to encourage natural regeneration of shade intolerant species; maintain Douglas-fir cover type while bringing the stands back to a more historic open, park like condition; and promote existing aspen stands.

Mean averages for all harvest units (6" top): 12.25 MBF/ac; 220.4 BA/ac; 247 TPA

<u>Units 1 (6.1 ac), 2 (7.5 ac), 3 (22 ac), 4 (19.1 ac), 5 (2.9 ac) and 6 (16.5 ac)</u> - Units are composed primarily of Douglas-fir with an occasional lodgepole pine/limber pine at the upper elevations and scattered pockets of aspen. Sawtimber size ranges from 7-45" dbh, heights for dominants/co-dominants from 45-95' and an age range from 80-240 years. Encroachment Douglas-fir is found along the edges of the main stands and old relic trees are scattered through the units. The stands are overstocked and suppressed. Douglas-fir bark beetle is present in many of the larger, older trees and moderate to heavy spruce budworm damage is apparent in the stand upper crowns.

Trees of all age classes exhibiting signs of insect/disease, poor health and/or poor tree form characteristics would be designated for harvest. Additionally, overall stand density would be reduced by 55-75% of the merchantable volume, targeting shade tolerant species and trees exhibiting overstocked/suppressed conditions, utilizing group selection/selection/seed tree harvests. This stand density reduction would be concentrated in areas of the stands containing younger-aged/small to medium sized trees while retaining some of the healthy older trees. Desirable dominate/co-dominate trees would be left for seed source. A regeneration harvest would be utilized within 75-100' of aspen colonies for aspen restoration. One large snag or snag recruit (≥21" dbh) per acre would be left where available.

Retain all fine litter and 5-10 tons/acre of large woody debris >3" diameter as feasible. Consolidate remaining slash at landings for burning. Conduct regeneration survey in 7-9 years and a thinning survey in 20-25 years after harvest.

<u>Unit 7 (22.8 ac)</u> - Unit is composed primarily of Douglas-fir with subalpine-fir and limber pine at the upper elevations. Approximately 10 acres in the core of the unit would meet old growth definition. Sawtimber size ranges from 10-49" dbh, heights for dominants/co-dominants from 45-95' and an age range from 100-290 years. Encroachment Douglas-fir is found along the edges of the main stand. The stand is overstocked and suppressed. Douglas-fir bark beetle is present in many of the larger, older trees affecting ~25% of the unit. Moderate to heavy spruce budworm damage is apparent in the stand upper crowns.

Trees of all age classes exhibiting signs of insect/disease, poor health and/or poor tree form characteristics would be designated for harvest. Additionally, overall stand density would be reduced by 55-70% of the merchantable volume, targeting shade tolerant species and trees exhibiting overstocked/suppressed conditions, utilizing group selection/selection harvests. This stand density reduction would be concentrated in areas of the stands containing younger-aged/small to medium sized trees while retaining some of the healthy older trees. Desirable dominate/co-dominate trees would be left for seed source. A regeneration harvest would be utilized within 75-100' of aspen colonies for aspen restoration. One large snag or snag recruit (≥21" dbh) per acre would be left where available.

Retain all fine litter and 5-10 tons/acre of large woody debris >3" diameter as feasible. Consolidate remaining slash at landings for burning. Conduct regeneration survey in 7-9 years and a thinning survey in 20-25 years.

There is currently more total forest cover in Beaverhead County than in prior historical conditions. The proposed harvest represents ~22% of the total forested acres within the two State tracts within the proposed project area. Harvesting an estimated 850 MBF of timber would alter the forest cover on approximately 97 acres. Natural regeneration would be expected. No rare plants or cover types have been noted or observed within the proposed project area.

MEASURES RECOMMENDED TO MITIGATE POTENTIAL IMPACTS:

1) Compliance with Forestry Best Management Practices (BMP's), Streamside Management Zone (SMZ) laws, the Montana Stream Protection Act (124 Permit) and applicable DNRC Forest Management Administrative Rules.
2) Limit equipment operations to periods when soils are dry (less than 20% soil moisture), frozen or snow covered (12 inches packed or 18 inches unconsolidated) to minimize soil compaction, rutting, vegetative disturbance and maintain drainage features. Control erosion by installing adequate drainage on roads and skid trails.
3) The Forest Officer shall approve a plan for felling, yarding and landing location in each harvest unit prior to the start of operations in the unit. The locations and spacing of skid trails and landings shall be designated and approved by the Forest Officer prior to operations and skid trails will not be spaced less than 60 feet. Retain all fine litter as feasible and 5-10 tons/acre of large woody debris >3" diameter. Minimize soil disturbance by general skid trail planning and limit sustained tractor skidding to slopes ≤50%. Limit scarification to 30-40% of the harvest area. Slash would be left in the harvest units where feasible, and distributed on skid trails upon completion of use, for nutrient cycling, to control erosion and to provide shade and protection for seedlings.
4) For slope stability on the road construction segments, construct cutslopes at 1:1 (run/rise) in common material and 1/4:1 for rock. Install adequate road drainage to control erosion concurrent with harvest activities and road opening and new construction. Provide effective sediment filtration along drainage features near crossing sites. New construction and major skid trails on State lands would be closed with slash and debris and/or barriers, and adequate drainage provided.
5) All road and logging equipment would be power washed and inspected prior to being brought on site. Sale area would be monitored for weeds following harvest and a treatment plan would be developed should noxious weeds occur.
6) At sale closure, grass seed roads, skid trails (where needed) and landings with an appropriate seed mixture.
7) One snag and one snag recruit per acre, of the largest diameter class, would be retained where applicable. Cull live trees and cull snags would be retained where applicable.
8) Retain live, healthy older trees and stand attributes suitable for old growth development where available and applicable.

9) Contact DNRC wildlife biologist should any threatened or endangered species be encountered within the proposed project area.

Literature Cited

Fischer, W. C., and B.D. Clayton. 1983. Fire ecology of Montana forest habitat types east of the Continental Divide. U.S. For. Serv. Gen. Tech. Rep. INT-141. 83pp.

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ATTACHMENT F
Barrett Salvage Timber Sale

CHECKLIST FOR ENDANGERED, THREATENED AND SENSITIVE SPEICES
Pertains to Section II. 9. of the DS-252 DNRC Environmental Checklist
CENTRAL LAND OFFICE

Prepared by Chuck Barone, 12/24/09

Threatened and Endangered Species	[Y/N] Potential Impacts and Mitigation Measures N = Not Present or No Impact is Likely to Occur Y = Impacts May Occur (Explain Below)
Lynx (*Felis lynx*) Habitat: mosaics--dense sapling and old forest >5,000 ft. elev.	[N] The proposed project area is located along the fringes of preferred lynx habitat. Suitable lynx habitat is potentially present in the Beaverhead Mountains (MNHP 2009) and Lynx could occasionally use the project area. However, habitats high in coarse woody debris that are preferred for denning, and large acreages of dense conifer regeneration at high elevations that are preferred for foraging are not present in the project area. Lynx habitat is marginal due to naturally induced fragmentation, and the high level of interspersion of native grassland habitat and dry forest types. Habitat within the two State parcels would be categorized as “other” (246 ac), mature foraging (86 ac) and “temporary non” habitat (104 ac). There is no young foraging or denning habitat, within the State parcels. Of the ~331 acres of potential lynx habitat (“other habitat” and mature foraging) on the State parcels, ~88 acres are proposed for harvest (66 ac “other”/22 ac mature foraging). This would leave ~88 acres converted to temporary non-habitat. Preferred lynx habitat is marginal within the proposed project area due to the lack of highly desirable habitat conditions for lynx and their primary prey, snowshoe hares. Adverse direct, indirect or cumulative impacts to lynx as a result of this project are expected to be minimal.
Grizzly Bear (*Ursus arctos*) Habitat: recovery areas, security from human activity	[N] The proposed project area lies outside of any grizzly bear recovery area. The nearest recovery area is the Yellowstone Grizzly Bear Recovery Zone (USFWS 1993) situated 68 miles east of the project area. Occasional Grizzly Bear use of the Beaverhead Mountains may occur, however, the project area is currently considered outside of their normal occupied habitat (Interagency Occupied Habitat Map, September 2002). Riparian habitats preferred by bears occur along Barrett Creek. Human access levels are presently low due to the private access. Approximately 0.4 miles of road reconstruction and 2.1 miles of temporary, minimum standard new road would be constructed under the proposed project. 1.8 miles of the new road would be physically closed at the end of the project. The potential for any measurable increases in bear-human conflicts following the project activities are expected to be low. Adverse direct, indirect and cumulative impacts to bears as a result of this project are expected to be minimal.

DNRC Sensitive Species	[Y/N] Potential Impacts and Mitigation Measures N = Not Present or No Impact is Likely to Occur Y = Impacts May Occur (Explain Below)
Gray Wolf (*Canis lupus*) Habitat: ample big game pops., security from human activity	[N] The proposed project area falls within the Central Idaho Nonessential Experimental Area for gray wolves. The nearest packs are the Black Canyon pack to the west in Idaho and the Horse Prairie pack to the northwest in Montana. Individuals from these packs or transients from other packs could occasionally use portions of the project area, however, due to the size, nature and location of the proposed project, activities associated with this proposal are not expected to effect wolves or recovery efforts. Should a new den be located within one mile of the project area, activities would cease and a DNRC Biologist would be contacted immediately. Mitigations would then be developed and implemented to minimize adverse impacts to wolves prior to initiating any activity.
Bald Eagle (*Haliaeetus leucocephalus*) Habitat: late-successional forest <1 mile from open water	[N] Bald Eagles have been documented within the quarter latilong (L49B) that encompasses the proposed project area but not within the project area (MNHP 2009). No nesting habitat occurs on, or within one mile of the proposed project area, and the project area occurs outside of any Bald Eagle nesting home range. No direct, indirect or cumulative effects to Bald Eagles associated with this project are anticipated.
Black-Backed Woodpecker (*Picoides arcticus*) Habitat: mature to old burned or beetle-infested forest	[N] Black-backed woodpeckers have not been documented within the quarter latilong (L49B) that encompasses the proposed project area (MNHP 2009). Stands found within the project area are not presently experiencing substantial insect activity, and no recent burns (≤5 years old) have occurred within the State tracts or adjoining sections. Thus, foraging and nesting opportunities are presently limited. No direct, indirect or cumulative effects to Black-backed Woodpeckers would be expected to occur as a result of this project.
Flammulated Owl (*Otus flammeolus*) Habitat: late-successional ponderosa pine and Doug.-fir forest	[N] Flammulated Owls have not been documented within the quarter latilong (L49B) that encompasses the proposed project area (MNHP 2009). Flammulated Owls have been found in warm, dry Douglas-fir cover types. The parcels involved in this project have similar vegetative conditions but the associated higher elevations (7,400 - 8,000 feet) are not their preferred habitat. No direct, indirect or cumulative effects to Flammulated Owls associated with this project are anticipated.
Pileated Woodpecker (*Dryocopus pileatus*) Habitat: late-successional ponderosa pine and larch-fir forest	[N] Pileated Woodpeckers have not been documented within the quarter latilong (L49B) that encompasses the proposed project area (MNHP 2009). The project area is on the eastern fringe of Pileated Woodpeckers distribution and poorly suited for use by Pileated Woodpeckers. As suitable habitat is not present in the project area, no impacts to Pileated Woodpeckers would be expected to occur as a result of this project.

Northern Bog Lemming (*Synaptomys borealis*) Habitat: sphagnum meadows, bogs, fens with thick moss mats	[N] No sphagnum meadows or bogs occur in the proposed project area. No impacts to Bog Lemmings would be expected to occur as a result of this project.
Harlequin Duck (*Histrionicus histrionicus*) Habitat: white-water streams, boulder and cobble substrates	[N] Harlequin ducks have not been documented within the quarter latilong (L49B) that encompasses the proposed project area (MNHP 2009). No high gradient streams suitable for use by harlequins occur within the project area or along proposed haul routes. No impacts to Harlequin Ducks would be expected to occur as a result of this project.
Peregrine Falcon (*Falco peregrinus*) Habitat: cliff features near open foraging areas and/or wetlands	[N] Peregrine Falcons have been documented within the quarter latilong (L49B) that encompasses the proposed project area but not within the project area (MNHP 2009). Cliff features that may be suitable for use by nesting Peregrine Falcons do occur within 1 mile of the project area. No direct, indirect or cumulative effects associated with this project are anticipated.
Mountain Plover (*Charadrius montanus*) Habitat: short-grass prairie, alkaline flats, prairie dog towns	[N] Mountain Plovers have not been documented within the quarter latilong (L49B) that encompasses the proposed project area (MNHP 2009). No short-grass prairie or prairie dog towns occur on, or within one mile of the proposed project area. No impacts to Mountain Plovers are expected as a result of this project.
Townsend's Big-Eared Bat (*Plecotus townsendii*) Habitat: caves, caverns, old mines	[N] The DNRC is unaware of any mines or caves within the proposed project area or close vicinity that would be suitable for use by Townsend's big-eared bats. Impacts to Townsend's big-eared bats are not anticipated as a result of this project.
Black-tailed Prairie Dog (*Cynomys ludoviscianus*) Habitat: grasslands, short-grass prairie, sagebrush semi-desert	[N] Grassland habitats suitable for use by black-tailed prairie dogs do not occur within one mile of the proposed project area. Impacts to black-tailed prairie dogs are not anticipated.
Sage Grouse (*Centrocercus urophasianus*) Habitat: sagebrush semi-desert	[N] Sage Grouse have been documented within the quarter latilong (L49B) that encompasses the proposed project area but not within the project area (MNHP 2009). Sagebrush semi-desert habitats suitable for use by Sage Grouse do occur within one mile of the project area. No leks are known to occur within two miles of the proposed project or haul route. Should sage grouse be present in the vicinity of the project area, any effects to habitat or disturbance-related effects would be expected to be minimal, due to the late start-up date of activities (i.e., post June 15), and preferred sagebrush habitat would not be appreciably altered. Impacts to Sage Grouse would not be anticipated.

* Skaar, P.D. 1996. Montana bird distribution, fifth edition. Montana National Heritage Program 2009. National Heritage Tracker.

ATTACHMENT H

LIST OF INDIVIDUAL SCOPING NOTICES

THE NATURE CONSERVANCY, LIMA, MT
WILDWEST INSTITUTE, MISSOULA, MT
ROCKY MOUNTAIN ELK FOUNDATION
SKYLINE SPORTSMEN'S ASSOC. INC., BUTTE, MT
JACK KIRKLEY, DILLON, MT
SUN MOUNTAIN LUMBER, INC., DEER LODGE, MT
DEFENDERS OF WILDLIFE
MONTANA ACTION FOR ACCESS, RAMSAY, MT
ALLIANCE FOR THE WILD ROCKIES, MISSOULA, MT
SMURFIT-STONE, FRENCHTOWN, MT
BUREAU OF LAND MANAGEMENT, DILLON, MT
MONTANA ASSOCIATION OF COUNTIES
F.H. STOLTZE LAND & LUMBER, COLUMBIA FALLS, MT
MT WOOD PRODUCTS ASSN., HELENA, MT
CONFEDERATED SALISH & KOOTENAI TRIBES, PABLO & RONAN, MT
STUART LEWIN, GREAT FALLS, MT
BEAVERHEAD COUNTY CLERK AND RECORDER, DILLON, MT
MADISON COUNTY CLERK AND RECORDER, VIRGINIA CITY, MT
PLUM CREEK TIMBER CO., COLUMBIA FALLS, MT
DNRC, HELENA, MT
FRIENDS OF THE WILD SWAN, SWAN LAKE, MT
BEAVERHEAD COUNTY COMMISSIONERS, DILLON, MT
MADISON COUNTY COMMISSIONERS, VIRGINIA CITY, MT
R-Y TIMBER, INC., TOWNSEND, MT
MT COALITION FOR APPROPRIATE MANAGEMENT OF STATE LAND, BUTTE, MT
EVAN HUNTSMAN, DELL, MT
RED ROCK LAKES NATIONAL WILDLIFE REFUGE, LIMA, MT
MT SOCIETY FOR CONSERVATION BIOLOGY, MISSOULA, MT
BEAVERHEAD COUNTY RESOURCE USE COMMITTEE, DILLON, MT
DNRC FOREST MANAGEMENT BUREAU, MISSOULA, MT
DILLON RANGER DISTRICT, DILLON, MT
FISH, WILDLIFE, & PARKS, DILLON, MT
ANACONDA SPORTSMAN, ANACONDA, MT
AMERICAN WILDLANDS, BOZEMAN, MT