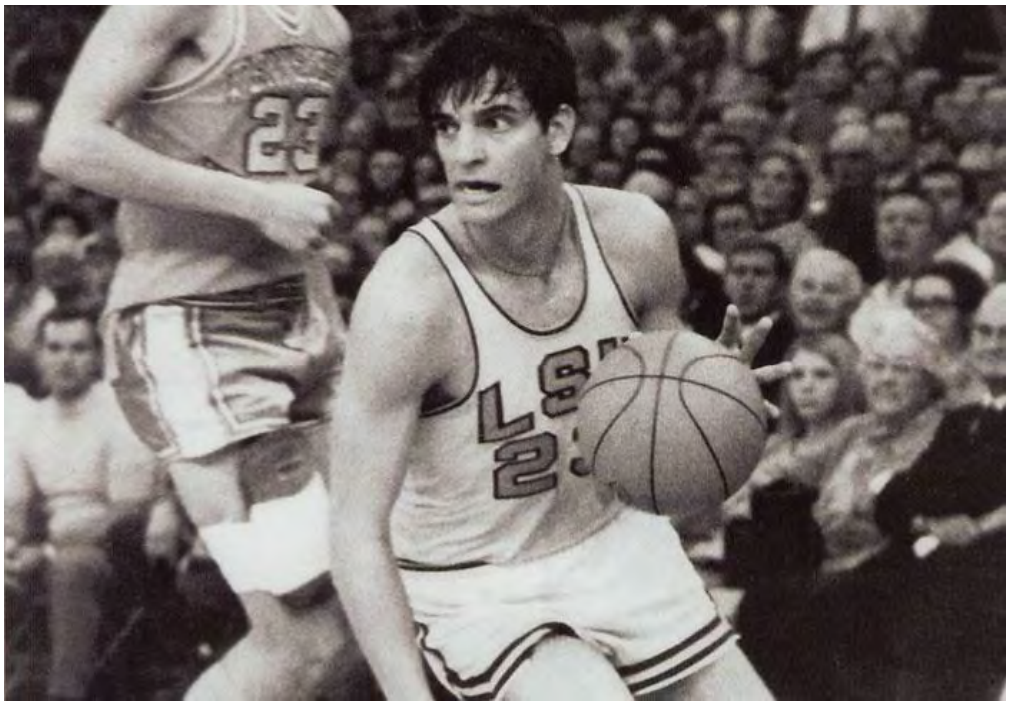
Pistol Peet Timber Sale
Environmental Assessment



Dillon Unit
Central Land Office
Montana Department of Natural Resources and Conservation
April 20, 2015

Pistol Peet Timber Sale

Environmental Assessment

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Environmental Assessment

Project Name: Pistol Peet Timber Sale
Proposed Implementation Date: September 2015
Proponent: Dillon Unit, Central Land Office, Montana DNRC
County: Beaverhead

Type and Purpose of Action

Description of Proposed Action:

The Dillon Unit of the Montana Department of Natural Resources and Conservation (DNRC) is proposing the Pistol Peet Timber Sale. The project is located in the South Centennial Mountains (refer to maps in Attachment A; Sale Area Maps) and includes the following sections:

Beneficiary	Legal Description	Total Acres	Treated Acres
Common Schools	**T14S-R4W,S.36**	**640**	**404**
Common Schools	**T14S-R5W, S.35 &36**	**1280**	**260**
Public Buildings			
MSU 2nd Grant			
MSU Morrill			
Eastern College-MSU/Western College-U of M			
Montana Tech			
University of Montana			
School for the Deaf and Blind			
Pine Hills School			
Veterans Home			
Public Land Trust			
Acquired Land			

Objectives of the project include:

- Improve forest health, vigor and productivity through the salvage and removal of dead, diseased and overstocked stands and restore the long-term vegetative condition of these State trust land parcels.
- Reduce forest fuels and overstocking thus reducing the potential for catastrophic wildfire adjacent to BLM Wilderness Study lands and large private ranch holdings.
- Regenerate suppressed aspen stands through the reduction of conifer encroachment
- Generate revenue through the salvage of commercial sawtimber for the Common School Trust.

Proposed activities include:

Action	Quantity
Proposed Harvest Activities	
Clearcut	
Seed Tree	100
Shelterwood	
Selection	564
Commercial Thinning	
Salvage	
Total Treatment Acres	**664**
Proposed Forest Improvement Treatment	
Planting	
Thinning	
Proposed Road Activities	
New permanent road construction (State)	-0-
New temp. road construction (State land)	2.4 mi
Road Maintenance (State and BLM)	11.0 mi
Roads to be reclaimed /closed (All new temp. road on State)	2.4 mi
Rehab old timber bridge crossing (Bean Cr), install temporary haul bridge, pull and rehab upon completion as per SPA-124.	
Sale Closure: Remove 3 existing 18-24" CMP's, one 14" CMP, install and remove one 18" CMP, Install 2-new 24" x 40' culvert crossing's, pull and rehab upon completion. All culverts removed to be delivered to DNRC Dillon Unit or as directed by Forest Officer.	
Other Activities	

Duration of Activities:	2.5 operating seasons
Implementation Period:	9/2015 – 12/2017

The lands involved in this proposed project are held in trust by the State of Montana. (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 the 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),
- Administrative Rules for Forest Management (ARM 36.11.401 through 471),
- The Montana DNRC Forested State Trust Lands Habitat Conservation Plan (HCP) (DNRC 2010) and all other applicable state and federal laws.

SCOPING:

- DATE:
  - 8/5/2014 – 9/5/2014
- PUBLIC SCOPED:
  - The scoping notice was posted on the DNRC Website: http://dnrc.mt.gov/PublicInterest/Notices/Default.asp
  - Adjacent landowners, statewide scoping list, two newspapers (Dillon Tribune and Montana Standard), posted on DNRC website
- AGENCIES SCOPED:
  - USFWS, BLM, USFS, FWP, MNHP, and Tribal Representatives.
- COMMENTS RECEIVED:
  - How many: Six; FWP(2), The Nature Conservancy (1), USFWS Red Rock Lakes Refuge, Adjacent Ranchers (2 -Huntsman, Matador) all comments were supportive of pro-active fuels and veg management planned.
  - Concerns: TNC asked DNRC to seek alternative to the original access route to Unit 3 in Bean Creek within the southwest corner of the section, lessening the impacts to grizzly bear habitat.
  - Results: An alternative temporary crossing and road location has been identified to mitigate impacts to the drainage and residual vegetative conditions.

Internal and external issues and concerns were incorporated into project planning and design and will be implemented in associated contracts.

OTHER PUBLIC INVOLVEMENT:

Tours: One field trip of the sale area was held with TNC representative Nathan Korb, Land Steward. Nathan was very positive and supportive of the vegetation treatment planned.

INTERDISCIPLINARY TEAM (ID):

- Project Leader: Jeff Schmalenberg, Forest Management Bureau Resource Management and Planning Supervisor
- Archeologist: Patrick Rennie
- Wildlife Biologist: Ross Baty
- Hydrologist/Fisheries: Jim Bower
- Soils Scientist: Jeff Schmalenberg
- Silviculturist: Tim Spoelma
- Forester: Mike Atwood

OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:

(Conservation Easements, Army Corps of Engineers, road use permits, etc.)

- **United States Fish & Wildlife Service-** 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 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

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

  A Short-term Exemption from Montana's Surface Water Quality Standards (318 Authorization) may also be required from DEQ if activities such as replacing a bridge on a stream would introduce sediment above natural levels into streams.

- **Montana/Idaho Airshed Group-** 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). As a member of the Airshed Group, DNRC agrees to burn only on days approved for good smoke dispersion as determined by the Smoke Management Unit.

- **Montana Department of Fish, Wildlife and Parks (DFWP)-** A Stream Protection Act Permit (124 Permit) is required from DFWP for activities that may affect the natural shape and form of a stream's channel, banks, or tributaries. Such activities include:
    - 4 existing culvert facilities will be removed and the crossing restored upon completion of the project.
    - 1 existing failed native materials bridge removal and removal of excessive fills within the banks. 1 new temporary full-span steel bridge install at the same crossing site using the existing low-standard road in and out of SMZ. The bridge will be removed, the crossing restored and improved over current condition upon completion of the sale.

ALTERNATIVES CONSIDERED:

No-Action: Salvage timber harvest and related activities (removal of old existing stream crossings) would not occur at this time. Annual grazing and weed mitigation would continue. Revenue to the state trust from salvaging dead and dying trees would not be realized. Present and impending insects, disease and mortality would be expected to continue. The future risk of a large landscape level fire event involving these lands would likely increase under the No-Action alternative.

Action Alternative :

Commercial salvage timber harvest would occur on approximately 664 acres within two drainages (Bean Creek – 404 acres and Sand Creek – 260 acres). 11 miles of existing forest roads on BLM, State and adjacent private lands would be used and upgraded to BMP standards. 2.4 miles of new temporary road would be constructed to access the timber. All new roads constructed on State land will be physically closed with slash, re-contoured where needed and seeded with suitable grass seed mixture. Four existing steel culverts from previous timber harvest projects will be used through the duration of this project, then removed and the crossing rehabilitated upon completion. A temporary full-span steel bridge will replace an old wooden bridge structure. The bridge will be removed upon completion and the crossing will be rehabilitated. The estimated timber volume to be removed is 6.640 MMBF of Douglas-fir, Engelmann spruce, Subalpine fir, and lodgepole pine that has been severely impacted by western spruce budworm, Douglas fir bark beetle, and mountain pine beetle infestations over the past two decades.

Stand treatments would incorporate a cutting method applied in uneven aged forests to restore/maintain historic density, structure, and species composition present and maintain a multi-aged and diverse structure. Harvest will focus on restoring Douglas-fir savanna cover type through selective removal of individual diseased trees and removing groups of overstocked and decadent trees (1/2 acre – 3 acres) in size to reduce overstocking, improve health and vigor of the residual stand, and improve wildlife habitat.

Aspen stands are present throughout the project area but are severely suppressed and decadent from conifer encroachment and competition. The commercial timber harvesting activities are designed to improve aspen regeneration through the selective removal of merchantable conifers growing adjacent to and within decadent colonies.

The proposed action will reduce forest fuels and break-up potentially high severity fuel ladders within these overstocked stands. Landscape level fuels reduction and catastrophic fire event prevention is a "driving issue" in the area for local residents of Lakeview, the USFWS Red Rocks Wildlife Reserve, adjacent ranchers, large conservation easement holders, and adjacent federal and state lands in this area. As a result of fire exclusion over the past century, high intensity fire behavior is more likely to occur in these stands showing high fire severity in many areas. The action alternative proposed is designed to improve forest health and increase resiliency on these lands to insects, disease, drought and fire events.

This proposal would be offered for competitive bidding in summer of 2015 (August) and is anticipated to be active over two-three seasons (2015 -2018).

Following project completion all new roads will be reclaimed and stabilized with grass seed and coarse woody debris and all stream crossings would be removed. These State trust lands will continue to be managed for non-motorized vehicle use with physical closures placed at all potential vehicle access sites.

Impacts on the Physical Environment

VEGETATION:

Issues and Concerns- The following issue statements were developed during scoping regarding the effects of the proposed action to vegetation:

No issues or concerns were raised in public scoping relative to vegetative treatments proposed. All scoping comments received were positive toward a pro-active treatment toward reducing fire severity and improving forest health while restoring these stands to recent historical conditions. The Action Alternative seeks to accomplish these goals that are very similar silvicultural treatments being applied on recent landscape forest management activity on adjacent BLM lands and private lands. Timber management activities in the south centennial mountains and around Lakeview have been driven by agency, private, and conservation interests with a common goal of restoring forest health and reducing the risk of landscape level fire behavior. Multiple field tours have been held in various locations around this project in similar stands to discuss prescribed vegetative treatments and objectives and view past and current projects. The common and agreed treatments are:

- reduce stocking
- retain healthy crowned dominant and co-dominant trees that show genetic resistance to spruce budworm and Douglas-fir bark beetle attack
- Retain live, healthy older trees and stand attributes suitable for old growth development where available and applicable. Very old (300+ years) "relic" Douglas-fir trees are present throughout the sale area. Trees greater than 36" d.b.h. will generally be retained. Canopy openings will be created to promote age-class and species diversity and provide conditions for aspen to regenerate and thrive again.

Restoring viable Aspen stands is another positive "driving issue" to FWP, USFWS and those individuals who responded. Recent studies by the BLM indicate aspen is present on about 9% of forested acres in this area however; historically these stands were 70-75% aspen dominated.

Recommended Mitigation Measures for Vegetation- The analysis and levels of effects to vegetation resources are based on implementation of the following mitigation measures.

1) Compliance with Forestry Best Management Practices (BMP's), Streamside Management Zone (SMZ) law, applicable DNRC Forest Management Administrative Rules, and specifications outlined in an approved SMZ Alternative Practice to operate equipment within the SMZ, 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.
3) The Forest Officer shall approve a plan for felling, skidding 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 10-15 tons/acre of large woody debris >3" diameter. Minimize soil disturbance by general skid trail planning and limit sustained tractor skidding to slopes ≤45%. Limit scarification in regeneration treatments 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 (silt fence, bio-blankets, slash filters) at drainage features and stream crossing sites. Skid trails on State lands would be stabilized with the placement of slash and debris, erosion cross-drains installed where needed and the trails will be grass seeded upon completion. SPA-124 Permit obtained from FWP requires several special

mitigation conditions upon removal of the bridge including; the installation of conifer fascines, willow cuttings, and grass seed to protect and stabilize rehabilitated stream banks.

5) All road and logging equipment would be power washed and inspected prior to being brought on site. Sale area will continue to be monitored for weeds following harvest and a treatment plan (annual spraying) will continue to be implemented to reduce the spread of noxious weeds.
6) At sale closure, grass seed roads, skid trails (where needed) and landings with an appropriate seed mixture. All accumulations of slash (landing piles) will be burnt by the DNRC.
7) One dead snag and one snag recruit per acre of the largest diameter class, would be retained. Cull live trees would be retained where possible given human safety considerations.
8) Retain live, healthy older trees and stand attributes suitable for old growth maintenance and development where available and applicable.
9) Contact DNRC wildlife biologist should any threatened or endangered species be encountered within the proposed project area.
10) The area will continue to be managed for non-motorized public recreational use. Minor motorized use will occur on existing roads for grazing and timber administration by authorized persons only.
11) 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.
12) Group selection, regeneration cuts, and seed tree cutting units would be designed to retain visual screening for bears by ensuring that vegetation or topographic breaks are no greater than 600 feet in at least one direction from any point in the unit.
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.Retain coarse woody debris amounts in harvest units following recommendations of Graham et al. 1994. Emphasize the retention of downed logs of 15-inch diameter or larger where they occur.
15) Retain coarse woody debris amounts in harvest units following recommendations of Graham et al. 1994. Emphasize the retention of downed logs of 15-inch diameter or larger where they occur.
16) Retain up to 10% cover in each harvest unit in patches of advanced regeneration of shade-tolerant trees (subalpine fir, and Engelmann spruce) as a component of commercial harvest prescriptions to maintain desired species mixes of trees and provide habitat structure for snowshoe hares and lynx.
17) Contact DNRC wildlife biologist should a bald eagle nest, peregrine falcon nest site, grizzly bear den, or gray wolf den or rendezvous site be encountered within ½ mile of the proposed project.
18) Retain ample forest cover in draw features, wet areas and along ridge tops to provide habitat connectivity and security for big game, grizzly bears and Canada lynx.

SOILS:

Issues and Concerns- The following issue statements were developed during scoping regarding the effects of the proposed action to soils:

No issues or concerns were raised in public scoping relative to soils.

Recommended Mitigation Measures for Soils- The analysis and levels of effects to soils resources are based on implementation of the following mitigation measures.

1) Operations will be completed with dry or frozen soil conditions to maintain soil function on upwards of 85% of the harvested area. Coarse woody material (>3") will be retained at prescribed volumes (5-10 tons/acre) with fine woody material scattered evenly throughout harvest units and on skid trails.
2) New temporary road locations will avoid unstable and excessively wet areas. The road prism will utilize natural topographical reliefs with drainage structures applied to reduce erosion and minimize cuts and fills for low standard temporary haul roads. All new roads will be physically closed, recontoured where possible, and covered with slash and debris and grass seeded upon completion to reduce long term impacts associated with roads.

If recommended mitigation measures listed above are effectively implemented a moderate risk of low level direct and indirect effects to soil resources is expected and long-term soil productivity will be maintained. No cumulative effects to soil resources are expected.

WATER RESOURCES:

Issues and Concerns- The following issue statements were developed during scoping regarding the effects of the proposed action to water resources:

A concern for riparian and wildlife habitat impacts were raised with a proposed road route in the SW quarter of Section 36 Bean Creek through a Class 2 (non fish bearing) stream and adjacent wetlands to access Unit 3, a 66 acre unit with significant mortality and decadence.

The DNRC has requested an alternative temporary easement through adjacent private ranch lands to access Unit 3 on State land that would not require a stream crossing. The request is being considered and will be implemented if approved by the private party.

An old failed native materials bridge facility crossing Bean Creek, (a Class 1 genetically pure westslope cutthroat trout stream) will be removed, the stream channel, banks and floodplain will be re-contoured to match original elevations and grades. A temporary bridge structure will be placed at this crossing utilizing the existing road in and out of the SMZ. Restoring this crossing has been well received by fishery specialists with FWP, FWS, BLM and TNC currently involved in restoration projects upstream and downstream of the project area on Bean Creek.

Recommended Mitigation Measures for Water Resources- The analysis and levels of effects to water resources are based on implementation of the following mitigation measures.

1) No timber harvest will occur within a zone extending 50 feet from the ordinary high water mark (OHWM) of Bean Creek, identified with SMZ flagging and painted with blue two-dot unit boundary. Within the extended Riparian Management Zone (RMZ) 51' – 80', harvest may remove 50% of the original stand, harvesting trees <u>> 8"dbh</u> and representative size of original stand for leave trees.

2) Stream crossing remediation (post sale) will include the removal and rehabilitation of all stream crossings; four existing steel culverts and one failed native bridge structure from previous harvests. Two new temporary 24" x 40'culverts and associated temporary spur road, and a temporary full span steel bridge facility across Bean Creek.

3) Compliance with Forestry Best Management Practices (BMP's), Streamside Management Zone (SMZ) law, and DNRC Forest Management Administrative Rules will be strictly applied.

FISHERIES RESOURCES:

Issues and Concerns- The following issue statements were developed during scoping regarding the effects of the proposed action to fisheries resources:

One written comment received from MFWP Fisheries Biologist emphasizing the importance of protection measures for Bean Creek, a Class 1 stream supporting a genetically unaltered westslope cutthroat trout (WCT) population proximal to the proposed sale. Bean Creek contains one of the last extant unaltered WCT populations in the Centennial Valley.

The proposed timber harvest and associated temporary road construction are not expected to contribute to adverse cumulative watershed impacts due to 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.

Short-term direct sediment impacts may result through the removal and restoration of five existing stream crossings with facilities (culverts and bridge). The stream channels, banks and floodplains will be recontoured to match original elevations and grades. Erosion will be mitigated with the application of bio-blankets, silt filter fence and grass seed to stabilize soils at crossings.

No direct, indirect, or cumulative impacts to water quality, cold-water fisheries, or other beneficial uses in Bean Creek or Sand Creek tributaries are expected to result from the proposed actions.

Recommended Mitigation Measures for Fisheries Resources- The analysis and levels of effects to fisheries resources are based on implementation of the following mitigation measures.

All streams within the Sand Creek and Bean Creek drainages would be protected with all applicable requirements of the SMZ Law and DNRC ARMS. Additional Riparian Management Zone (RMZ) protection will be provided for Bean Creek, a Class 1 fishery. Class 2 and Class 3 streams are present in the Sand Creek harvest area but no fish are present within these streams. SMZ buffers will be applied without Alternative Practices.

Within the project area there are six (6) existing stream or drainage crossing facilities that were installed during older harvest entries and left in place (SMZ law applies to five of the crossings). At the conclusion of this project all of these facilities will be removed, BMP's applied (drainage dips at approaches, slash filters, erosion bio-blankets and grass seed. An existing failed bridge structure and associated timber supports and native fills are currently constricting normal flows and function at the existing stream crossing in Bean Creek. Prior to installation of a full-span temporary steel bridge at this crossing, the native log abutments, stringers and planking will be removed and excessive fills within the channel will be pulled-back to original bank elevations and grades. Additional slash filter traps will be installed adjacent to approaches of the temporary bridge and the existing road crossing in and out of the SMZ. These stream crossing restoration actions and application of BMP's on all existing closed roads should improve hydrology and function of the watershed over time while minimizing potential impacts associated with timber harvest and roads.

No timber harvest or equipment operation will occur within 50 feet of the OHWM adjacent to Bean Creek, a Class 1 stream.

The existing primitive road crossing in and out of the SMZ at Bean Creek is virtually flat terrain. This road will be physically closed, the temporary bridge removed and the crossing rehabilitated. The area will continue to be administered as closed to public motorized traffic.

WILDLIFE:

Issues and Concerns- The following issue statements were developed during scoping regarding the effects of the proposed action to wildlife:

The areas proposed for treatment under this proposal exhibit a wide variety of unique flora and fauna including threatened or endangered, sensitive species, and species of special concern. Scoping included resource specialists for MTFWP in wildlife and fisheries, USFWS Red Rock Reserve, Tribal Representatives, Montana Natural Heritage Program, Montana Fisheries Information System, The Nature Conservancy and Greater Yellowstone Coalition. All comments received were supportive of the vegetative treatment planned and the level of protection and mitigation measures to be applied. Participants at a show-me trip of the sale area emphasized the importance of maintenance and recruitment treatments to insure old growth and diverse stand conditions are present after harvest.

Larger landscape level vegetative restoration projects recently completed in this area on BLM, private, and State lands have been supported by conservation, interests, sportsman and agency land managers. The Greater Yellowstone Grizzly Bear Ecosystem boundary is ~12 miles from Bean Creek and ~18 miles from the Sand Creek units. All of the proposed treatment area is within occupied habitat. Hiding cover would be affected on approximately 664 acres with possible disturbance and displacement of grizzly bears during the summer/fall timber harvest activity periods. Harvest activities

are anticipated to take 2-3 years to complete and no new permanent roads would be constructed. Public access following proposed activities would remain restricted to non-motorized and all temporary roads would be reclaimed and physically closed following use.

While the vegetative treatment planned is expected to improve habitat diversity, forest health and resiliency over the long-term, minor adverse direct, indirect, and cumulative effects to grizzly bears, Lynx, and other sensitive species associated with this project may be anticipated over the short term harvest period.

Recommended Mitigation Measures for Wildlife- The analysis and levels of effects to wildlife are based on implementation of the following mitigation measures.

Additional mitigation measures that would be applied include spring activity restrictions from April 1 to June 15, contractor firearms restrictions, food storage restrictions, harvest unit opening size restrictions (not greater than 600 feet to cover), and requirements to retain cover in association with riparian areas.

Wetland habitat areas and riparian corridors will receive special buffering and exclusion from equipment operation to protect soils and water resources.

The harvest areas and any portions of administrative roads will continue to be managed for non-motorized recreational use following completion of this project.

Recent discussions with MTFWP wildlife specialists indicated wolves may travel through the project area, mainly Bean Creek; however there is no known wolf pack or denning activity on the Montana portion of the project area according to MT DFWP wolf experts. If den or rendezvous sites are encountered during operations or if they are identified by DFWP timing restrictions would be developed and applied (*ARM 33.11.430(1)(a)(b)*). Thus, negligible adverse direct, indirect, or cumulative effects to wolves would be anticipated as a result of the Action Alternative.

FOR COMPLETE WILDLIFE CHECKLIST FOR ENDANGERED, THREATENED, AND SENSITIVIE SPECIES SEE ATTACHEMENT "B"

AESTHETICS:

Any change to the scenery in the area from these alternatives would be in addition to past activity within the project area. This analysis includes all past and present effects.

The level of change to the characteristic landscape is expected to be moderate and not dominate the view of the casual observer. Changes caused by the proposed action may be evident with subtle irregular shaped openings and areas showing recent selective thinning however, the proposed treatments should not detract aesthetically from the existing view shed.

Existing Conditions
The forested landscape in both Bean Creek and Sand Creek areas are heavily forested, mountain foothill terrain with scattered open grassland-sagebrush parks and open rocky ridges. These denser mature stands show significant mortality to the common observer with concentrations of grey (dead) trees and red-needled trees (recently attacked by spruce budworm, Douglas fir bark beetles, or mountain pine beetle). All existing roadways in the area are managed by signage through inter-agency cooperative closures of all secondary roads. The forested viewshed also shows varying age-class trees from older mature stands to recent younger regenerated harvest units. A large (13,400 acre) natural ignition wildfire (Winslow Fire) occurred in 2003 approximately 4 miles east of the Bean Creek portion of this project. Aspen stands once again dominate the lower foothills and north aspects of the area impacted by the fire with scattered conifer encroachment starting to fill-in.

The project as proposed is anticipated to have very minor impacts to existing conditions both visually and aesthetically in this area.

ENVIORNMENTAL EFFECTS:

The action alternative as planned is anticipated to have minimal short-term impacts and effects to the environment. Long-term environmental effects are anticipated to improve with this action through the application of vegetative restoration principles applied for forest health, fuels reduction, bio-diversity, and watershed health.

VISUAL QUALITY

No Action Alternative:
To the casual observer, there would be no significant changes to the forested hillsides. Insect and disease infestations would continue to escalate with noticeable mortality (larger grey colored trees on the viewshed). Salvage logging and associated appearance of "thinned" stands and newly created small openings on the landscape would not occur. Impending threat of large landscape level wildfire in these stands would increase with significant potential visual quality impacts and negative short-term environmental effects. Under the no-action alternative, grazing practices would continue on these tracts.

Action Alternative:

Direct, Secondary, and Cumulative Effects
Through the proposed sale area, slash from the harvest would be noticeable yet temporary. Generally slash disappears from the site within five years, and is often covered by other vegetation within three years. Again, sites would be generally lighter in color than can be seen currently.

NOISE

No Action Alternative:
Noise associated with human activity is minimal in this rural area. Vehicle noise from ranching, hunting, and seasonal recreational activities on existing open roads would continue.

Action Alternative:

Direct, Secondary, and Cumulative Effects
Harvest activities would be quite audible, and, depending upon air conditions, equipment could be heard many miles from their location. Noise would be generated by harvest operations, harvest related traffic, road construction, and administrative oversight. This could be expected to be present for the entire season of harvest, typically from mid-June through mid-March of the following year, for the duration of the harvest of two to three years during the general "work week".

Based on the anticipated operating periods and the short duration of the timber sale direct, secondary, and cumulative effects of noise will be low in this very remote and rural area.

HISTORICAL AND ARCHEOLOGICAL SITES:

Scoping letters were sent to those Tribes that requested to be notified of DNRC timber sales. No response was returned that identified a specific cultural resource issue. 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 no cultural or paleontological resources have been identified in the APE, but it should be noted that Class III level inventory work has not been conducted there to date. 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.

DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR, AND ENERGY:

There will be no measurable direct, secondary, and cumulative effects related to environmental resources of land, water, air, and energy due to the relative size of the timber sale project.

OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA:

- The BLM has recently completed the Centennial Watershed Environmental Assessment (January 2015) for lands surrounding these state parcels.

Impacts on the Human Population

HUMAN HEALTH AND SAFETY:

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 9, which encompasses portions of Beaverhead County. Currently, this Airshed does not contain any impact zones.

Issues and Concerns- The following issue statements were developed during scoping regarding the effects of the proposed action to air quality:

- Smoke will be produced during pile burning.
- Dust will be produced during harvesting and hauling activities.

Recommended Mitigation Measures for Air Quality- The analysis and levels of effects to air quality are based on implementation of the following mitigation measures:

- Only burn on days approved by the Montana/Idaho Airshed group and DEQ.
- Conduct test burn to verify good dispersal.
- Dust abatement may be used as necessary.
- Slower speed limits may be included in contracts as necessary to reduce dust.

SLASH BURNING

No Action Alternative:
No slash would be burned within the project areas. Thus, there would be no effects to air quality associated with this project within Airshed 9.

Action Alternative:

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 are 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/Idaho 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.

DUST

No Action Alternative:
No increased dust would be produced as a result of the proposed timber sale. Current levels of dust would be produced in the area.

Action Alternative:

Direct, Secondary, and Cumulative Effects
Harvesting operations would be short in duration. Dust may be created from log hauling on portions of native surface roads during summer and fall months. Contract clauses would provide for the use of dust abatement or require trucks to reduce speed if necessary to reduce dust near any affected residences.

Thus, direct, secondary, and cumulative effects to air quality due to harvesting and hauling associated with the proposed action would be minimal.

Log Hauling Traffic
Log hauling traffic is common in the project area utilizing Federal, State and County roads maintained by the respective agencies.

Issues and Concerns- The following issue statements were developed during scoping regarding the effects of the proposed action to log hauling traffic:

- Impacts to the South Centennial County Road (an improved county road with rock surfacing, and minor public traffic).

Recommended Mitigation Measures for Log Hauling Traffic- The analysis and levels of effects of log hauling traffic is based on implementation of the following mitigation measures:

- Log hauling will take place typically during the general “work week”.
- Signs will be posted making the public aware of log hauling traffic in the area.
- If necessary, a slower speed limit may be imposed in the timber harvest contract.
- Hauling will be suspended if road becomes saturated due to heavy moisture content in the soils to minimize rutting of the surface.

No Action Alternative:
No increase in log truck traffic would occur.

Action Alternative:

Direct, Secondary, and Cumulative Effects
Log truck traffic in the area would increase for the duration of the timber sale. However signs will be posted indicating that log truck traffic is present in the area. If necessary, a slower speed limit may be imposed in the timber harvest contract.

Based on the mitigation measures direct, secondary, and cumulative effects of log hauling on human health and safety would be minimal.

RECREATION*:*

The area is used for hiking, hunting, cross-country skiing, snowmobiling and general recreating. Currently, roads through the area are closed to motorized use and used only for administrative purposes. There would be no change in road closure status and the selection of either alternative would not affect the ability of people to recreate on this parcel.

There will be no change from existing conditions. Therefore, there would be no measurable direct, secondary, or cumulative impacts on recreation from this proposed action.

Impacts on the Human Population

Will the No-Action or Action Alternatives result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Health and Human Safety	X				X				X					
Industrial, Commercial, and Agricultural Activities and Production	X				X				X					
Quantity and Distribution of Employment	X				X				X					
Local Tax Base and Tax Revenues	X				X				X					
Demand for Government Services	X				X				X					
Density and Distribution of Population and Housing	X				X				X					
Social Structures and Mores	X				X				X					
Cultural Uniqueness and Diversity	X				X				X					
Action														
Health and Human Safety		X			X				X					**IHP-1**
Industrial, Commercial, and Agricultural Activities and Production		X			X				X					**IHP-2**
Quantity and Distribution of Employment		X			X				X					**IHP-3**
Local Tax Base and Tax Revenues	X				X				X					
Demand for Government Services	X				X				X					
Density and Distribution of Population and Housing	X				X				X					
Social Structures and Mores	X				X				X					
Cultural Uniqueness and Diversity	X				X				X					

Comments:

IHP-1: Normal risks involved with the operation of heavy equipment and log truck traffic on public roads.

IHP-2: A consistent flow of timber contributes towards meeting the current and future demand for raw material resources to operate value added milling facilitates.

IHP-3: Employment in the logging industry is common in the area and this project would in a small part contribute to local employment and the status quo of logging community.

LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS *(includes local MOUs, management plans, conservation easements, etc):*

- **The Beaverhead County Weed Board** administers the State weed laws in Beaverhead County. The Weed Board is contacted by the DNRC annually and given a weed plan annually
- **Beaverhead County Public Land's Resource Use Policy and Plan** (July 2010). The Action Alternative is consistent with recommendations found in the following sections; Forest / Fire Management, Vegetation, Recreation, Wildlife (T&E and Sensitive Species), Cultural / Historic, and Road Use.
- **Bureau of Land Management:** Centennial Watershed Assessment Report (January 2015). The Action Alternative is consistent with recommended vegetative management and restoration goals for this area.

OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:

The proposed action has a projected harvest volume of 6.6 MMBF. Currently this timber has an approximate market value of $475-500.00/MBF delivered to forest product manufacturing sites within 170 miles of project area. The proposed action has a gross revenue value of $3,217,000. Removing the timber sale purchaser's contracted operations and DNRC's development, administration, and operation expenses, the trust beneficiaries net between an estimated 15 and 35 percent of total delivered sawlog market value. Therefore, the proposed action may generate net income for the Common School Trust beneficiaries of approximately $800,000 depending on market demand and competition at the time of the sale offering.

Costs related to the administration of the timber sale program are only tracked at the Land Office and Statewide level. DNRC does not track project-level costs for individual timber sales. An annual cash flow analysis is conducted on the DNRC forest product sales program. Revenue and costs are calculated by land office and statewide. These revenue-to-cost ratios are a measure of economic efficiency. A recent revenue-to-cost ratio of the Dillon Land Office was 3.5. This means that, on average, for every $1.00 spent in costs, $3.5 in revenue was generated. Costs, revenues, and estimates of return are estimates intended for relative comparison of alternatives. They are not intended to be used as absolute estimates of return.

Mills in Montana need 351 MMBF of sawlogs per year to maintain current production levels and industry infrastructure. Currently the Sustained yield and target harvest from Trust Lands is 57.6 MMBF, which represents approximately 16.4% of timber harvested in the state of Montana. This project would provide approximately 6.640 MMBF of timber towards the sustained yield target thus helping sustain current mill capacity.

Environmental Assessment Checklist Prepared By:

Name: Mike Atwood
Title: Dillon Unit Forester
Date: March 5, 2015

Finding

Alternative Selected

After review, I have selected the proposed Action Alternative, to harvest approximately 6.640 MMBF of commercial sawlogs from an estimated 664 acres of Common School Trust land located in sections 35 &36 T14S-R5W and S.36 T14S-R4W . Access to the timber is provided by Road Use Agreements with BLM . Approximately 2.4 miles of temporary minimum standard road will be constructed on State land. All new temporary roads on State land will be physically closed and re-contoured if needed 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

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 compliance, and adherence to state laws pertaining to timber harvest, and associated permits granted to accomplish this project, no significant impacts will occur as a result of implementing the selected alternative.

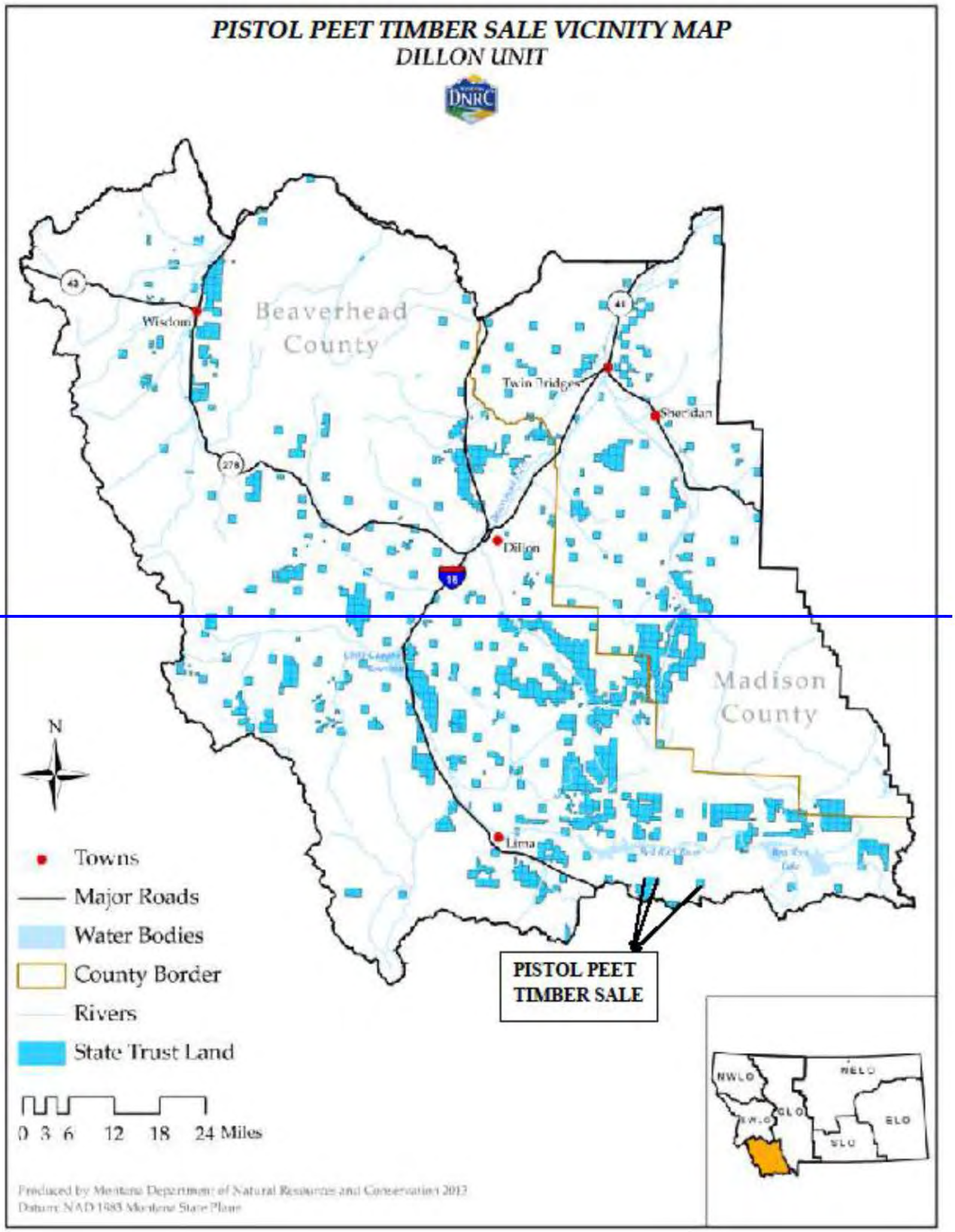
Need for Further Environmental Analysis

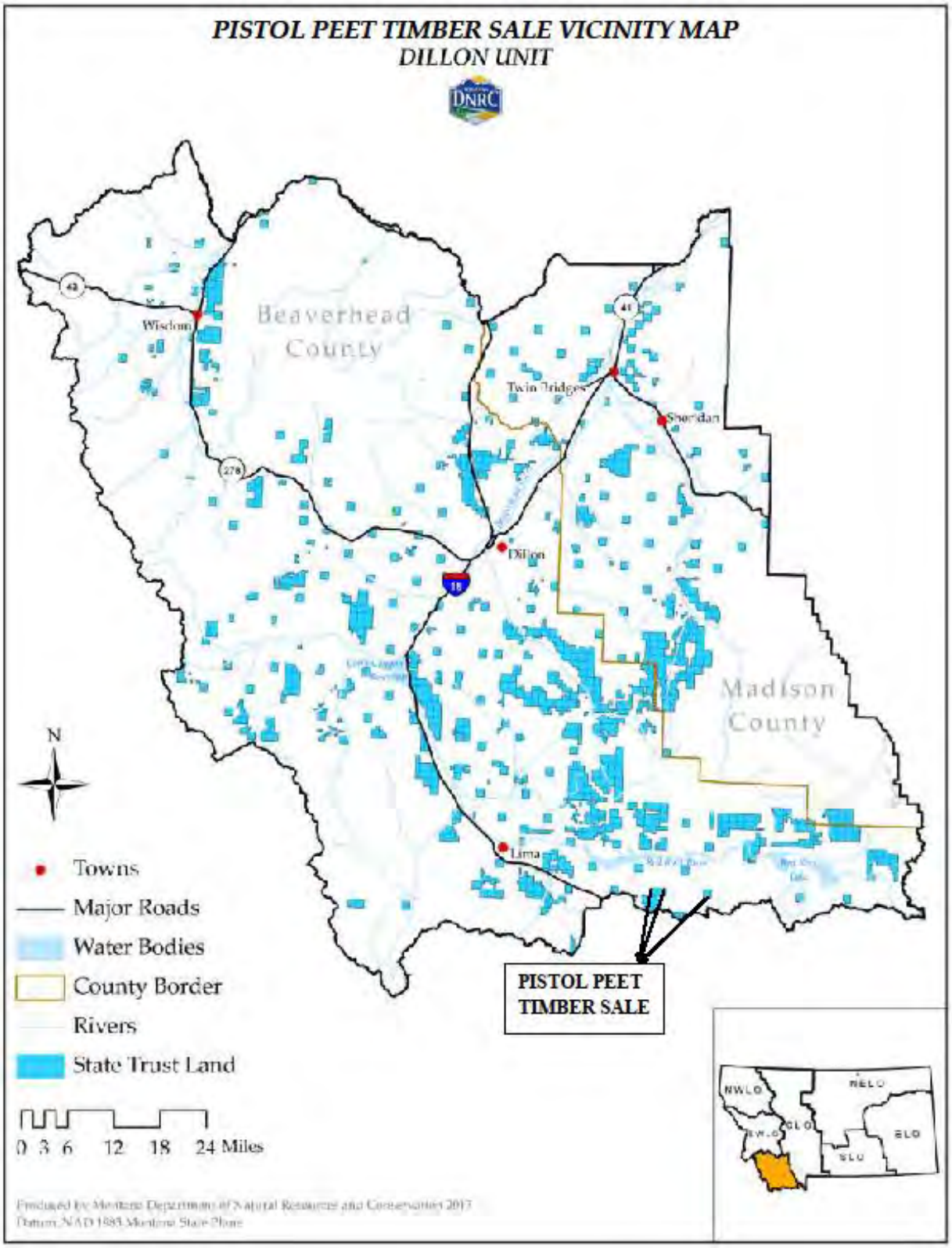
	EIS		More Detailed EA	X	No Further Analysis

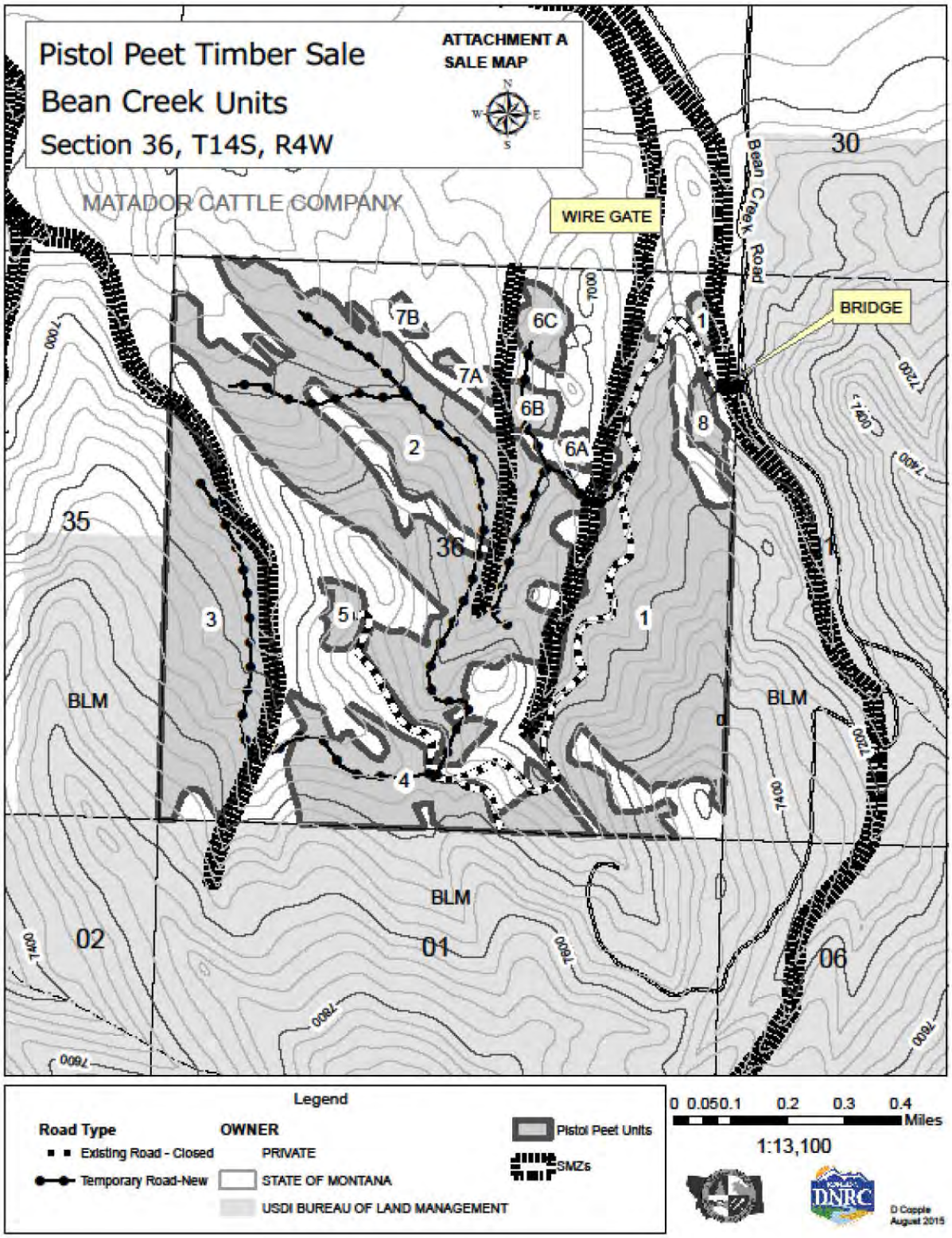
Environmental Assessment Checklist Approved By:

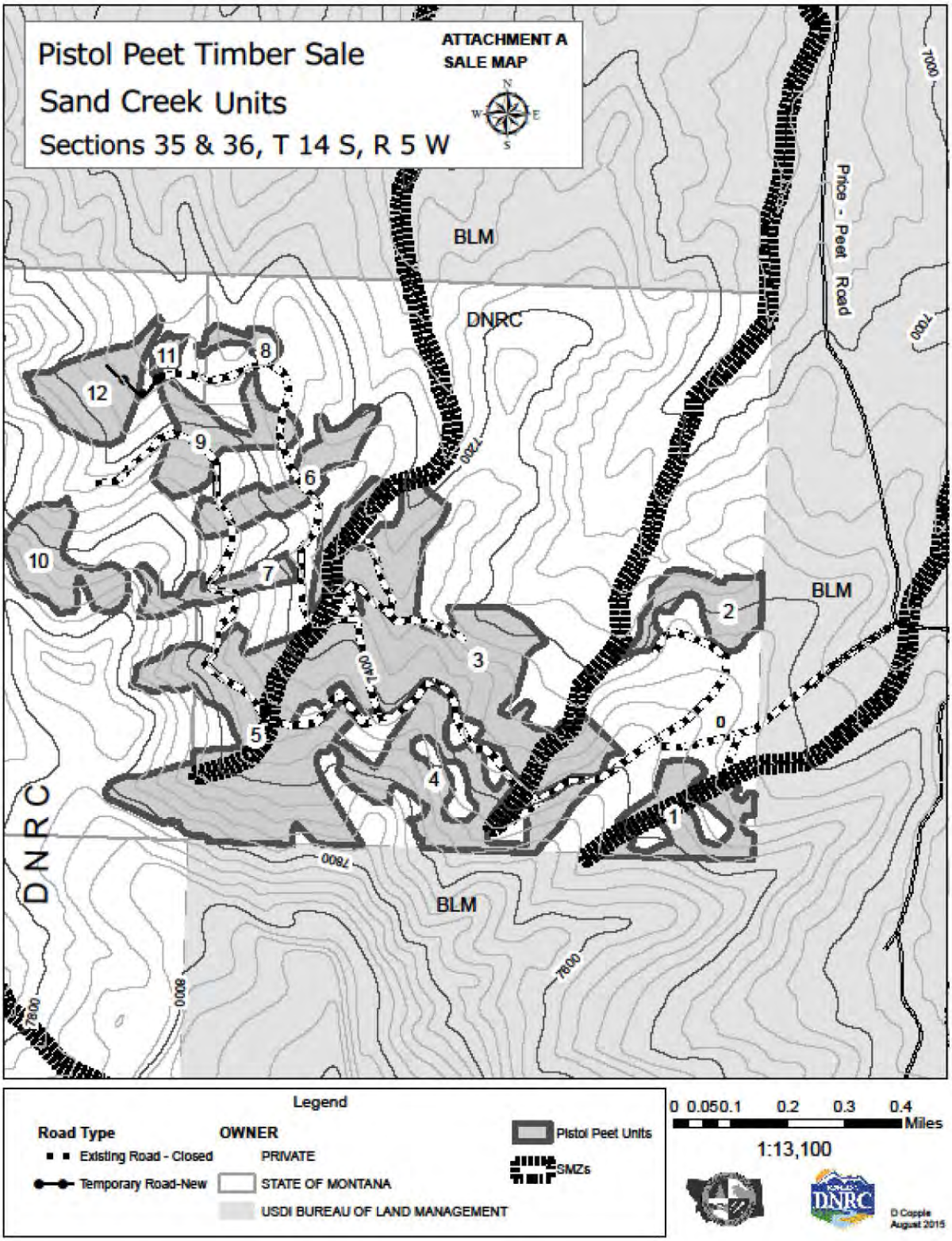
Name: Timothy Egan
Title: Dillon Unit Manager
Date: April 21, 2015
Signature: /s/ Timothy Egan

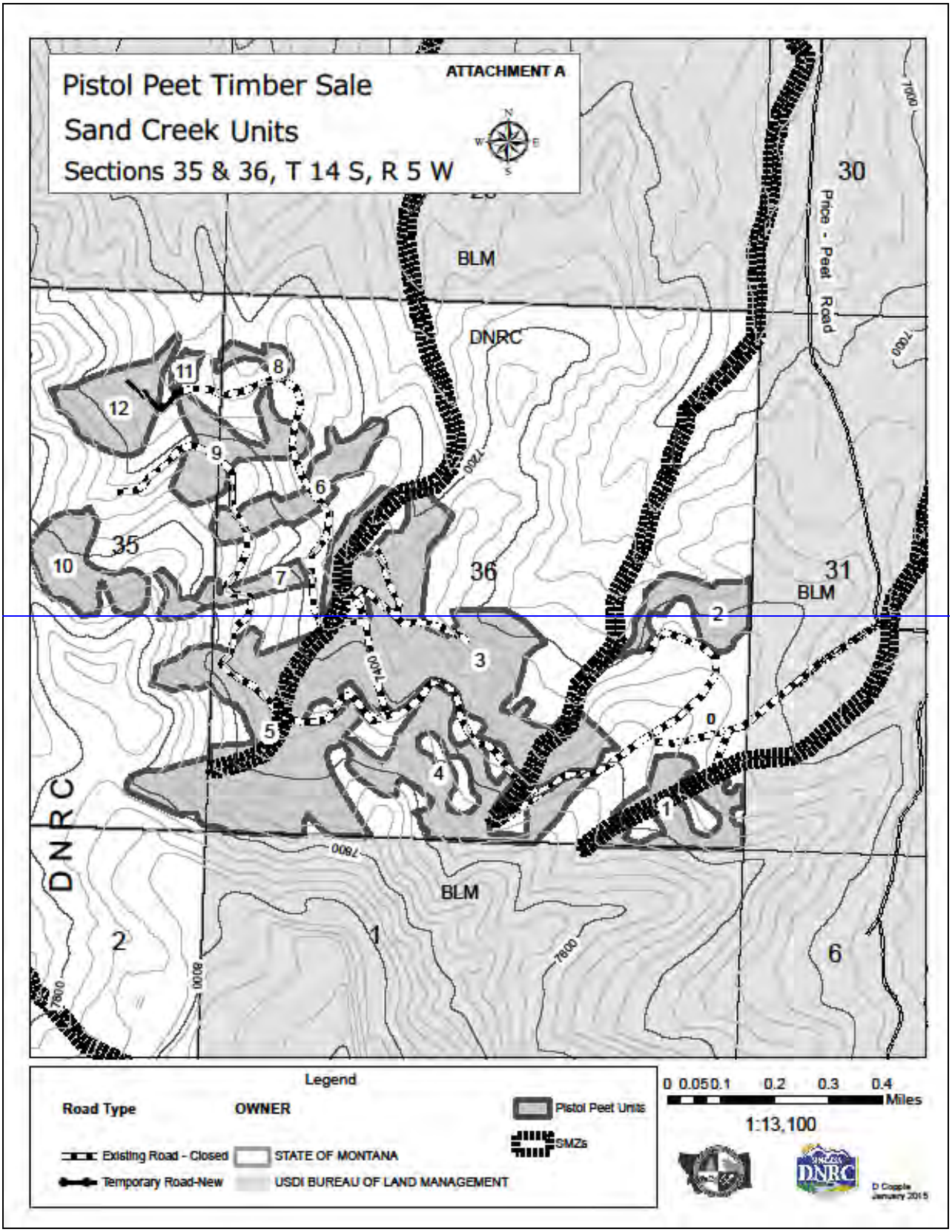
Attachment A: Sale Area Maps

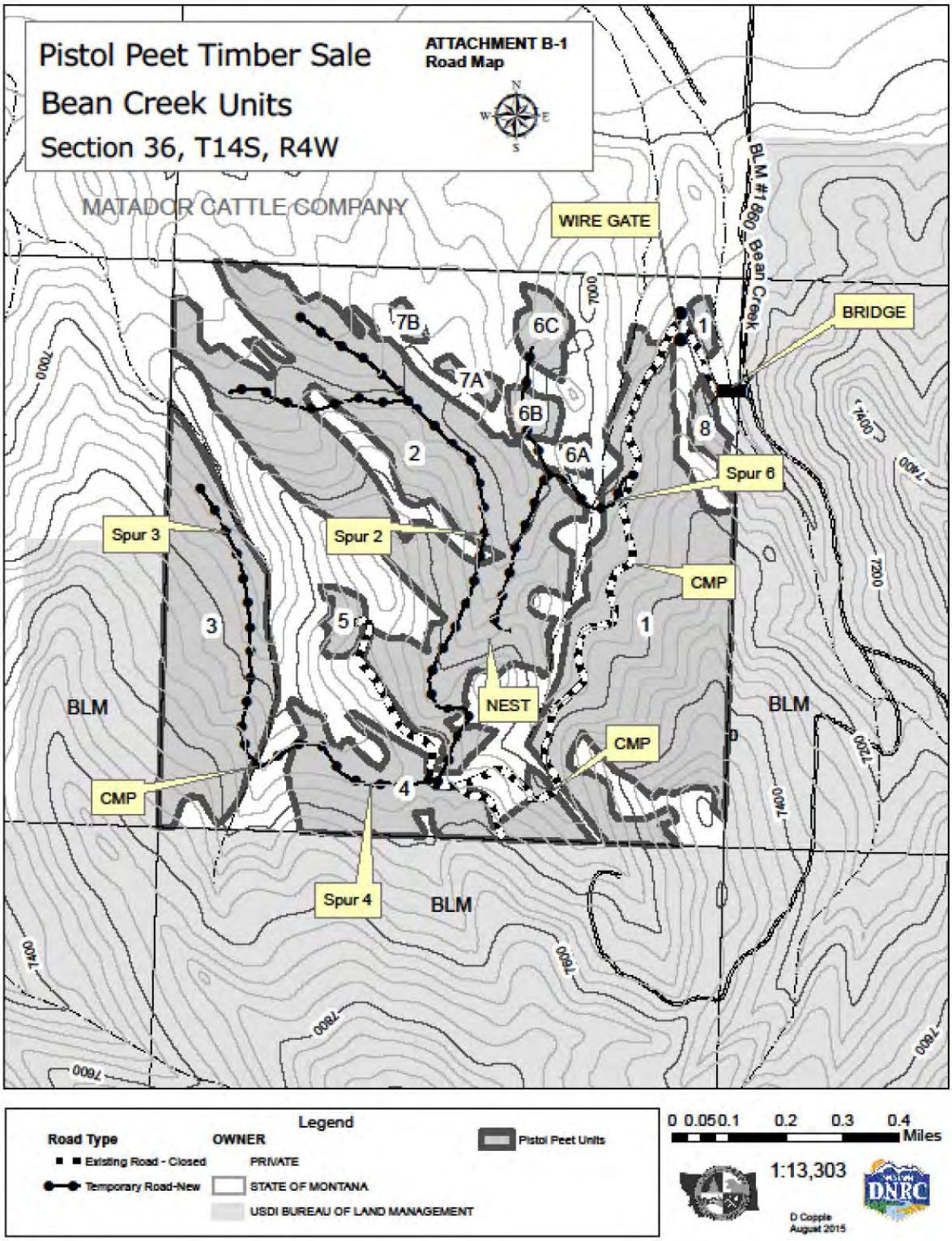

PISTOL PEET TIMBER SALE VICINITY MAP
DILLON UNIT
DNRC
Beaverhead County
Madison County
Wisdom
Twin Bridges
Sheridan
Dillon
Lima
43
41
278
15
N
Towns
Major Roads
Water Bodies
County Border
Rivers
State Trust Land
0 3 6 12 18 24 Miles
PISTOL PEET TIMBER SALE
NWLO
NELO
SWLO
SLO
ELO
Produced by Montana Department of Natural Resources and Conservation 2013
Datum: NAD 1983 Montana State Plane


PISTOL PEET TIMBER SALE VICINITY MAP
DILLON UNIT
DNRC
Beaverhead County
Madison County
Wisdom
Twin Bridges
Sheridan
Dillon
Lima
42
41
278
15
N
Towns
Major Roads
Water Bodies
County Border
Rivers
State Trust Land
0 3 6 12 18 24 Miles
PISTOL PEET TIMBER SALE
NWLO
NELO
SWLO
CLO
ELO
SLO
Produced by Montana Department of Natural Resources and Conservation 2017
Datum: NAD 1983 Montana State Plane


Pistol Peet Timber Sale
Bean Creek Units
Section 36, T14S, R4W
ATTACHMENT A
SALE MAP
MATADOR CATTLE COMPANY
WIRE GATE
BRIDGE
Bean Creek Road
30
35
36
BLM
BLM
BLM
02
01
06
1
2
3
4
5
6A
6B
6C
7A
7B
8
Legend
Road Type
Existing Road - Closed
Temporary Road-New
OWNER
PRIVATE
STATE OF MONTANA
USDI BUREAU OF LAND MANAGEMENT
Pistol Peet Units
SMZs
0 0.05 0.1 0.2 0.3 0.4
Miles
1:13,100
D Copple
August 2015


Pistol Peet Timber Sale
Sand Creek Units
Sections 35 & 36, T 14 S, R 5 W
ATTACHMENT A
SALE MAP
N
W
E
S
BLM
DNRC
Price - Peet Road
7000
7200
7400
7600
7800
8000
1
2
3
4
5
6
7
8
9
10
11
12
BLM
BLM
DNRC
Legend
Road Type
Existing Road - Closed
Temporary Road-New
OWNER
PRIVATE
STATE OF MONTANA
USDI BUREAU OF LAND MANAGEMENT
Pistol Peet Units
SMZs
0 0.05 0.1 0.2 0.3 0.4
Miles
1:13,100
DNRC
D Copple
August 2015


Pistol Peet Timber Sale
Sand Creek Units
Sections 35 & 36, T 14 S, R 5 W
ATTACHMENT A
N
W
E
S
30
Price - Peet Road
BLM
DNRC
7000
7200
7400
7600
7800
8000
11
8
12
9
6
35
10
7
36
31
BLM
2
3
5
0
4
1
DNRC
BLM
2
1
6
Legend
Road Type
OWNER
Existing Road - Closed
Temporary Road-New
STATE OF MONTANA
USDI BUREAU OF LAND MANAGEMENT
Pistol Peet Units
SMZs
0 0.05 0.1 0.2 0.3 0.4
Miles
1:13,100
DNRC
D Copple
January 2015



Legend

Road Type
- Existing Road - Closed
- Temporary Road-New

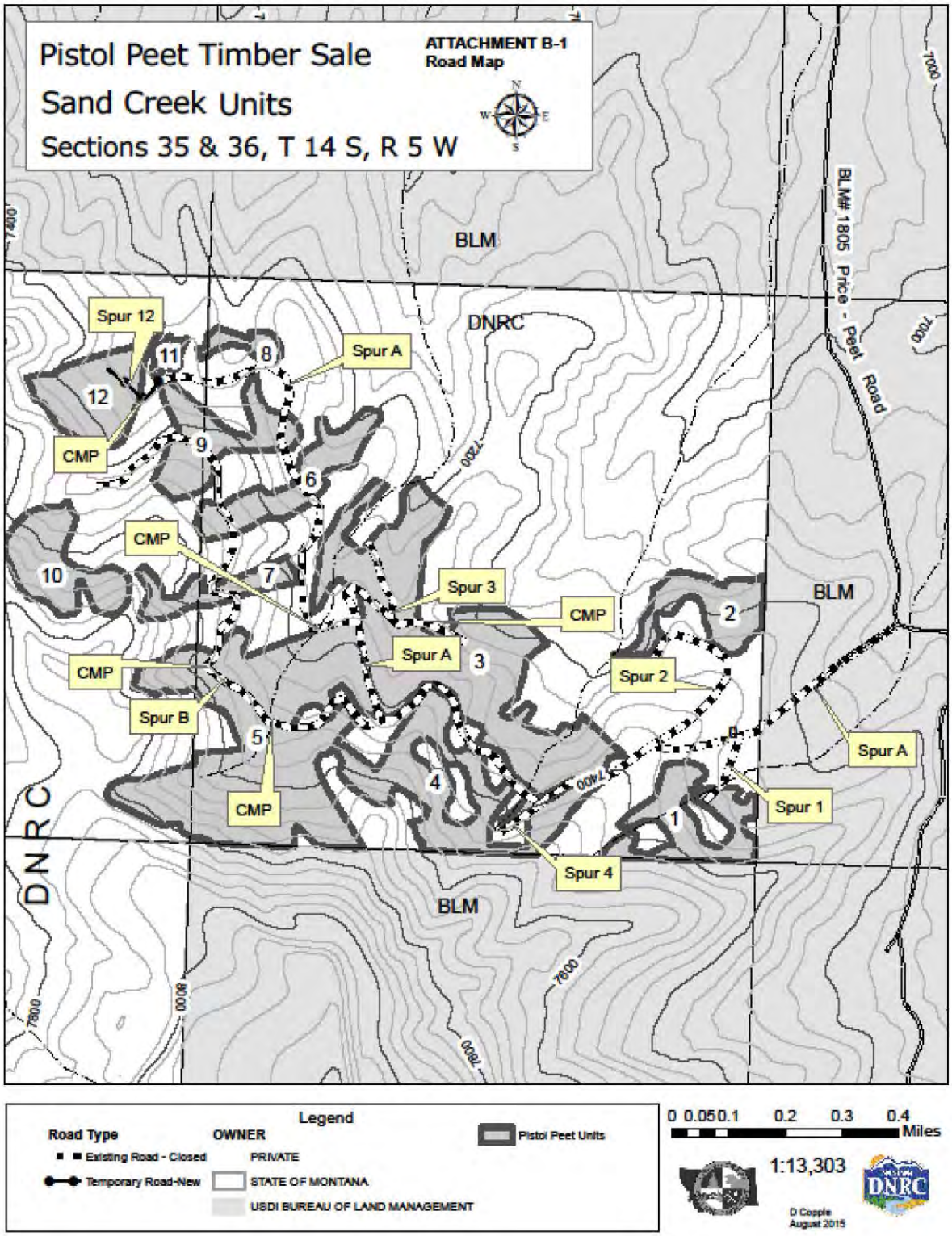
OWNER
- PRIVATE
- STATE OF MONTANA
- USDI BUREAU OF LAND MANAGEMENT

Pistol Peet Units

0 0.05 0.1 0.2 0.3 0.4 Miles

1:13,303

D Copple
August 2015



Legend

Road Type
- Existing Road - Closed
- Temporary Road-New

OWNER
- PRIVATE
- STATE OF MONTANA
- USDI BUREAU OF LAND MANAGEMENT

Pistol Peet Units

0 0.05 0.1 0.2 0.3 0.4 Miles

1:13,303

D Copple
August 2015

Attachment B: Wildlife Analysis

Pistol Peet Salvage – Wildlife Analysis

Analysis Prepared By: Ross Baty
Title: Wildlife Biologist, Montana DNRC, Forest Management Bureau

Introduction

The following analysis will disclose the anticipated direct, secondary, and cumulative effects to wildlife associated with the No-Action and Action alternatives. The driving issues for this project are forest health, management for old growth to meet biodiversity and fiduciary objectives, applying restoration, maintenance, and removal treatments consistent with historical natural disturbances. The Action Alternative would proactively address these issues by implementing treatments consistent with land management objectives on adjacent BLM, USFWS, and private lands. Under the No-Action alternative, wildlife cover and habitat will continue to decline due to insect mortality, and the risk of high severity wildfires will increase over time. Should a wildfire of stand-replacement intensity occur across the broad landscape in this area, associated adverse impacts to threatened, endangered, sensitive, and big game species inhabiting these watersheds could occur.

The areas proposed for treatment under this proposal exhibit a wide variety of unique flora and fauna including threatened or endangered, sensitive species, and species of special concern. Scoping included resource specialists for MTFWP in wildlife and fisheries, USFWS Red Rock Reserve, Tribal Representatives, Montana Natural Heritage Program, Montana Fisheries Information System, The Nature Conservancy and Greater Yellowstone Coalition. All comments received were supportive of the vegetative treatment planned and the level of protection and mitigation measures to be applied. Participants at a show-me trip of the sale area emphasized the importance of maintenance and recruitment treatments to ensure old growth and diverse stand conditions are present after harvest.

Regulatory Framework

The following plans, rules, and practices have guided planning of this project, and/or would be implemented during project implementation:

- State Forest Land Management Plan
- Administrative Rules for Forest Management
- Montana Statute
- Montana Best Management Practices for Forestry
- DNRC Habitat Conservation Plan
- Endangered Species Act
- Migratory Bird Treaty Act
- Bald and Golden Eagle Protection Act

Analysis Areas

Direct and Secondary Effects Analysis Area
The project area including section 36 (T14S, R4W), and sections 35 and 36 (T14S, R5W) totaling 1,920 acres.

Cumulative Effects Analysis Areas
Bean Creek, Sand Creek, and Corral Creek Watersheds.

Analysis Methods

Analysis methods are based on the DNRC State Forest Land Management Plan, which is designed to promote biodiversity. The primary basis for this analysis includes information obtained by: field visits, review of scientific literature, Montana Natural Heritage Program (MNHP) data queries, DNRC Stand Level Inventory (SLI) data analysis, aerial photograph analysis, and consultation with professionals.

DNRC's principal means of managing for biodiversity is by taking a 'coarse-filter approach', which favors an appropriate mix of stand structures and compositions on state lands (ARM 36.11.404). Appropriate stand structures are based on ecological characteristics (e.g., landtype, habitat type, disturbance regime, unique characteristics). A coarse-filter approach assumes that if landscape patterns and processes are maintained similar to those endemic species evolved with, the full complement of species will persist and biodiversity will be maintained. This coarse-filter approach supports diverse wildlife populations by managing for a variety of forest structures and compositions that approximate historic conditions across the landscape. DNRC cannot assure that the coarse-filter approach will adequately address the full range of biodiversity; therefore, DNRC also employs a 'fine-filter' approach for threatened, endangered, and sensitive species (ARM 36.11.406). The coarse-filter wildlife analysis section includes analyses of the direct, secondary, and cumulative effects of the proposed alternatives on connectivity of mature forest habitat and habitat linkage.

The fine-filter approach focuses on a single species' habitat requirements and helps ensure that special habitat needs of these rare or sensitive species are not overlooked. In the fine-filter analysis, individual species of concern are evaluated. These species include wildlife species federally listed under the Endangered Species Act, species listed as sensitive by DNRC, and species managed as big game by the Montana Department of Fish Wildlife and Parks (DFWP).

Cumulative effects analyses account for known past and current activities, as well as planned future agency actions. Recent timber sale projects (≤10 years) that could contribute to cumulative effects are summarized in the following table.

Table WI-1 RECENT PROJECTS. *Recent projects that could contribute to cumulative effects and the number of harvested acres that occur in each analysis area.*

Sale Name	Agency	Harvest Year	Project Area
"Price of Beans"	BLM	2010-2011	862 acres
"Price Creek Salvage"	BLM	2006-2007	1,146 acres
Corral Creek Salvage	DNRC	1990-1992	60 acres

Coarse Filter Analysis

Connectivity of forest cover between adjacent patches is important for promoting movements of species that are hesitant to cross nonforested expanses. Generally, the more effective corridors are those that are relatively wide, unfragmented, diverse, and associated with riparian areas (Fischer and Fischenich 2000). Existing patches have variable tree density and comprise a diverse mosaic of habitat conditions. Existing patch shapes and sizes in the project area have been influenced by past logging, roads, and natural disturbances that have likely occurred during the past 100 years. Mature forest stands in the project area and cumulative effects analysis area are generally well connected and provide a suitable network of cover capable of facilitating movements of many terrestrial species across the local landscape. However, the parcels in the project area occur in foothills along a grassland/forest ecotone and some stands are small and naturally fragmented. As such, there is considerable forest edge in some portions of the project area.

Linkage zones are defined as "the area between larger blocks of habitat where animals can live at certain seasons and where they can find the security they need to successfully move between these larger habitat blocks" (Servheen et al. 2003). Linkage zones differ from corridors in that the area is not just used for travel. Areas appropriate for linkage zones can occur at different spatial scales, particularly when considering the species of concern. The project area lies along the Montana/Idaho divide and is situated along a relatively undeveloped route that could provide valuable habitat connectivity and linkage between the Greater Yellowstone Ecosystem and the Selway-Bitterroot Ecosystem.

Forested habitats comprise approximately 25% of the south side of the Centennial Mountains with adjoining sagebrush and riparian habitats support a wide range of wildlife species. The areas proposed for treatment likely provide habitat

connectivity and cover for for grizzly bears, Canada lynx, and gray wolves. They also provide diverse cover and security corridors for big game species. Silvicultural treatments planned are designed to restore vegetative conditions to more open and diverse cover types favorable to wildlife that use this area. Aspen restoration is an important side benefit to commercial timber harvest. Recent studies by the BLM indicate aspen is present on about 9% of forested acres in this area. However, historically the stands proposed for treatment in this proposal were 70-75% aspen dominated in the early 1900's. The Action Alternative will remove all commercial sized conifers growing within viable aspen colonies and extending out 60-70' from the outside edges of the colonies providing room for colony expansion.

Under the proposed action proposed treatments could change or influence daily or seasonal movements of some species that inhabit the project area and surrounding lands at the scale of 1 to several 640-acre sections. However, given the type and scale of the proposed treatments and condition of vegetation across the cumulative effects analysis area and surrounding landscape, minimal risk of adverse effects to habitat connectivity and habitat linkage that might measurably affect wildlife species in this area would be anticipated.

Fine Filter Wildlife Analysis

In the fine-filter analysis, individual species of concern are evaluated. These species include those listed as threatened or endangered under the Endangered Species Act of 1973, species listed as sensitive by DNRC, and animals managed as big game by Montana DFWP. Table WI-2 – Fine Filter provides an analysis of the anticipated effects for each species.

Table WI-2 –Anticipated Effects of the Pistol Peet Timber Sale on wildlife species

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)
Threatened and Endangered Species	
Grizzly bear *(Ursus arctos)* Habitat: Recovery areas, security from human activity	**(Y)** The two project drainages (Bean Creek and Sand Creek) are approximately 17.2 and 23 miles west of the Greater Yellowstone Grizzly Bear Ecosystem and both are situated within occupied habitat. Hiding cover will be impacted on approximately 664 acres through the application of salvage timber harvest with habitat restoration goals. Temporary disturbance and displacement may occur during the summer/fall periods over three timber harvest operating seasons. Approximately 16.3 miles of road would be periodically used to complete this project. After project completion the area would continue to be managed as closed to motorized traffic through State and Federal inter-agency agreements and no new permanent roads would be constructed. All new temporary roads constructed for this project (2.7 miles) would be physically closed and reclaimed upon completion. Additional mitigation measures specific to grizzly bears that would be applied include spring activity restrictions from April 1 to June 15, firearms restrictions, food storage restrictions, harvest opening size restrictions (not greater than 600 feet to cover), and cover retention requirements within riparian areas. Mitigations for potential impacts to grizzly bears will be carried-out through the timber sale design and implementation of the contract. Minor adverse direct, indirect, and cumulative effects to grizzly bears associated with this project would be anticipated.
Canada lynx (*Felix lynx)* Habitat: Subalpine fir habitat types, dense sapling, old forest, deep snow zone	**(Y)** The parcels that comprise the project area are situated along a grassland/forest ecotone and generally provide marginal habitat conditions for snowshoe hares and Canada lynx due to inherently low levels of horizontal cover at the ground surface. However, some stand inclusions within habitat types preferred by Canada lynx do occur in the project area (notably subalpine fir and spruce). An analysis conducted using DNRC's forest stand data indicated

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)
	that there are currently 1,011 acres of potentially suitable lynx habitat on the 1,920-acre project area (52.7%% of project area). Under the proposed action 664 acres of suitable habitat (66% of existing habitat) would be logged, of which, 342 acres (33.8%) would be treated in a manner intensive enough to convert it into temporary non-suitable habitat. Habitat connectivity would be maintained in association with riparian retention areas and retained stands that would not be harvested. During project activities lynx could be displaced for the short operating period by disturbance caused by motorized equipment, should they be present. According to MTFWP and USFWS wildlife specialists, Canada Lynx have not been sighted in the project area for many years (≥10). Given the nature of the generally low quality habitat in the project area, the proposed treatment types that would retain considerable residual cover and connectivity, and favorable habitat conditions across the surrounding landscape in the cumulative effects analysis area, minor adverse direct, indirect and cumulative effects to Canada lynx would be anticipated.
Sensitive Species	
Bald eagle *(Haliaeetus leucocephalus)* Habitat: Late-successional forest more than 1 mile from open water	**(Y)** Observations within the project area have been noted during the breeding season and winter season. There are also 5 bald eagle nests on a BLM section adjacent to section 35 of the project area. One nest was active in 2015. Another alternate nest in the area has been active for the last few years, but was not in 2015. These two most recently used nest sites occur at least 0.95 miles away from the nearest proposed harvest unit in Section 35, and the nests are separated from all of the stands proposed for logging by a substantial ridge feature and topographic relief. These nests also occur >4 miles from the nearest large bodies of water (Lima Reservoir and Red Rock River), which is somewhat rare. Bald eagles typically nest within 1 mile of large bodies of water and preferred feeding areas. The Red Rock Lakes Refuge Manager and Wildlife Officer confirmed (6/2014) one active bald eagle nest on the north side of the Upper Red Rock Lake approximately 16 miles from the Bean Creek parcel in the project area. There are no active nests adjacent to the proposed haul routes. Given the proximity to Lima Reservoir and the tendency of these particular birds to nest at such great distance from large water bodies, it is possible that a future nest sites could be selected within the lower forested foothills of the project area. A significant number of larger older relic trees and replacement snags are present and would be retained to provide ample future nesting structures and habitat. Given the type, scope, scale and location of proposed activities in relation to known nest sites, adverse direct, indirect and cumulative impacts to bald eagles are expected to be minor.
Wolverine (*Gulo gulo*) high elevation persistent snow zones	**(N)** Wolverines could potentially travel through the project area occasionally; however, high elevation persistent snow zones and suitable denning habitat do not occur on the project area. Suitable denning habitat is potentially present 1.5 to 3 miles south of the project area in the cumulative effects analysis area. This habitat is associated with the highest ridgetops and cirque basins, however, project-related activity in winter would be limited and minimal potential for disturbance to wolverines would be present. Thus, potential for adverse direct, indirect and cumulative effects to

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)
	wolverines or their habitat would be low.
Black-backed woodpecker *(Picoides arcticus)* Habitat: Mature to old burned or beetle-infested forest	**(N)** Appreciable acreages of intensively burned forest stands do not occur in the project area or cumulative effects anslysis area. Thus, no adverse direct, indirect, or cumulative impacts are anticipated.
Black-tailed prairie dog (*Cynomys ludoviscianus*) Habitat: grasslands, short-grass prairie, sagebrush semi-desert	**(N)** This species was evaluated and it was determined that the project area lies outside their normal distribution. No adverse direct, indirect, or cumulative impacts are anticipated.
Flammulated owl *(Otus flammeolus)* Habitat: Late-successional ponderosa pine and Douglas-fir forest	**(N)** This species was evaluated and it was determined that the project area lies outside their normal distribution. No adverse direct, indirect, or cumulative impacts are anticipated.
Gray Wolf *(Canis lupus)* Habitat: Ample big game populations, security from human activities	**(Y)** Wolves currently travel through the project area, however, there is no known wolf pack or denning activity on the Montana portion of the project area according to MT FWP biologists (3/2015). If den or rendezvous sites are encountered during operations or if they are identified by DFWP timing restrictions would be developed and applied (*ARM 33.11.430(1)(a)(b)*). Adverse direct, indirect or cumulative impacts to wolves as a result of this project are expected to be minimal.
Harlequin duck *(Histrionicus histrionicus)* Habitat: White-water streams, boulder and cobble substrates	**(N**) This species was evaluated and it was determined that the project area lies outside their normal habitat. No adverse direct, indirect, or cumulative impacts are anticipated.
Northern bog lemming *(Synaptomys borealis)* Habitat: Sphagnum meadows, bogs, fens with thick moss mats	**(N)** Northern bog lemmings have not been detected in the vicinity of the project area and mechanical equipment use would be prohibited in wet areas thus, no adverse direct, indirect, or cumulative effects to northern bog lemmings would be anticipated as a result of the Action Alternative.
Mountain plover (*Charadrius montanus*) Habitat: short-grass prairie, alkaline flats, prairie dog towns	**(N)** This species was evaluated and it was determined that the project area lies outside of the normal distribution for the species, and/or suitable habitat was not found to be present. Thus, no adverse direct, indirect, or cumulative effects to mountain plovers would be anticipated as a result of the Action Alternative.
Peregrine falcon *(Falco peregrinus)* Habitat: Cliff features near open foraging areas and/or wetlands	**(N)** At least two different peregrine falcon nest sites occur approximately 12 miles from the project area. Suitable nesting habitat does not occur on the project area. Nesting habitat is present in the vicinity of Sheep Mountain to the east and Baldy Mountain to the west, both of which are >1 mile away from the project area. High quality foraging habitat exists in the vicinity of Red Rock lakes and across the Centennial Valley. Should an active nest be detected within ½ mile of proposed harvest units, operations would cease until after August 1. Given the location, scope, scale of proposed activities, and mitigations included, adverse direct, indirect and cumulative impacts to peregrine falcons are expected to be negligible.
Pileated woodpecker *(Dryocopus pileatus)* Habitat: Late-successional ponderosa pine and larch-fir forest	**(N)** This species was evaluated and it was determined that the project area lies outside of the normal distribution for the species. Thus, no adverse direct, indirect, or cumulative effects to pileated woodpeckers would be anticipated as a result of the Action Alternative.
Greater sage grouse	**(Y)** The project area lies within Greater Sage Grouse Core habitat

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)
(*Centrocercus urophasianus*) Habitat: sagebrush semi-desert	area. Sagebrush steppe's adjacent to the lower elevation harvest units at 7000-7,300 feet in both Bean Creek and Sand Creek drainages may be conducive to sage grouse habitat although leks are generally found at lower elevations. Since 2010, approximately 17 lek sites have been surveyed that lie within 10 miles of the project area. Of these, 13 contained birds at the time of surveys. In 2010, one unoccupied lek was surveyed, which occurred 0.6 miles from the Sand Creek section within the project area. A discussion with Dave Farmer, Biologist with the Red Rock Lakes National Wildlife Refuge in May 2015 indicated the Sand Creek lek site was active historically, but no recent activity has been documented in the past 4-5 years.The closest recorded active lek site is located approximately 4.5 miles from the project area to the west. Project activities (heavy equipment mobilization, harvest and log hauling) would be planned outside of the mating season, however, disturbance to birds nesting or rearing broods within the core habitat area would be possible. Hauling would not begin until after June 15th. Given the location, scope, scale of proposed activities, and mitigations included, adverse direct, indirect and cumulative impacts to sage grouse are expected to be minor.
Townsend's big-eared bat *(Plecotus townsendii)* Habitat: Caves, caverns, old mines	**(N)** This species was evaluated and it was determined that suitable caves, caverns, or old mines that could provide suitable habitat for bats were not found to be present in the project area or within one mile of the project area. Thus, direct, indirect, or cumulative effects would not be anticipated for this species.
Big Game Species	
Moose, Elk, Mule Deer, and Whitetail Deer	**(Y)** The project area falls within the distribution of moose, elk, mule deer, and whitetail deer. Hiding and thermal cover would be affected on approximately 664 acres, and logging disturbance during the normal use periods could disturb and displace moose, elk, and deer, however, displacement would likely be short term, and of short duration. Public access following proposed activities would remain restricted and temporary roads would be reclaimed following use. Additional mitigation measures that would be applied include spring activity restrictions from April 1 to June 15, opening size restrictions (not greater than 600 feet to cover), and requirements to retain cover in association with riparian areas. Minor adverse direct, indirect, and cumulative effects to moose, elk, mule deer, and white-tailed deer would be anticipated.
Other Species	
Ferruginous Hawk (*Buteo regalis*)	**(N)** The ferruginous hawk is a BLM sensitive species. Ferruginous hawks have been documented within 1.5 - 2.0 miles east of the Sand creek area within grassland sage cover types with rock outcrops. This type of habitat is not located within or near the project site. No direct, indirect, or cumulative effects to this species are anticipated.
Goshawk (*Accipiter gentilis*)	**(Y)** Late in the project-development phase of the proposed action, a goshawk was observed exhibiting territorial behavior in the Bean Creek parcel portion of the project area. On June 22 2015 an active

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)
	Goshawk nest with chicks and two adults present was discovered. The nest tree has been marked and a no-harvest 150' buffer established. Group selection (patch cut openings) within 300 ft. fo the nest tree will be prohibited. Individual tree selection will occur within 151 – 300 ft maintaining age-class diversity and screening. Within 300 – 600 ft of the nest tree, maintain to the extent practicable ≥.90 sq.ft. basal area. Removal of trees can alter forested stands suitable for nesting and logging activities can disturb nesting birds and potentially cause abandonment of eggs or chicks. Further, should additional active nest trees be located and/or aggressive birds be detected, activity restrictions would be put in place to minimize disturbance within ¼ mile of the area until after August 15 each year to protect fledglings. Given the treatment types proposed under the action alternative that would retain an abundance of large trees and patchy distribution of forest conditions, and mitigations that would be in place should birds or a nest be detected at the time of operations, minor adverse direct, indirect and cumulative effects to nesting goshawks would be anticipated.

Wildlife Mitigations

-A minimum of one snag and one snag recruitment tree per acre, of the largest diameter class, would be retained. Cull live trees and cull snags would be retained where possible given human safety considerations.

-Implement harvest unit opening size restriction such that no point in any harvest unit is greater than 600 feet to visual screening cover.

-Maintain screening cover along riparian areas as required by the DNRC Habitat Conservation PIan aquatic riparian harvest strategy.

-Retain live, healthy older trees and stand attributes suitable for old growth development where available and applicable.

-Harvest activities would be restricted from April 1 to June 15 during each year of operations.

-Retain coarse woody debris amounts in harvest units following recommendations of Graham et al. (1994) (i.e., 5 – 10 tons of coarse woody debris per acre). Emphasize the retention of downed logs of 15-inch diameter or larger where they occur (retain 1 to 2 per acre greater than 15 inches in diameter and >20 feet long).

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

-Contact DNRC wildlife biologist should a bald eagle nest, peregrine falcon nest site, northern goshawk or gray wolf den or rendezvous site be encountered within ½ mile of the proposed project area.

-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.

-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.

-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.

-Retain ample forest cover in draw features and along ridge tops to provide habitat connectivity and security for big game, grizzly bears and Canada lynx.

-Retain up to 10% cover in each harvest unit in patches of advanced regeneration of shade-tolerant trees (subalpine fir, and Engelmann spruce) as a component of commercial harvest prescriptions to maintain desired species mixes of trees and provide habitat structure for snowshoe hares and lynx.

-Group selection and seed tree cutting units would be designed to retain visual screening for bears by ensuring that vegetation or topographic breaks are no greater than 600 feet in at least one direction from any point in the unit.

-Maintain security by minimizing new road construction and effectively closing roads following completion of project activities.

-To provide security in spring for wildlife, operations would be conducted from June 16 through March 31 during each year of operations.

-In the event an active goshawk nest is encountered, additional retention of leave trees would be required near the nest site, and activity restrictions would be established within ¼ of nesting birds as necessary from June 16 to August 15.

Wildlife References

Fischer, R.A. and J.C. Fischenich. 2000. Design Recommendations for riparian corridors and vegetated buffer strips. U.S. Army Engineer Research and Development Center, Environmental Laboratory, Vicksburg, MS. ERDC TN-EMRRP-SR-24. 17 pp.

Servheen, C., J.S. Waller, and P. Sandstrom. 2003. Identification and management of linkage zones for wildlife between the large blocks of public land in the northern Rocky Mountains. Unpublished report on file at U.S. Fish and Wildlife Service, Missoula, Montana.

Individuals Consulted

Martin Miller, Montana Natural Heritage Program
Dean Waltee, MTFWP Wildlife Biologist
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Nathan Korb, TNC
Matt Jaeger, MTFWP Fisheries Biologist
Kelly Bockting, BLM Wildlife Biologist
David Farmer, USFWS (Red Rock Lakes Refuge)
Ross Baty, Wildlife Biologist DNRC

Attachment C: Soils Analysis

Pistol Peet Timber Sale – Soils Analysis

Analysis Prepared By: Jeff Schmalenberg
Name: Jeff Schmalenberg
Title: Soil Scientist, Montana DNRC

Introduction

The following analysis will disclose anticipated effects to soil resources within the Pistol Peet project area. Direct, secondary, and cumulative effects to soil resources of both the No-Action and Action alternatives will be analyzed.

Issues and Measurement Criteria

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

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

- Removal of both coarse and fine woody material off site during timber harvest operations can reduce nutrient inputs required for future forest stands and can affect the long-term productivity of the site.
- Ground-based harvest techniques can displace and compact soils which can adversely affect the hydrologic function and long-term productivity of the impacted area.
- Reduced infiltration capacity of an impacted soil can result in overland flow and off site erosion typically localized to road surfaces, main skid trails and log landings.

Analysis Areas

Direct and Secondary Effects Analysis Area

The analysis area for direct and indirect effects will include all proposed harvest units and new road locations (permanent, temporary and/or abandoned roads) within the legal description describing the project area.

Cumulative Effects Analysis Area

For an impact to soil resources to be cumulative they must overlap at least twice in both time and space. Considering this constraint, the cumulative effects analysis area for this analysis will be the same that is described for the direct and indirect impacts above but limited to only those units that have had previous harvest activities.

Analysis Methods

Soil Disturbance

All harvest units in the project area were field reviewed to assess existing soil conditions and harvest limitations, as well as, to design mitigation measures to reduce the potential for soil resource impacts. This field information will be used in concert with DNRC soil monitoring data (DNRC, 2011) to forecast potential rates of soil disturbance given the project area topography, landforms and soil types, season of use and the harvest systems and/or equipment used during harvest activities.

Erosion

The risk of erosion of individual soil map units (k factor) will be considered in conjunction with the forecasted rate of soil disturbance from the activity, the existing condition of the soil resource, harvest unit slope and local climatology to qualitatively assess the risk of erosion.

Nutrient Cycling

The risk of impacts to nutrient pools will consider the proposed harvest intensity, habitat type, and existing volumes of coarse and fine woody material, measured ocularly or by pace transects (Brown, 1974), in conjunction with recommendation within *Graham et al.* (1994) to qualitatively assess the risk of impacts to site nutrient pools.

Soil Productivity

Soil productivity is a cumulative measure that includes an assessment of direct and indirect impacts to the soil resource from mechanical disturbances, erosion and/or slope instability, and nutrient pool modifications resulting from the proposed action. Soil productivity may also be affected by repeat entries into a forest stand. Direct and indirect impacts to soil productivity will be qualitatively assessed considering the above variables and only assessed cumulative if previous management activities have occurred within an analysis area.

Risk Communication

Effective risk management requires assessment of inherently uncertain events and circumstances, typically addressing 2 dimensions: how likely the effect is to occur (probability) and the magnitude the effect (impact) would be if it happened (Hillson and Hullett, 2004).

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

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

Existing Conditions

The following table contains the various soil map units within the areas proposed for harvest along with the risk of erosion, compaction and displacement from the proposed actions.

Table S1 – Soil Map Unit Description

Soil Map Unit	Area (Acres)	Percent of Harvest Area	Hazard		
			Displacment	Compaction	Erosion
821F: Tongue River-Hooligan-Leavitt complex, 8-45% slopes	609.0	31.8	M	M	M
830E: Chicken-Pricepeet complex, 8-35% slopes, landslides	579.8	30.2	M	M	M
813E: Hooligan-Knep-Doolittle complex, 8-35% slopes	228.6	11.9	M	M	M
638D: Wesdy-Wesdy, extremely bouldery complex, 4-15% slopes	158.0	8.2	L	L	M
840F: Boatman, very bouldery-Stemple, very stony-Rubble land complex, 15-50% slopes	52.9	2.8	M	L	L
816F: Stemple stony-Tongue River-Yellowmule complex, 8-45% slopes, landslides	16.5	0.9	M	M	M

No unique or fragile soil resources were identified within the areas proposed for harvest activities. No slope stability issues were observed within harvest units or along the locations of proposed new road construction.

The site productivity of the project area is rather low due to low precipitation (18-20”), short growing season and the low productivity of the soils. The forest stands within identified harvest units have experienced high rates of mortality from Spruce Budworm outbreaks. Most trees are in “gray” phase with needles fallen to the forest floor. Volumes of coarse and fine woody material ranged from 5-20 tons per acre dependant on habitat type, severity of mortality and aspect. This volume of woody material is within the natural range of conditions typically found in these forest types (Graham et al. 1994).

Previous timber harvest exists within the project area but no previous commercial timber harvest has occurred in the proposed harvest units. Historic harvest units (1990’s) have regenerated well with no obvious signs of productivity loss from these previous entries.

Environmental Effects

No Action Alternative: Direct, Secondary, and Cumulative Effects

Implementation of the no-action alternative would result in no soil resource impacts in the project area. Soil resource condition would remain similar to those described in the existing conditions sections of this environmental assessment.

Action Alternative: Direct, Secondary, and Cumulative Effects

The proposed actions of the Pistol Pete timber sale present a moderate risk of low level direct and indirect impacts to the soil resource from erosion, displacement and compaction. If the above outlined mitigation measures are strictly adhered to during project activities, conclusions from DRNC soil monitoring projects (DNRC, 2010) on similar projects can

accurately forecast that detrimental soil disturbance would remain below 15% of individual harvest units and that site productivity would be maintained.

The land use on approximately 5.76 acres of land would be permanently converted from forest products and/or rangeland grazing to transportation by the construction of 2.4 miles of new road assuming a disturbance width, on average, of approximately 20 feet.

Project area nutrient pools are not expected to be effected if 5-10 tons of fine and course woody material is retained onsite for long-term soil organic matter supply and nutrient cycling. This woody material retention in concert with limiting disturbance is expected to maintain long-term productivity.

Cumulative effects by definition are the collective impacts on the human environment of the proposed action when considered in conjunction with other past, present and future actions related to the proposed action by location or generic type. For an impact to soil resources to be cumulative they must overlap a least twice in both time and space. No previous harvest activities have occurred in the proposed harvest units thus eliminating the potential for cumulative effects.

Table S4 – Detrimental Soil Disturbance for the Action Alternative

Area of Analysis	Total Area (Acres)	Disturbance Rate (%)	Affected Area (Acres)
Harvest Units (including landings)	664	15	99.6
Roads *	2.4 miles	100	5.76

Soils Mitigations

- Limit equipment operations to periods when soils are relatively dry, (less than 20% soil moisture), frozen or snow covered (12 inches packed or 18 inches unconsolidated) to minimize soil compaction and rutting, and to maintain drainage features on road surfaces, primary skid trails and landing locations.
- Ground-based logging equipment (tractors, skidders, and mechanical harvesters) shall be limited to slopes less than 45% throughout the entire project area.
- 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 50 feet. Existing skid trails will be reused if properly located and complies with BMP's.
- Levels of coarse and fine woody material will be retained on site as prescribed by the forest officer and recommended by the project soil scientist using guidance from the best available science (Graham et al. 1994). 10-15 tons/acre of material >3" is recommended for the Pistol Pete Timber Sale project area with as many needles and fine material retained as possible.

Soils References

DNRC, 2010. DNRC compiled soils monitoring report on timber harvest projects, 1988-2005. Department of Natural Resources and Conservation, Forest Management Bureau, Missoula, MT.

Graham, R.T. et al., 1994. Managing coarse woody debris in forests of the Rocky Mountains. In: USDA and F. Service (Editors). Ogden, UT: Intermountain Research Station, pp. 12p.

Attachment D: Watershed and Fisheries Analysis

Watershed and Fisheries Resources Analysis

Analysis Prepared By: Jim Bower

Name: Jim Bower
Title: Fish/Conservation Specialist, Montana DNRC

Introduction

The following assessment will disclose anticipated effects to watershed and fisheries resources as a result of proposed actions within the Pistol Peet Timber Sale project area.

Analysis Areas

Analysis areas will be used to evaluate existing and potential impacts to watershed and fisheries resources associated with the proposed project. The analysis areas include (1) the watershed of known or potential fish-bearing streams or other surface waterbodies and (2) the proposed harvest units and haul routes that could have foreseeable, measurable, or detectable impacts to watershed or fisheries resources. The analysis areas correspond to a 7th or 6th code HUC scale and are identified (west to east) as: 'Corral and Sand Creeks', 'Price Creek' and 'Peet and Bean Creeks'. (Maps of analysis area boundaries can be found in the project file.)

Analysis Methods

The analysis methods utilized for this assessment are derived from issues raised through public and internal scoping, field reviews and surveys performed by DNRC specialists during September 2014, a determination of potentially affected resources and beneficial uses, and an evaluation of the final proposed Action Alternative (e.g., proposed timber harvest location and treatment, proposed new road location and construction methods, management of existing roads). This analysis will not provide an introductory narrative of the physical or biological mechanisms affecting watershed and fisheries resource processes; information on the regulatory framework affecting watershed and fisheries resources can be found in the Cumulative Watershed Effects Coarse Filter in the project file.

Following the evaluation of the final proposed Action Alternative, an analysis of the following variables has been dismissed due to no anticipated or foreseeable direct or indirect effects: in-stream woody debris, stream shading and temperature, water quality (nutrients) and fisheries connectivity. (Dismissed variables or issues may be qualitatively discussed as part of the cumulative effects assessment.) The environmental components that may be measurably affected by the proposed actions include sediment and flow regime, which are the watershed and fisheries resource variables that will be carried through this assessment. The analysis of sediment and flow regime may either be quantitative or qualitative and may include the further assessment of fish presence, channel forms, road management, water yield and peak flow timing, magnitude and duration.

The descriptions of foreseeable adverse impacts to watershed and fisheries resources are described in Table WF1 – Descriptions of foreseeable adverse impacts. Positive impacts to watershed and fisheries resources will also be described, if applicable, using information on impact extent and duration.

Table WF1 – Descriptions of foreseeable adverse impacts.

Impact Description	Probability of Impact	Severity of Impact	Duration of Impact
Negligible	The resource impact is not expected to be detectable or measureable	The impact is not expected to be detrimental to the resource	Not applicable
Low	The resource impact is expected to be detectable or measureable	The impact is not expected to be detrimental to the resource	Short- or long-term
Moderate	The resource impact is expected to be detectable or measureable	The impact is expected to be moderately detrimental to the resource	Short- or long-term
High	The resource impact is expected to be detectable or measureable	The impact is expected to be highly detrimental to the resource	Short- or long-term

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

Existing Conditions

The proposed actions that may affect watershed and fisheries resources include upland and SMZ timber harvest; forest road construction, reclamation and maintenance; road-stream crossing structure removal and associated stream restoration; and forest road utilization for timber hauling and equipment transportation. Fisheries resources are potentially affected only in the Peet and Bean Creeks analysis area (see below).

Field reviews and surveys performed by DNRC specialists during September 2014 identified all potential sediment sources associated with the proposed haul routes and harvest units. Other sediment sources within the analysis areas but outside the project area were also evaluated to the extent practicable. All potential, unsurveyed fish habitats in the project area were assessed for species presence, which primarily included perennially disconnected Class 2 streams that had not been previously surveyed through efforts by Montana Fish, Wildlife and Parks, Beaverhead National Forest or US Bureau of Land Management.

Three fish-bearing, Class 1 streams are potentially affected by the proposed actions: Peet Creek, East Fork Peet Creek and Bean Creek. All three streams support native westslope cutthroat trout; Peet and East Fork Peet creeks also support native mottled sculpin. Numerous Class 2 and 3 streams also intersect the project area parcels and proposed haul route roads. The surface hydrology of all three analysis areas includes numerous snowmelt-dominated streams and springs that flow north from the Centennial Mountains. All Class 2 and 3 streams typically exhibit an intermittent flow regime at low to base flows as they intersect alluvial floodplains at the edges of the Centennial Valley. No streams within the project area are perennially connected to downstream Red Rock River or Lima Reservoir.

A roads assessment in the Corral and Sand Creeks analysis area found both a failed culvert and a culvert in need of maintenance on a perennial, Class 2 stream. Another culvert in the analysis area was found to meet BMPs, and no roads adjacent to streams were evident point or non-point sources of sediment. In the Peet and Bean Creeks analysis area a log bridge has failed on Bean Creek, and a culvert on a Class 3 stream is in need of maintenance. A road that parallels Peet and East Fork Peet creeks is a minor source of sedimentation due to lack of maintenance.

Although several existing road sedimentation problems occur within the project and analysis areas, adverse impacts to channel forms in the Corral and Sand Creeks and Peet and Bean Creeks analysis areas are moderate to severe and pervasive due to grazing. The chronic sedimentation impact to channel forms has occurred from in-stream hoof shear and pedestaling, channel widening and consequent aggradation, frequent floodplain cow trails, and undisbursed riparian grazing. These observations validate current surface water, beneficial use determinations in the analysis areas of “non-

supporting" of aquatic life due to sedimentation (see Cumulative Watershed Effects Coarse Filter in project file). Sedimentation issues in the Price Creek analysis area expected to be similar to those found in the other analysis areas.

An evaluation of the equivalent clear-cut area (ECA) in the Corral and Sand Creeks and Peet and Bean Creeks analysis areas is done to assess current and foreseeable effects of timber harvest to trends in water yield. Changes in ECA and water yield are not proportional due to variability in precipitation and permeability; however, ECA is utilized as a surrogate for evaluating general trends in water yield and other components of flow regime. ECA is further considered in the context of post-settlement, fire suppression practices and natural, dynamic watershed conditions, such as wildfire, fluctuations in forest stand extent, pulses in forest insects and diseases, and variation in annual precipitation. (ECA is not assessed in the Price Creek analysis area since less than 0.2% of the forest acres in the analysis area would be affected by the Action Alternative, and any consequent effect to water yield would not expected to be measureable or detectable.) The existing ECA in the Corral and Sand Creeks analysis area is approximately 2% compared to a fully forested condition; the existing ECA is approximately 3% in the Peet and Bean Creeks analysis area. These slight increases in ECA are due to current permanent road corridors, insect and disease effects and past timber harvest; however, these rates are likely well within the historic range of conditions in these watersheds considering current strategies for fire suppression and rangeland encroachment of forest stands.

In summary, existing direct and indirect effects to watershed and fisheries resources in the analysis areas are due to moderate to high, widespread sedimentation impacts, which are nearly entirely a result of historic and ongoing grazing practices. Moderate sedimentation impacts also occur, at a much lower rate and magnitude, from existing forest roads and associated drainage structures.

Watershed and Fisheries Mitigations

Watershed and fisheries-related resource mitigations that would be implemented with the proposed Action Alternative include:

Application of all relevant Forestry Management BMPs (including the SMZ Law and Rules) and Administrative Rules of Montana for watershed and fisheries resources, soils, and wetland riparian management zones (ARMs 36.11.425 and 36.11.426);

Removal of a failed log bridge on Bean Creek, stream channel and floodplain restoration at the site, installation of temporary bridge that spans the entire stream channel and floodplain (for use during project implementation), and permanent bridge removal and site restoration following project implementation;

Re-installation of a failed culvert in the Corral and Sand Creeks analysis area (for use during project implementation) and then permanent removal of the culvert and site restoration following project implementation.

Environmental Effects

No-Action Alternative: Direct, Indirect, and Cumulative Effects

As a result of implementing the No-Action Alternative, no additional direct or indirect effects to watershed and fisheries resources would be expected to occur within the analysis areas beyond those described in the Existing Conditions.

Future-related actions considered part of cumulative impacts include other, small-scale forest management activities, numerous dams and reservoirs, numerous road-stream crossings on other ownerships that may adversely affect stream sediment, channel forms, and fisheries habitat connectivity, continued grazing impacts, and potential off-road vehicle impacts. Open, public roads that intersect the analysis areas will continue to be utilized year-round for forest management, recreation and other purposes. Considering all of these impacts collectively, moderate to high cumulative impacts are expected to occur. Although the anticipated moderate to high cumulative effect is a function of all potentially related impacts, the elevated cumulative effect in the analysis areas is primarily due to adverse impacts from sedimentation due to grazing practices.

Action Alternative: Direct, Indirect, and Cumulative Effects

The proposed actions and affected fisheries resources in all analysis areas are broadly described in Existing Conditions. Project-specific BMPs and road maintenance would be applied to all segments of the haul routes through the assessment area. All impact descriptions are short-term unless otherwise noted.

Increased truck traffic can accelerate the mobilization and erosion of roadbed material at road-stream crossings and roads located adjacent to streams. However, through the implementation of project-specific BMPs and road maintenance, the associated road sites would be expected to deliver most mobilized sediment away from the stream and road prism and filter eroded material through roadside vegetation. The number of project area road-stream crossing sites ranges from 1 in the Price Creek analysis area to 4 in the Corral and Sand Creeks analysis area (approximately 15 percent of all road-stream crossings in the analysis area) (see Table WF2 – Effects to road-stream crossings, adjacent roads and ECA). The amount of haul route within 300 feet of streams ranges from 0.3 miles in the Price Creek analysis area to 3.4 miles in the Peet and Bean Creeks analysis area (approximately 27 percent of all roads within 300 feet of streams in the analysis area) (see Table WF2 – Effects to road-stream crossings, adjacent roads and ECA). Statewide forest practice audits covering all ownerships between 1990 and 2012 indicate that BMP effectiveness ranges from 80 percent to 99 percent (DNRC 2012). Although project-specific BMPs and road maintenance would be expected to substantially offset the risk of increased sediment delivery due to project-specific vehicle traffic, low short-term impacts to sediment are expected in the assessment area.

All road-stream crossing structures throughout the project area would also be removed after completion of the proposed actions. Four sites would be permanently removed and restored in the Corral and Sand Creeks analysis area; 1 in the Price Creek analysis area; and 2 in the Peet and Bean Creeks analysis area. These mitigations are expected to have a long-term, positive impact to sediment and channel forms in all 3 analysis areas.

Upland harvest on sites with risk of erosion may mobilize material that could be delivered to adjacent stream channels; however, the Soil Resources analysis indicates that the anticipated impacts from this action are expected to be negligible. This assessment takes into consideration the implementation of the SMZ Law and Rules and supplemental ARMs for Forest Management on high risk of erosion sites.

Table WF2 – Effects to road-stream crossings, adjacent roads and ECA.

	Road-stream crossing sites intersecting project area haul route		Miles of project area haul route within 300 feet of streams		ECA as a surrogate for general trends in water yield and other components of flow regime	
ANALYSIS AREA	Number of sites	Percentage (approximate) of all sites in analysis area	Miles of road	Percentage (approximate) of all road miles within 300 feet of streams	Percentage (approximate) of analysis area in ECA: PRE-project	Percentage (approximate) of analysis area in ECA: POST-project
Corral and Sand Creeks	4	15%	1.4	16%	2%	4%
Price Creek	1	3%	0.3	4%	n/a	n/a
Peet and Bean Creeks	2	7%	3.4	27%	3%	6%

As a result of implementing the proposed actions, ECA levels may have a negligible (Price Creek analysis area) to 3 percent increase (Peet and Bean Creeks analysis area) (see Table WF2 – Effects to road-stream crossings, adjacent roads and ECA). The maximum expected cumulative increase in ECA is 6 percent in the Peet and Bean Creeks analysis area, which is well below the likely, historic average ECA for this region (16 percent) (Losensky 1997). Furthermore,

numerous studies suggest that the extent of the proposed timber harvest at the scale of the analysis areas is expected to have a negligible effect on water yield and peak flow magnitude and timing (Troendle and King 1987, Burton 1997, Grant et al 2008).

Using the cumulative effects described for the No-Action Alternative as a baseline, the anticipated collective direct and indirect effects due to implementing the Action Alternative are expected to contribute additional low, short-term impacts to watershed and fisheries resources. Consequently, moderate to high cumulative impacts to watershed and fisheries resources are expected in all analysis areas, which is fundamentally the same cumulative effect to watershed and fisheries resources described for the No-Action Alternative. Compared to the No-Action Alternative, (1) additional low, short-term cumulative effects to fisheries resources would be expected, (2) the additional cumulative effects may be measureable or detectable but are not expected to be detrimental, (3) cumulative effects would remain elevated primarily due to the presence and consequent adverse impacts from grazing practices, and (4) the elevated cumulative effects would be expected to occur regardless of whether or not the Action Alternative is selected. Minor, positive, long-term cumulative effects are expected to watershed and fisheries resources as a result of the permanent removal and restoration of 7 road-stream crossing sites throughout the analysis areas.

Fisheries References

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Losensky 1997. Historical Vegetation of Montana. Montana Department of Natural Resources & Conservation, Missoula, MT.

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VEGETATION ANALYSIS/ STAND PERSCRIPTION

Sand Creek Area: T14S-R5W, S35 & S36

Unit	Acres
1	15
2	12
3	63
4	29
5	70
6	13
7	7
8	3
9	15
10	15

Bean Creek Area T14S-R4W-S36

11	2
12	16

Unit	Acres
1A	2
1B	117
2	151
3	66
4	39
5	5
6A	2
6B	5
6C	7
7A	3
7B	2
8	5

Project Location: South Centennial Mountains

Project Acres: ~664

Elevation: 7,000 -7,700 **Slope:** 5-40% **Aspect(s):** North and West

Habitat type: Douglas-fir is indicated as a climax species and cover type with Douglas-fir/Snowberry (Psme/Syal) as the habitat type. Subalpine fir/Pinegrass (Abla/Caru) is the dominant cover type on lower elevations and moist sites.

Stand Description:

This analysis involves two separate areas (Bean Cr. and Sand Cr.) that are approximately five miles apart within the same range with very similar aspect, and elevation. The stands proposed for treatment are Douglas-fir cover types with scattered patches of lodgepole pine at higher elevations. Engelmann Spruce and subalpine-fir stands are present within the wetter, deeper, soils and riparian habitats. A timber sale completed in the Sand Cr. area in1991 consisted of 16 harvest units covering 60 acres with a combination of seed tree, shelterwood and smaller group selection (patch-cut) treatments. A little over one million board feet was removed. The Bean Cr. area has not been entered in the past ~40-50 years with evidence of light individual selective cutting of larger diameter trees only. Both areas have good access with existing timber harvest roads from previous entries.

Stands within the Bean Creek area are greatly overstocked and show significant mortality and defoliation in all age classes resulting from several decades of spruce budworm infestations. Lodgepole pine is showing advanced mortality from a decade Mountain Pine beetle presence. Lodgepole is naturally regenerating within openings and looks healthy. Stands to be treated within the Sand Creek area are overstocked as well, however a timber sale completed in 1991 created small openings (4-8 acres) with different vegetative treatments to reduce stocking, open canopies, break-up the forest fuels present and generally improve forest health on about 12% of the forested cover in the Sand Cr area. Douglas fir bark beetle is present within both areas showing recent attacks to the larger overstory and “relic” trees primarily. Due to natural fire exclusion over the past 120 years, conifer species have encroached into the sagebrush steppe, aspen, and riparian habitats thus reducing diversity and optimum stocking levels to the point that it is outside the historic range of variability. Aspen communities have declined significantly with high mortality and minimal reproduction due to conifer encroachment thus decreasing the biodiversity within these watersheds.

Overall forest health conditions have declined substantially resulting in high- severity fire condition. Fuel loading on these sites are typically 13-15 tons/acre but can easily exceed this (Fischer and Clayton 1983). Historically, disturbance in these stands ranged from low intensity ground fires to intense, mixed-severity events (Losensky 1997) which maintained mature stands in scattered patches and a more open condition. Current high mortality in the overstory and ladder fuel understory has created a stand replacement scenario in the event of a large scale fire. Fire regime range is mixed severity in the wetter riparian and meadows with stand replacement severity on all dryer Douglas fir sites. Subalpine fir is regenerating within the shade canopy and encroaching upon meadows and openings. Residual fuel loading target on the ground (post-harvest) will be 5-10 tons of debris for soil recruitment and stabilization.

Dominate age-class trees average 175-225 years. Scattered throughout the Bean Creek and Sand Creek area are very old large diameter (>32”dbh) Douglas fir “relic” trees in the 300-400 year class indicating this stand structure developed in much more open DF Savana type setting with large expansive colonies of Aspen present. There is estimated to be 75 acres of Old Growth Type 1 stand characteristics (East-Side Montana Zone) within the 664 acres proposed for treatment. Sand Creek has 35 acres and Bean Creek has 40 acres. Harvest prescriptions to be applied will maintain biodiversity objectives for Old Growth within the range of natural disturbance. Co-dominate and intermediate age class is 90-170 years old. Sapling and seedling understory is present indicating natural reproduction of Douglas fir has occurred over time however, understory stands shows high mortality and severe defoliation from spruce budworm impacts. A viable seed crop for natural reproduction has declined over the past 25 years from spruce budworm infestations.

Treatment and Objectives:

- **Desired future condition**

Treatments are designed to restore stands present to more open Douglas-fir savanna type ecosystem with Aspen colonies thriving on this landscape again. Treatments will be designed to restore and maintain these stands to diverse vegetative cover that would have been present historically with low intensity fire events. A combination of salvage harvest treatments in planned to meet objectives; Individual tree selection, group selection or "Patch-cut systems" (<3 acres), group reserve, and seed tree. Treatments are designed to restore and maintain biological productivity for optimum growing conditions on these sites for future harvest rotations. Biological diversity and wildlife habitat are expected to improve through this treatment with the creation of diverse age distribution with early successional growth of conifer and deciduous species, retention of healthy dominant and co-dominant age class trees, and retention of old relic trees throughout the landscape.

- **Regeneration**

Natural regeneration through shade tolerance silvicultural treatments is planned. Removal of infected over story seed trees and retention of healthy crowned trees showing vigor and resistance to SBW attack will be reserved for future seed source. SBW cycles have declined over the past two years possibly showing a downward trend in the cycle. A significant number of larger, older trees in both areas have died from SBW infestations. Viable cone production should increase over time through the retention of good healthy seed trees. Lodgepole pine is anticipated to regenerate naturally and quickly in the small patch-cut canopy openings where all Douglas-fir have succumbed to insects and disease**.**

- **Growth**

The proposed action described in this EA would move the older stand structure to younger aged, more open stands where tree growth and vigor is encouraged to reach the sites potential and more resistant to fire and insect and disease infestations. Approximately 589 acres of the 664 acres in the proposed harvest currently would not meet old growth definition. Where applicable, stands not meeting old growth definition would be treated to retain healthy older trees and stand attributes suitable for future old growth development. The average age is 90-200 years with a site yield capability of 55-70 cu.ft/ac/year.

- **Capture Value of Salvage**

The treatment planned is economically viable with current and anticipated lumber markets over the duration of the sale period (3 years). Demand for commercial sawlogs is strong with aggressive competition among local manufacturing facilities due to limited raw material resources available. Capturing remaining value in dead and dying stands in this geographical region is a viable priority. This project is anticipated to generate significant income for the common school trust while improving long-term forest health objectives for these lands.

Prescribed Treatment (Silvicultural system):

Stand resiliency is expected to improve over time against future insect outbreaks with the retention of healthy well-formed crowed trees that show genetic resistance to past spruce budworm attack. Subalpine fir stocking will be reduced in some areas through commercial thinning while maintaining shade canopy and leaving advanced subalpine fir regeneration and younger stands of spruce for preferred Lynx habitat and visual cover standards for larger ungulates and grizzly bear. Lodgepole pine present in some areas (<2% of the sale area) will naturally regenerate within openings created providing diversity.

Conifer encroachment within, and adjacent to viable aspen colonies will be reduced. Light mechanical scarification to surface soils will occur with to promote successful regeneration of aspen. All merchantable conifers will be harvested within 60-70 feet of viable aspen colonies to stimulate natural regeneration of decadent aspen, reduce competition for moisture, and maintain an open canopy.

Forest fuels will be reduced overall with planned prescriptions designed to break- up vegetative fuel densities, reduce ladder fuels through mechanical harvest treatments, and generally reduce stand stocking to a target 50-60 square feet of basal area per acre average. Riparian zones (class 1 and 2 streams, wetland management zones) will be protected with restricted equipment entry consistent with SMZ law, State HCP standards, and Administrative Rules governing forest

management. No timber harvest will take place 0-50' either side of Bean Creek, a Class 1 stream. Harvest within the established RMZ's (51'-80') will be very minimal on the outer reaches of the RMZ.

Harvest will be accomplished with conventional tractor and mechanical ground based equipment. All new roads will be reclaimed and all existing administrative roads will be stabilized, culvert and bridge crossings pulled and reclaimed, and all roads physically closed at public entrances, signed or gated to protect resources. Site preparation for natural regeneration will occur through mechanical scarification with harvest equipment during summer/fall operating seasons.

Slash piles accumulated at the log processing landings will be compacted and burnt in the fall of the year. Sufficient course woody debris (10-15 tons per acre) will be left on site within harvest units and used to reclaim roads and trails and maintain nutrient recycling objectives.