

# Beaver Creek Bay Timber Sales Environmental Assessment Checklist



**Plains Unit  
Northwest Land Office  
Montana Department of Natural Resources and Conservation  
March 2018**



# Beaver Creek Bay Timber Sales Environmental Assessment

## Checklist

### Table of Contents

Objectives Memo .....	3
Type and Purpose of Action.....	4
Project Development .....	5
Impacts on the Physical Environment.....	7
Impacts on the Human Population .....	20
Finding.....	22
Attachment A - Maps .....	23
Attachment B – Prescriptions .....	26

## **MEMORANDUM**

**To:** Dale Peters, Forest Management Supervisor, Jeff Hansen, Management Forester

**From:** David Olsen, Plains Unit Resource Program Manager

**Date:** November 7, 2017

**RE:** Beaver Bay Timber Sales Objectives

### **Primary Objective**

The primary objective of the Beaver Bay Timber Sales is to generate income for the Deaf and Blind (MSDB) Trust. The land parcels involved in this proposed project are located in S26 T24N R31W. The project would provide an estimated 2.0 MMBF of merchantable timber applied toward meeting the FY 2019 Northwestern Land Office timber sale volume target.

### **Secondary Objectives**

Minimize losses in timber quality and available volume resulting from deteriorating stand conditions in the defined project area as well as the surrounding forested land.

Promote the continued presence and/or reestablishment of historically appropriate timber types on Trust Land included in this project.

Reduce fire hazard and associated risks of loss to the State of Montana and privately-owned land in the area.

### **Management Directives**

In planning and preparing this project, requirements and specified actions as designated in the DNRC HCP shall be addressed, management direction from the State Forest Land Management Plan and Administrative Rules shall be followed, and all applicable Streamside Management Zones rules and regulations will be met. Montana Best Management Practices will be applied in all instances.

## Environmental Assessment Checklist

**Project Name: Beaver Creek Bay Timber Sales**  
**Proposed Implementation Date: July 2018**  
**Proponent: Plains Unit, Northwest Land Office, Montana DNRC and Zane Brown County: Sanders**

### Type and Purpose of Action

**Description of Proposed Action:**

The Plains Unit of the Montana Department of Natural Resources and Conservation (DNRC) is proposing the Beaver Creek Bay Timber Sales which would be split into the Beaver Creek East Timber Sale & Beaver Creek West Timber Sale. Beaver Creek East Timber Sale would be a limited access timber harvest. The project is located 17 air miles northwest of Thompson Falls, MT. (refer to Attachments vicinity map A-1 and project map A-2) and includes the following sections:

Beneficiary	Legal Description	Total Acres	Treated Acres
Common Schools			
Public Buildings			
School for the Deaf and Blind	<b>S26 T24N R31W</b>	<b>222</b>	<b>79</b>

Objectives of the project include:

- Generate revenue for the School for the Deaf and Blind.
- Improve forest health by reducing the possibility of insect and disease activity.
- Reduce excessive fuel loading and the related risk of wildfire.
- Promote and reestablish timber types historically found in these areas.

Proposed activities include:

Action	Quantity
<b>Proposed Harvest Activities</b>	<b># Acres</b>
Seed Tree	17
Commercial Thinning	62
<b>Total Treatment Acres</b>	<b>79</b>
<b>Proposed Road Activities</b>	<b># Miles</b>
New temporary road construction	0.5
<b>Other Activities</b>	
Build 3 Strand Smooth Wire Fence	0.45 mile

<b>Duration of Activities:</b>	3 Years
<b>Implementation Period:</b>	01/07/2018 – 01/07/2021

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.

---

## Project Development

---

### SCOPING:

- DATE:
  - December 15, 2017 – March 1, 2018
- PUBLIC SCOPED:
  - The scoping notice was posted on the DNRC Website: <http://dnrc.mt.gov/public-interest/public-notices>
  - Adjacent landowners, statewide scoping list, other interested parties.
  - A notice was also published in the *Clark Fork Valley Press*, the *Sanders County Ledger* and the *Missoulian*
- AGENCIES SCOPED:
  - Montana Fish Wildlife & Parks, Montana tribal organizations, US Forest Service, US Fish & Wildlife Service, State of Montana
- COMMENTS RECEIVED:
  - How many: 5
  - Concerns:
    - Support for proposed timber harvest to improve forest health, reduce fire danger and generate revenue.
    - Retain patches of winter deer cover.
    - Possible discovery of prehistoric cultural resources.
    - Condition of agricultural license after harvest.
  - Results:
    - Harvest units designed to improve forest health, reduce fire danger and generate revenue.
    - Retain patches of winter deer cover incorporated to the timber sale design.
    - DNRC Archeologist has conducted a Class III inventory of the sale area.
    - Hauling across hayfield would be limited to winter/frozen conditions and slash accumulations would be removed.

- DNRC specialists were consulted, including:
- Project Leader: Dale Peters
- Archeologist: Patrick Rennie
- Wildlife Biologist: Leah Breidinger
- Hydrologist: Marc Vessar
- Soil Scientist: Marc Vessar
- Economist: Sarah Lyngholm
- Silviculturist: Dale Peters

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

**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 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 <http://dnrc.mt.gov/divisions/trust/forest-management/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.
- **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.

**ALTERNATIVES CONSIDERED:**

**No-Action Alternative:** Under this alternative, no timber would be harvested and therefore no revenue would be generated from the project area for the School for the Deaf and Blind Trust. Forest health would decline while fuel loading would increase thus increasing fire danger. Trust would continue to lose stumpage value within the stand.

**Action Alternative:** Two commercial timber harvests would take place using ground-based and excalpine (cable yarding equipment mounted on an excavator) methods on 79 acres to remove between 1.2 and 1.5 million board feet of timber, generating revenue for the School for the Deaf and Blind Trust. Forest health would improve by reducing the possibility of insect and disease activity while fuel loading would decrease thus decreasing fire danger. Timber sale design would promote and reestablish timber types historically found in these areas.

---

## Impacts on the Physical Environment

---

Evaluation of the impacts on the No-Action and Action Alternatives including **direct, secondary, and cumulative** impacts on the Physical Environment.

### VEGETATION:

#### Vegetation Existing Conditions:

The stand of timber on the east side of Beaver Creek Bay has had limited management opportunities due to access issues being landlocked by private property. This current stand, located on a relatively flat bench above the bay, is comprised of mostly mature western larch (*larix occidentalis*), ponderosa pine (*pinus ponderosa*) and Douglas-fir (*pseudotsuga menziesii*). The stand age is about 105 years old, average heights range from 80-100 feet, with a 14 inch average diameter.

The stands of timber on the west side of Beaver Creek Bay has had some management activities in the past due to good legal access. The stand, located on a relatively flat bench above the bay, is comprised of mostly ponderosa pine, lodgepole pine (*pinus contorta*), and western larch. This stand age is about 60-70 years old, an average height range of 70 feet, with a 12-14 inch average diameter. The stand, located on the slopes down to the bay, is comprised of mostly mature Douglas-fir and western larch with lesser amounts of ponderosa pine and grand fir (*abies grandis*). This stand age is about 105 years old, average heights range from 80-100 feet, with a 14 inch average diameter.

There is currently an agricultural license on 27 acres of classified forest land. This stand is presently listed as Non-stocked in the Stand Level Inventory under Current Cover Type, with a Desired Future Condition of Ponderosa pine. Should the dryland farming of the ground cease, this hayfield would grow trees.

A railroad occupies an easement corridor along the Noxon Reservoir. These 51 acres of classified forest land are listed as Non-forest in the Stand Level Inventory under Current Cover Type, with a Desired Future Condition Non-forest. In 1957 & 1958, the railroad was relocated, therefore a right of way deed was issued.

Therefore, compared to the cumulative Plains Unit's desired future conditions, there is currently a deficiency in the Ponderosa pine cover types (see Table V-1).

**Table V-1 – Current and appropriate cover type for the Swamp Fire Salvage Project Area.**

Cover Type	Current Acres	Current Percent of Project Area	Desired Future Condition (DFC)	
			Acres	Percent
Subalpine fir				
Douglas-fir				
Lodgepole pine				
Mixed conifer				
Ponderosa pine	103	47%	142	65%
Western larch/Douglas-fir	24	11%		
Western white pine				
Non-stocked	15	7%		
Non-forest	51	23%	51	23%
Agricultural	27	12%	27	12%
<b>Total:</b>	<b>220</b>	<b>100%</b>	<b>220</b>	<b>100%</b>

Vegetation	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
<b>No-Action</b>														
Noxious Weeds		X				X				X			N	
Rare Plants	X				X				X					
Vegetative community		X				X				X			N	
Old Growth	X				X				X					
<b>Action</b>														
Noxious Weeds		X				X				X			Y	V-1
Rare Plants	X				X				X					
Vegetative community			X			X				X			Y	V-1
Old Growth	X				X				X					

*Comments:*

V-1. See vegetation mitigations.

*Vegetation Mitigations:*

- Tree removal would cause changes in the vegetative structure of the project area. Silvicultural prescriptions have been developed to keep stands moving towards desired future conditions, while maintaining surviving tree growth and vigor. The proposed action



alternative would promote the continued development of the desired future cover types of Ponderosa pine.

- Monitor and treat weed populations through the use of chemical herbicides, vehicle and equipment washing, and by grass-seeding roads immediately following harvest.

**SOIL DISTURBANCE AND PRODUCTIVITY:**

**Soil Disturbance and Productivity Existing Conditions:**

Four soil types are present within the boundaries of the proposed harvest units. These soil types include (60B) Bonnash gravelly ashy silt loam on slopes up to four percent; (64B) Lionwood ashy loam on slopes up to four percent; and, (641D and 641E) Lionwood-Scotmont-Whitepine complex on slopes between four and 15 percent and 15-35 percent, respectively. All of these soil types have a moderate whole-soil erosion factor (WebSoil Survey, 2018). Soil type 60B has a high erosion risk for fine particles of less than 2mm according to the *Soil Survey of Sanders and Parts of Lincoln and Flathead Counties, Montana*.

The majority of the proposed harvest area has a gentle slope of less than four percent. Past harvest activities within the section are limited to personal firewood removal and a small permit to remove some lodgepole pine in the early 2000's. Field reconnaissance completed during fall 2017 and spring 2018 resulted no observed erosion in the proposed harvest units. Existing trail are not rutted and are well vegetated with grasses and forbs.

Soil Disturbance and Productivity	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
<b>No-Action</b>														
Physical Disturbance (Compaction and Displacement)	X				X					X				
Erosion	X				X				X					
Nutrient Cycling	X				X				X					
Slope Stability	X				X				X					
Soil Productivity	X				X					X				
<b>Action</b>														
Physical Disturbance (Compaction and Displacement)		X				X				X			Y	S-1
Erosion		X				X				X			Y	S-1
Nutrient Cycling		X				X				X			Y	S-1
Slope Stability		X				X				X			Y	S-1
Soil Productivity		X				X				X			Y	S-1

*Comments:*

S-1: Harvest during non-winter conditions (Unit East-1, only) would result in displacement of soil on skid trails and landing sites. Due to the gentle terrain the impacts would be low when Forestry Best Management Practices are followed. See mitigation below.

S-2: Nutrient cycling would have low impacts due to the removal of vegetation during harvest operations. This impact would be mitigated by maintaining 10 to 20 tons of CWD per acre and as much of the material <3" as practicable.

S-3: Slope stability would have low impacts from line skidding in proposed Unit 26-1C. The impact would be minimized by skidding during winter conditions and adequately spacing yarding corridors.

*Soil Mitigations:*

- 1) Limit equipment operations to periods when soils are relatively dry, (less than 20 percent oven-dried weight), frozen, or snow-covered in order to minimize soil compaction and rutting, and maintain drainage features. Check soil moisture conditions prior to equipment start-up.
- 2) On ground-based units, especially on previously harvested areas, the logger and sale administrator would agree to a skidding plan prior to equipment operations. Skid-trail planning would identify which main trails to use and how many additional trails are needed. Trails that do not comply with BMPs (i.e. trails in draw bottoms) would not be used unless impacts can be adequately mitigated. Regardless of use, these trails may be closed with additional drainage installed, where needed, or grass-seeded to stabilize the site and control erosion.
- 3) Tractor skidding should be limited to slopes of less than 40 percent unless the operation can be completed without causing excessive displacement or erosion. Based on site review, short, steep slopes may require a combination of mitigation measures, such as adverse skidding to a ridge or winchline, and skidding from more moderate slopes of less than 40 percent.
- 4) Keep skid trails to 20 percent or less of the harvest unit acreage. Provide for drainage in skid trails and roads concurrently with operations.
- 5) Slash disposal: Limit the combination of disturbance and scarification to 30 to 40 percent of the harvest units. No dozer piling on slopes over 35 percent; no excavator piling on slopes over 40 percent, unless the operation can be completed without causing excessive erosion. Consider lopping and scattering or jackpot burning on the steeper slopes. Consider disturbance incurred during skidding operations to, at least, partially provide scarification for regeneration.

- 6) Retain 10 to 20 tons of large woody debris and a feasible majority of all fine litter following harvesting operations. On units where whole tree harvesting is used, implement one of the following mitigations for nutrient cycling: 1) use in-woods processing equipment that leaves slash on site; 2) for whole-tree harvesting, return-skid slash and evenly distribute within the harvest area; or 3) cut tops from every third bundle of logs so that tops are dispersed as skidding progresses.

**WATER QUALITY AND QUANTITY:**

The proposed project is small with approximately 88 acres of harvest proposed. The harvest is split between two 6<sup>th</sup> code watersheds: Upper Noxon Reservoir-Bear Creek and Lower Big Beaver Creek. This substantially limits the potential for any measurable water yield increase. Additionally, the project would follow the DNRC HCP by implementing a 50-ft no harvest buffer on all class 1 streams. Other streams in the project area are discontinuous and do not contribute to Beaver Creek or the Clark Fork River. Do to these characteristic and the gentle terrain, the risk of measurable cumulative effects would be low.

**Water Quality and Quantity Existing Conditions:** The project parcel is bisected by Beaver Bay of the Clark Fork River approximately 1,700 feet below the confluence of Beaver Creek. Therefore, no harvest is proposed in the Beaver Creek watershed; instead, all harvest would be in the face drainage of the Clark Fork River.

Two streams were identified during field reconnaissance in 2017 and 2018. Neither stream contributes surface flow to the Clark Fork River. One of the streams is a Class 3 stream that flows less than 2 months of the year while the other stream has perennial flow that is limited to a trickle during the summer months.

Channel stability appears to be good in all reaches of these streams within the state parcel. These streams are bordered by well vegetated banks of grasses, forbs, shrubs and a fully stocked conifer overstory.

Water Quality & Quantity	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
<b>No-Action</b>														
Water Quality	X				X					X				
Water Quantity	X				X					X				
<b>Action</b>														
Water Quality		X				X				X			Y	H-1
Water Quantity		X				X				X			N	H-2

*Comments:*

H-1: A low risk of low impacts would be expected due to the implementation of Forestry BMPs and strict adherence to the Streamside Management Zone laws.

H-2: Due to the size of the proposed harvest in relation to the size of the watersheds, the risk of a measurable water yield increase would be low.

*Water Quality & Quantity Mitigations:* Follow all Forestry BMPs.

**FISHERIES:**

**Fisheries Existing Conditions:** The two small streams identified on the state parcel are not fish-bearing. The Clark Fork River’s Beaver Bay bisects the state parcel. Fish species present in the Clark Fork River include native bull trout, westslope cutthroat trout as well as introduced walleye, perch and other warm water fish (MFWP, 2018).

**No-Action:** No direct or indirect impacts would occur to affected fish species or affected fisheries resources beyond those described in Fisheries Existing Conditions. Cumulative effects (other related past and present factors; other future, related actions; and any impacts described in Fisheries Existing Conditions) would continue to occur.

**Action Alternative (see Fisheries table below):**

Fisheries	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
<b>No-Action</b>														
Sediment	X				X					X				
Flow Regimes	X				X							X		
Woody Debris	X				X					X				
Stream Shading	X				X					X				
Stream Temperature	X				X						X			
Populations	X				X						X			
<b>Action</b>														
Sediment		X				X				X			Y	F-1
Flow Regimes	X				X							X	N	F-2
Woody Debris		X				X				X			Y	F-3
Stream Shading		X				X				X			Y	F-3
Stream Temperature		X				X					X		Y	F-3
Populations	X				X						X		N	F-4

*Comments:*

F-1: By following all Forestry BMPs and strictly adhering to the SMZ law, the risk of additional sediment delivery as a result of this project would be low.

F-2: This project would not be expected to alter the flow regime of the Clark Fork River. Several dams below Thompson Falls have alter the natural flow regime of the river.

F-3: The project would follow the DNRC HCP by implementing a 50-ft no harvest buffer on all class 1 streams. Additionally, the harvest from 50 feet to 106 feet from the high-water mark would be limited to no more than 50 percent of the merchantable timber. This mitigation is

expected to provide recruitable woody debris and adequate stream shading to minimize the risk of measurable temperature increases as a result of this project.

F-4: This project would not alter the existing assemblage of fish species in the Clark Fork River.

*Fisheries Mitigations:* Follow all Forestry BMPs

References:

Graham, R.T., A.E. Harvey, M.F. Jurgensen, T.B. Jain, J.R. Tonn, and D. S. Page-Dumroese. 1994. Managing Coarse Woody Debris in Forest of the Rocky Mountains. USDA Forest Service Research Paper. INT-RP-447. 13 pp.

MFWP 2018. Montana Fisheries Information System. Fisheries database managed by Montana Fish, Wildlife and Parks, Information Services Division, Helena, MT.  
<https://myfwp.mt.gov/fishMT/waterbody/43400>

WebSoil Survey 2018. Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at the following link: <https://websoilsurvey.sc.egov.usda.gov/>. Accessed 4/3/2018.

**WILDLIFE:**

**No-Action:** None of the proposed activities would occur. In the short-term, no changes to the amounts, quality, or spatial arrangement of mature forested habitat would occur. In the long-term and in the absence of natural disturbance, habitat availability would increase for species preferring mature connected forests while habitat availability would decrease for species preferring young, open stand types.

**Action Alternative (see Wildlife table below):**

Wildlife	Impact												Can Impact be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
<b>Threatened and Endangered Species</b>														
<b>Grizzly bear</b> <i>(Ursus arctos)</i> Habitat: Recovery areas, security from human activity		X				X				X			Y	WI-1
<b>Canada lynx</b> <i>(Felix lynx)</i> Habitat: Subalpine fir habitat types, dense sapling, old forest, deep snow zone		X				X				X			Y	WI-2

Wildlife	Impact												Can Impact be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
<b>Sensitive Species</b>														
<b>Bald eagle</b> <i>(Haliaeetus leucocephalus)</i> Habitat: Late-successional forest within 1 mile of open water	X				X				X					
<b>Black-backed woodpecker</b> <i>(Picoides arcticus)</i> Habitat: Mature to old burned or beetle-infested forest	X				X				X					
<b>Coeur d'Alene salamander</b> <i>(Plethodon idahoensis)</i> Habitat: Waterfall spray zones, talus near cascading streams	X				X				X					
<b>Columbian sharp-tailed grouse</b> <i>(Tympanuchus phasianellus columbianus)</i> Habitat: Grassland, shrubland, riparian, agriculture	X				X				X					
<b>Common loon</b> <i>(Gavia immer)</i> Habitat: Cold mountain lakes, nest in emergent vegetation	X				X				X					
<b>Fisher</b> <i>(Martes pennanti)</i> Habitat: Dense mature to old forest less than 6,000 feet in elevation and riparian		X				X				X			Y	WI-3
<b>Flammulated owl</b> <i>(Otus flammeolus)</i> Habitat: Late-successional ponderosa pine	X				X					X				

Wildlife	Impact												Can Impact be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
and Douglas-fir forest														
<b>Gray Wolf</b> <i>(Canis lupus)</i> Habitat: Ample big game populations, security from human activities	X				X				X					
<b>Harlequin duck</b> <i>(Histrionicus histrionicus)</i> Habitat: White-water streams, boulder and cobble substrates	X				X				X					
<b>Northern bog lemming</b> <i>(Synaptomys borealis)</i> Habitat: Sphagnum meadows, bogs, fens with thick moss mats	X				X				X					
<b>Peregrine falcon</b> <i>(Falco peregrinus)</i> Habitat: Cliff features near open foraging areas and/or wetlands	X				X				X					
<b>Pileated woodpecker</b> <i>(Dryocopus pileatus)</i> Habitat: Late-successional ponderosa pine and larch-fir forest	X				X				X					
<b>Townsend's big-eared bat</b> <i>(Plecotus townsendii)</i> Habitat: Caves, caverns, old mines	X				X				X					
<b>Wolverine</b> <i>(Gulo gulo)</i> Habitat: Alpine tundra and high-elevation boreal forests that maintain deep persistent snow into late spring	X				X				X					

Wildlife	Impact												Can Impact be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
<b>Big Game Species</b>														
<b>Elk</b>		X				X				X			Y	WI-4
<b>Whitetail</b>		X				X				X			Y	WI-4
<b>Mule Deer</b>		X				X				X			Y	WI-4
<b>Other</b>	X				X				X					

*Comments:*

**WI-1 Grizzly bear** – Approximately 81 acres (64%) of visual screening available in the Project Area would be affected by the proposed activities. To reduce site distances, no point in any harvest unit would be greater than 600 feet to hiding cover. Considering the proximity of the area to residences it is unlikely that this area would be used much by grizzly bears; however, spring timing restrictions would be applied from April 1 – June 15 to provide security for grizzly bears in the spring. No new permanent roads would be constructed, therefore, road densities would not change.

**WI-2 Canada lynx** – Approximately 81 acres (64% of existing habitat in the Project Area; 15% of existing habitat in the Large Cumulative Effects Analysis Area - CEAA) would be impacted by the proposed timber sale. These acres would be treated with shelterwood and commercial thin cuts and are not expected to retain enough conifer canopy cover to continue providing suitable lynx habitat post-harvest. Connectivity would be reduced, however, the likelihood of lynx using the area is low considering that the Project Area is in the urban interface and that the stands are mostly drier forest types typically not used by lynx. However, sufficient canopy cover would be retained along Beaver Bay to facilitate travel of lynx and other wildlife species that prefer greater amounts of canopy cover. To reduce adverse effects of the proposed harvest on lynx, habitat characteristics important to lynx and their primary prey, snowshoe hares, would be retained. Dense patches of advanced regeneration would be retained within lynx winter forage habitat and 10 to 20 tons/acre of coarse woody debris would be also be retained (*ARM 36.11.414*) with an emphasis on logs  $\geq 15$ -inch diameter.

**WI-3 Fisher** - Approximately 44 acres of potential fisher habitat would be affected by the proposed activities (63% of fisher habitat available in the Project Area; 4% of habitat in the Large CEAA). These acres would not be suitable post-harvest due to low amounts of mature conifer cover retained by the commercial thin (approximately 25% mature canopy remaining post-harvest). Riparian fisher habitat would not be harvested. Overall connectivity would remain intact across the Project Area due to retention of trees along Beaver Bay; however, connectivity in the greater landscape would remain low due to lack of suitable habitat in the surrounding area. Considering the low availability of suitable mature stands nearby and the prevalence of dry ponderosa pine forest types, which are avoided by fishers (*Olson et al. 2014*), the likelihood of fishers using the area is low. To reduce potential adverse effects on fishers, at least 2 large snags and 2 large snag recruitment trees per acre ( $>21$  inches dbh) would be retained (*ARM 36.11.411*). These snags are important habitat features that provide resting and denning sites for fishers.

**WI-4 Big game** – The proposed activities would reduce thermal cover on potential elk and deer winter range (*DFWP 2008*). The proposed harvest would affect 84 acres of thermal cover (56% of thermal cover available in the Project Area; 3% of thermal cover in the Medium CEAA). These acres would be treated with commercial thin and shelterwood cuts and would retain 20-



35% mature canopy cover reducing the capacity of these stands to provide thermal cover when snowpack is high. However, increased growth of forage plants may compensate for reduced mature canopy cover in these stands and some patches of mature forest would remain post-harvest. Overall, wintering animals are likely to continue using the Project Area post-harvest although thermal cover would be reduced. However, the east side of Beaver Bay would be logged in the winter so deer and elk could be displaced for approximately one winter.

*Wildlife Mitigations:*

- If a threatened or endangered species is encountered, consult a DNRC biologist immediately. Similarly, if undocumented nesting raptors or wolf dens are encountered within ½ mile of the Project Area, contact a DNRC biologist.
- Contractors will adhere to food storage and sanitation requirements as described in the timber sale contract. Ensure that all attractants such as food, garbage, and petroleum products are stored in a bear-resistant manner.
- Prohibit contractors and purchasers conducting contract operations from carrying firearms while on duty as per *ARM 36.11.444(2)*.
- Prohibit all motorized activities from April 1 – June 15.
- Retain patches of advanced regeneration of shade-tolerant trees as per *LY-HB4 (USFWS and DNRC 2010)* in all harvest units.
- Retain at least 2 snags and 2 snag recruits per acre >21 inches dbh or the next available size class, particularly favoring ponderosa pine and Douglas-fir for retention. If snags are cut for safety concerns, they must be left in the harvest unit.
- Retain 10-20 tons/acre of coarse-woody and emphasize retention of 15-inch diameter downed logs aiming for at least one 20-foot-long section per acre.

*Literature:*

- DFWP. 2008. Maps of moose, elk, mule deer, and white-tailed deer distribution in Montana. *In* Individual GIS data layers. Available online at:  
<http://fwp.mt.gov/gisData/imageFiles/distributionElk.jpg>  
<http://fwp.mt.gov/gisData/imageFiles/distributionMoose.jpg>  
<http://fwp.mt.gov/gisData/imageFiles/distributionMuleDeer.jpg>  
<http://fwp.mt.gov/gisData/imageFiles/distributionWhiteTailedDeer.jpg>
- Olson, L. E., J. D. Sauder, N. M. Albrecht, R. S. Vinkey, S. A. Cushman, and M. K. Schwartz. 2014. Modeling the effects of dispersal and patch size on predicted fisher (*Pekania [Martes] pennanti*) distribution in the U.S. Rocky Mountains. *Biological Conservation* 169:89-98.
- USFWS, and DNRC. 2010. Montana Department of Natural Resources and Conservation Forested Trust Lands Habitat Conservation Plan, Final Environmental Impact Statement, Volumes I and II., U.S. Department of Interior, Fish and Wildlife Service, Region 6, Denver, Colorado and Montana Department of Natural Resources and Conservation, Missoula, MT.

**AIR QUALITY:**

Air Quality	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
<b>No-Action</b>														
Smoke	X				X				X					
Dust	X				X				X					
<b>Action</b>														
Smoke		X				X				X			Y	1
Dust		X				X				X			Y	

*Comments:*

The proposed project is located in Montana State Airshed 2 as designated by the Montana/Idaho Airshed Group. Particulate matter may be introduced into the Airshed from the burning of logging slash. All burning would be conducted following the rules, regulations, and procedures of the DNRC major open burning permit and the Montana/Idaho Airshed Group operations guide.

Impacts are expected to be minor and temporary as all slash burning would be conducted burning on days with good to excellent dispersion when smoke would not be expected to impair visibility. Therefore, direct, indirect, and cumulative effects to air quality are expected to be minimal.

*Air Quality Mitigations:*

Only burn on days approved by the Montana/Idaho Airshed group and DEQ

**ARCHAEOLOGICAL SITES / AESTHETICS / DEMANDS ON ENVIRONMENTAL RESOURCES:**

Will Alternative 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		
<b>No-Action</b>														
Historical or Archaeological Sites	X				X				X					
Aesthetics	X				X				X					
Demands on Environmental Resources of Land, Water, or Energy	X				X				X					
<b>Action</b>														
Historical or Archaeological Sites	X				X				X				N	1
Aesthetics	X				X				X					
Demands on Environmental Resources of Land, Water, or Energy	X				X				X					

*Comments:*

The tribes were scoped but none identified a specific cultural resource concern. A Class III intensity level cultural and paleontological resources inventory was conducted of the area of potential effect on state land. Despite a detailed examination, no cultural or fossil resources were identified and no additional archaeological or paleontological investigative work is recommended. The proposed project will have No Effect to Antiquities as defined under the Montana State Antiquities Act. A formal report of findings has been prepared and is on file with the DNRC and the Montana State Historic Preservation Officer.

*Mitigations:*

Should previously unknown cultural or paleontological materials be identified during project related activities, all work will cease until a professional assessment of such resources can be made.

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

- None identified.

## Impacts on the Human Population

Evaluation of the impacts on the proposed action including **direct, secondary, and cumulative** impacts on the Human Population.

Will Alternative 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		
<b>No-Action</b>														
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					
Access To and Quality of Recreational and Wilderness Activities	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					
<b>Action</b>														
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			No	1
Local Tax Base and Tax Revenues	X				X				X					
Demand for Government Services	X				X				X					
Access To and Quality of	X				X				X					

Will Alternative 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		
Recreational and Wilderness Activities														
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:*

1. According to the Montana Bureau of Business and Economic Research a general rule of thumb is that for every million board feet of sawtimber harvested in Montana, ten person years of employment occur in the forest products industry. This harvest is viewed as a continuation of a sustained yield and as such would not create any new jobs but rather sustain approximately 8 person years of employment in the forest products industry. A few short-term jobs would also be created/sustained by issuing contracts following harvest. Additionally, local businesses, such as hotels, grocery stores, and gas stations would likely receive additional revenues from personnel working on the proposed project. This would be a positive low impact to quantity and distribution of employment in the area.

**Locally Adopted Environmental Plans and Goals:** *List State, County, City, USFS, BLM, Tribal, and other zoning or management plans, and identify how they would affect this project.*

- None identified.

**Other Appropriate Social and Economic Circumstances:**

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. The estimated stumpage is based on comparable sales analysis. This method compares recent sales to find a market value for stumpage. These sales have similar species, quality, average diameter, product mix, terrain, date of sale, distance from mills, road building and logging systems, terms of sale, or anything that could affect a buyer's willingness to pay.

**No Action:** The No Action alternative would not generate any return to the trust at this time.

**Action:** The timber harvest would generate additional revenue for the School for the Deaf and Blind Trust. The estimated return to the trust for the proposed harvest is \$195,000 based on an estimated harvest of 1,300 board feet (7,800 tons) and an overall stumpage value of \$25.00 per ton. 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.

## References

DNRC 1996. State forest land management plan: final environmental impact statement (and appendixes). Montana Department of Natural Resources and Conservation, Forest Management Bureau, Missoula, Montana.

DNRC. 2010. Montana Department of Natural Resources and Conservation Forested State Trust Lands Habitat Conservation Plan: Final EIS, Volume II, Forest Management Bureau, Missoula, Montana.

**Does the proposed action involve potential risks or adverse effects that are uncertain but extremely harmful if they were to occur?**

No

**Does the proposed action have impacts that are individually minor, but cumulatively significant or potentially significant?**

No

### Environmental Assessment Checklist Prepared By:

**Name: Dale Peters**  
**Title: Forest Management Supervisor**  
**Date: April 2018**

## Finding

### Alternative Selected

The Action Alternative meets the project objectives and is selected for implementation. The No-Action Alternative fails to meet the objectives concerning this project.

### Significance of Potential Impacts

No significant impacts have been identified to occur as a result of the implementation of this project.

### Need for Further Environmental Analysis

EIS

More Detailed EA

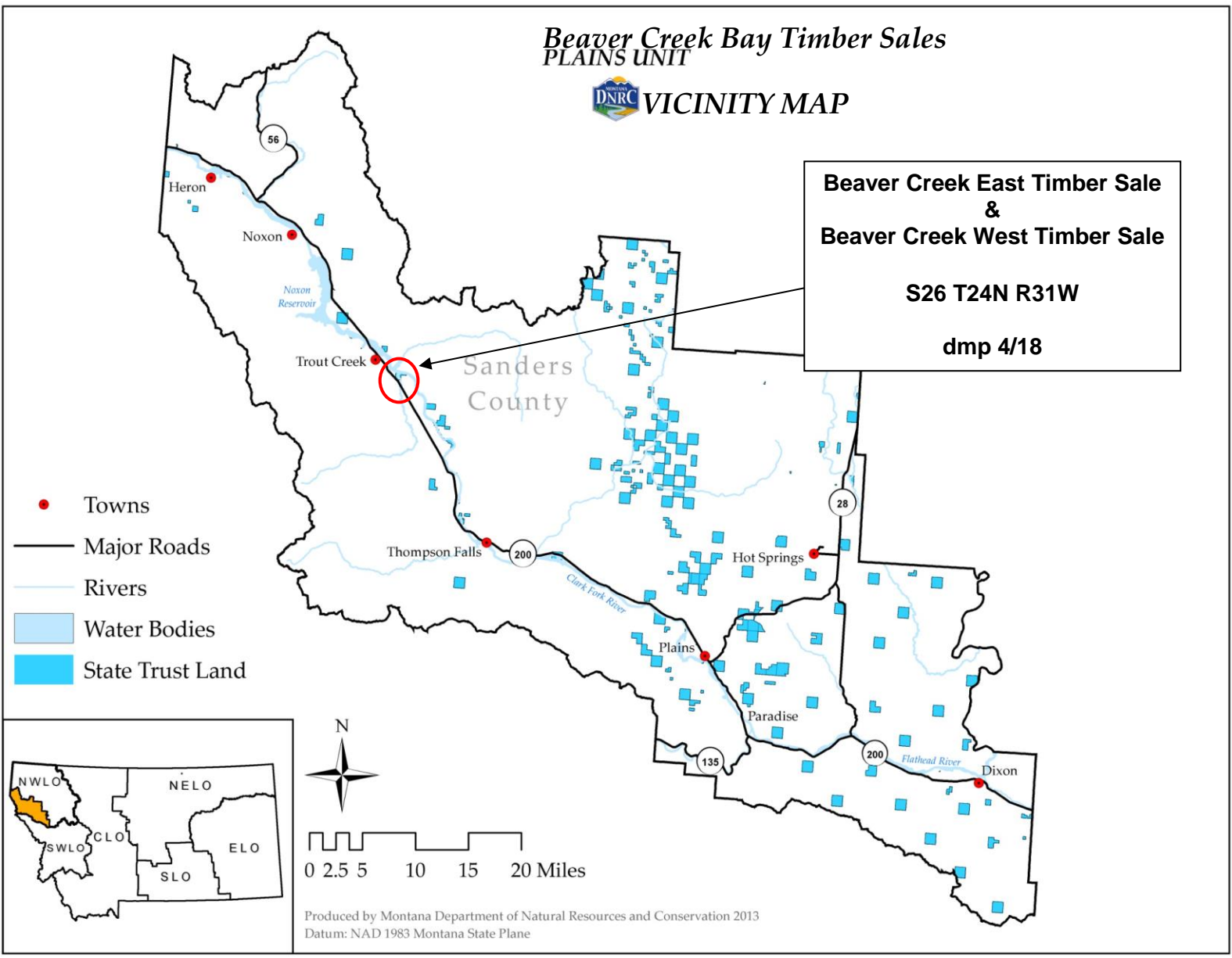
No Further Analysis

### Environmental Assessment Checklist Approved By:

**Name: David M. Olsen**  
**Title: Plains Unit Manager**  
**Date: April 30, 2018**  
**Signature: /s/ David M. Olsen**

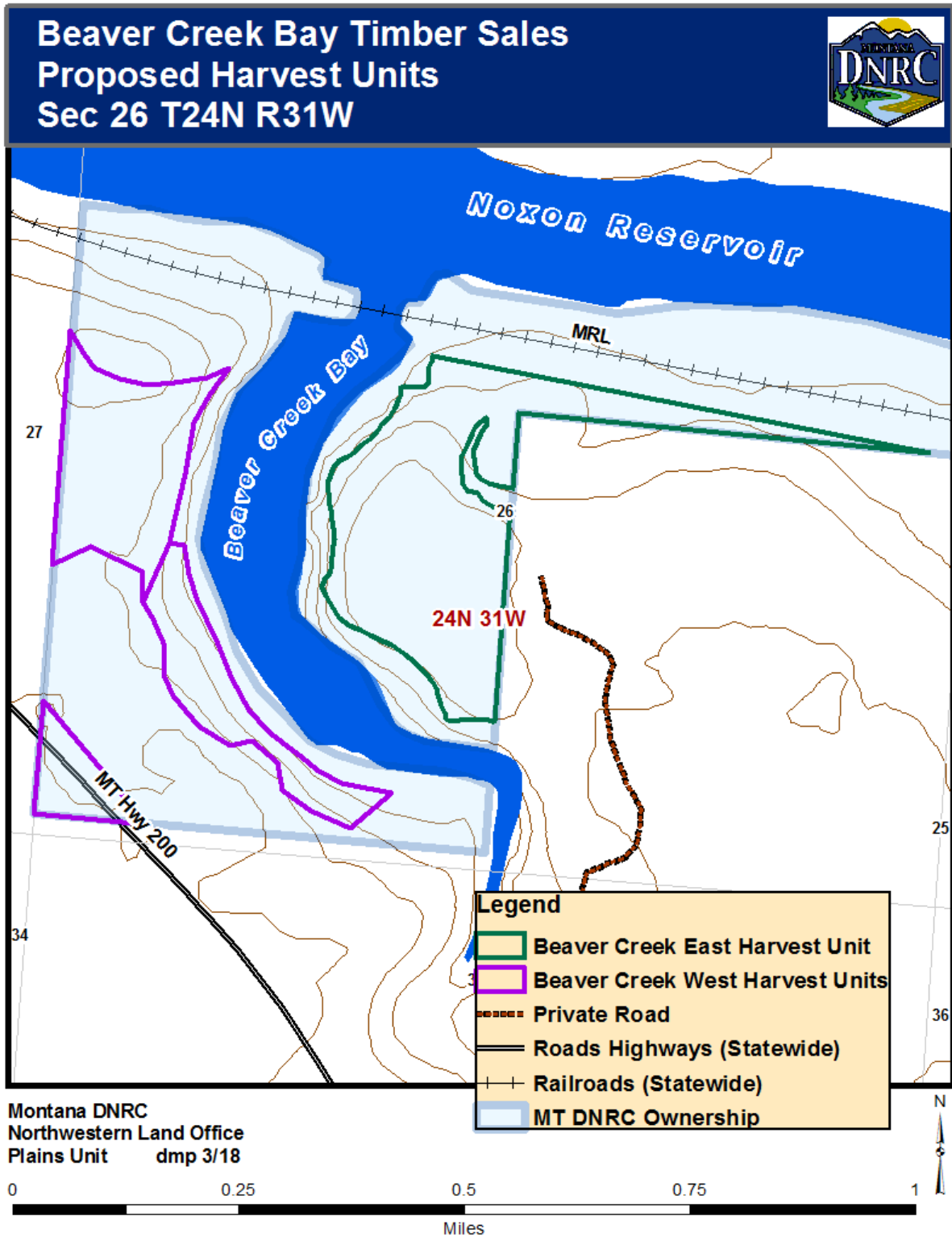
## **Attachment A- Maps**

A-1: Timber Sale Vicinity Map





A-2: Timber Sale Harvest Units



## **Attachment B – Silvicultural Prescriptions**

## Beaver Creek East Silvicultural Prescription

**Sale Name:** Beaver Creek East                      **Unit Number:** 1                      **Acres:** 44

**Location:** Section: 26 TWP: 24N RGE: 31W                      **Vol Est:** 1,025 MBF

**Elevation:** 2360 - 2440 feet                      **Slope:** 0-35%                      **Aspect:** Flat

**Habitat type:** ABGR/CLU-CLUN phase

**Current Cover Type:** Ponderosa pine                      **Appropriate Cover Type:** Ponderosa pine

**Soils:** Bonnash gravelly ashy silt loam, 0 to 4 percent slopes                      79%

Lionwood-Scotmont-Whitepine complex, 15 to 35 percent slopes                      21%

Current Stand Conditions:	Saw timber; Well stocked		
Harvest Unit: T_1	Multi-storied (three or more canopy levels)		
	Upper Canopy %	Middle Canopy %	Lower Canopy %
1 <sup>st</sup> spp	WL = 50-59	DF = 50-59	DF = 70-79
2 <sup>nd</sup> spp	PP = 20-29	WL = 20-29	GF = 20-29
3 <sup>rd</sup> spp	DF = 20-29	GF = 10-19	
4 <sup>th</sup> spp	LP = 0-9	LP = 10-19	
<b>Ave DBH</b>	14"	7"	2"
<b>Height</b>	90'	40'	20'
<b>Age</b>	105	80	30
<b>Vigor</b>	Good to Average	Good to Average	Good to Average

**Treatment Objectives:**

- Remove unhealthy trees, as well as those with poor vigor to promote long term forest health, growth and vitality.
- Maintain this unit's desired current classification of Ponderosa pine.
- Retention and spacing of the desirable species of the dominant, intermediate and sapling sized timber.
- Scarify the site sufficiently to make an available seedbed to promote natural regeneration.

**Prescribed Treatment:**

- Commercial Thin. Leave healthy vigorous trees with good crown and bark characteristics, with a variable spacing of 45 - 50 feet, leaving approximately 20 trees per acre.
- Favor leaving dominant, co-dominant and robust intermediate ponderosa pine, western larch, & Douglas-fir that are wind firm and that have the bark characteristics that would withstand a low intensity burn.
- Retain a minimum of two snags per acre, 21" DBH & greater (or largest available size class), plus two snag recruits per acre, where present, if they are not a safety hazard. Snags felled for safety reasons should be retained inside the harvest unit.

**Harvest Method:**

- Ground based harvesting with conventional, mechanical, or cut-to-length operations on dry, frozen or snow-covered ground are applicable to this unit.
- Leave tree marked.

**Hazard Reduction:**

- Landing & mechanical piles to be burned and/or ground at landings following harvest.

**Site Preparation:**

- Mechanical scarification of those areas void of established regeneration, to a minimum of 35% exposed mineral seedbed for natural regeneration.
- Leave trees to provide seed source for natural regeneration.

**Anticipated Future Treatments:**

- Natural regeneration should be evaluated approximately five years from time of site preparation, and the need for supplemental planting determined.
- This stand should be evaluated for pre-commercial thinning and overstory removal treatments approximately 20 years from time of harvest.
- Stand conditions would be monitored for future salvage opportunities related to insect and disease outbreaks, severe weather events, fire or other unanticipated circumstances on a case-by-case basis.

.....

**Beaver Creek West Timber Sale  
Silvicultural Prescription and Cutting Guidelines**

<b>Sale Name:</b> Beaver Creek West Timber Sale	<b>Unit Number:</b> 26-1T <b>Acres:</b> 18
<b>Location:</b> Section: 26 T24N R31W	<b>Vol Est:</b> 145 MBF
<b>Elevation:</b> 2400 feet	<b>Slope:</b> 0-35% <b>Aspect:</b> Flat
<b>Habitat type:</b> ABGR/CLUN-CLUN	
<b>Current Cover Type:</b> Ponderosa pine	<b>Appropriate Cover Type:</b> Ponderosa pine
<b>Soils:</b> Lionwood-Scotmont-Whitepine complex	4 to 15 percent slopes      65.5%
Bonnash gravelly ashy silt loam	0 to 4 percent slopes      31.4%
Lionwood-Scotmant-Whitepine complex	15-35 percent slopes      1.6%
Liowood ashy loam	0 to 4 percent slopes      1.5%

---

**Description of stand(s):**

The current upper level stand is 50% ponderosa pine (*pinus ponderosa*), 20% lodgepole pine (*pinus contorta*), 20% western larch (*larix occidentalis*), with a remaining mix of western red cedar (*thuja plicata*), Douglas-fir (*pseudotsuga menziesii*) and grand fir (*abies grandis*). The saw timber component averages 70 feet in height, 12-14 inches in diameter and approximately 60-70 years of age. Regeneration exists in small pockets along with sub merchantable sized class timber scattered throughout entire unit.

The current mid-level stand is 50% ponderosa pine, 40% lodgepole pine, with the remainder being western larch, western red cedar and Douglas-fir. This mid-level component averages 50-60 feet in height, 7-8 inches in diameter and approximately 50-60 years of age.

The current lower level stand is 40% Douglas-fir, 30% grand fir, 15% ponderosa pine and 15% lodgepole pine. This lower level component averages 1-4 inches in diameter and is approximately 5-30 years old.

**Treatment Objectives:**

Move the stand towards the desired future conditions of Ponderosa pine. Harvest merchantable overcrowded and unhealthy trees, as well as those with poor vigor to promote long-term forest health.

**Prescribed Treatment:**

Seed tree with reserves. Variable retention of trees with healthy crown and bole characteristics spaced to about 70-85 ft., retaining approximately 6-8 tree per acre. Favor leaving dominant, co-dominant and intermediate ponderosa pine and western larch. Harvest all merchantable lodgepole pine and grand fir. Retain a minimum of two snags per acre, 21" DBH & greater (or largest available size class), plus two snag recruits per acre, where present, if they are not a safety hazard. Snags felled for safety reasons should be retained inside the harvest unit.

**Harvest Method:**

Ground-based harvesting with conventional, mechanical, or cut-to-length operations on dry, frozen or snow-covered ground is applicable to this unit. Trees are marked to leave.

**Site Preparation and Regeneration:**

Thinning and retention of the desirable and undamaged regeneration pockets. Mechanical scarification of those areas void of established regeneration, to a minimum of 35% exposed mineral seedbed for regeneration. Leave trees to provide seed source for natural regeneration.

**Hazard Reduction:**

Landing piles to be burned and/or ground at landings following harvest. Overstocking of sub-merchantable material would be thinned, slashed piled and burned.

**Anticipated Future Treatments:**

Natural regeneration should be evaluated approximately five years from the time of site preparation, and the need for supplemental planting determined. This stand should be evaluated for pre-commercial thinning and overstory removal treatments approximately 20 years from time of harvest. Stand conditions would be monitored for future salvage opportunities related to insect and disease outbreaks, severe weather events, fire or other unanticipated circumstances on a case-by-case basis.

\*\*\*\*\*

<b>Sale Name:</b> Beaver Creek West Timber Sale	<b>Unit Number:</b> 26-2T	<b>Acres:</b> 4
<b>Location:</b> Section: 26 T24N R31W		<b>Vol Est:</b> 15 MBF
<b>Elevation:</b> 2400 feet	<b>Slope:</b> 0-35%	<b>Aspect:</b> NE, SW
<b>Habitat type:</b> PSME/PHMA-CARU		
<b>Current Cover Type:</b> Western larch / Douglas-fir	<b>Appropriate Cover Type:</b> Ponderosa pine	
<b>Soils:</b> Liowood ashy loam	0 to 4 percent slopes	94.5%
Lionwood-Scotmont-Whitepine complex	4 to 15 percent slopes	5.5%

---

**Description of stand(s):**

The current upper level stand is 35% ponderosa pine (pinus ponderosa), 25% western larch (larix occidentalis), 25% Douglas-fir (pseudotsuga menziesii) with a remaining mix of grand fir (abies grandis), lodgepole pine (pinus contorta), and various hardwoods. The saw timber component averages 70-80 feet in height, 14-18 inches in diameter and approximately 80-100 years of age. Regeneration exists in pockets along with sub merchantable sized class timber scattered throughout entire unit.

The current mid-level stand is 50% Douglas-fir, 20% western larch, 20% lodgepole pine, with the remainder being a mix of grand fir and various hardwoods. This mid-level component averages 50-60 feet in height, 7-8 inches in diameter and approximately 50-60 years of age.

The current lower level stand is 60% Douglas-fir, 30% grand fir and 10% lodgepole pine. This lower level component averages 1-4 inches in diameter and is approximately 5-30 years old.

**Treatment Objectives:**

Move the stand towards the desired future conditions of Ponderosa pine. Harvest merchantable overcrowded and unhealthy trees, as well as those with poor vigor to promote long-term forest health.

**Prescribed Treatment:**

Overstory removal/ commercial thin. Remove all merchantable size class trees except hardwoods such as cottonwoods, aspen and birch, which will serve as snags and snag recruits. Snags felled for safety reasons would be retained inside the harvest unit. Non- merchantable and regeneration trees would be protected from damage and retained to the greatest extent possible.

Snag retention is not viable due to the Montana Department of Transportation's right of way along HWY 200 and powerlines running along the south side.

**Harvest Method:**

Ground-based harvesting with conventional, mechanical, or cut-to-length operations on dry, frozen or snow-covered ground is applicable to this unit. Trees are marked to leave.

**Site Preparation and Regeneration:**

Thinning and retention of the desirable and undamaged regeneration pockets. Mechanical scarification of those areas void of established regeneration, to a minimum of 35% exposed mineral seedbed for regeneration. Leave trees to provide seed source for natural regeneration.

**Hazard Reduction:**

Landing piles to be burned and/or ground at landings following harvest. Overstocking of sub-merchantable material would be thinned, slashed piled and burned.

**Anticipated Future Treatments:**

Natural regeneration should be evaluated approximately five years from the time of site preparation, and the need for supplemental planting determined. This stand should be evaluated for pre-commercial thinning and overstory removal treatments approximately 20 years from time of harvest. Stand conditions would be monitored for future salvage opportunities related to insect and disease outbreaks, severe weather events, fire or other unanticipated circumstances on a case-by-case basis.

\*\*\*\*\*

---

**Sale Name:** Beaver Creek West Timber Sale   **Unit Number:** 26-1C   **Acres:** 14  
**Location:** Section: 26 T24N R31W   **Vol Est:** 144 MBF  
**Elevation:** 2400 feet   **Slope:** 0-60%   **Aspect:** NE  
**Habitat type:** ABGR/CLUN-ARNU  
**Current Cover Type:** Western larch / Douglas-fir   **Appropriate Cover Type:** Ponderosa pine  
**Soils:** Lionwood-Scotmont-Whitepine complex   15 to 35 percent slopes   50%  
Lionwood-Scotmont-Whitepine complex   4 to 15 percent slopes   50%

---

**Description of stand(s):**

The current upper level stand is 50% Douglas-fir (*pseudotsuga menziesii*), 30% western larch (*larix occidentalis*), 10% Ponderosa pine (*pinus ponderosa*) and 10% grand fir (*abies grandis*). The saw timber component averages 70-80 feet in height, 14 inches in diameter and approximately 100 years of age. Regeneration exists in pockets along with sub merchantable sized class timber scattered throughout entire unit.

The current mid-level stand is 50% Douglas-fir, 20% western larch, 20% ponderosa pine and 10% grand fir. This mid-level component averages 50-60 feet in height, 8 inches in diameter and approximately 60 years of age.

The current lower level stand is 80% Douglas-fir, 10% grand fir and 10% ponderosa pine. This lower level component averages 3 inches in diameter and is approximately 5-40 years old.

**Treatment Objectives:**

Move the stand towards the desired future conditions of Ponderosa pine. Harvest merchantable overcrowded and unhealthy trees, as well as those with poor vigor to promote long-term forest health.

**Prescribed Treatment:**

Seed tree with reserves. Variable retention of trees with healthy crown and bole characteristics spaced to about 60-75 ft., retaining approximately 8-12 tree per acre. Favor leaving dominant, co-dominant and intermediate Ponderosa pine and western larch. Harvest all merchantable lodgepole pine and grand fir. Unit 26-1C is in an HCP area and adjacent to a class 1 stream. Therefore, a no harvest zone will be implemented within the first 50 feet of the class 1 SMZ buffer. When the class 1 SMZ is extended to 100 feet, all class 1 tree retention requirements will apply. Retain a minimum of two snags per acre, 21" DBH & greater (or largest available size class), plus two snag recruits per acre, where present, if they are not a safety hazard. Snags felled for safety reasons should be retained inside the harvest unit.

**Harvest Method:**

Cable logging operations are applicable to this unit. Trees are marked to leave.

**Site Preparation and Regeneration:**

Thinning and retention of the desirable and undamaged regeneration pockets. Leave trees to provide seed source for natural regeneration.

**Hazard Reduction:**

Landing piles to be burned and/or ground at landings following harvest. Overstocking of sub-merchantable material would be thinned, slashed piled and burned.

**Anticipated Future Treatments:**

Natural regeneration should be evaluated approximately five years from the time of site preparation, and the need for supplemental planting determined. This stand should be evaluated for pre-commercial thinning and overstory removal treatments approximately 20 years from time of harvest. Stand conditions would be monitored for future salvage opportunities related to insect and disease outbreaks, severe weather events, fire or other unanticipated circumstances on a case-by-case basis.