

## CHECKLIST ENVIRONMENTAL ASSESSMENT

<b>Project Name:</b>	<b>Miners Glory</b>
<b>Proposed</b>	
<b>Implementation Date:</b>	<b>Summer 2014</b>
<b>Proponent:</b>	<b>DNRC – Dillon Unit</b>
<b>Location:</b>	<b>Section 36, T5S, R16W</b>
<b>County:</b>	<b>Beaverhead County</b>

### I. TYPE AND PURPOSE OF ACTION

DNRC, Dillon Unit, is proposing a timber harvest designed to improve forest health and salvage commercial timber (lodgepole pine, Engelmann spruce, and Douglas-fir) that has been severely impacted by insect and disease infestations. The proposal would utilize conventional ground based logging systems to harvest an estimated 1.2 MMbf consisting of 1.0 MMbf of commercial sawlogs and 200 mbf of post and rail material from 196 acres identified for treatment.

Existing roads constructed for previous harvest operations but administratively closed to motorized vehicles, will be used wherever possible along with new construction of approximately a half mile of low standard temporary road to access timber. A temporary portable bridge will be installed to access and transport timber from the west side of Miner Creek. The bridge will be removed at the conclusion of the project. All new roads constructed and older roads deemed unnecessary for future management will be physically closed with slash, stabilized with drainage features, and grass seed applied to exposed soil at the conclusion of the project.

The purpose of the action is to:

- generate revenue for the Common School Trust;
- improve the health, vigor and productivity of the forest stands through the removal of dead, dying, at-risk, overstocked and suppressed timber;
- reduce susceptibility to fire and additional insect and disease in the proposed project area.

In addition to harvest activities approximately 40 acres of pre-commercial thinning may occur in well-stocked regenerated lodgepole pine stands and 80 acres (+/-) of broadcast burning of slash (post harvest) will be prescribed to promote optimum site prep and regeneration.

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

(See Attachment A for site specific locations).

### II. PROJECT DEVELOPMENT

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

*Provide a brief chronology of the scoping and ongoing involvement for this project. List number of individuals contacted, number of responses received, and newspapers in which notices were placed and for how long. Briefly summarize issues received from the public.*

This timber harvest proposal was developed by the Dillon Unit forester with review and consultation from the DNRC forest management bureau specialist's interdisciplinary team for watershed, fisheries, wildlife, soils, and MEPA compliance. A public scoping notice (description, contacts, and vicinity map) was sent by mail and email on March 27<sup>th</sup>, 2014 to a comprehensive list of individuals, organizations and agencies that have shown an interest in timber management proposals developed by the DNRC. The scoping period will be 30 days. Publications of Legal Notice were posted in the Dillon Tribune, Montana Standard and Anaconda Leader from March 28 – April 11, 2014. The Public Notice and vicinity map was posted on the DNRC website on 3/25/2014. To date, a total of three letters have been received, all voicing strong support for the Action Alternative described.

Other contacts involved in specific environmental assessments of this proposal:

DNRC: Gary Frank, Resource Management Supervisor

DNRC: Patrick Rennie, Archaeologist

DNRC, Ross Baty, Wildlife Biologist

DNRC, Amy Helena, MEPA Coordinator

FWP: Jim Olson, Fisheries Biologist

FWP, Vanna Boccadori, Wildlife Biologist

FWP, Nathan Lance, Wolf Specialist

Montana Natural Heritage Program

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

*Examples: cost-share agreement with U.S. Forest Service, 124 Permit, 3A Authorization, Air Quality Major Open Burning Permit.*

In December 2011, the USFWS approved a Habitat Conservation Plan for DNRC and issued an Incidental Take Permit (Permit) under Section 10 of the Endangered Species Act. The Permit applies to select forest-management activities affecting the habitat of grizzly bears, Canada lynx, and 3 fish species (bull trout, westslope cutthroat trout, and Columbia redband trout). 3 of the parcels included in the project area for this proposal are covered under the HCP and all applicable HCP conservation measures would be applied if the Action Alternative is selected.

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

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

An SPA 124 permit has been obtained from Montana Fish, Wildlife & Parks for a temporary bridge installation to transport timber across Miner Creek on State land. Upon the completion of the proposed harvest, the bridge will be removed; any disturbance to the stream banks will be repaired and stabilized. Montana Fish, Wildlife & Parks has provided the 318 Authorization Review on behalf

of Environmental Quality (DEQ) pursuant to the Montana Water Quality Act Short-term Water Quality Standards for Turbidity 75-5-318 MCA.

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### **3. ALTERNATIVE DEVELOPMENT:**

*Describe alternatives considered and, if applicable, provide brief description of how the alternatives were developed. List alternatives that were considered but eliminated from further analysis and why.*

No Action Alternative: Current management actions would be maintained, forest management would not occur at this time. Present and impending insect and disease infestations would continue to escalate with estimated losses to mature timber resources of 80-90% and the probability of additional resource losses due to the risk of fire associated with the dead and dying timber.

Action Alternative: Initiate even-aged management treatment of 196 acres of mature timber through harvest of approximately 1.2 MMbf of commercial timber (sawlogs and post and rail material). Silvicultural harvest prescription for these stands will utilize even-aged management (clear-cut) of mature lodgepole pine stands within 6 harvest units. Ponds, wetlands, and riparian management zones will be protected and buffered from harvest. Harvest prescription will encourage natural regeneration of shade intolerant species present and convert these acres to younger succession lodgepole pine cover types with even-age management direction. Douglas-fir trees present that exhibit a resistance to western spruce bud worm and Douglas-fir beetle will be marked for reserve. Reserve groups of younger sub-merchantable lodgepole pine, spruce, and subalpine fir will be retained throughout harvest units to provide for diversity in habitat types, wildlife cover, and canopy structure for potential lynx habitat within the areas being treated. Larger dead and cull trees will be retained for snag recruitment along with replacement snag trees to meet snag retention guidelines.

Salvage timber harvest will occur adjacent to Miner Creek in accordance with DNRC riparian management zone rules (HCP-RMZ) with the exception of an allowance to salvage timber over 50' from the stream banks to improve the health of the riparian zone. This harvest proposal approved by DNRC watershed and fishery resources specialists. The majority of the overstory trees in these stands are dead or at high risk of mortality from mountain pine beetle. Therefore there is low risk of additional impacts to stream temperature resulting from loss of shade, over what would be expected to occur under no action.

A regeneration harvest of all conifer sawtimber within 50-75 feet of existing aspen colonies would effectively open the forest canopy, reduce conifer encroachment into aspen stands, and promote aspen regeneration important to big game and non game species present in this area.

Pre-commercial thinning of approximately 40 acres of overstocked regenerated lodgepole pine from previous commercial harvest entries over the past 15 years may be implemented and ~80 acres of broadcast burning will be prescribed to reduce fuels and provide site preparation for natural regeneration.

Approximately 0.5 miles of temporary, minimum standard new road construction would be needed to access the harvest units. Following project completion all new roads will be rehabilitated and stabilized with grass seed and course woody debris. A temporary bridge installation is proposed to access State timber stands on the west side of Miner Creek. The bridge will be installed and removed at the conclusion of the harvest in accordance with the SPA-124 permit issued by the MDFWP

Following project completion all new roads will be closed and rehabilitated /stabilized and all roads on this parcel will be managed for non-motorized vehicle use.

#### MEASURES RECOMMENDED TO MITIGATE POTENTIAL IMPACTS

- 1) Compliance with Forestry Best Management Practices (BMP's), Streamside Management Zone (SMZ) laws, applicable DNRC Forest Management Administrative Rules and applicable Montana DNRC Forested State Trust Lands Habitat Conservation Plan (HCP).
- 2) Limit equipment operations to periods when soils are dry (less than 20% soil moisture), frozen or snow covered (12 inches packed or 18 inches unconsolidated) to minimize soil compaction, rutting, vegetative disturbance and maintain drainage features. Control erosion by installing adequate drainage on roads and skid trails. Seasonal operational restrictions to minimize adverse impacts to wildlife usage.
- 3) The Forest Officer shall approve a plan for felling, yarding and landing location in each harvest unit prior to the start of operations in the unit. The locations and spacing of skid trails and landings shall be designated and approved by the Forest Officer prior to operations and skid trails will not be spaced less than 60 feet. Retain all fine litter as feasible and 5-10 tons/acre of large woody debris >3" diameter. Minimize soil disturbance by general skid trail planning and limit sustained tractor skidding to slopes  $\leq 45\%$ . Limit scarification to 30-40% of the harvest area. Slash would be left in the harvest units where feasible, and distributed on skid trails upon completion of use, for nutrient cycling, to control erosion and to provide shade and protection for seedlings.
- 4) Install adequate road drainage to control erosion concurrent with harvest activities. Provide effective sediment filtration along drainage features near crossing sites. Major skid trails on State lands would be closed with slash and debris and/or barriers, and adequate drainage provided.
- 5) All road and logging equipment would be power washed and inspected prior to being brought on site. Sale area would be monitored for weeds following harvest and a treatment plan would be developed should noxious weeds occur.
- 6) At sale closure, grass seed roads, skid trails (where needed) and landings with an appropriate seed mixture.
- 7) An average of one snag and one snag recruit per acre, of the largest diameter class down to 16", would be retained where applicable. Cull live trees and cull snags would be retained where applicable.
- 8) Retain live, healthy older trees and stand attributes suitable for old growth development where available and applicable.
- 9) Contact DNRC wildlife biologist should any threatened or endangered species be encountered within the proposed project area.
- 10) Human or pet food, livestock food, garbage, and other attractants would be stored in a bear resistant manner. Burnable attractants (such as food leftovers or bacon grease) would not be buried, discarded, or burned in an open campfire.
- 11) Clearcut and seed tree cutting units would be designed to provide topographic breaks in view or to retain visual screening for bears by ensuring that vegetation or topographic breaks be no greater than 600 feet in at least one direction from any point in the unit.
- 12) Forest management activities would be prohibited during the spring period of April 1 through July 1 for spring elk calving security.

- 13) Written brochures that describe risks and concerns regarding humans living and working in bear habitat would be provided to contractors and their employees conducting forest management activities prior to start of operations.
- 14) DNRC employees and contractors and their employees would be prohibited from carrying firearms while on duty, unless the person is specifically authorized to carry a firearm under DNRC Policy 3-0621.
- 15) Emphasize the retention of downed logs of 15-inch diameter or larger where they occur.

On blowdown salvage projects, 1 percent of the blowdown area would be left unsalvaged. The material would preferably be retained in a nonlinear patch or patches.

- 16) Retain patches of advanced regeneration of shade-tolerant trees (subalpine fir, and Engelmann spruce), as a component of commercial harvest prescriptions. Cover of the retained patches should not exceed 10 percent of the stand area.

### 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 direct, indirect, and cumulative effects to soils.*

The project area is located on a gently rolling terrain of glacial outwash and alluvial fan deposits derived from Ravalli quartzite. No unstable or unique geology occurs on the project area. Topsoil's are typically moderately deep (about 6 -8") sandy loams and silt loams over deep cobbly sandy loams. On forested and range sites, the small outwash hummocks have sandy loam surfaces (with more surface cobbles) and are droughty in nature. On forested sites with more flat and concave terrain, topsoils are deeper mixed sands and silt loams from volcanic ash (Crater Lake) that are slightly higher productivity sites. Soils in the proposed harvest area are very well drained and tend to be droughty with a long dry season of use. These well-drained gravelly soils on gentle slopes have low erosion risk, but can be erosive along waterways where disturbed. Primary soil concerns are potential rutting, and excessive surface disturbance with harvest operations and site preparation.

#### **Recommended Mitigation Measures:**

Implement Forestry BMP's as the minimum standard for all operations with the proposed timber sale. The contractor and sale administrator should agree to a general skidding plan prior to equipment operations. Control the area and degree of disturbance to levels desired for silvicultural goals.

Use minimum SMZ width as required by law and noted in hydrology report. No high erosion risk soil types were noted in the proposed harvest units for location of SMZ or RMZ boundaries. Protect all wet areas with marked equipment restriction zones (ERZ) as needed.

Limit equipment operations to periods when soils are relatively dry, (less than 20%), frozen, or snow covered, to minimize soil compaction and rutting, and maintain drainage features. Check soil moisture conditions prior to equipment start-up.

Down Woody Material: Harvest operations should retain five to ten tons per acre of woody material larger than 3 inches diameter to be left scattered throughout regeneration the sale units. Slash should be left in the harvest units where feasible, and distributed on skid trails upon completion of use, for nutrient cycling and to provide shade and protection for seedlings.

(See Attachment B – Soils and Geology Assessment)

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## 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 direct, indirect, and cumulative effects to water resources.*

This parcel is located in the Miner Creek watershed, which is tributary to the Bighole River in the Missouri River Basin. The Class I (SMZ Law) mainstem of Miner Creek flows through the proposed timber harvest project areas. A portion of the main Miners Creek stream channel within the proposed harvest areas is split into two different forks. The State parcel and immediate permit project area also contains numerous active and abandoned irrigation ditches, and depression wetlands (potholes). 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 watershed include: irrigation, livestock watering, and cold-water fisheries. There are numerous existing water right for irrigation and livestock watering immediately downstream of the proposed project area. Potentially affected reaches of Miner Creek support brook trout, burbot, longnose dace, mottled sculpin and mountain whitefish. Brook trout are abundant throughout the entire Miner Creek drainage. While arctic grayling are present in Lower Miner Lakes, located several miles upstream of the proposed permit area, they have not been found in surveys conducted within or immediately downstream of the proposed permit area. In addition, westslope cutthroat trout have also been absent from all surveys conducted throughout the entire Miner Creek drainage.

### Cumulative Watershed Effects

Based on aerial photo analysis, there appears to be a low level of road density, as well as past timber harvests, within the Miner Creek watershed. The estimated harvest area in the watershed is less than 2% of the total watershed area. Therefore, 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 Miner Creek drainage.

The proposed timber harvests and road construction and maintenance are not expected to contribute to adverse cumulative watershed impacts due increase sediment yield, increased water yield, increased peak flows or 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.

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

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## 6. AIR QUALITY:

*What pollutants or particulate would be produced (i.e. particulate matter from road use or harvesting, slash pile burning, prescribed burning, etc)? Identify the Airshed and Impact Zone (if any) according to the Montana/Idaho Airshed Group. Identify direct, indirect, and cumulative effects to air quality.*

The DNRC is a member of the Montana/Idaho Airshed Group which was formed to minimize or prevent smoke impacts while using fire to accomplish land management objectives and/or fuel hazard reduction (Montana/Idaho Airshed Group 2006). The Group determines the delineation of airsheds and impact zones throughout Idaho and Montana. Airsheds describe those geographical areas that have similar atmospheric conditions, while impact zones describe any area in Montana or Idaho that the Group deems smoke sensitive and/or having an existing air quality problem (Montana/Idaho Airshed Group 2006).

The project area is located within Montana Airshed 7 which encompasses portions of Beaverhead and Madison Counties. Currently, this Airshed does not contain any impact zones.

### ***Direct and Secondary Effects***

Slash consisting of tree limbs and tops and other vegetative debris would be piled throughout the project area during harvesting. Slash would ultimately be burned after harvesting operations have been completed. Burning would introduce particulate matter into the local airshed, temporarily affecting local air quality. Over 70% of emissions emitted from prescribed burning is less than 2.5 microns (National Ambient Air Quality PM 2.5). High, short-term levels of PM 2.5 may be hazardous. Within the typical column of biomass burning, the chemical toxics are: Formaldehyde, Acrolein, Acetaldehyde, 1,4 Butadiene, and Polycyclic Organic Matter.

Burning within the project area would be short in duration and would be conducted when conditions favor good to excellent ventilation and smoke dispersion as determined by the Montana Department of Environmental Quality and the Montana/Idaho Airshed Group. The DNRC, as a member of the Montana/Idaho Airshed Group, would burn only on approved days.

Thus, direct and secondary effects to air quality due to slash burning associated with the proposed action would be minimal.

### ***Cumulative Effects***

Cumulative effects to air quality would not exceed the levels defined by State of Montana Cooperative Smoke Management Plan (1988) and managed by the Montana Airshed Group. Prescribed burning by other nearby airshed cooperators (for example the U.S. Forest Service) would have potential to affect air quality. All cooperators currently operate under the same Airshed Group guidelines. The State, as a member, would burn only on approved days. This should decrease the likelihood of additive cumulative effects. Thus, cumulative effects to air quality due to slash burning associated with the proposed action would also be expected to be minimal.

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## 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 direct, indirect, and cumulative effects to vegetation.*

Lodgepole pine is the dominant seral species with Subalpine fir/Grouse Whortleberry (Abla/Vasc) as the dominant habitat type. The area lies along the drought limitations of the habitat type and consequently subalpine fir is sparsely represented. Douglas-fir is indicated as a climax species on the drier slopes with Douglas-fir/Pine Grass (Psme/Caru) as the habitat type. The irregular topography

and hummocky features in the area are conducive for forming frost pockets that favor lodgepole pine as the seral species. Douglas-fir is quite often poorly formed and stunted in these areas but does grow well on the upland slopes and sites indicating Douglas-fir climax. Regeneration is minimal and understory vegetation is moderate with moderate coarse woody debris.

The proposed harvest area is composed predominately of lodgepole pine. Mature lodgepole pine stands identified for treatment exhibit poor to moderate growth due to age, overstocking, and advanced infestation of mountain pine beetle and dwarf mistletoe.

A plant species of concern, Lemhi Beardtongue, has been observed approximately one mile south of the proposed project area in open sage-grassland terrain. No other sensitive species/species of special concern have been documented or observed within the proposed project area.

Aspen Areas - A regeneration harvest of all conifer sawtimber within 50-75 feet of viable aspen clones within the harvest units will be applied to reduce conifer encroachment into aspen stands and promote aspen regeneration.

(See Attachment E – Vegetative Analysis/Stand Prescription for an in-depth evaluation of the No Action and Action Alternatives)

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## **8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:**

*Consider substantial habitat values and use of the area by wildlife, birds or fish. Identify direct, indirect, and cumulative effects to fish and wildlife.*

A variety of big game, small mammals, raptors and songbirds use this area. Miner Creek supports a known cold-water fishery (see section addressing Water Quality, Quantity and Distribution).

***For complete wildlife analysis see Attachment F - Checklist for Endangered, Threatened and Sensitive Species***

“DNRC is managing the habitats of threatened and endangered species on this project by implementing the Montana DNRC Forested Trust Lands Habitat Conservation Plan (HCP) and the associated Incidental Take Permit (Permit) that was issued by the United States Fish & Wildlife Service (USFWS) in February of 2012 under Section 10 of the Endangered Species Act. The HCP identifies specific conservation strategies for managing the habitats of grizzly bear, Canada lynx, and three fish species: bull trout, westslope cutthroat trout, and Columbia redband trout. This project complies with the HCP. The HCP can be found at [www.dnrc.mt.gov/HCP](http://www.dnrc.mt.gov/HCP).”

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## **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 direct, indirect, and cumulative effects to these species and their habitat.*

Due to the size, season, duration and harvest method of the proposed project, direct, indirect or cumulative effects to endangered and sensitive species are expected to be negligible. Refer to **Attachment F - Checklist for Endangered, Threatened and Sensitive Species** for the complete analysis.

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**10. HISTORICAL AND ARCHAEOLOGICAL SITES:**

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

Scoping letters have been sent to those Tribes that requested to be notified of DNRC timber sales. If issues are identified during the scoping period, they will be addressed in consultation between the DNRC and the commenting tribe.

A Class I (literature review) level review was conducted by the DNRC staff archaeologist for the area of potential effect (APE). This entailed inspection of project maps, DNRC's sites/site leads database, land use records, General Land Office Survey Plats, and control cards.

The Class I search results revealed that most of the project area has been inventoried to Class III levels for a past timber sale. One cultural resource (24BE1361): the sparse remains of a cabin and timber mill) was formally recorded at that time. A buffer will be placed around the defined site boundaries and avoided with proposed timber harvest activities. As such, the proposed timber sale is expected to have no effect to antiquities.

No additional archaeological investigative work will be conducted in response to this proposed development. However, if previously unknown cultural or paleontological materials are identified during project related activities, all work will cease until a professional assessment of such resources can be made.

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**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 direct, indirect, and cumulative effects to aesthetics.*

The proposed project harvest units will be buffered due to the gentle topography of the area, screening by mature mix aged stands (DF and LP) that will not be treated, and older larger non-commercial trees and groups of trees will effectively screen the treatment planned.

View shed aesthetics will not be adversely impacted with this proposal.

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**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 direct, indirect, and cumulative effects to environmental resources.*

None anticipated

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**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.*

An EA was completed in 7/88 for the Miner Creek Timber Sale (Section 36-T5S-R16W) for the harvest of 872 MBF from 129 acres.

An EA was completed in 5/96 for the Miner Creek Post & Rails Timber Permit (Section 36-T5S-R16W) for the harvest of post & rail from 2 acres.

An EA was completed in 12/06 for the Miner Ditch Timber Sale (Section 36-T5S-R16W) for the harvest of 353 MBF from 35 acres.

Categorical Exclusions were completed for Section 36-T5S-R16W in 9/05 for the Roberts Timber Permit for the harvest of 100 MBF of post and rail material from 20 acres, in 12/06 for the Miner Creek Timber Permit for the harvest of 65 MBF of post and rail material from 16 acres, and in 12/07 for the Jackson #1, #2 and #3 Timber Permits for the harvest of 290 MBF of post and rail material from 22 acres.

An EA was completed in 2/08 for the Diamond Ranch Alternative Practice (Section 36-T5S-R16W) for the harvest of ~6 MBF from 0.5 acres within the Stream Management Zone.

A review of the historic files and public scoping of all these prior projects has resulted in very few if any comments or concerns. Scoping responses have been generally very favorable of timber management on this parcel.

A range evaluation was conducted in September 2003 and 2013. 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.*

Timber harvest activities may overlap with the fall hunting season. Log truck traffic is not considered to be an issue on county roads accessing this parcel. Safety signage will be posted to warn the public of timber harvest operations and log trucks on the public right-of-way.

#### 15. INDUSTRIAL, COMMERCIAL AND AGRICULTURE ACTIVITIES AND PRODUCTION:

*Identify how the project would add to or alter these activities.*

The proposed timber sale would continue to provide industrial production in the region.

#### 16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:

*Estimate the number of jobs the project would create, move or eliminate. Identify direct, indirect, and cumulative effects to the employment market.*

People are currently employed in the wood products industry however local mills are operating at 60-70% of full capacity due to a shortage in timber supply. The significant reduction of federal timber sale offerings in the last decade as well as private lands being harvested at a rate exceeding growth, has resulted in a timber supply shortage to local mills for sawlog resources and post and rail fencing material. This timber sale is considered a larger sale by today's standards and is expected to help maintain the current employment in the industry with much needed raw material supply. Competitive bidding for this timber sale is expected to be very strong given recent similar sales transactions and strong demand exceeding the supply of available timber.

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**17. LOCAL AND STATE TAX BASE AND TAX REVENUES:**

*Estimate tax revenue the project would create or eliminate. Identify direct, indirect, and cumulative effects to taxes and revenue.*

People are currently paying taxes from the wood products industry in the region. There would be no measurable direct impact from this proposed action on tax revenues. Indirectly and cumulatively this project will provide raw materials to help sustain a viable forest products industry and associated property and labor income tax base for local communities.

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**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 direct, indirect, and cumulative effects of this and other projects on government services*

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

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**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.*

None

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**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 direct, indirect, and cumulative effects to recreational and wilderness activities.*

Persons having legal access to the parcels and possessing a valid state lands recreational use license or FWP conservation license may conduct recreational activities on the parcels as posted by DNRC or shown in the interagency travel plan map for the area.

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**21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:**

*Estimate population changes and additional housing the project would require. Identify direct, indirect, and cumulative effects to population and housing.*

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

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**22. SOCIAL STRUCTURES AND MORES:**

*Identify potential disruption of native or traditional lifestyles or communities.*

No direct, indirect, and cumulative impacts related to social structures and mores would be expected under either alternative. The harvest of renewable forest resources in this rural region of Montana is a normal and quite acceptable agricultural practice provided the public feels the management alternative is appropriate for these lands.

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**23. CULTURAL UNIQUENESS AND DIVERSITY:**

*How would the action affect any unique quality of the area?*

No direct, indirect, and cumulative impacts related to cultural uniqueness and diversity would be expected under either alternative.

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**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 direct, indirect, and cumulative economic and social effects likely to occur as a result of the proposed action.*

No Action Alternative: Current uses would continue. No revenue would be generated as a result of the timber sale for the common school trust at this time.

Action Alternative: The estimated return to the trust would be \$180,000 with the removal of 1.375 MMbf of sawtimber and post and rail material for an average stumpage rate of \$130/mbf. This estimate is intended for comparison of alternatives, not as an absolute estimate of return. Income from annual grazing lease, Irrigation LUL, and Snowmobile parking area LUL of \$1,614.84/year for 124 AUM's, and irrigation and recreational use would continue with or without the harvest proposal.

<b>EA Checklist Prepared By:</b>	<b>Name:</b> Michael Atwood	<b>Date:</b>
	<b>Title:</b> Dillon Unit Forester	October 8 2014

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**V. FINDING**

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**25. ALTERNATIVE SELECTED:**

After review, I have selected the proposed Action Alternative, to harvest approximately 1375 MMbf of commercial timber (sawlogs and post and rail material) from an estimated 181 acres of Common School Trust land located in section 36 T5S-R16W. Access to the timber is by county road and state highway. Approximately 0.5 miles of temporary minimum standard road will be constructed on state land and closed and rehabilitated upon completion of this project. I believe this alternative can be implemented in a manner that is consistent with the long-term sustainable natural resource management of the area while promoting forest health and diversity, and generating revenue for the school trust from timber harvest.

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**26. SIGNIFICANCE OF POTENTIAL IMPACTS:**

I conclude after scoping potential public concerns for this project, all identified potential impacts will be avoided or mitigated through project design, short duration, timing of harvest activities, contract provisions and administration, BMP and HCP compliance, and adherence to state laws pertaining to timber harvest, no significant impacts will occur as a result of implementing the selected alternative.

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**27. NEED FOR FURTHER ENVIRONMENTAL ANALYSIS:**

EIS

More Detailed EA

No Further Analysis

<b>EA Checklist Approved By:</b>	<b>Name:</b> Timothy Egan <b>Title:</b> Dillon Unit Manager
<b>Signature:</b> /S/Timothy Egan	<b>Date:</b> October 10 2014

## **ATTACHMENTS**

Attachment A1 – Miner’s Glory Timber Sale Vicinity Map

Attachment A2 – Miner’s Glory Project Area Map

Attachment A3 – Miner’s Glory Sale Area Map

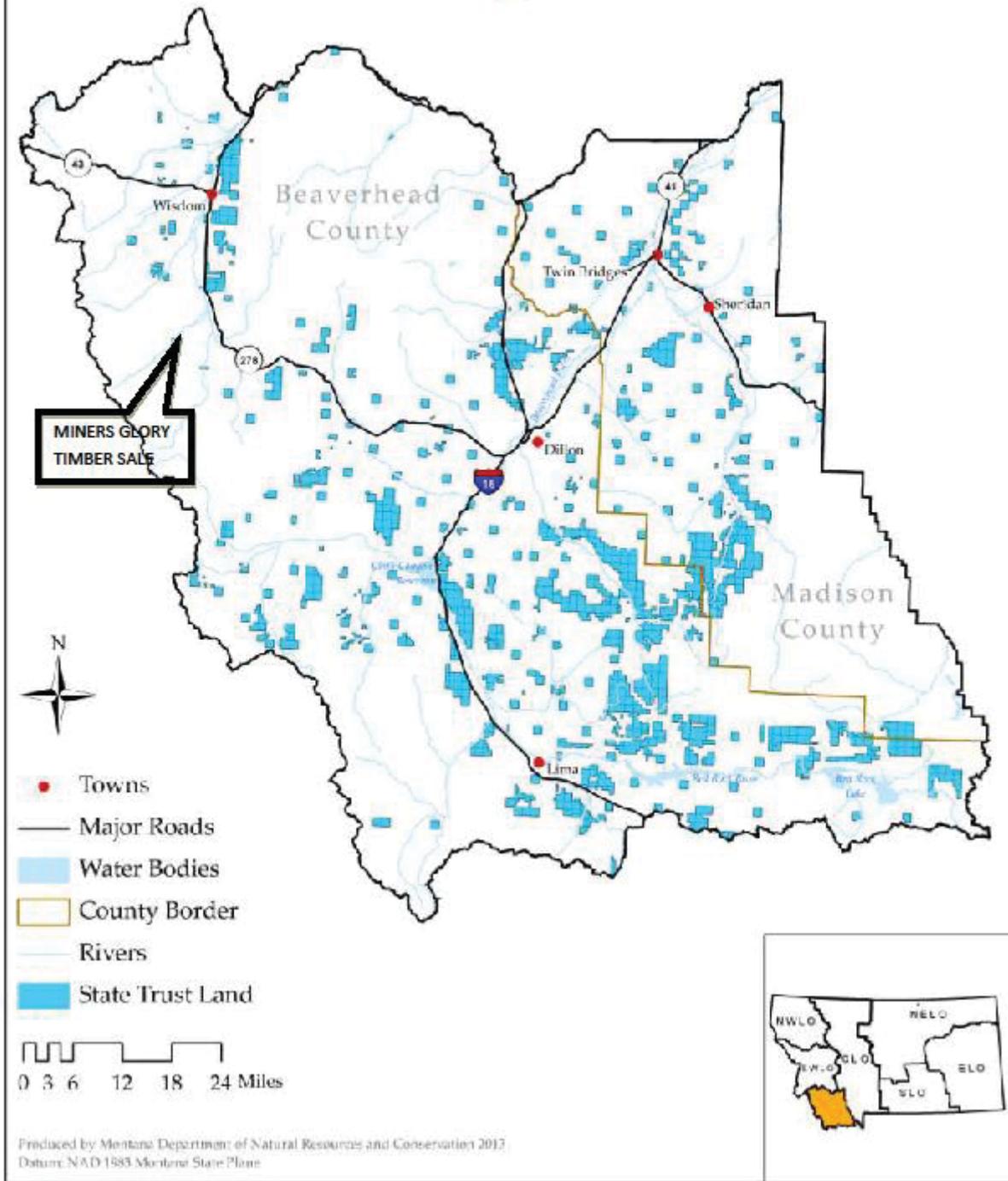
Attachment B – Soil and Geology Assessment

Attachment C – Water Resource Assessment

Attachment E – Vegetative Analysis/Stand Prescription

Attachment F – Checklist for Endangered, Threatened, and Sensitive Species

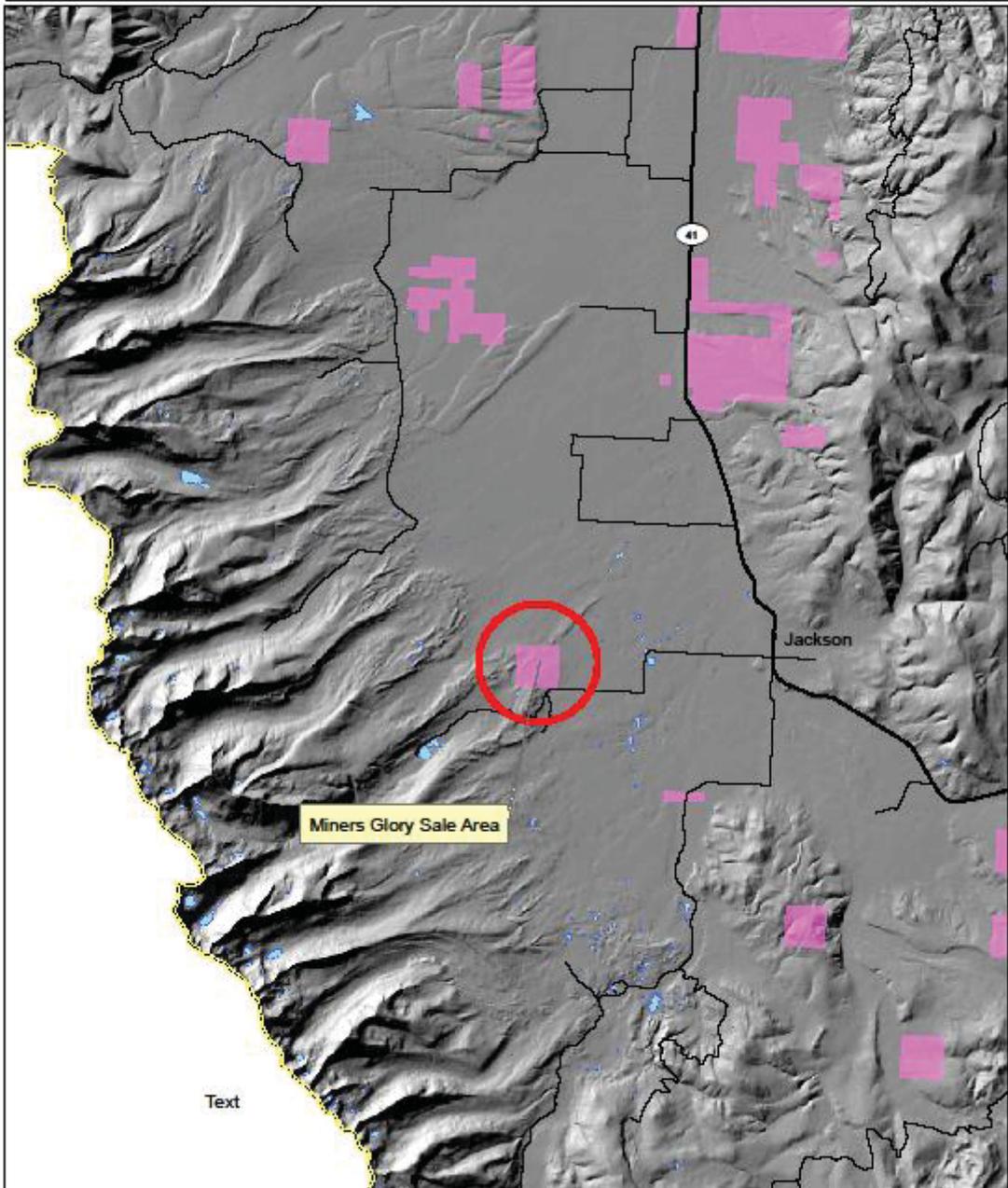
# MINERS GLORY TIMBER SALE VICINITY MAP DILLON UNIT



**Miners Glory T.S.**  
**Scoping Vicinity Map**  
**T05S - R16W - Section 36**

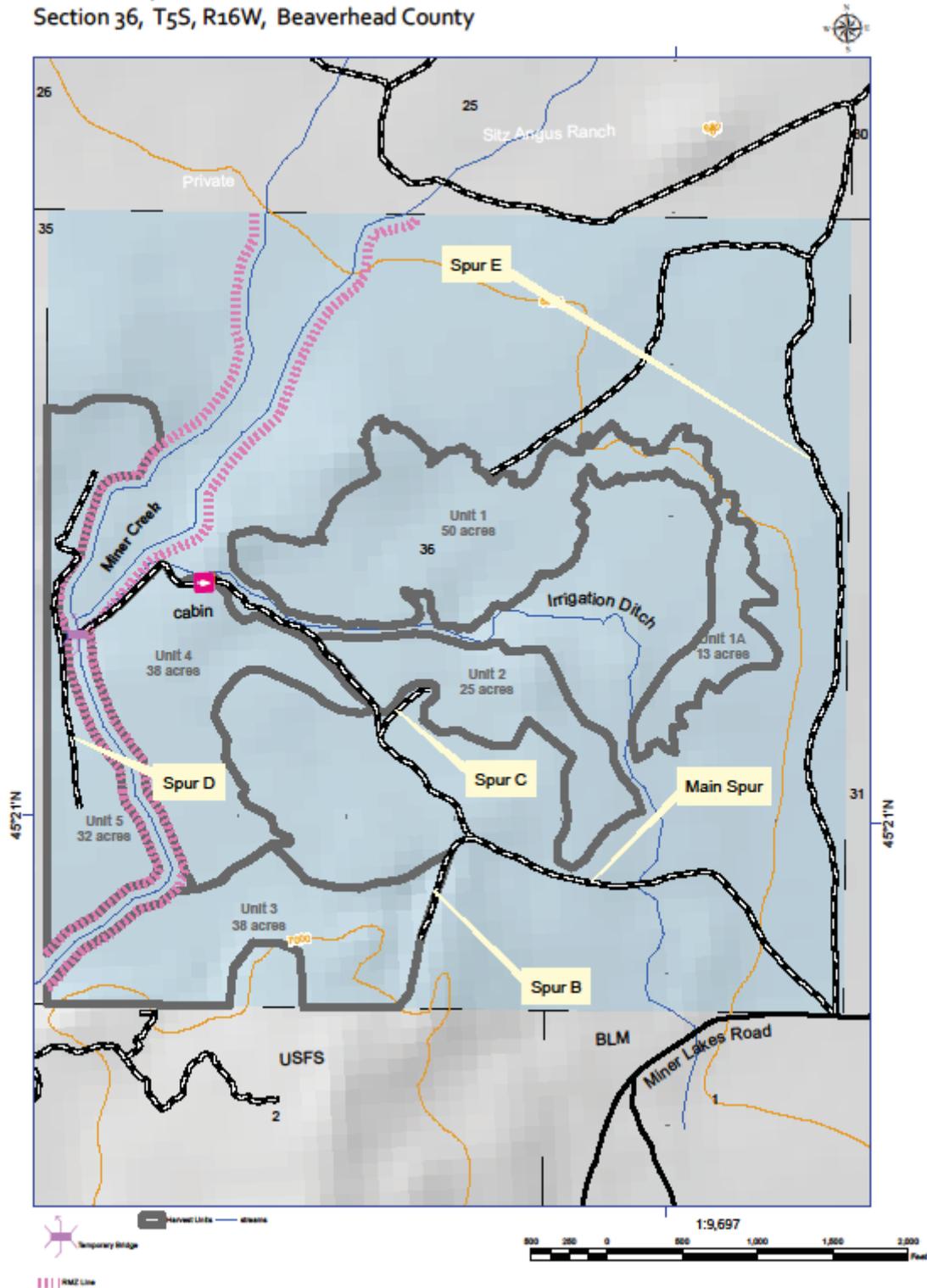
— Local Roads    — Highways    ■ DNRC Trust Lands  
 — Interstate    — Secondary Roads    ■ Lakes

0 0.75 1.5 3 4.5 Miles

Miners Glory Timber Sale  
Section 36, T5S, R16W, Beaverhead County

Attachment A-1



## ATTACHMENT B

### SOIL AND GEOLOGY ASSESSMENT PROPOSED MINER'S GLORY TIMBER SALE SECTION 36-T5S-R16W, BEAVERHEAD COUNTY

#### **Existing Conditions: Geology & Soils**

The Miner Creek sale area is located on a gently rolling terrain of glacial outwash and alluvial fan deposits derived from Ravalli quartzite. No unstable or unique geology occurs on the project area. Topsoils are typically moderately deep (about 6 -8") sandy loams and silt loams over deep cobbly sandy loams. On forested and range sites, the small outwash hummocks have sandy loam surfaces (with more surface cobbles) and are droughty in nature. On forested sites with more flat and concave terrain, topsoils are deeper mixed sands and silt loams from volcanic ash (Crater Lake) that are slightly higher productivity sites. Soils in the proposed harvest area are very well drained and tend to be droughty with a long dry season of use. Small potholes have deeper silty soils which can be mucky when wet and should be avoided when skidding.

These well-drained gravelly soils on gentle slopes have low erosion risk, but can be erosive along waterways where disturbed. Minimal soil effects and no existing erosion problems have been documented from previous forest management activities. Previous harvest units have regenerated naturally to vigorous lodgepole pine.

#### **Direct, Indirect and Cumulative Effects of the Proposed Action**

Primary soil concerns are potential rutting, and excessive surface disturbance with harvest operations and site preparation. To maintain soil productivity, and promote conifer regeneration, BMP's and the following mitigation measures would be implemented to minimize the area and degree of soil effects associated with harvest operations.

Implementing the mitigation measures outlined below will result in a low risk of low level direct and indirect effects to soil resources in the project area. The proposed harvest would not have any additive effects within previous harvest units resulting in a low risk of cumulative effects.

#### **Recommended Mitigation Measures:**

Implement Forestry BMP's as the minimum standard for all operations with the proposed timber sale. The contractor and sale administrator should agree to a general skidding plan prior to equipment operations. Control the area and degree of disturbance to levels desired for silvicultural goals.

Use minimum SMZ width as required by law and noted in hydrology report. No high erosion risk soil types were noted in the proposed harvest units for location of SMZ or RMZ boundaries. Protect all wet areas with marked equipment restriction zones (ERZ) as needed.

Limit equipment operations to periods when soils are relatively dry, (less than 20%), frozen, or snow covered, to minimize soil compaction and rutting, and maintain drainage features. Check soil moisture conditions prior to equipment start-up.

Down Woody Material: Harvest operations should retain five to ten tons per acre of woody material larger than 3 inches diameter to be left scattered throughout regeneration the sale units. Slash should be left in the harvest units where feasible, and distributed on skid trails upon completion of use, for nutrient cycling and to provide shade and protection for seedlings.

## ATTACHMENT C

### **WATER RESOURCE ASSESSMENT Miners Glory Timber Sale Gary Frank, Forest Management Bureau May 7, 2014**

#### AFFECTED ENVIRONMENT – EXISTING CONDITIONS

The proposed Miner's Glory Salvage Timber Sale is located on a single parcel of State trust land in Section 36, Township 5 South, and Range 16 West in Beaverhead County. This parcel is located in the Miner Creek watershed, which is tributary to the Bighole River in the Missouri River Basin. The Class I (SMZ Law) mainstem of Miner Creek flows through the proposed timber harvest project areas. A portion of the main Miners Creek stream channel within the proposed harvest areas is split into two different forks. The State parcel and immediate permit project area also contains numerous active and abandoned irrigation ditches, and depressional wetlands (potholes).

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

Downstream beneficial uses in the affected watershed include include: irrigation, livestock watering, and cold-water fisheries. There are numerous existing water right for irrigation and livestock watering immediately downstream of the proposed project area. Potentially affected reaches of Miner Creek support brook trout, burbot, longnose dace, mottled sculpin and mountain whitefish. Brook trout are abundant throughout the entire Miner Creek drainage. While arctic grayling are present in Lower Miner Lakes, located several miles upstream of the proposed permit area, they have not been found in surveys conducted within or immediately downstream of the proposed permit area. In addition, westslope cutthroat trout have also been absent from all surveys conducted throughout the entire Miner Creek drainage.

#### Water Quality

Miner Creek was included on the 1996 and 1998 versions of the State of Montana 303(d) list of impaired bodies of water in need of TMDL development. The 303(d) list are 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.

Miner Creek (from headwaters to the confluence with the Bighole River) was included on the 1996 and 1998 303(d) list because the aquatic life support and cold-water fisheries beneficial uses were thought to be only partially supported. The probable causes of impairment were listed as flow alteration, other habitat alteration and siltation. The probable sources of impairment included agriculture, irrigated crop production, rangeland, streambank modification /destabilization. Miner Creek was removed for the State 303(d) list in 2002 because it was found to be fully supporting all beneficial uses.

The existing low standard roads used to access the timber sale project area will require some maintenance of the existing road surface drainage features and installation of additional surface drainage to fully meet

BMPs. However, there is low risk that the existing haul routes contributing direct sediment delivery to Miner Creek.

### Cumulative Watershed Effects

Based on aerial photo analysis, there appears to be a low level of road density, as well as past timber harvests, within the Miner Creek watershed. The estimated harvest area in the watershed is less than 2% of the total watershed area. The total estimated road miles in the watershed is 18 miles. These levels are well below the levels of forest crown removal that are normally associated with increased water yields. Stream channel conditions on the State parcel were rated as "good" and considered relatively stable. Therefore, 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 Miner Creek.

No known chronic or large sources of sediment delivery have been identified within the proposed project areas. Stream channel conditions within the project are considered relatively stable. Therefore, it is unlikely that there are any measurable cumulative increases in sediment yield occurring due to sediment sources located with the State parcel.

## ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION

The proposed timber sale would result in salvage of up to 1200 MBF of sawtimber and 7500 tons of post and rail material from approximately 192 acres forest area affected by insect and disease infestations. Access and hauling would utilize primarily existing roads and 0.5 miles of new temporary low standard road located on the State parcel. A temporary bridge would also be installed over Miner Creek to access the proposed harvest areas on the west side of the stream. No other stream crossings are planned.

The existing roads are low standard and will require some maintenance of the surface drainage features and installation of additional surface drainage to fully meet BMPs. However, the existing roads are on gentle to moderate grades, well buffered from the stream and can easily be brought up to minimum BMPs, so there is low risk that of the existing roads contributing direct sediment delivery to Miner Creek or other bodies of water.

The proposed temporary crossing of Miner Creek will utilize a portable steel bridge structure with a long enough span that will not require any disturbance to stream channel or construction of abutments on the upper banks. The proposed crossing site is located on reach of Miner Creek that has relatively stable and well armored banks. The road approaches to the crossing are located on flat to gentle sloping stream terraces, so routing road drainage away from the crossing site to areas with adequate sediment filtration capabilities should be relatively easy to effectively design and achieve. A one-time crossing of the stream with tracked equipment during bridge installation or removal would be expected to cause low levels of localized temporary impact in the form of bank disturbance and increased turbidity from stream bed disturbance. These low level, short-term and localized effects are not expected to impact cold water fisheries or other downstream beneficial uses. There would be very low risk of these impacts occurring if the 124 permit specifies that no ford crossing of the stream are allowed during installation or removal of the bridge.

Several of the proposed harvest units are located immediately adjacent to the mainstem forks of Miner Creek. Miner Creek is a Class 1 stream supporting populations of brook trout. Therefore, as specified under the DNRC Habitat Conservation Plan, a Riparian Management Zone (RMZ) with a minimum width of 80' will be established on either side of the stream. The RMZ will utilize a 50' no-harvest buffer immediately adjacent to the stream (with no harvest will occur within the first 50' of RMZ). Salvage harvest will occur 7,319 linear feet (4.9 acres) of the remaining outer 30' of RMZ. This harvest will utilize an allowance under the HCP for salvage harvest to remove more than 50% of the sawtimber from that managed portion of the HCP.

No direct, indirect, or cumulative impacts to water quality, cold-water fisheries, or other downstream beneficial uses in Miner Creek are expected due to accelerated rates of sediment delivery resulting from the proposed timber harvest. Timber harvest and associated road activities would implement all applicable forestry BMPs to avoid or minimize the risks of excessive soil erosion and potential for sediment delivery. No

equipment operation or activities with a substantial risk of causing soils disturbance would be conducted in the SMZ and no timber harvest would occur within 50 feet of streams. Harvest units and roads are located on gentle slopes (generally < 20%) with low erosion and low sediment delivery risks. Soils within the proposed project area are low to moderate erosion risks, therefore, SMZ/RMZ buffers are likely to be highly effective filtration zones and prevent sediment delivery to streams.

Levels of shade and potential LWD recruitment are expected to be greatly affected by the already catastrophic levels of insect mortality that are occurring under no action. Under no action a large pulse of potential LWD can be expected in the first decade followed by a stand rotation period of time with reduced shade and very low levels of LWD recruitment.

When compared to the no-action, the proposed RMZ harvests are low risks for additional impacts to stream temperature and future LWD recruitment to Miner Creek. The risks of additional impacts are expected to minimal (low) due to following reasons: 1) The establishment of a 50 foot no-harvest buffer; 2) relatively short potential height (approximately 55' at age 100 years) of trees growing in the RMZ means that trees growing outside of the 50' no-harvest buffer are unlikely to have much if any influence on stream shade or levels of LWD recruitment, 3) lack of historic SMZ/RMZ harvests; and 4) the existing SMZ/ RMZ stands are fully stocked with mature trees.

In addition, immediately downstream of the State ownership the mainstem of Minor Creek flows into a large wetland complex and range ecosystem where streamside riparian vegetation is dominated by willows and other riparian shrubs where conifer LWD is not a habitat element nor does it influence stream channel morphology. Much of the riparian forest cover on the State section is most likely conifer encroachment out into the historic range foothills and the grassland valley bottom. Therefore, the current stocking and potential levels of LWD recruitment within the conifer dominated riparian stands are likely higher or on the upper end of the range of what occurred naturally prior to European settlement.

Negligible direct or indirect, or cumulative effects to channel form and function are anticipated. Existing levels of in channel LWD are within the range expected for stream and stand type. The 50-foot no-harvest buffer including the retention of streambank trees should provide for streambank stability and maintenance of existing channel form and function.

The trees harvested from the SMZ/RMZ are dead or at high risk of mortality from mountain pine beetle. Therefore there is low risk of additional impacts to stream temperature resulting from loss of shade, over what would be expected to occur under no action.

The proposed timber harvests and road construction and maintenance are not expected to contribute to adverse cumulative watershed impacts due increase sediment yield, increased water yield, increased peak flows or 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.

Negligible direct, indirect, or cumulative impacts to water quality, cold-water fisheries, or other beneficial uses in Miner Creek or the Bighole River are expected to result from the proposed actions.

## ATTACHMENT E

### Vegetative Analysis/Stand Prescription Miner's Glory Timber Sale

#### **Rare Plants**

No rare plants or cover types have been noted by the Montana Natural Heritage Program or observed within the proposed project area. Lemhi Beardtongue, a vascular plant "species of concern" (S3/G3 ranking), has been observed approximately one mile south of the proposed project area in open sage-grassland terrain. No other sensitive species/species of special concern have been documented or observed within the proposed project area. If any rare plants are discovered during harvest reconnaissance, layout or implementation they will be documented and protected accordingly. For that reason the risk of direct, indirect and cumulative effects to rare plants is expected to be minimal.

#### **Noxious Weeds**

##### ***Existing Conditions***

Musk Thistle and spotted knapweed were observed in the project area. DNRC is currently treating these infestations with herbicide and has also developed a weed management plan with the lessee. The lessee is currently implementing that plan within their grazing lease.

##### **Direct, Indirect and Cumulative Effects of the No-Action Alternative**

Noxious weeds may continue to be spread by wildlife and cattle. DNRC would continue to treat sites based on funding availability. The grazing licensee would continue to implement the weed management plan.

##### **Direct, Indirect and Cumulative Effects of the Action Alternative**

The action alternative will involve ground-disturbing activities that have the potential to introduce or spread noxious weeds in susceptible habitat types. For the action alternative, an Integrated Weed Management (IWM) approach was considered for treatment of existing and prevention of potential noxious weeds. For this project:

- prevention,
- revegetation
- weed control measures for spot outbreaks

are considered the most effective weed management treatments. Prevention measures would require all road construction and harvest equipment to be cleaned of plant parts, mud and weed seed to prevent the introduction of noxious weeds. Equipment would be subject to inspection by forest officer prior to moving on site. All newly disturbed soils on road cuts and fills will be promptly reseeded to site adapted grasses to reduce noxious weed encroachment and stabilize roads from erosion.

There would be a potential slight increase in weed infestation with harvest units due to soil disturbance and reduction of tree canopy. The silvicultural prescriptions are designed to control disturbance and scarification to goals needed for sustained forest growth. Control efforts will promote rapid revegetation and emphasize treatment of any new noxious weeds found. Based on these mitigations direct, indirect and cumulative effects to noxious weeds are expected to be low.

#### **Standard Vegetative Community**

##### ***Existing Conditions***

***Harvest History and Cover Types:*** The State parcel is located on the east side of the Beaverhead Mountains along the forest/grassland interface. Slopes range from 5-40% with majority of this parcel being gentle slopes (5-15%) with an elevation of 6900 feet. The State parcel has ~420 forested acres

and several harvest entries have occurred over the past 20 years; Miner Creek timber sale was harvested approximately 20 years ago, removing 875 MBF from 129 acres that have regenerated well with 12-15" lodgepole pine stock. The Miner Ditch Timber Sale was harvested in 2007, removing ~344 MBF from 35 acres. The Ditch ROW timber permit was harvested in 2008, removing ~130 MBF from 13 acres. Kades Lament timber permit was sold in 2010 for the harvest of 1400 tons of post and rail and ~300 MBF from 29 acres. Smaller post and rail harvest permits have been conducted from 2005 to 2011 on ~63 acres.

Lodgepole pine dominants as a seral species with subalpine fir/Grouse Whortleberry (Abla/Vasc) as the dominant habitat type. The area lies along the drought limitations of the habitat type and consequently subalpine fir is sparsely represented. Douglas-fir is indicated as a climax species on the drier slopes with Douglas-fir/Pine Grass (Psme/Caru) as the habitat type. The irregular topography and hummocky features in the area are conducive for forming frost pockets that favor lodgepole pine as the seral species. Douglas-fir is quite often poorly formed and stunted in these areas but does grow well on the upland slopes and sites indicating Douglas-fir climax.

The cover type is lodgepole pine and the majority of forested stands are included in fire group seven where periodic wildfires tended to recycle the stands before any significant amount of mature lodgepole pine die out. The isolated Douglas-fir climax areas are included in fire group six. Riparian corridors contain Engelmann spruce, subalpine fir and hardwood riparian scrubs within open canopy areas.

Aspen stands are found throughout the parcel with typical decadence and suppression from lodgepole encroachment. Aspen has regenerated well and is thriving within canopy openings created by past even-aged harvest treatments for lodgepole pine (clear-cuts).

**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/shrub habitat type. 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.

**Fire History and Ecology:** Stands within the project area fall into fire group seven (Fischer and Clayton 1983) where periodic wildfires tended to recycle the stands before any significant amount of mature lodgepole pine dies out. Lodgepole pine habitats in this elevation range rely on fire to

perpetuate and renew the stand with stand-replacing fires playing a large role. The mean fire interval ranges from less than 100 years to 500 years. Low to moderately severe fires may thin the stands periodically in between stand-replacing fires. Fuel loadings are typically 15 tons/acre but can easily exceed this (Fischer and Clayton 1983). Stands >80 years old are more susceptible to severe fire damage due to overcrowding and insect and disease infestations. A severe fire burned through the proposed project area approximately 125 years ago.

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

***Insect and Disease:*** All lodgepole pine stands in this area are presently under attack from Mountain Pine Beetle and the majority of the mature trees >80 years old, are expected to yield to beetle attack within the next two years. Mountain pine beetle activity has been on-going for several years in this parcel additionally; these stands are infected with dwarf mistletoe, which can reduce height growth, stand volume, seed production and tree vigor. Individual Douglas-fir and Douglas-fir stands are exhibiting some crown defoliation due to repeated infestations of Spruce Budworm.

Years of regional drought and warm winters combined with high stand densities of mature and over-mature timber have compounded and aggravated the risk of more serious insect and disease outbreak. Younger, more open stands where tree growth and vigor is encouraged are more resistant to insect and disease infestations. Approximately 120 acres of forestland on this parcel is in a young age class from prior timber harvest projects. These stands are well stocked, generally free from disease and show good leader growth and vigor. With heights ranging from 2'- 20' these stands are providing good security and thermal cover for wildlife.

***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).

Recent field surveys (February 2014) did not indicate the minimum stand characteristics necessary to meet Old Growth Cover Type 6 (East-Side Montana Zone –lodgepole pine). Mature lodgepole pine within the harvest units sampled were 110 – 150 years (average 125 years).

***Fragmentation and Corridors:*** The abundance of lodgepole pine habitats and scarcity of old trees found in the proposed project area indicates that stands were likely influenced by periodic moderate to severe intensity wildfire events historically. Stands were recycled before any significant amount of mature trees could die out. 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.

Serotinous cones, and surviving individual trees and clumps of trees in cool areas 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 fires, climate, vegetative manipulation and land

forms have contributed to the existing patchy distribution forest habitat. Existing forest cover is predominately located in foothill edge between contiguous forest cover to the west (Beaverhead Mountains – USFS) and grassland-savanna cover type with a low level of habitat connectivity to the north, east, and south of the proposed project area contiguous to private ranch-pasture lands.

## ***Environmental Effects***

### ***Harvest History and Cover Types***

#### **Direct, Indirect and Cumulative Effects of the No-Action Alternative**

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 from additional fuel loading of dead trees and insect and disease infestation in overstocked and suppressed stands would continue to increase. Estimated loss of mature timber resources to present and impending insect and disease infestation is 85-90%. Furthermore, there is a probability of additional resource losses due to the risk of fire associated with the dead and dying timber. Unmanaged stands of regeneration would remain overcrowded, suppressed and growth would be greatly diminished.

#### **Direct, Indirect and Cumulative Effects of the Action Alternative**

The estimated harvest area in the watershed is less than 2% of the total watershed area. Treatments for lodgepole pine cover types would target all dead, dying and at-risk lodgepole pine and other shade intolerant species exhibiting signs of insect/disease, poor health and/or poor tree form characteristics for removal and overall stand density reduction, utilizing regeneration harvests. Older, large shade tolerant trees would be harvested to cull out defective or damaged trees, where applicable. Younger, smaller diameter shade tolerant trees exhibiting good health and form would be protected, where applicable.

Severity of stand conditions would dictate harvest method used, emulating moderately severe ground fire to stand replacing fire. Harvest prescription would recover value from resources before it is lost, reduce overstocking, fire hazard, and additional insect and disease while promoting forest health, vigor, age class diversity, and productivity. Additionally, harvest would open the stands to encourage natural regeneration of shade intolerant species; maintain a lodgepole pine cover type while maintaining a semblance of historic stand conditions; and promote regeneration of existing aspen stands.

Aspen Areas - A regeneration harvest of all conifer sawtimber within 50-75 feet of the aspen clone would be used to reduce conifer encroachment and competition into aspen colonies. Submerchantable conifer and decadent mature aspen adjacent to and within aspen colonies would not be protected during harvest operations to further induce aspen regeneration. Post-harvest treatment to fall and lop any remaining submerchantable conifer trees may occur throughout the stands that have been treated.

Excess slash generated from the proposed harvest would be consolidated at landings and burned. Natural regeneration would be expected to occur throughout with good success.

The Action alternative of harvesting 196 acres would alter 46% of the forested acres on this State tract. Estimated losses to mature timber resources from present and impending insect and disease infestations would be greater than the proposed timber harvest.

The proposed levels of harvest and subsequent reduction in forest canopy would be similar or less than what would be expected to occur under the present natural conditions. Adjacent forest stands to the south (BLM) and west (USFS) are mature lodgepole-Douglas-fir stands with heavy disease, mortality and fuel loading present.

Commercial stand treatments proposed on the State lands would reduce the risk of catastrophic fire and additional insect and disease infestation and recover value from resources before it is lost. This is a productive timber management area as evidenced by the excellent regeneration and growth from recent timber management actions conducted by the State.

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 maintain more total forest cover than in prior historical conditions.

### ***Successional Stages:***

#### **Direct, Indirect and Cumulative Effects of the No-Action Alternative**

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.

#### **Direct, Indirect and Cumulative Effects of the Action Alternative**

The Action alternative would move 192 acres of mature lodgepole pine cover types, distributed over 6 units, to younger successional lodgepole pine cover types. By removing the dead, dying and at-risk overstocked trees, the mature age classes, and the current age structure of all commercial timber stands would be converted to a younger age structure. Age class diversity will be achieved with reserve and individual selection of the minor component of Douglas-fir that exists in co-dominant and dominant class along with lodgepole pine regeneration cuts. There exist large islands of healthy lodgepole regeneration from recent timber harvest and smaller submerchantable lodgepole pine, within proposed harvest units that would create different stages of growth and succession. Aspen stands are present throughout the harvest units as well. Forest cover mosaics on the landscape with varying age distribution will contribute to forest diversity and wildlife use while increasing grazing and forage.

### ***Fire History and Ecology:***

#### **Direct, Indirect and Cumulative Effects of the No-Action Alternative**

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

#### **Direct, Indirect and Cumulative Effects of the Action Alternative**

The Action alternative would change the classification of forest types for the short term due to the removal of the majority of the mature lodgepole pine and leaving scattered individual patches of Engelmann spruce, subalpine fir and Douglas-fir trees. Harvest treatments for lodgepole pine would be even-aged strategy, regeneration cuts focusing on developing a younger, more vigorous stand of

lodgepole pine in the future. Pro-active thinning projects would be employed in well-stocked regenerated lodgepole stands from recent timber harvest provided wildlife cover standards can be met. Within the harvest units Douglas-fir may be present and would be marked for reserve if not impacted by Spruce Bud Worm. These treatments scattered across a landscape would emulate small-scale, moderate to severe disturbance events. Harvest/thinning treatments would reduce the likelihood of larger scale stand replacement events from occurring by reducing the fuel loads of the treated stands and reducing stand susceptibility to additional insect and disease infestations. Minor cumulative effects of shifts in age class distribution would be expected at the watershed level. The acres proposed for treatment are generally accessed by well established existing roads from previous timber harvest with minimal temporary road extensions to access the proposed units. The area receives a high degree of recreational use during the first opening week of general rifle season. MT DFWP reviewed the proposal and requested an operating season starting after July 1 due to elk calving and this request will be met. Minimal sedimentation delivery to the drainage is expected from the proposed timber harvest on these grassed-in and stable low standard roads. Motorized recreational use is administratively closed for this parcel. An agricultural road easement is in place for a road running north-south along the east boundary of the section through open sage-grassland area. Any new temporary access roads or logging spurs needed for this proposal will be physically closed with earthen barriers and slash debris, grass seeded and rehabilitated.

### ***Insect and Disease:***

#### **Direct, Indirect and Cumulative Effects of the No-Action Alternative**

Under the No Action alternative stands would be susceptible to continued insect and disease infestations due to overstocked and suppressed conditions with an increased risk of stand replacing fire.

#### **Direct, Indirect and Cumulative Effects of the Action Alternative**

The Action alternative would recover value from affected resources while reducing the potential of additional infestation in the harvested/thinned units by encouraging the development of young, vigorous stands. Younger stands where tree growth and vigor is encouraged are more resistant to insect and disease infestations. Stands that were selectively thinned (~60 acres) previously contain a higher component of Douglas-fir and now exhibit multi-story structure, species diversity and far less impacts from insects and disease. There are approximately 60 acres scattered throughout in this age-class and stand type. Riparian corridor adjacent to Miner Creek running north south through this section is about 60 acres and consists of a single story late succession (~125 year old) lodgepole pine stand with a minor component of spruce and subalpine fir. These stands have significant MPB and dwarf mistletoe infestations and contain minimal understory riparian shrub species and herbaceous plants necessary for a healthy and vibrant riparian forest and edge. No timber harvest will take place within a zone 0-50' from the stream banks. Regeneration harvest prescription will be applied beyond 50' from the stream through an alternative allowance to the HCP to help restore a portion of this riparian corridor.

### ***Old Growth:***

#### **Direct, Indirect and Cumulative Effects of the No-Action Alternative**

The No Action alternative would likely result in a higher susceptibility to insect and disease, and possible stand replacing fire through natural ignition or human ignition as this area receives high recreational use during the summer and early fall dryer periods.

#### **Direct, Indirect and Cumulative Effects of the Action Alternative**

The Action alternative would remove dead, dying and at-risk older trees leaving a more open stand where tree growth and vigor is encouraged in older, healthy leave trees and are more resistant to fire

and insect and disease infestations. 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 to meet SFLM Rules where available and applicable. The harvest treatment planned for these stands would not have a cumulative effect on the percentage of old growth remaining on State lands in Beaverhead and Madison Counties.

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

#### **Direct, Indirect and Cumulative Effects of the No-Action Alternative**

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. 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.

#### **Direct, Indirect and Cumulative Effects of the Action Alternative**

Under the Action alternative, there would be no human development that would decrease linkage value and proposed activities would have a minimal short term effect on wildlife movements across the landscape, valley or mountain ranges. The proposed project would harvest a total of 196 acres, over six harvest units ranging from 13 acres to 50 acres, and increase the amount of non-forest in the area for the short term until these stands regenerate. Species of wildlife preferring less dense forest conditions and early successional vegetative cover would benefit from the creation of additional habitat, whereas species adversely affected by decreased forest density would not. The anticipated effects of the proposed harvest are considered to be minor given the vast acreage of adjacent over-mature lodgepole cover types and sufficient advanced regeneration within the harvest area. 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 levels of harvest and subsequent reduction in forest canopy would be similar or less than what would be expected to occur under the present natural conditions. Due to the size of the proposed harvest units and number of acres harvested, expected effects would be minor and temporary.

The proposed ~0.5 miles of temporary road construction would have minimal expected adverse impact on fragmentation of habitat or increases in human activity as it would be physically closed upon project completion. A temporary stream crossing is planned for Miner Creek with the approval of a bridge installation (and removal) through the 124 Permit process. The crossing location is ideal, rocky and stable requiring minimal disturbance for this temporary structure. Cumulative effects related to the proposed road construction in the proposed project area would be minimal due to the small area affected and closure that is planned upon project completion.

Average stand size of existing forested acreage would be reduced within the immediate proposed project area. Stand density and forest canopy structure would be reduced dramatically. Cumulative fragmentation effects associated with the proposed project would be minor at the landscape level due to the size of the proposed project and the low probability of adjacent ownerships conducting additional vegetative manipulation within the proposed project area. No known wildlife corridors of notable importance would be affected by the proposed activities. This parcel is used by elk during the calving period due to established younger regeneration stands that provide excellent cover and security. Timber harvest operations will not begin until July 1 of each logging season to provide minimal disturbance to young elk and moose that use this area.

**Prescription:** Proposed treatment (196 acres consisting of 6 harvest units): Unit 1 (50 acres - ~311 MBF), Unit 1A (13 acres ~92 MBF), 2 (25 acres ~ 143 MBF), Unit 3 (38 acres ~204 MBF), Unit 4 (38 acres ~246 MBF), Unit 5 (32 acres ~229 MBF).

Stands are composed of a mix of LP small to medium sawtimber. A small component of spruce and Douglas fir is present ( $\leq 1\%$ ). These stands are overstocked and are showing the effects of several years of mountain pine beetle and mistletoe infestations. Majority of trees have poor crown ratios (10-30%). Dominant trees are 55-65' and co-dominants are 45-55' with an average age of 125 years. Yield capacity is 50-60 cu. ft/acre/year. Regeneration and understory vegetation is sparse with moderate coarse woody debris.

Merchantable post and rail trees (3.0"-<7.0" DBH) would be harvested along with pulp/firewood, including the top wood portions of sawlog trees for maximum utilization. All other submerchantable trees and shrubs would be protected and retained for visual screening.

A regeneration (clear-cut) harvest would remove all merchantable lodgepole pine material and all conifers within 50-75' of aspen colonies for aspen restoration. One large dominant class snag or snag recruit per acre would be left where available. Older dead and diseased aspen overstory trees will be left for cavity nesting birds as well. For soil nutrient recycling 5-10 tons/acre of large woody debris >3" diameter, and fine litter would be left evenly dispersed on the forest floor. Soil disturbance will be minimized with general skid trail planning and spacing and limiting sustained tractor skidding to slopes  $\leq 45\%$ . Soil scarification will be limited to 30-40% of the harvest area. Slash would be left in the harvest units where feasible, and distributed on skid trails upon completion of use, for nutrient cycling, to control erosion and to provide shade and protection for seedlings. Grass seed will be applied to all exposed soil and a weed monitoring program will remain in place for all harvest units and roads. A regeneration survey will be conducted in 5-7 years and a thinning survey in 15 years after harvest.

There is currently more total forest cover in Beaverhead County than in prior historical conditions. Harvesting an estimated 1.375 MMbf sawtimber, post and rail, and pulp/firewood would alter the forest cover on approximately 196 acres. Harvest design is intended to maintain a semblance of historic conditions while promoting forest health and productivity by reducing overstocking through the emulation of mixed severity fires.

#### Literature Cited

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Losensky, J.B. 1997. Historical vegetation of Montana. DNRC Intern. Rept. 100pp.

**ATTACHMENT F  
MINER'S GLORY TIMBER SALE**

**CHECKLIST FOR ENDANGERED, THREATENED AND SENSITIVE SPEICES  
Pertains to Section II. 9. of the DS-252 DNRC Environmental Checklist  
(Rev. August 1, 2007)  
CENTRAL LAND OFFICE**

Prepared by Mike Atwood

May 28, 2014

<b>Species/Habitat</b>	<b>[Y/N] Potential Impacts and Mitigation Measures N = Not Present or No Impact is Likely to Occur Y = Impacts May Occur (Explain Below)</b>
<b>Threatened and Endangered Species</b>	
<p><b>Grizzly bear</b> <i>(Ursus arctos)</i> Habitat: Recovery areas, security from human activity</p>	<p>[N] The proposed project area lies outside of any grizzly bear recovery area. The nearest recovery area is the Yellowstone Grizzly Bear Recovery Zone (USFWS 1993) situated 103 miles southeast of the project area. Grizzly bear use of the Beaverhead Mountains may occur, however, the project area is currently considered outside of occupied habitat (Interagency Occupied Habitat Map, September 2002). Riparian habitats preferred by bears may occur in the project area along Miner Creek but the creek supports relatively low levels of hiding cover, and human access levels are presently moderate due to public access. Approximately 0.5 miles of new road would be needed. The new road would be to minimum standard and would be physically closed at project completion. The potential for any measurable increases in bear-human conflicts following the project activities are expected to be negligible. Adverse direct, indirect and cumulative impacts to bears as a result of this project are not expected.</p>
<p><b>Canada lynx</b> <i>(Felix lynx)</i> Habitat: Subalpine fir habitat types, dense sapling, old forest, deep snow zone</p>	<p>[Y] The proposed project area is located along the fringes of preferred lynx habitat. The habitat on the State parcel would be categorized as "suitable" and "temporary non" habitat. Of the ~379 acres of suitable lynx habitat on the State parcel, ~192 acres proposed for harvest will be converted to temporary non-habitat. At the conclusion of this project, ~187 acres of suitable Lynx habitat will be present. Lynx habitat within the proposed project area is marginal due to naturally induced fragmentation, and the high level of interspersions of native grassland habitat and dry forest types; and 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 minor.</p>
<b>Sensitive Species</b>	
<p><b>Bald eagle</b> <i>(Haliaeetus leucocephalus)</i> Habitat: Late-successional forest more than 1 mile from</p>	<p>[N] Bald eagles have been documented in the general vicinity of the proposed project area ( MNHP 2014). However, no known suitable 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</p>

<b>Species/Habitat</b>	<b>[Y/N] Potential Impacts and Mitigation Measures</b> <b>N = Not Present or No Impact is Likely to Occur</b> <b>Y = Impacts May Occur (Explain Below)</b>
open water	direct, indirect or cumulative effects to bald eagles associated with this project are anticipated.
<b>Black-backed woodpecker</b> <i>(Picoides arcticus)</i> Habitat: Mature to old burned or beetle-infested forest	[N] Black-backed woodpeckers have not been documented in the vicinity of the proposed project area (MNHP 2014). Stands found within the project area are presently experiencing substantial insect activity, which could provide a suitable food source for these birds. However, in the neighboring vicinity of the project area and regionally, insect activity is abundant and should not be limiting for this species. Further, no recent burns ( $\leq 5$ years old) have occurred within the State tracts or adjoining sections. Given the above considerations, No adverse direct, indirect or cumulative effects to black-backed woodpeckers would be expected to occur as a result of this project.
<b>Black-tailed prairie dog</b> <i>(Cynomys ludovicianus)</i> Habitat: grasslands, short-grass prairie, sagebrush semi-desert	[N] Grassland habitats suitable for use by black-tailed prairie dogs do not occur within one mile of the proposed project area. Impacts to black-tailed prairie dogs are not anticipated.
<b>Flammulated owl</b> <i>(Otus flammeolus)</i> Habitat: Late-successional ponderosa pine and Douglas-fir forest	[N] Flammulated owls have not been documented near the proposed project area (MNHP 2014). The parcel involved in the proposed project maintains an elevation of about 6800 feet and mature Douglas-fir and 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.
<b>Gray Wolf</b> <i>(Canis lupus)</i> Habitat: Ample big game populations, security from human activities	[N] Consultation with MTDFWP Wolf Recovery Specialist Nathan Lance has confirmed no current pack or individuals sited in this area at the time. The Miner Lakes pack or transients from other packs could occasionally use portions of the project area; however, due to the size, nature and location of the proposed project, activities associated with this proposal are not expected to affect wolves or recovery efforts. Should a new den be located in the proximity of this project, 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. Wolf pack activity occurs throughout the Big Hole Valley and wolves could occasionally use or travel through the project area at any time. The Battlefield and Moyer Wolf Packs reside in the vicinity of the project area. However, due to the small size, nature and location of the proposed project, activities associated with this proposal are not expected to affect wolves adversely. Should a den be detected within one mile of the project area or a rendezvous site within 0.5 miles of the project area, activities would cease and a DNRC biologist would be contacted immediately. Mitigations would then be developed and implemented to minimize adverse impacts to wolves prior to initiating any further activity. Direct,

<b>Species/Habitat</b>	<b>[Y/N] Potential Impacts and Mitigation Measures N = Not Present or No Impact is Likely to Occur Y = Impacts May Occur (Explain Below)</b>
	indirect or cumulative effects to wolves associated with this project are expected to be negligible
<b>Harlequin duck</b> <i>(Histrionicus histrionicus)</i> Habitat: White-water streams, boulder and cobble substrates	[N] Harlequin ducks have not been documented near the proposed project area (MNHP 2014). 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.
<b>Northern bog lemming</b> <i>(Synaptomys borealis)</i> Habitat: Sphagnum meadows, bogs, fens with thick moss mats	[N] No sphagnum meadows or bogs occur in the proposed project area. No impacts to bog lemmings would be expected to occur as a result of this project.
<b>Mountain plover</b> <i>(Charadrius montanus)</i> Habitat: short-grass prairie, alkaline flats, prairie dog towns	[N] Mountain plovers have not been documented in the vicinity of the proposed project area (MNHP 2014). 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.
<b>Peregrine falcon</b> <i>(Falco peregrinus)</i> Habitat: Cliff features near open foraging areas and/or wetlands	[N] Peregrine Falcons have not been documented in the vicinity of the proposed project area (MNHP 2014). No cliff features suitable for use by nesting peregrine falcons occur within 1 mile of the project area. No direct, indirect or cumulative effects associated with this project are anticipated.
<b>Pileated woodpecker</b> <i>(Dryocopus pileatus)</i> Habitat: Late-successional ponderosa pine and larch-fir forest	[N] Pileated woodpeckers have been documented in the northerly portion of Beaverhead County, but not in the vicinity of the proposed project area (MNHP 2014). The project area is poorly suited for use by pileated woodpeckers due to the abundance of smaller trees and abundance of lodgepole pine cover types. As suitable habitat is not present in the project area, minimal adverse direct, indirect or cumulative effects to pileated woodpeckers would be expected to occur as a result of this project.
<b>Greater sage grouse</b> <i>(Centrocercus urophasianus)</i> Habitat: sagebrush semi-desert	[Y] Greater sage grouse occur in the Big Hole Valley, and three lek sites occur in the valley along the Big Hole River within 9 miles of the project area (DFWP 2013). Sagebrush semi-desert habitats suitable for use by sage grouse also occur within one mile of the project area. Sage Grouse may occur within one mile of the project area but no leks have been identified within one mile of the project area or haul route locations. Should sage grouse be present in the vicinity of the project area, any effects to habitat or disturbance-related effects would be expected to be minimal, due to the late start-up date of activities (i.e., post June 15), and preferred sagebrush habitat would not be altered. Adverse direct, indirect, and cumulative effects to sage grouse could occur, however, due to the considerations listed above, they would be primarily disturbance related, of short duration and minor.

Species/Habitat	[Y/N] Potential Impacts and Mitigation Measures N = Not Present or No Impact is Likely to Occur Y = Impacts May Occur (Explain Below)
<b>Townsend's big-eared bat</b> <i>(Plecotus townsendii)</i> Habitat: Caves, caverns, old mines	[N] The DNRC is unaware of any mines or caves within the proposed project area or close vicinity that would be suitable for use by Townsend's big-eared bats. Thus, adverse direct, indirect or cumulative effects to Townsend's big-eared bats are not anticipated as a result of this project.
<b>Montana Arctic Grayling</b> <i>(Thymallus arctucus montanus)</i> Habitat: clean cold water, streams, rivers, lakes	[Y] Miner Creek supports populations of arctic grayling (both resident and fluvial/adfluvial). Arctic Grayling are considered uncommon in Miner Creek and are currently a candidate species for listing under the Federal Endangered Species Act (ESA). A Riparian Management Zone has been identified adjacent to Miner Creek, a Class 1 fish bearing stream in accordance with HCP standards. No timber harvest or equipment operation will occur within 0-50' of the stream banks. Minor adverse direct, indirect, and cumulative effects to Arctic Grayling would be anticipated.
<b>Big Game Species</b>	
<b>Elk</b> <i>(Cervus elaphus)</i> Habitat: intermixed forest and grasslands, winter range	[Y] Bull elk vulnerability and potential reductions in hunter opportunity are a concern expressed by FWP in this hunting district and the Pioneer 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. Additional reductions in hiding cover and/or security habitat may influence achievement of FWP's harvest goal for this Hunting District and EMU. Timber harvest can reduce cover on winter ranges that is important in providing thermal protection and areas of relatively low snow that help elk to escape from predators and avoid other disturbances with minimal expenditure of energy (FWP 1992). Additionally, harvest activities occurring when winter range is occupied could cause undue stress and disturbance to elk. Under the proposed action, harvest activities would be planned to occur during the summer – fall months, with winter timber harvest as an option. Under the proposed action, cover would be appreciably reduced across the 192 acres proposed for treatment, and should winter harvest occur, elk could be disturbed and displaced to habitat on neighboring ownerships. Vast acreages of adjacent federal timber lands currently in an over-mature age class will provide transitional relief to big game seeking winter thermal protection. There are well stocked regenerated lodgepole stands 6-20 feet tall adjacent to proposed harvest units within Section 36. These young stands along with the riparian corridor running north –south through the section will help provide cover and movement corridors to adjacent heavier over-mature cover during hunting season. The action alternative would improve stand age class diversity and emulate conditions similar to those that occurred historically with low intensity fires. Currently the Big Hole has vast areas of conifer encroachment that have occurred over

<b>Species/Habitat</b>	<b>[Y/N] Potential Impacts and Mitigation Measures</b> <b>N = Not Present or No Impact is Likely to Occur</b> <b>Y = Impacts May Occur (Explain Below)</b>
	<p>long periods. Harvest operations in the spring of the year will not occur until after July 1 to minimize disturbance to elk calving that occurs in this area at the request of the MT-FWP. Given these considerations and the fact that the proposed harvest units occur on foothill lands along a forest/grassland ecotone, and that the project would be of relatively short duration (i.e., 2 operating season), minor adverse direct, indirect, and cumulative effects to elk would be anticipated.</p>

Montana National Heritage Program 2014. National Heritage Tracker.  
<http://mtnhp.org/Tracker/NHTMap.aspx>