

## CHECKLIST ENVIRONMENTAL ASSESSMENT

<b>Project Name:</b>	Snoeshoe Post & Rail_Salvage Timber Permits
<b>Proposed Implementation Date:</b>	July 2009
<b>Proponent:</b>	Department of Natural Resources and Conservation / Dillon Unit
<b>Location:</b>	W2 Section 1, E2 Section 2 and W2 Section 4, Township 13 South, Range 1 West
<b>County:</b>	Madison

### I. TYPE AND PURPOSE OF ACTION

Commercial post and rail and insect/disease salvage timber permits to harvest an estimated 450 MBF of lodgepole pine post and rail material and 300 MBF of bark beetle and mistletoe dead/dying lodgepole pine and Douglas-fir sawtimber from approximately 212 acres of tractor ground. Up to six separate timber permits would be sold over a two to three year period. Approximately 0.75 miles of temporary, minimum standard new road would be needed to access the proposed harvest units and would be physically closed after completion of the projects. Purpose of action is to generate revenue for the common school trust, utilize resource and recover value from insect damaged timber prior to its deterioration, improve forest health and productivity through the removal of overstocked and diseased timber, and bring treated portions of stand closer to a semblance of historic conditions. (See Attachments A for vicinity and site specific locations).

### II. PROJECT DEVELOPMENT

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

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

Field reviews were conducted in the summers of 2006 and 2008 by DNRC forester Chuck Barone.

Letters were sent to the following seeking comments for the proposed timber harvest:

Fish, Wildlife and Parks, Regional Supervisor, P. Flowers

Fish, Wildlife and Parks, Wildlife Biologist, R. Brannon

Fish, Wildlife and Parks, Fisheries Management Biologist, R. Oswald

USFS, Madison Ranger District, M. Petroni

Other contacts:

DNRC, Archaeologist, P. Rennie

Montana Natural Heritage Program

Montana Fisheries Information System

Lee Martinell Company (Lessee)

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

The Madison County Weed Board administers the State weed laws in Madison County. The Weed Board would be contacted by the DNRC and given a weed plan for the project.

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

A road use permit with the US Forest Service and a temporary road use easement with the Lee Martinell Company, to use existing roads to cross their respective ownerships, would be required to access the proposed timber permit harvest units.

### 3. ALTERNATIVES CONSIDERED:

Action Alternative: Harvest approximately 450 MBF of post and rail material and 300 MBF of dead, dying, damaged and infested Douglas-fir and lodgepole pine sawtimber from an estimated 212 acres of State land, located in Sections 1, 2 and 4-T13S-R1W.

Stand treatments for post and rail would consist of removing trees within a 3.0 - ≤7.0" DBH size class. Stand treatments for trees affected by insect and disease would consist of removing all merchantable dead, dying and damaged Douglas-fir and lodgepole pine from the proposed units. Harvest design is intended to utilize the resource and recover value from insect and disease damaged timber while improving forest health and productivity. Approximately 0.3 miles of existing closed road and 0.75 miles of temporary, minimum standard new road would be needed to access the proposed harvest units and would be physically closed with slash, debris and/or barriers after completion of the projects. Excess slash would be consolidated at landings and burned.

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.

### 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 located on gentle to moderate slopes with soils weathering from glaciated volcanics, alluvial deposits and localized sands (eolian). Bedrock is primarily Huckleberry Ridge volcanic tuff. Dominant soil types within the harvest units are Shadow complex, warm and on 15-45% slopes. Shadow soils have moderate depth (4-10") topsoils over cobbly loams and clays loams and clay loam subsoils on ridges and convex slopes. These soils are well-drained, tend to be droughty and have a long season of use. Localized areas of moist/wet cobbly clay loam soils occur in swales and support Bluejoint reedgrass (Caca), a moist wetland habitat indicator.

The primary soil concerns associated with timber harvest are direct effects of rutting and displacement of surface soils by equipment operation and road construction. Harvest operations would retain a proportion of coarse woody debris and fine slash to help provide shade and organic matter to maintain soil productivity.

Soil effects would be minimal and long-term productivity would be maintained or improved by implementing mitigation measures, Best Management Practice's and reducing the stocking to make nutrients available to retained trees. There are no apparent direct and indirect impacts to soils in project area. No significant impacts or cumulative effects are expected to soil resources.

### 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 majority of the proposed harvest acres lie within the upper reaches of Tepee Creek drainage, a third order perennial tributary to Red Rock Lakes. The 6,663 acre watershed (above the confluence of Snowshoe Creek) consists of mostly non-forested foothills and ridgetops. Approximately 790 acres (11.9%) of the watershed are

forested. Within the proposed project area Tepee Creek only flows during spring runoff and heavy rain events. No fisheries are present within the State parcels or Tepee Creek but fisheries are found in Red Rock Lakes/Red Rock River, a tributary of the Beaverhead River. The remaining proposed harvest acres lie within the upper reaches of the West Fork of the Madison River, a large perennial tributary to the Madison River with a drainage area of approximately 224 square miles.

The Missouri River drainage, including tributaries to the Beaverhead and the Madison River, are 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, and agricultural and industrial 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 the affected watersheds include: domestic, irrigation, livestock watering, wildlife, and cold-water fisheries. There are several existing water rights for livestock and irrigation uses of surface water located immediately downstream of the proposed timber harvest and road construction, reconstruction and road use.

Red Rock River/Red Rock Creek and the West Fork of the Madison River have been identified on the 2004 version of the State of Montana 303(d) list of impaired bodies of water in need of TMDL development. The 303(d) list is compiled by the Montana Department of Environmental Quality (DEQ) as required by the Montana Water Quality Act (MCA 75-701-705) and Section 303(d) of the Federal Clean Water Act, and the Environment Protection Agency (EPA) Water Quality Planning and Management Regulations (40 CFR, Part 130). Under these laws, the State is required to identify water bodies that do not fully meet water quality standards; or where beneficial uses are threatened or impaired. Red Rock Creek from the headwaters to Upper Red Rock Lake was included on the 303(d) list because the aquatic life support and cold-water fisheries beneficial uses have been determined to only be partially supported. Probable causes of impairment have been listed as bank erosion, turbidity and other habitat alterations. The probable sources of impairment include grazing related sources and agriculture.

Harvest and road levels within the Tepee Creek and the West Fork of the Madison River watersheds are well below the levels of forest crown removal that are normally associated with increased water yields. It is unlikely that there are measurable effects on stream flow regimes (water yield, magnitude, and duration of peak flows) due to vegetation manipulation in the Tepee Creek and the West Fork of the Madison River watersheds.

Approximately 0.3 miles of existing closed road and 0.75 miles of temporary, minimum standard new road would be needed to access the proposed harvest units. At the end of the projects the spur roads would have additional drainage installed, closed with slash, debris and/or barriers, and disturbed areas seeded. No adverse effects to downstream water quality or cold-water fisheries are expected to occur due to the proposed temporary new road construction.

Harvest activities would occur on gentle to moderate slopes ranging from 10 to 40% with moderate erosion risk. 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. No direct, indirect, or cumulative impacts to water quality or the cold-water fisheries due to accelerated rates of sediment or nutrient delivery are expected to result from the proposed actions. Since no new stream crossings or streamside riparian timber harvest are proposed, no direct or indirect or cumulative effects to stream temperatures, or channel form and function are anticipated.

The proposed timber harvests and temporary new road construction are not expected to contribute to adverse cumulative watershed impacts due to modified stream flow regimes. The existing and proposed levels of harvest are well below the levels normally associated with detrimental increases in water yield, peak flow, or duration of peak flows. Subsequently, no direct, indirect, or cumulative impacts to water quality or beneficial uses are anticipated to result from bank destabilization and in-stream sedimentation. Given the low relative harvest area (<1% of the total watershed) and minimal soil disturbance away from fisheries resources, no foreseeable direct, indirect or cumulative impacts are anticipated to cold-water fisheries or any other beneficial uses associated with the Tepee Creek and the West Fork of the Madison River watersheds. No direct, indirect,

or cumulative impacts to water quality, cold-water fisheries, or other beneficial uses in Red Rock Lakes, the Beaverhead River or the Madison River are expected to result from the proposed actions.

Due to the size and duration of the proposed projects, minimal soil disturbance and additional recommended mitigation measures, no impacts are expected to occur to water quality, water yield, watershed conditions, or fisheries in the Tepee Creek and the West Fork of the Madison River watersheds or any downstream tributaries.

## **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.

## **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 in the northeast end of the Centennial Valley along the southeastern tip of the Gravelly Range. State ownership within the project area is 9,008 acres of which 1,518 acres are forested. Adjacent ownership to the north and east is the Beaverhead-Deerlodge National Forest, to the south the Red Rock Lakes National Wildlife Refuge and to the west is private. Lands within the proposed project area occur in open, rolling country with generally broad and gentle ridge tops. Slopes range from 10-50% with an elevation range of 7200 feet to 8200 feet. The area is primarily grassland to the south turning into timbered blocks to the north. A mixture of conifer and aspen forest comprises the State parcels.

Stands of timber occur predominately on northwest/west facing slopes and are Douglas-fir and lodgepole pine cover types. Douglas-fir/pine grass habitat types (Psme/Caru) are found on the drier sites with Douglas-fir the climax dominant and lodgepole pine as the major seral species. Stand composition ranges from dense mature forest to heavily overstocked and stagnant forest to open mature and young encroachment forest. Regeneration, understory vegetation and coarse woody debris are moderate. Subalpine fir/pine grass habitat types (Abla/Caru) 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 small diameter trees ( $\leq 8$ " DBH) and moderately stocked medium to large diameter trees ( $> 8$ " DBH). Regeneration and understory vegetation is moderate with light to moderate coarse woody debris. The predominate management activity is grazing. Proposed harvest unit 7S was selectively harvested approximately twelve years ago under the DNRC Tepee Creek Timber Sale, which removed 1,524 MBF from approximately 238 acres in 1998. Units 1RS and 3RS have had minor post and rail harvests over the past 20 years. The remainder of the proposed units have never been harvested.

Douglas-fir bark beetle is prevalent in most of the Douglas-fir cover types including harvest units 5S and 7S. The larger, older Douglas-fir trees have been most affected and are showing a high mortality. Light to moderate spruce budworm damage is apparent in the upper crowns of Douglas-fir. Mountain pine beetle and dwarf mistletoe infestations are moderate to heavy in the lodgepole pine cover types including units 1RS, 2RS, 3RS, 4RS and 6S. Prolonged drought, in conjunction with high stand densities, multi-storied stand structure, and climax host species, has provided for a more serious insect and disease outbreak and elevated risk to the remaining stands.

Comparison of the data from current forest inventory data on State lands in the Beaverhead and Madison Counties and Losensky's evaluation of conditions that existed in 1900 indicates the current age structure of the forested State lands is substantially older than would be expected. 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.

Old growth stands do occur within the proposed project area and are found in proposed harvest units 5S & 7S, which have been largely devastated by Douglas-fir bark beetle. Historically, these remnants were typically naturally fragmented, open-park like communities maintained by frequent low intensity fires. Of the 212 acres in the proposed project harvest units, ~47 acres would meet the DNRC definition of old growth. The present percentage of old growth cover types on State lands is nearly twice the estimated percentage that is likely to have historically occurred on State lands in Beaverhead and Madison Counties.

Harvest treatments for post and rail material would remove commercially usable trees within a 3.0 - ≤7.0" DBH size class from units 1RS, 2RS, 3RS and 4RS. Harvest treatments for insect and disease infestations would remove all merchantable dead, dying, damaged and infested trees from all proposed units. Stands currently meeting old growth definition would be treated to retain all live, healthy older trees and stand attributes suitable for old growth development where applicable. Old growth removal and maintenance treatments would be utilized on the 47 acres where older stands are present. Dead, dying, damaged and infested older, large trees would be harvested while still retaining many of the old growth characteristics of the existing stands. Certain portions of the stands where the Douglas-fir bark beetle has caused a high mortality of trees would no longer meet the minimum criteria for old growth under Green, et. al., after harvesting. 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 have a negligible cumulative effect on the percentage of old growth remaining on State lands in Madison and Beaverhead Counties.

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 212 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 projects. 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.

Harvesting 212 acres would alter ~14% of the forested acres on the 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 a more open historic condition.

No rare plants or cover types have been noted or observed within the proposed 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.

(See Attachments B – 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. Tepee Creek has no cold-water fisheries.

Tepee Creek and the West Fork of the Madison drainages lie within the Gravelly Elk Management Unit and FWP Hunting district 327. Within this Elk Management Unit, FWP has stated a habitat objective (FWP 2004) to..."Maintain security conditions for elk during fall (adequate timber cover and limited road access) so that elk harvest is distributed throughout the hunting season with no more than 45-50% of harvested bulls are taken during the first week of the general season." This objective is stated to promote hunter opportunity, which is

considered an important aspect of FWP's management goals for the Gravelly EMU (FWP 2004). Bull elk vulnerability and potential reductions in hunter opportunity are primary concerns expressed by FWP in this hunting district and the Gravelly EMU. Achieving this goal can be hampered when available cover at the landscape level is reduced appreciably through timber harvest activities, road management, or natural disturbances, such as large-scale stand-replacement wildfires.

Timber harvest can increase elk vulnerability by changing the size, structure, juxtaposition and accessibility of areas that provide security during hunting season (Hillis et al. 1991). As visibility and accessibility increase within forested landscapes, elk have a greater probability of being observed and subsequently harvested by hunters. Because the cow segment of the harvest is normally regulated carefully, primary concerns are related to substantial reduction of the bull segment and subsequent decrease in hunter opportunity. The presence of fewer mature bulls early in the hunting season reduces the odds of any given hunter to see or harvest such an animal throughout the remainder of the 5-week season. Forested stands within and surrounding the proposed harvest units do not meet the Hillis et al. (1991) definition of security cover, due to their small size and accessibility by motorized vehicles. However, the forested patches in the proposed project area have value for hiding cover, which can serve to lower bull elk vulnerability. Retaining the greatest amounts of dense forest cover possible would pose the least risk of increasing elk vulnerability from present levels. The greater numbers of elk that use a particular area, the more important cover patches are as they serve to reduce vulnerability of a greater portion of animals.

Terrain in this hunting district is open and gentle, which allows relatively easy access to motorized vehicles. Access considerations coupled with low hiding and security cover levels in this Hunting District offer challenges to managing elk populations and hunters (Hamlin and Ross 2002). Additional reductions in hiding cover and/or security habitat may influence achievement of FWP's harvest goal for this Hunting District and EMU.

In conjunction with harvest activities, the proposed existing road segments to be opened and the new road construction would be physically closed and obstructed to minimize the potential for increased motorized access from existing levels. This would likely have a minor influence on mitigating elk vulnerability within the proposed project area, due to the high inherent accessibility of the open terrain.

All indications are that timber management activities have had a slight impact on the amount of cover available in this area, while elk populations and hunter pressure have substantially increased. Timber harvest activities have not created a significant reduction in forest cover in the Gravelly EMU, while fire suppression activities have tended to slowly increase the amount of available forest cover over time. The proposed harvest would remove commercially usable trees within a 3.0 - ≤7.0" DBH size class from four of the proposed units. Additionally, merchantable dead, dying and damaged timber, >7.0" DBH would be salvaged from all seven proposed units. The present amounts of forested cover are gradually declining as trees are devastated by insect and disease. The partial removal of some of this declining cover is consistent with natural processes. All proposed units would support at least minimal elk security in the near future.

Proposed harvest unit 7S was selectively harvested approximately twelve years ago and hiding cover is already low. Units 1RS and 3RS have had minor post and rail harvests over the past 20 years. The remainder of the proposed units have never been harvested. Visual screening properties of hiding cover would change considerably in all harvest units. Following the proposed harvest, visual obstruction would be provided by smaller patches and stringers of mature and sub merchantable trees. Leave trees will be retained in a clumped distribution to minimize sight distance where opportunities exist. Across all stands, total basal area could be reduced by up to 90% in some treated portions of the proposed units. Hiding cover value would likely be reduced by a similar proportion. Connectivity of forest patches to other nearby mature forest would remain poor, as some stands in the proposed project area are naturally isolated. Reducing 212 acres of hiding cover would potentially represent a 14% cumulative reduction on State lands within the proposed project area. Low to moderate proportional increases in elk vulnerability could be expected for elk that use this area.

Within the context of Hunting District 327 and the Gravellys EMU, cover removal associated with the proposed project would result in a minor adverse contribution to cumulative effects, but would be additive to other timber harvests occurring within these administrative boundaries on state trust lands and other ownerships. This could result to some degree, in increasing the difficulty that FWP could have in meeting their Elk Plan objective for maintaining bull harvest below 45-50% during the first week of the general big game hunting season. Effects associated with this proposal would likely be difficult to detect in the population at the Hunting District level. However, over a broader cumulative acreage considered at the EMU scale, risk of hunter harvest rate increases

during the first week of the general hunting season is present until recovery of hiding cover and/or security cover can occur. Recovery of forest cover in this area can take several decades to a century, depending upon growing conditions of a site and the intensity of the treatment implemented. Any potential direct disturbance or displacement of elk due to harvest operations would be minor and of short duration (i.e., logging and road construction activity occurring within a three month period).

The access route to the proposed project area would require opening 0.3 miles of previously closed road and constructing 0.75 miles of new temporary, minimum standard road. Open road densities are already high and cover capable of providing security is low in this area. Elk that might use this area would likely have a greater potential for vulnerability if the route were to remain accessible. The actual extent of increase is uncertain as many factors can influence vulnerability (e.g. size, extent and juxtaposition of security areas and migration corridors; type, structure, amount and density of vegetation; road density; ease of human accessibility, hunting pressure, hunting regulations, and hunter behavior, etc.) (FWP 1992). Variations in weather conditions from year to year can also influence elk vulnerability. The previously closed roads and all new roads would be closed by placing slash, debris and/or installing barriers on the road surface at the end of sale activities. By implementing mitigation efforts such as scattering slash/debris, installing barriers and seeding, motor vehicle and foot travel on these routes would essentially be negated. Minimal cumulative influences on access would be anticipated following road slashing efforts.

Due to the size and duration of the proposed project, no new construction and additional recommended mitigation measures, no impacts are expected to wildlife and fisheries habitats.

(See Attachments E, F & G – Checklist for Endangered, Threatened and Sensitive Species; Montana Natural Heritage Program; Elk Security and Vulnerability)

#### **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.*

The proposed project area is situated approximately 10 miles west of the Greater Yellowstone Ecosystem Grizzly Bear Recovery Zone. In recent years, grizzly bears have been documented ranging greater distances outside of the Yellowstone Ecosystem. Grizzly bears have occasionally been documented in the vicinity of the proposed project area and the proposed project area lies within a zone considered as occupied habitat (Interagency Occupied Habitat Map, September 2002). As such, the lands in the general vicinity of Red Rocks Lakes were identified as those where one would reasonably expect to find grizzly bear use occurring during most years. DNRC is not aware of any specific observations of grizzly bears associated with the proposed project area, however, periodic or transient use is possible. Riparian habitats preferred by bears do not occur within the proposed project area. The dry draws support relatively low levels of hiding cover and human access levels are presently moderate. Present hiding cover is composed predominately of lodgepole pine within the proposed harvest units and ranges from low to heavy. Heavier cover is found in the lodgepole pine stands where Douglas-fir is not well represented. Approximately 0.75 miles of temporary, minimum standard road would be needed to access the harvest areas. New roads, any existing abandoned road reopened and skid trails developed to accomplish harvest objectives would be closed with slash, debris or barriers. Proposed project activities would not occur during the spring period. Harvest and road opening/closure activities would be short-term in nature. Should contractors camp on site during project activities, food and garbage would be contained in a bear resistant manner (i.e., in a vehicle, hard sided camper or building, etc.). 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.

The proposed project area falls within the Yellowstone Nonessential Experimental Area for gray wolves. The nearest packs are the Freezeout and Red Rock packs. Individuals from these packs or transients from other packs could occasionally use portions of the proposed project area, however, due to the size, nature, duration 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 proposed 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.

The proposed project area is located along the fringes of preferred lynx habitat. The majority of the habitat on Sections 1, 2 & 4, approximately 79%, would be categorized as “other” and “temporary non” habitat. There are ~160 acres of mature foraging habitat and ~13 acres of denning habitat, but no young foraging habitat, within the State parcels. Of the ~720 acres of potential lynx habitat (other, denning and mature foraging) on the State parcels, ~212 acres of “other” habitat are proposed for harvest and would be converted to temporary non-habitat. No mature foraging or denning habitat is present within the proposed harvest units. Microsites relatively high in coarse woody debris abundance found in subalpine fir habitat types preferred by lynx do occur within the proposed project area but are limited. Potential for denning is poor due to the lack of suitable lynx foraging habitat within the proposed project area. Dense sapling stands and dense mature forest containing abundant forest cover at the ground level are also limited within the proposed project area. 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.

The proposed project area falls within the range of wolverines and wolverines have been observed in the West Fork of the Madison and Centennial Valleys. 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 not expected to effect wolverines.

Preferred habitat for bald eagles is not present within the proposed project area. Occasional use of the area from these species could potentially occur but is generally considered outside of their normal occupied habitat.

Black-backed woodpeckers have not been documented within the proposed project area, however, stands found within the proposed project area are presently experiencing insect activity and could attract birds. No recent burns ( $\leq 5$  years old) have occurred within the State tracts or adjoining sections. Minor potential for direct, indirect or cumulative effects to black-backed woodpeckers would be expected to occur as a result of this project due to its small size, location and short duration.

There are no known fish-bearing streams within the immediate vicinity of the proposed harvest area or road opening locations on State lands. However, downstream segments of the mainstem of Red Rock Creek and Upper Red Rock Lake both support populations of fluvial arctic grayling. The upper reaches of the mainstem of Red Rock Creek also support a population of Yellowstone cutthroat trout. The headwaters portion of the West Fork of the Madison River supports populations of hybridized cutthroat trout. Several small headwater tributaries to Red Rock Creek are also known to support populations of westslope cutthroat trout. Westslope cutthroat trout, Yellowstone cutthroat trout and fluvial arctic grayling are all classified as sensitive fish species by DNRC forest management program (ARM 36.11.436).

The proposed harvest and associated roads are located on gentle to moderate slopes that are well buffered from stream and considered low risk. No new stream crossings are planned under the proposed action. Road improvements and road use activities would implement all applicable forestry BMP's to avoid or minimize the risk of soil erosion and the potential for sediment delivery. The proposed improvements to the existing road system are expected to result in improved water quality and reduced risk to downstream habitat. No direct, indirect, or cumulative detrimental impacts to water quality or cold-water fisheries habitat in the tributaries to Red Rock Lakes or the Madison River due to accelerated rates of sediment delivery are expected to result from the proposed actions.

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

Due to the size and duration of the proposed project, no road construction and additional recommended mitigation measures, no impacts are expected to occur to any endangered, threatened or sensitive species.

(See Attachments E & F – Checklist for Endangered, Threatened and Sensitive Species; Montana Natural Heritage Program)

## **10. HISTORICAL AND ARCHAEOLOGICAL SITES:**

*Identify and determine effects to historical, archaeological or paleontological resources.*

Several cultural resource sites have been documented and inventoried in the Tepee Creek area. DNRC archeologist and State researchers have mapped and inventoried the area. No additional archaeological investigative work is recommended for the proposed project. No impacts are expected.

**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 populated area. 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 adopted the Administrative Rules for Forest Management on March 13, 2003, applicable to management activities on forested State lands.

Portions of the lands within the proposed project area were acquired from the BLM as a result of the Centennial/Muddy Creek Land Exchange EA prepared in June 1988. The Beaverhead National Forest, Madison Range District prepared an EA in 1991 for the West Fork of the Madison Timber Sale, which lies north of the proposed project area. The analysis area for the West Fork EA included approximately 1600 acres of DNRC ownership in Tepee Creek.

An EA with record of decision was completed in May 1996 for the Tepee Creek Timber Sale. Approximately 1,524 MBF of predominately lodgepole pine was harvested from 238 acres. An EA was completed in November 2001 for stockwater development. An EA was completed in May 2005 for a motorized ATV road access. An EA was completed in August 2006 for the Tepee Creek Salvage Timber Permit for the harvest of 200 MBF from 142 acres. Range evaluations for the State parcels were 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 would be no measurable 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 would be no measurable 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 would be no measurable 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 possessing a valid state lands recreational use license or FWP conservation license may conduct recreational activities on the tract. 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 would be no measurable 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 \$42,000.00 (450 MBF of post & rail material @ \$56.00/MBF and 300 MBF of salvage sawtimber @ \$56.00/MBF).

Income from a grazing license of \$4,323.62/year for 623 AUM of use would continue with or without the harvest proposal.

<b>EA Checklist Prepared By:</b>	<b>Name:</b> Chuck Barone	<b>Date:</b> March 12, 2009
	<b>Title:</b> Dillon Unit Forester	

**V. FINDING**

**25. ALTERNATIVE SELECTED:**

**26. SIGNIFICANCE OF POTENTIAL IMPACTS:**

MEASURES RECOMMENDED TO MITIGATE POTENTIAL IMPACTS:

- 1) Compliance with Forestry Best Management Practices (BMP's) and Streamside Management Zone (SMZ) laws.
- 2) Limit equipment operations to periods when soils are dry, frozen or snow covered to minimize soil compaction, rutting and vegetative disturbance. Control erosion by installing adequate drainage on roads and skid trails.
- 3) 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 less than 45%. 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. All previously closed roads, new construction and major skid trails 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 all 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                     
  No Further Analysis

<b>EA Checklist Approved By:</b>	<b>Name:</b> Tim Egan
	<b>Title:</b> Dillon Unit Manager
<b>Signature:</b>	<b>Date:</b>

ATTACHMENTS

- A – Site Map
- B – Vegetative Analysis/Stand Prescription
- E – Checklist for Endangered, Threatened and Sensitive Species
- F – Montana Natural Heritage Program
- G – Elk Security and Vulnerability

## ATTACHMENT G

### Elk Security and Vulnerability

The Gravelly Range is an isolated range that occurs in southwest Montana. The southern end of the Gravelly Range lies just north of the Centennial Valley. This area is part of the FWP Gravelly Elk Management Unit (EMU) and includes Hunting District 327. Habitats found within Hunting District 327 range from grassland-sagebrush along foothills at lower elevations (~6,000 feet) to those at the highest elevations (up to ~9,500 feet) characterized by rocks, scree, whitebark pine and subalpine fir. Mature Douglas-fir and lodgepole pine forests dominate vegetation communities found at mid-elevations. Historic fire events likely contributed to a naturally fragmented patchy distribution of forest stands at the landscape level.

The following terminology is used to describe elk habitat values in the context of the proposed project area and is consistent with Lyon and Christensen (1992).

Security - The protection inherent in any situation that allows elk to remain in a defined area despite an increase in stress or disturbance associated with the hunting season or other human activities.

Hiding Cover (functional def.) – Hiding cover allows elk to use areas for bedding, foraging, thermal relief, wallowing, and other functions year-round. Hiding cover may contribute to security at any time, but it does not necessarily provide security during the hunting season.

Elk Vulnerability – A measure of elk susceptibility to being killed during the hunting season.

Criteria for security cover developed for forests in western Montana by Hillis et al. (1991) requires a minimum of 250 acres of mature timber (contiguous and non-linear) that is  $\geq 1/2$  mile from an open road during hunting season.

Timber harvest can increase elk vulnerability by changing the size, structure, juxtaposition and accessibility of areas that provide security during hunting season (Hillis et al. 1991). As visibility and accessibility increase within forested landscapes, elk have a greater probability of being observed and subsequently harvested by hunters. Because the cow segment of the harvest is normally regulated carefully, primary concerns are related to substantial reduction of the bull segment and subsequent decrease in hunter opportunity. The presence of fewer mature bulls early in the hunting season reduces the odds of any given hunter to see or harvest such an animal throughout the remainder of the 5-week season. Forested stands within and surrounding the proposed harvest units do not meet the Hillis et al. (1991) definition of security cover, due to their small size and accessibility by motorized vehicles. However, the forested patches in the proposed project area have value for hiding cover, which can serve to lower bull elk vulnerability. Retaining the greatest amounts of dense forest cover possible would pose the least risk of increasing elk vulnerability from present levels. The greater numbers of elk that use a particular area, the more important cover patches are as they serve to reduce vulnerability of a greater portion of animals.

The proposed project area lies within FWP Hunting district 327 and it occurs in important habitat for elk. Within this Elk Management Unit, FWP has stated a habitat objective (FWP 2004) to..."Maintain security conditions for elk during fall (adequate timber cover and limited road access) so that elk harvest is distributed throughout the hunting season with no more than 45-50% of harvested bulls are taken during the first week of the general season." This objective is stated to promote hunter opportunity, which is considered an important aspect of FWP's management goals for the Gravelly EMU (FWP 2004). Bull elk vulnerability and potential reductions in hunter opportunity are primary concerns expressed by FWP in this hunting district and the Gravelly EMU. Achieving this goal can be hampered when available cover at the landscape level is reduced appreciably through timber harvest activities, road management, or natural disturbances, such as large-scale stand-replacement wildfires.

In the Gravelly EMU, the three-year average for the percentage of the bull harvest occurring during the first week of the general season was 46.7% for years 2001, 2002 & 2003 (B. Brannon, FWP, Letter and data, July 24, 2006). Thus, bull harvest did not exceed FWP objective for this area. Specifically, in hunting district 327, the three-year average for bull harvest during the first week of the general hunting season was 44.3%.

Within the Gravelly EMU and Hunting District 327, the total acreage of cover patches that are greater than 247 acres was estimated to be 485,931 and 162,348 acres respectively (converted from data presented in Hamlin and Ross 2002). However, cover patches greater than 247 acres make up only 27.8% of the Gravelly EMU administrative area and 36% of Hunting District 327 (Hamlin and Ross 2002).

Terrain in this hunting district is open and gentle, which allows relatively easy access to motorized vehicles. Access considerations coupled with low hiding and security cover levels in this Hunting District offer challenges to managing elk populations and hunters (Hamlin and Ross 2002). Additional reductions in hiding cover and/or security habitat may influence achievement of FWP's harvest goal for this Hunting District and EMU.

#### Effects on Elk Security and Vulnerability:

Under the No Action alternative, no immediate change from the present condition would occur. Hiding cover and access would remain essentially unchanged. Over time, and in the absence of wildfires, conifer cover would continue to mature and develop into dense forest, further increasing amounts of hiding cover and size of potential security blocks. The extent to which forested areas such as those occurring on the proposed project area may serve as sink source habitats (Pullium 1988) for elk is unknown. Given available local information, selection of this alternative is presumed to provide the lowest risk of increasing elk vulnerability over the short term and over the long term (>20 years) in the absence of wildfires or other natural disturbance agents. Subsequently, it is expected that bull elk survival and hunter opportunity would have the least risk of being impacted under this alternative.

Under the Action alternative, ~ 212 acres of hiding cover would be altered, reducing that which would be available to elk during the general hunting season. In conjunction with harvest activities, the proposed existing road segments to be opened would be physically closed and obstructed to minimize the potential for increased motorized access from existing levels. This would likely have a minor influence on mitigating elk vulnerability within the proposed project area, due to the high inherent accessibility of the open terrain.

All indications are that timber management activities have had a slight impact on the amount of cover available in this area, while elk populations and hunter pressure have substantially increased. Timber harvest activities have not created a significant reduction in forest cover in the Gravelly EMU, while fire suppression activities have tended to slowly increase the amount of available forest cover over time. The proposed harvest would remove commercially usable trees within a 3.0 - ≤7.0" DBH size class from four of the proposed units. Additionally, merchantable dead, dying and damaged timber, >7.0" DBH would be salvaged from all seven proposed units. The present amounts of forested cover are gradually declining as trees are devastated by insect and disease. The partial removal of some of this declining cover is consistent with natural processes. All proposed units would support at least minimal elk security in the near future.

Proposed harvest unit 7S was selectively harvested approximately twelve years ago and hiding cover is already low. Units 1RS and 3RS have had minor post and rail harvests over the past 20 years. The remainder of the proposed units have never been harvested. Visual screening properties of hiding cover would change considerably in all harvest units. Following the proposed harvest, visual obstruction would be provided by smaller patches and stringers of mature and sub merchantable trees. Leave trees will be retained in a clumped distribution to minimize sight distance where opportunities exist. Across all stands, total basal area could be reduced by up to 90% in some treated portions of the proposed units. Hiding cover value would likely be reduced by a similar proportion. Connectivity of forest patches to other nearby mature forest would remain poor, as some stands in the proposed project area are naturally

isolated. Reducing 212 acres of hiding cover would potentially represent a 14% cumulative reduction on State lands within the proposed project area. Low to moderate proportional increases in elk vulnerability could be expected for elk that use this area.

Within the context of Hunting District 327 and the Gravellys EMU, cover removal associated with the proposed project would result in a minor adverse contribution to cumulative effects, but would be additive to other timber harvests occurring within these administrative boundaries on state trust lands and other ownerships. This could result to some degree, in increasing the difficulty that FWP could have in meeting their Elk Plan objective for maintaining bull harvest below 45-50% during the first week of the general big game hunting season. Effects associated with this proposal would likely be difficult to detect in the population at the Hunting District level. However, over a broader cumulative acreage considered at the EMU scale, risk of hunter harvest rate increases during the first week of the general hunting season is present until recovery of hiding cover and/or security cover can occur. Recovery of forest cover in this area can take several decades to a century, depending upon growing conditions of a site and the intensity of the treatment implemented. Any potential direct disturbance or displacement of elk due to harvest operations would be minor and of short duration (i.e., logging and road construction activity occurring within a three month period).

The access route to the proposed project area would require opening 0.3 miles of previously closed road and constructing 0.75 miles of new temporary, minimum standard road. Open road densities are already high and cover capable of providing security is minimal in this area. Elk that might use this area would likely have a greater potential for vulnerability if the route were to remain accessible. The actual extent of increase is uncertain as many factors can influence vulnerability (e.g. size, extent and juxtaposition of security areas and migration corridors; type, structure, amount and density of vegetation; road density; ease of human accessibility, hunting pressure, hunting regulations, and hunter behavior, etc.) (FWP 1992). Variations in weather conditions from year to year can also influence elk vulnerability. The previously closed road and new roads would be closed by placing slash, debris and/or installing barriers on the road surface at the end of activities. By implementing mitigation efforts such as scattering slash/debris, installing barriers and seeding, motor vehicle and foot travel on these routes would essentially be negated. Minimal cumulative influences on access would be anticipated following road slashing efforts.

#### Literature Cited

Hamlin, K.L. and M.S. Ross. 2002. Effects of hunting regulation changes on elk and hunters in the Gravelly-Snowcrest Mountains, Montana. Mont. Fish, Wildlife, and Parks, Fed. Aid Proj. W-120-R-April 2002. 237pp.

Hillis, J.M., and M.J. Thompson, J.E. Canfield, L.J. Lyon, C.L. Marcum, P.M. Dolan, and D.W. McCleerey. 1991. Defining elk security: the Hillis paradigm. pp.38-43 in A.G. Christensen, L.J. Lyon, and T.N. Lonner, comps., Proc. Elk Vulnerability Symp., Mont. State Univ., Bozeman, MT. 330pp.

Lyon, L.J., and A.G. Christensen. 1992. A partial glossary of elk management terms. U.S. For. Serv. Gen. Tech Rept. INT-288. 6 pp.

MFWP 2004. Montana Statewide Elk Management Plan. Mont. Dept. Fish, Wildlife and Parks. Wildlife Division. Helena, MT. 397 pp.

MFWP 1992. Montana elk management plan. Mont. Dept. Fish, Wildlife and Parks. Wildlife Division. Helena, MT. 170 pp.

Pulliam, H.R. 1988. Sources, sinks, and population regulation. Am. Nat. 132:652-661.

ATTACHMENT E

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

<p><b>Threatened and Endangered Species</b></p>	<p>[Y/N] Potential Impacts and Mitigation Measures                      N = Not Present or No Impact is Likely to Occur                      Y = Impacts May Occur (Explain Below)</p>
<p>Gray Wolf (<i>Canis lupus</i>)                      Habitat: ample big game pops., security from human activity</p>	<p>[N] The proposed project area falls within the Yellowstone Nonessential Experimental Area for gray wolves. The nearest packs are the Freezeout and Red Rock packs (J. Fontaine, USFWS, Pers. Comm. May 2005). Individuals from these packs or transients from other packs could occasionally use portions of the proposed project area, however, due to the size, nature, duration 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 proposed 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.</p>
<p>Grizzly Bear (<i>Ursus arctos</i>)                      Habitat: recovery areas, security from human activity</p>	<p>[N] The proposed project area is situated approximately 10 miles west of the Greater Yellowstone Ecosystem Grizzly Bear Recovery Zone. In recent years, grizzly bears have been documented ranging greater distances outside of the Yellowstone Ecosystem. Grizzly bears have occasionally been documented in the vicinity of the proposed project area and the proposed project area lies within a zone considered as occupied habitat (Interagency Occupied Habitat Map, September 2002). As such, the lands in the general vicinity of Red Rocks Lakes were identified as those where one would reasonably expect to find grizzly bear use occurring during most years. DNRC is not aware of any specific observations of grizzly bears associated with the proposed project area, however, periodic or transient use is possible. Riparian habitats preferred by bears do not occur within the proposed project area. The dry draws support relatively low levels of hiding cover and human access levels are presently moderate. Present hiding cover is composed predominately of lodgepole pine within the proposed harvest units and ranges from low to heavy. Heavier cover is found in the lodgepole pine stands where Douglas-fir is not well represented. Approximately 0.75 miles of temporary, minimum standard road would be needed to access the harvest areas. New roads, any existing abandoned road reopened</p>

and skid trails developed to accomplish harvest objectives would be closed with slash, debris or barriers. Proposed project activities would not occur during the spring period. Harvest and road opening/closure activities would be short-term in nature. Should contractors camp on site during project activities, food and garbage would be contained in a bear resistant manner (i.e., in a vehicle, hard sided camper or building, etc.). 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.

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. The majority of the habitat on Sections 1, 2 & 4, approximately 79%, would be categorized as "other" and "temporary non" habitat. There are ~160 acres of mature foraging habitat and ~13 acres of denning habitat, but no young foraging habitat, within the State parcels. Of the ~720 acres of potential lynx habitat (other, denning and mature foraging) on the State parcels, ~212 acres of "other" habitat are proposed for harvest and would be converted to temporary non-habitat. No mature foraging or denning habitat is present within the proposed harvest units. Microsites relatively high in coarse woody debris abundance found in subalpine fir habitat types preferred by lynx do occur within the proposed project area but are limited. Potential for denning is poor due to the lack of suitable lynx foraging habitat within the proposed project area. Dense sapling stands and dense mature forest containing abundant forest cover at the ground level are also limited within the proposed project area. 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.

<p align="center"><b>DNRC Sensitive Species</b></p>	<p>[Y/N] Potential Impacts and Mitigation Measures  N = Not Present or No Impact is Likely to Occur  Y = Impacts May Occur (Explain Below)</p>
<p>Bald Eagle (<i>Haliaeetus leucocephalus</i>)  Habitat: late-successional forest &lt;1 mile from open water</p>	<p>[N] Bald Eagles have been documented within the quarter latilong (L47A) that encompasses the proposed project area (Skaar 1996, MNHP 2003). 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. Thus, no direct, indirect or cumulative effects to bald eagles associated with this project are anticipated.</p>
<p>Flammulated Owl (<i>Otus flammeolus</i>)  Habitat: late-successional ponderosa pine and Douglas-fir forest</p>	<p>[N] Flammulated owls have not been documented within the quarter latilong (L47A) that the proposed project area lies within (Skaar 1996, MNHP 2003). The parcel involved in the proposed project maintains an elevation of 7200-8200 feet, and mature Douglas-fir/ponderosa pine cover types, which are preferred habitat for flammulated owls, are not characteristic of this area. Direct, indirect and cumulative effects to Flammulated Owls would not be expected to occur under the alternatives considered.</p>
<p>Black-Backed Woodpecker (<i>Picoides arcticus</i>)  Habitat: mature to old burned or beetle-infested forest</p>	<p>[Y] Black-backed woodpeckers have not been documented within the quarter latilong (L47A) that encompasses the proposed project area (Skaar 1996, MNHP 2003). However, stands found within the proposed project area are presently experiencing insect activity and could attract birds. No recent burns (<math>\leq 5</math> years old) have occurred within the State tracts or adjoining sections. Due to the small size, location and short duration of this proposed project only minor potential for direct, indirect or cumulative effects to black-backed woodpeckers would be expected to occur.</p>
<p>Pileated Woodpecker (<i>Dryocopus pileatus</i>)  Habitat: late-successional ponderosa pine and larch-fir forest</p>	<p>[N] Pileated woodpeckers have been documented within the quarter latilong (L47A) that encompasses the proposed project area (Skaar 1996, MNHP 2003). The project area is poorly suited for use by pileated woodpeckers. Due to the small size, location and short duration of this proposed project and 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.</p>
<p>Northern Bog Lemming (<i>Synaptomys borealis</i>)  Habitat: sphagnum meadows, bogs, fens with thick moss mats</p>	<p>[N] No sphagnum meadows or bogs occur in the proposed project area. Thus, no impacts to bog lemmings would be expected to occur as a result of this project.</p>

<p>Harlequin Duck (<i>Histrionicus histrionicus</i>) Habitat: white-water streams, boulder and cobble substrates</p>	<p>[N] Harlequin ducks have not been documented in the quarter latilong (L47A) that encompasses the proposed project area (Skaar 1996, MNHP 2003). 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.</p>
<p>Peregrine Falcon (<i>Falco peregrinus</i>) Habitat: cliff features near open foraging areas and/or wetlands</p>	<p>[N] Peregrine Falcons have been documented within the quarter latilong (L47A) that encompasses the proposed project area (Skaar 1996, MNHP 2003). No cliff features suitable for use by nesting peregrine falcons are known to occur within 1 mile of the project area. No direct, indirect or cumulative effects associated with this project are anticipated.</p>
<p>Mountain Plover (<i>Charadrius montanus</i>) Habitat: short-grass prairie, alkaline flats, prairie dog towns</p>	<p>[N] Mountain Plovers have not been documented in the quarter latilong (L47A) that encompasses the proposed project area (Skaar 1996, MNHP 2003). 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.</p>
<p>Townsend's Big-Eared Bat (<i>Plecotus townsendii</i>) Habitat: caves, caverns, old mines</p>	<p>[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.</p>
<p>Black-tailed Prairie Dog (<i>Cynomys ludovicianus</i>) Habitat: grasslands, short-grass prairie, sagebrush semi-desert</p>	<p>[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.</p>
<p>Sage Grouse (<i>Centrocercus urophasianus</i>) Habitat: sagebrush semi-desert</p>	<p>[N] Sage Grouse have been observed within the quarter latilong (L47A) that encompasses the proposed project area. Sagebrush semi-desert habitats suitable for use by sage grouse do occur within the project area. Impacts to sage grouse are not anticipated.</p>

\*Skaar, P.D. 1996. Montana bird distribution, fifth edition. Mont. Nat. Her. Prog. Special publ. No. 3, March, 129pp.

## ATTACHMENT B

### Vegetative Analysis/Stand Prescription Snoeshoe Post & Rail/Salvage Timber Permits

#### Forest Vegetation:

The proposed harvest area is located in the northeast end of the Centennial Valley along the southeastern tip of the Gravelly Range. State ownership within the project area is 9,008 acres (Tepee Creek and the West Fork of the Madison watersheds) of which 1,518 acres are forested. Adjacent ownership to the north and east is the Beaverhead-Deerlodge National Forest, to the south the Red Rock Lakes National Wildlife Refuge and to the west is private.

Lands within the proposed project area occur in open, rolling country with generally broad and gentle ridge tops. Slopes range from 10-50% with an elevation range of 7200 feet to 8200 feet. The area is primarily grassland to the south turning into timbered blocks to the north. Stands of timber occur predominately on northwest/west facing slopes and are Douglas-fir and lodgepole pine cover types. A mixture of conifer and aspen forest comprises the State parcels. Aspen stands are being overtaken by conifer encroachment. Common understory species include: pine grass, snowberry, big sagebrush, elk sedge, spirea, basin wild rye, *Festuca* spp., *lupinus* spp., heartleaf arnica, and bedstraw.

Douglas-fir/pine grass habitat types (Psmc/Caru) are found on the drier sites with Douglas-fir the climax dominant and lodgepole pine as the major seral species. Stand composition ranges from dense mature forest to heavily overstocked and stagnant forest to open mature and young encroachment forest. Regeneration, understory vegetation and coarse woody debris are moderate. Dominant trees heights: 60-70', co-dominants: 50-60'. Age: 150 to 270 years. Yield capability: 40-65 cu. ft/ac/yr.

Subalpine fir/pine grass habitat types (Abla/Caru) 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 small diameter trees ( $\leq 8$ " DBH) and moderately stocked medium to large diameter trees ( $> 8$ " DBH). Regeneration and understory vegetation is moderate with light to moderate coarse woody debris. Dominant trees heights: 45-70'. Age: 115 to 135 years. Yield capability: 50-80 cu. ft/ac/yr.

The majority of Douglas-fir cover types tend to harbor old growth timber and old growth is present in Units 5S and 7S, which have been largely devastated by Douglas-fir bark beetle. Large snags and a few suitable snag recruitment trees ( $\geq 21$ " dbh) are available. 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. Proposed harvest unit 7S was selectively harvested approximately twelve years ago under the DNRC Tepee Creek Timber Sale, which removed 1,524 MBF from approximately 238 acres in 1998. Units 1RS and 3RS have had minor post and rail harvests over the past 20 years. The remainder of the proposed units have never been harvested.

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 opportunity to recover value from damaged timber would be lost.

The Action alternative of harvesting 212 acres would alter 14% of the forested acres on the 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 a more open historic condition. 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, the forested stands for all cover types on the State lands post-harvest would remain older than anticipated.

## **Fire History/Ecology:**

Stands within the project area fall into fire groups 6 and 8 (Fischer and Clayton 1983) and have mean fire intervals ranging from 20 to 60 years on the drier sites to about 50 to 110 years on the cooler sites. Fuel loadings on the drier sites are typically 13 tons/acre and the moister sites are typically 20 tons/acre but can easily exceed this (Fischer and Clayton 1983).

Historically, disturbance in the Douglas-fir cover types 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 occurred in the denser, fuel heavy lodgepole pine cover types 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.

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 and lodgepole pine as major components of the seral stands, 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 potential insect and disease infestations and stagnant, overstocked stands 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 post and rail material would remove commercially usable trees within a 3.0 -  $\leq 7.0$ " DBH size class from units 1RS, 2RS, 3RS and 4RS. Harvest treatments for insect and disease infestations would be primarily selection harvests focusing on removing all merchantable dead, dying, damaged and infested trees as individual trees or small clumps of trees from all proposed units. 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 overstocked/suppressed trees, existing beetle killed/infested and diseased timber, reducing stand susceptibility to additional insect and disease infestations and reducing fuel loads of the treated stands.

## **Insect and Disease:**

Mountain pine beetle and dwarf mistletoe infestations are moderate to heavy in the lodgepole pine cover types including units 1RS, 2RS, 3RS, 4RS and 6S. Douglas-fir bark beetle is prevalent in most of the Douglas-fir cover types including harvest units 5S and 7S. The larger, older Douglas-fir trees have been most affected and are showing a high mortality. Light to moderate spruce budworm damage is apparent in the upper crowns of Douglas-fir. Prolonged drought, in conjunction with high stand densities, multi-storied stand structure, and climax host species, has provided for a more serious insect and disease outbreak and elevated risk to the remaining stands.

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

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 and a variety of age classes are developed are more resistant to insect and disease infestations.

## **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.

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 212 acres of lodgepole pine and Douglas-fir cover types, distributed over 7 units, to more open, healthier stands. Selected stands composed predominately of sapling and pole timber (post and rail material), comprised of overstocked, suppressed and stagnant trees, would be converted to a seedling stage. By removing the dead and dying sawtimber, comprised predominately of older age classes, the current age structure of the stands would be converted to a younger age structure with fewer trees in those stands where tree mortality is high. Harvesting the sapling and pole timber and the dead and dying sawtimber would emulate mixed severity fires over the treated landscape and be more representative of historic conditions.

Untreated stands where tree mortality is lower would continue succession toward a climax vegetation condition unless fire or other disturbance intervened to move succession back to the non-stocked and seedling/sapling stage.

## **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. In the Rules, 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 growth stands do occur within the proposed project area and are found in proposed harvest units 5S & 7S, which have been largely devastated by Douglas-fir bark beetle. Historically, these remnants were typically naturally fragmented, open-park like communities maintained by frequent low intensity fires. Of the 212 acres in the proposed project harvest units, ~47 acres would meet the DNRC definition of old growth. The present percentage of old growth cover types on State lands is nearly twice the estimated

percentage that is likely to have historically occurred on State lands in Beaverhead and Madison Counties.

The No Action alternative would result in reduced numbers of live trees, especially old trees, due to the mortality from insect and disease attacks. Not harvesting the dead and dying trees would increase appreciable the large coarse woody debris but stands would remain at a higher susceptibility to insect and disease, and possible stand replacing fire.

The Action alternative would remove all merchantable dead, dying, damaged and infested trees while still retaining as much of the old growth attributes of the existing stands. Approximately 47 acres of the 212 acres in the proposed harvest currently would meet old growth definition. These stands would be treated to retain all live, healthy older trees and stand attributes suitable for old growth development where applicable. Old growth removal and maintenance treatments would be utilized on the 47 acres where older stands are present. Dead, dying, damaged and infested older, large trees would be harvested while still retaining many of the old growth characteristics of the existing stands. Certain portions of the stands where the Douglas-fir bark beetle has caused a high mortality of trees would no longer meet the minimum criteria for old growth under Green, et. al., after harvesting. 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 have a negligible cumulative effect on the percentage of old growth remaining on State lands in Madison and Beaverhead Counties.

#### **Fragmentation and Corridors:**

The abundance of old trees with fire scars found on the proposed project area indicates that parent trees and stands within the Douglas-fir cover types were likely influenced by relatively frequent fire events historically. Mixed severity and stand replacement fires were more prevalent within the lodgepole pine cover types. 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 scale. Historic fires, climate and land forms have contributed to the existing patchy distribution of dense, mature forest habitat.

Under the No Action alternative, habitat conditions would not change in the near term from their current condition. Forested habitat patches within the proposed 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 within a total of 212 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 new temporary roads to access the harvest units. Any roads that were in a previously abandoned condition and new roads would be physically obstructed and effectively closed upon project completion. Minimal adverse impacts would be expected on fragmentation of habitat or increases in human activity. No cumulative effects are expected due to the small area affected and closure of previously abandoned and new roads upon project completion. 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. 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 tract.

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 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 Landon Camp County road and proceeds east through the Martinell property. Some segments of existing roads would require additional drainage features. 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; and improved two-tracks. Most roads on State lands within the proposed project area are administratively closed to motorized vehicle use for recreational purposes except approximately four miles of road in Sections 1 and 2 designated for motorized off-highway vehicles. 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 USFS. No system roads exist on the State ownership.

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

The Action alternative would open 0.3 miles of closed existing road and construct approximately 0.75 miles of new, temporary minimum standard road. Standard drainage features would be implemented to stabilize existing roads and control erosion concurrent with the proposed operations. After completion of harvest, temporary roads would be closed with long-term drainage features installed, effectively closed with slash and debris; and reseeded with site-adapted grass. This closure process would result in no net increase of open roads in the area. Selected segments of the existing access road would be improved through implementation of mitigation measures. The existing roads on State lands designated as administratively closed 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:**

Harvest treatments for post and rail material would remove all merchantable trees (3.0" - ≤7.0" DBH) within the selected harvest units. Harvest treatments for insect and disease damage would target

merchantable dead, dying, damaged and infected trees with a main objective of recovering value from the resource prior to deterioration. Non-affected trees >7" DBH would not be harvested. Trees harvested for insect and disease damage have been affected by Douglas-fir bark beetle, Mountain pine beetle and dwarf mistletoe.

Douglas-fir trees affected are typically the older, larger trees, most of which would meet old growth definition. Old growth removal and maintenance treatments would be utilized where stands meeting the old growth definition are present. Older, large trees would be harvested while still retaining many of the old growth characteristics of the existing stands where applicable and available. 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 and available. 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 additional insect and disease and fire hazard; recover value from dead, dying, damaged and infected timber; open the stands to encourage natural regeneration of shade intolerant species and maintain Douglas-fir and lodgepole pine cover types where applicable.

Unit 1RS (81 ac), Unit 2RS (47 ac), Unit 3RS (19 ac) and Unit 4RS (12 ac) - Units are composed of predominately lodgepole pine post and rail and small sawtimber with some scattered Douglas-fir and spruce. The stands are overstocked and suppressed with the small diameter trees ( $\leq 7.0$ " DBH) relatively stagnant in growth and have light to moderate mistletoe infestations. Moderate to heavy beetle infestations are found in trees >7.0" DBH. Majority of trees have poor crown ratios (10-30%). Dominant trees are 50-60' and co-dominants are 40-50' with an average age of 115 years. Yield capacity is 50-70 cu. ft/acre/year. Regeneration and understory vegetation is moderate with light to moderate coarse woody debris.

Harvest would be used to reduce over stocking and suppression, fire hazard, and insect and disease. Remove merchantable post and rail material (3.0 -  $\leq 7.0$ " DBH) and dead, dying, damaged and infected sawtimber and leave non-affected trees  $\geq 7.0$ " DBH. One large snag or snag recruit ( $\geq 21$ " 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 5-7 years and a thinning survey in 15 years after harvest.

Unit 5S (14 ac) and Unit 7S (32 ac) - Units are composed predominately of Douglas-fir with some scattered lodgepole pine and pockets of aspen. Sawtimber size ranges from medium to oversize. Encroachment Douglas-fir is found along the edges of the main stands and old growth trees are found throughout the units. Douglas-fir bark beetle is prevalent in most of the older trees and light to moderate spruce budworm damage is apparent in the upper crowns.

All merchantable dead, dying, damaged and infested trees would be harvested including old trees. One large snag or snag recruit ( $\geq 21$ " 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.

Unit 6S (7 ac) - Unit is composed of small sized lodgepole pine sawtimber with some scattered alpine fir and spruce. The stand is overstocked and suppressed and has a heavy infestation of dwarf mistletoe.

All merchantable dead, dying, damaged and infested trees would be harvested. One large snag or snag recruit ( $\geq 21$ " 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 5-7 years and a thinning survey in 15 years.

There is currently more total forest cover in Madison County than in prior historical conditions. The proposed harvest represents ~14% of the total forested acres within the State tracts within the proposed project area. Harvesting an estimated 750 MBF of timber would alter the forest cover on approximately 212 acres. Harvest design is intended to utilize the resource and recover value from insect/diseased damaged timber prior to its deterioration and promote forest health and productivity by reducing overstocking through the emulation of mixed severity fires while maintaining a semblance of historic conditions. 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) and Streamside Management Zone (SMZ) laws.
- 2) Limit equipment operations to periods when soils are dry, frozen or snow covered to minimize soil compaction, rutting and vegetative disturbance. Control erosion by installing adequate drainage on roads and skid trails.
- 3) 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 less than 45%. 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. All previously closed roads, new construction and major skid trails 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 weed-free 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 all 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

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