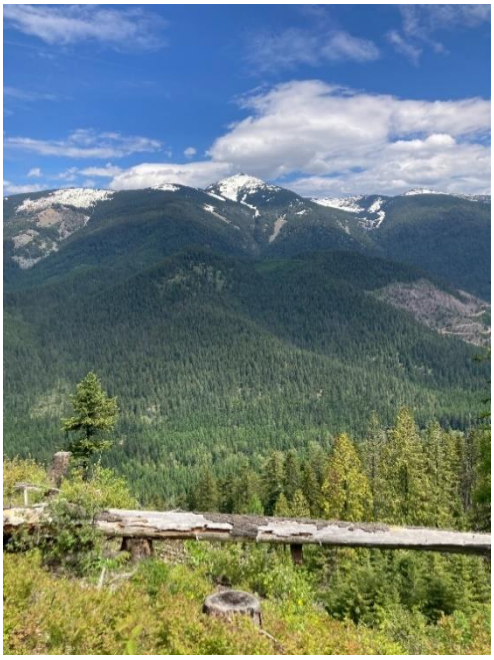
McKay Creek

Timber Sale

Environmental Assessment

Checklist



Plains Unit

Northwest Land Office

Montana Department of Natural Resources and Conservation

March 2023

McKay Creek
Timber Sale
Environmental Assessment Checklist
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MEMORANDUM

To: Joe Buchanan, Management Forester

From: David Olsen, Plains Unit Resource Program Manager

Date: February 17, 2022

RE: McKay Timber Sale Objectives

Primary Objective

The primary objective of the McKay Timber Sale is to generate income for the Common Schools (CS) Trust. The parcel involved in this proposed project is in Sections 36, T26N, R32W. The project would provide an estimated 3.0 MMBF of merchantable timber applied toward meeting the FY 2023 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: McKay Creek
Proposed Implementation Date: June 2023
Proponent: Plains Unit, Northwest Land Office, Montana DNRC
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 McKay Creek Timber Sale. The project is located approximately 5 miles South East of Noxon, MT (refer to Attachments vicinity map **A-1** and project maps **A-2** and **A-3**) and includes the following sections:

Beneficiary	Legal Description	Total Acres	Treated Acres
Common Schools	**T26N R32W S36**	**643.7**	**499.3**
Public Buildings			
School for the Deaf and Blind			

Objectives of the project include:

- Move stands toward desired future conditions
- Emulate natural disturbance regimes
- Promote/establish regeneration
- Enhance stand growth and vigor
- Address insect and disease issues
- Reduce fuel loading/fire hazard
- Capture value of dead/dying timber
- Generate revenue for the trust beneficiaries

Proposed activities include:

Action	Quantity
Proposed Harvest Activities	# Acres
Clearcut	
Seed Tree	499.3
Shelterwood	
Selection	
Old Growth Maintenance/Restoration	
Commercial Thinning	
Salvage	

Action	Quantity
Total Treatment Acres	**499.3**
Proposed Forest Improvement Treatment	# Acres
Pre-commercial Thinning	
Site preparation/scarification	**315.9**
Planting	**183.4**
Proposed Road Activities	# Miles
New permanent road construction	3.98
New temporary road construction	
Road maintenance	6.3
Road reconstruction	
Road abandoned	
Road reclaimed	
Other Activities	

Duration of Activities:	8 Years
Implementation Period:	June 2023- June 2031

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:
  - January 27, 2022
- PUBLIC SCOPED:
  - The scoping notice was posted on the DNRC Website: http://dnrc.mt.gov/public-interest/public-notices
  - Adjacent landowners, statewide scoping list, user groups
  - A public notice was placed in the Missoulian, Valley Press, Sanders County Ledger

- AGENCIES SCOPED:
  - FWP, USFS, IFG, Sanders County Weed Control, TRL, Plains/Thompson Falls Fire Ranger District, Land Management Chair – MCAFS, Montana Environmental Information Center, Montana Audubon, MSU – Bozeman, Montana Farm Bureau Federation and Montana tribal organizations.

- COMMENTS RECEIVED:
  - How many: 4
  - Concerns: 1
    - Noxious Weeds
  - Results:
    - Two comments of support were received from Sanders County Commissioners and the Thompson River Lumber Company
    - **Cultural Resources**: A representative from Northern Cheyenne Tribe suggested that DNRC defer further comments from the tribe nearest the project area. DNRC Archeologist did not identify any cultural or paleontological resources in the project area. 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.
    - **Noxious Weeds:** All equipment would be washed and inspected before they can move onto the project area. Weeds would be monitored and managed post-harvest.

DNRC specialists were consulted, including: Marc Vessar (Hydrologist), Chris Forristal (Wildlife Biologist), Patrick Rennie (Archaeologist)

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 2010). As a member, DNRC must submit a list of planned burns to the Airshed Group's Smoke Monitoring Unit describing the type of burn to be conducted, the size of the burn in acres, the estimated fuel loading in tons/acre, and the location and elevation of each burn site. The Smoke Monitoring Unit provides timely restriction messages by airshed. DNRC is required to abide by those restrictions and burn only when granted approval by the Smoke Monitoring Unit when forecasted conditions are conducive to good smoke dispersion.

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 Common Schools Trust. Forest health would decline due to bark beetle and dwarf mistletoe while fuel loading would increase thus increasing fire danger. Trust would continue to lose stumpage value within the stand.

Action Alternative: This commercial timber harvest would take place using ground-based and cable yarding methods on 499 acres to remove between 6.5 and 7.5 million board feet of timber, generating revenue for the Common Schools 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:

Harvest Unit	Habitat Group	Fire Regime	Current Cover Type	Age Class (years)	DFC	RX	Acres
1 L1	Warm and moist (westside)	Mixed	Mixed Conifer	40-99	Western Larch/Douglas Fir	Seed Tree	129.2
2 L2	Moderately cool and moist (westside)	Low-to-mixed	Western Larch/Douglas Fir	40-99	Ponderosa Pine	Seed Tree	16.8
3 L3	Moderately cool and moist (westside)	Low-to-mixed	Douglas Fir	40-99	Ponderosa Pine	Seed Tree	10.7
4 L4	Moderately cool and moist (westside)	Low-to-mixed	Douglas Fir	40-99	Western White Pine	Seed Tree	26.7
5 T1	Warm and moist (westside)	Mixed	Western Larch/Douglas Fir	100-149	Western White Pine	Seed Tree	108.6
6 T2	Warm and moist (westside)	Mixed	Mixed Conifer	40-99	Western Larch/Douglas Fir	Seed Tree	14.2
7 T3	Moderately cool and moist (westside)	Low-to-mixed	Douglas Fir	40-99	Ponderosa Pine	Seed Tree	142.6
8 T4	Moderately cool and moist (westside)	Low-to-mixed	Douglas Fir	40-99	Ponderosa Pine	Seed Tree	38.6
9 T5	Moderately cool and moist (westside)	Low-to-mixed	Douglas Fir	40-99	Western White Pine	Seed Tree	11.9

Fire Hazard/Fuels: Insect infestations and root rot have led to an abundance of dead-standing and downed timber that poses hazardous fuels conditions. The current arrangement and volume of ground fuels and dead-standing timber increases probability of high fire intensity. The project area is not within the wildland-urban interface.

Insects and Diseases: Root rot (*Armillaria ostoyae & Phaeolus schweinitzii*), dwarf mistletoe (*Arceuthobium laricis & Arceuthobium douglasii*) in Western larch & Douglas fir. As well as Pini (*Phellinus pini*) in Western larch are the most prevalent forest health concerns in the project area. Signs of Douglas-fir beetle (*Dendroctonus pseudotsugae*) previously in the area affecting Douglas fir and Western larch. White Pine Blister rusts (*Cronartium ribicola*) in Western white pine are also forest health concerns in the project area.

Sensitive/Rare Plants: No plant species of concern identified by the MNHP in the project area.

Noxious Weeds: St. Johns wart, spotted knapweed and oxeye daisy

Vegetation	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Current Cover/DFCs		**X**				**X**				**X**			**N**	
Age Class	**X**				**X**				**X**					
Old Growth	**X**					**X**				**X**			**N**	
Fire/Fuels		**X**					**X**			**X**			**N**	
Insects/Disease			**X**				**X**				**X**		**N**	
Rare Plants	**X**				**X**				**X**					
Noxious Weeds		**X**				**X**				**X**			**N**	
Action														
Current Cover/DFCs			**X**			**X**				**X**			**Y**	**V-1**
Age Class			**X**			**X**				**X**			**N**	
Old Growth	**X**				**X**				**X**					
Fire/Fuels		**X**				**X**				**X**			**Y**	**V-1**
Insects/Disease			**X**			**X**				**X**			**Y**	**V-1**
Rare Plants	**X**				**X**				**X**					
Noxious Weeds		**X**				**X**				**X**			**Y**	**V-1**

Comments: **V-1; See vegetations mitigations.**

Vegetation Mitigations:

- Trees would be harvested based on the designated silvicultural prescription in each harvest unit to move towards the stands desired future conditions.
- The silvicultural prescription would help mitigate the effect of root rot by preferencing Western white pine, Ponderosa pine and Western larch. The Douglas fir and Western larch affected by dwarf mistletoe would be removed to mitigate the spread of the disease.

- To minimize the potential for the spread of noxious weed, off-road equipment would be cleaned and inspected as required in the timber sale contract to avoid seed migration. Roadsides would be sprayed post-harvest.

SOIL DISTURBANCE AND PRODUCTIVITY:

Soil Disturbance and Productivity Existing Conditions

Soils in the project area were reviewed using the *Soil Survey of Kootenai National Forest Area, Montana and Idaho* (Kuennen and Nielsen-Gerhardt 1995). A total of six distinct map units were identified on the state parcels (112, 404, 408, 503, 552 and 555). The soil textures range from 'silty clay' in the stream bottom area to 'fractured bedrock' and 'extra gravelly very fine sandy loam' on the mountain sideslopes. Erosion hazard is generally low to moderate with the exception of 112 (high risk of sediment from roads) and 408 (high risk of erosion from skidding). No timber harvest or road construction is proposed on Landtype 408.

Previous harvest in the state parcels is documented from the 1940's to 2011. Harvesting of forest products was done through small sales (<100mbf) and included sawtimber, cedar posts and firewood. During field review, only skid trails from the most recent harvest were observed; those that were identified did not have any erosion.

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		
No-Action														
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**					
Action														
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-2**
Slope Stability	**X**				**X**				**X**				**N**	
Soil Productivity		**X**				**X**				**X**			**Y**	**S-2**

Comments:

S-1: Physical disturbance from compaction and displacement would be expected on skid trails, skyline corridors and landings. Past monitoring on DNRC timber sales from 1988 to 2010 has shown a range of impacts based upon harvest prescription, harvest method, soil texture and forest vegetation. After reviewing the proposed harvest, DNRC would expect moderate or higher impacts to cover 10.6 to 10.8 percent (53.6 to 55.1 acres) of the harvest area. In addition, approximately 11.9 acres would be removed from production and converted to roads. Cumulative area removed from timber production and converted to roads is estimated to cover 15.5 acres (2.4% of project area). No road construction is proposed on Landtype 112.

S-2: Coarse and fine woody debris provide a crucial component in forested environments through nutrient cycling, microbial habitat, moisture retention and protection from mineral soil erosion (Harmon et al., 1986). As required in the DNRC Timber Sale Contract, both fine and coarse woody debris would be retained to reduce potential impacts to forest productivity. Although fine woody debris would be left on site for nutrient retention, a reduction in annual fine material contribution would result from this alternative. Maintaining coarse woody debris (>3 inches diameter) at recommended levels would reduce the risk of adverse soil productivity impacts. Habitat types are hemlock and grand fir throughout the parcel. To maintain adequate CWD and provide microsites for seedlings, approximately 15-25 tons/acre of material should be left within the units.

Soil Mitigations:

1) Limit equipment operations to periods when soils are relatively dry, (less than 20 percent oven-dried weight), frozen, or snow-covered to 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. Alternative skidding practices such as tethered-harvest equipment and shovel-logging equipment may operate on slopes steeper than 40 percent, however impacts should be closely monitored to ensure forest soil productivity and water quality is maintained.

4) Keep skid trails to 20 percent or less of the harvest unit acreage by spacing skid trails at least 60 feet apart. Provide for drainage in skid trails and roads concurrently with operations. The ground-based terrain in this project area should facilitate event wider spacing.

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 provide scarification for regeneration.

6) Retain 15 to 25 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. Retain or return cull butt logs to units to provide microsites for regeneration.

7) Grass seed cutslopes and fillslopes of new road construction within 7 days of final shaping to provide soil stability, filtration and reduce the area available for weed germination.

WATER QUALITY AND QUANTITY:

The potential for cumulative watershed effects for this project is based upon existing stream conditions as well as the proximity and intensity of proposed actions. This includes SMZ/RMZ harvest that could result in reduced levels of recruitable woody debris/stream shading and road construction that could deliver sediment to streams.

Water Quality and Quantity Existing Conditions: The proposed project is located in the Noxon Reservoir-Stevens Creek 6th-code watershed (170102131006) which include several smaller watersheds. This is a 41,666-acre watershed that is bisected by Noxon Reservoir. Average precipitation is approximately 36 inches per year. Ownership within the watershed is comprised of federal (54%), private (34%) and state (12%).

The proposed timber sale would be within the smaller McKay Creek watershed (8,150acres). Ownership in the McKay Creek is comprised of private (17%), State of Montana-DNRC (~8%), and USFS (~75%). McKay Creek is a Class 1, fish-bearing stream that does not have year-round surface flow or connection to Noxon Reservior. In 2022, the main stem McKay Creek did not flow after mid-August. Data from Montana Fish, Wildlife and Parks website shows only native westslope cutthroat trout in the stream.

Several smaller intermittent streams connect to McKay Creek in the state-managed parcel, however they appear to only flow during the spring and early summer and provide limited habitat for fish.

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		
No-Action														
Water Quality	**X**				**X**					**X**				
Water Quantity	**X**				**X**					**X**				
Action														
Water Quality		**X**				**X**				**X**			**Y**	**H-1**
Water Quantity		**X**				**X**				**X**			**N**	**H-2**

Comments:

H-1: During a review of BMP effectiveness, including stream buffer effectiveness, Raskin et al 2006 found that 95 percent of erosion features (disturbed soil) greater than 10 meters (approximately 33 feet) from the stream did not deliver sediment. His findings indicated that the main reasons stream buffers are effective include 1) keeping active erosion sites away from the stream, and 2) stream buffers may intercept and filter runoff from upland sites if the runoff is not concentrated in gullies or similar features (Raskin et al 2006).

All Class 1 streams and lakes would have a 50 ft no harvest buffer and a riparian management zone that extends approximately 122 feet from the high-water mark. Because BMPs would be implemented during timber-harvesting/road maintenance operations and no new stream crossings are proposed, a low risk of low cumulative impacts to water quality and beneficial uses, would be expected.

H-2: Approximately 499 acres would be harvested using conventional ground-based and skyline yarding methods. Cumulative harvest area within the McKay Creek watershed would be less than 25% if the action alternative is selected. Due to the amount of proposed and cumulative harvest in McKay Creek watershed, the risk of measurable impacts would be low. This level of harvest would not be expected to have alter downstream channel conditions.

Water Quality & Quantity Mitigations: Follow all applicable Forestry BMPs to minimize the risk of sediment delivery to streams.

FISHERIES:

Fisheries Existing Conditions A description of the fisheries resources in the McKay Creek watershed is described above in the *Water Quality and Quantity* section.

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		
No-Action														
Sediment	**X**				**X**					**X**				
Flow Regimes	**X**				**X**					**X**				
Woody Debris	**X**				**X**					**X**				
Stream Shading	**X**				**X**					**X**				
Stream Temperature	**X**				**X**					**X**				
Connectivity	**X**				**X**					**X**				
Populations	**X**				**X**				**X**					
Action														
Sediment		**X**				**X**				**X**			**Y**	**F-1**
Flow Regimes		**X**				**X**				**X**			**Y**	**F-2**
Woody Debris		**X**			**X**					**X**				**F-3**
Stream Shading		**X**			**X**					**X**				**F-3**
Stream Temperature		**X**			**X**					**X**				**F-3**
Connectivity	**X**				**X**					**X**				**F-4**
Populations	**X**				**X**				**X**					**F-5**

Comments:

F-1 See *Water Quality and Water Quantity* section above.

F-2 See *Water Quality and Water Quantity* section above.

F-3 Harvesting along McKay Creek would remove up to 50% of the sawtimber within the RMZ but not within 50 feet of the ordinary high-water mark. Retention of all vegetation within 50 feet of the stream would continue to provide shade and recruitable large woody debris. The addition retention of trees for one Site Potential Tree Height ($SPTH_{100}$) would further provide shade and available trees to recruit as woody debris for maintenance of channel stability and stream functions. Stream shading post-project is expected to maintain a low risk of increasing stream temperatures due to timber harvesting.

F-4 All crossings of McKay Creek proposed for use in this project provide full passage. however, the crossing sites for the railroad and the highway within this watershed may be identified as partial barriers. A full review of crossings not on DNRC-managed lands or haul routes was not completed for this project.

F-5 While non-native species are present in the larger 6th code watershed, no indication of non-native species was found for McKay Creek. No changes to populations or species composition would be expected from this proposal.

Fisheries Mitigations: Follow all applicable Forestry BMPs to minimize the risk of sediment delivery to streams.

WILDLIFE:

Wildlife Existing Conditions: The Project Area consists of a single DNRC-managed parcel totaling 643 acres and is included in DNRC's Habitat Conservation Plan (USFWS and DNRC 2010). The Project Area is bisected by McKay Creek and is comprised of habitat conditions that favor native wildlife species that utilize closed-canopy mature forest. The Project Area contains 610 acres of mature forest stands (trees ≥9" dbh with ≥40% canopy closure). The remaining 33 acres consist of more open forest (<40% canopy closure) and shrubby riparian areas along McKay Creek. There is no old-growth forest in the Project Area using Green et al. (1992) standards. There are 1.1 miles of open road within the Project Area. Public non-motorized use is likely low in this parcel except during the big game hunting season when it elevates. The Project Area is adjacent to private land that has been recently harvested and USDA Forest Service (hereafter USFS) lands where forest management projects are proposed (McKay-Engle Project, USDA 2021). Cumulative effects analysis areas (CEAA) encompass lands near the Project Area and include the 11,380-acre Small CEAA for animals with smaller home ranges like pileated woodpeckers, a 20,269-acre Medium CEAA for fishers, and a 50,755-acre Large CEAA for animals that travel across larger areas such as grizzly bears and big game. Additional information on cumulative effects analysis areas and analysis methods are available upon request.

No-Action Alternative: None of the proposed activities would occur. In the short-term, forest insects and disease will likely continue to kill some mature trees. An increase in stand-replacement wildfire risk would be anticipated. In the long-term, habitat suitability for mature forest-associated species would remain similar or increase compared to current conditions.

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		
Threatened and Endangered Species														
Grizzly bear *(Ursus arctos)* Habitat: Recovery areas, security from human activity			**X**				**X**			**X**			**Y**	**WI-1**
Lynx (*Felis lynx*) Habitat: SF hab.types, dense sapling, old forest, deep snow zone			**X**				**X**			**X**			**Y**	**WI-2**
Yellow-billed cuckoo (*Coccyzus americanus*) Habitat: open cottonwood riparian forest with dense brush understories	**X**				**X**				**X**					**WI-3**

Wildlife	Impact												Can Impact be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
(Lake and Flathead counties)														
Sensitive Species														
Bald eagle *(Haliaeetus leucocephalus)* Habitat: Late-successional forest within 1 mile of open water	**X**				**X**				**X**					**WI-4**
Black-backed woodpecker *(Picoides arcticus)* Habitat: Mature to old burned or beetle-infested forest	**X**				**X**				**X**					**WI-3**
Common loon *(Gavia immer)* Habitat: Cold mountain lakes, nest in emergent vegetation	**X**				**X**				**X**					**WI-3**
Fisher *(Martes pennanti)* Habitat: Dense mature to old forest less than 6,000 feet in elevation and riparian			**X**				**X**			**X**			**Y**	**WI-5**
Flammulated owl *(Otus flammeolus)* Habitat: Late-successional ponderosa pine and Douglas-fir forest	**X**				**X**				**X**					**WI-6**
Peregrine falcon *(Falco peregrinus)* Habitat: Cliff features near open foraging areas and/or wetlands	**X**				**X**				**X**					**WI-3**
Pileated woodpecker *(Dryocopus pileatus)* Habitat: Late-successional			**X**				**X**			**X**			**Y**	**WI-7**

Wildlife	Impact												Can Impact be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
ponderosa pine and larch-fir forest														
Fringed myotis (*Myotis thysanodes*) Habitat: low elevation ponderosa pine, Douglas-fir and riparian forest with diverse roost sites including outcrops, caves, mines		**X**				**X**				**X**			**Y**	**WI-8**
Hoary bat (*Lasiurus cinereus*) Habitat: coniferous and deciduous forests and roost on foliage in trees, under bark, in snags, bridges		**X**				**X**				**X**			**Y**	**WI-9**
Townsend's big-eared bat *(Plecotus townsendii)* Habitat: Caves, caverns, old mines	**X**				**X**				**X**					**WI-3**
Wolverine (*Gulo gulo*) Habitat: high elevation areas that retain high snow levels in late spring	**X**				**X**				**X**					**WI-3**
Big Game Species														
Elk			**X**				**X**			**X**			**Y**	**WI-10**
Whitetail				**X**				**X**		**X**			**Y**	**WI-10**
Mule Deer			**X**				**X**			**X**			**Y**	**WI-10**
Moose			**X**				**X**			**X**			**Y**	**WI-10**
Other														
Mature Forest				**X**				**X**		**X**			**N**	**WI-11**

Comments:

WI-1 Grizzly bear – The Project Area is in the Cabinet-Yaak Ecosystem (CYE) Grizzly Bear Recovery Zone. While occasional presence of a grizzly bear in the Project Area is possible, appreciable use by grizzly bears is unlikely due to the very low density of bears within the CYE, open roads, lack of sizable berry patches, and nearby managed private lands. The proposed harvest would alter approximately 494 acres (77.3% of hiding cover in the Project Area) of grizzly bear hiding cover within the Project Area. Of the 639 acres of hiding cover in the Project

Area, harvesting would remove 482 acres and reduce cover quality on another 12 acres. Approximately 157 acres (24.4% of the Project Area) of vegetative hiding cover would remain postharvest. To mitigate for potential adverse effects, patches of cover would be retained such that no point within seed tree units would be greater than 600 feet to cover. Riparian areas adjacent to McKay Creek would remain unharvested; access to this preferred bear habitat and cover connectivity through the Project Area would be maintained. No new open roads would be built however, 3.9 miles of new permanent restricted roads would be constructed. Motorized use would increase on 5.1 miles of open and new restricted roads within the Project Area during project implementation. New roads would be restricted during and after conclusion of the project. Visual screening along open roads would be maintained where present. Any grizzly bears using the Project Area could be temporarily displaced by the proposed activities for up to four years. Following the four-year (maximum) active period, no substantial commercial forest management projects would be permitted during the non-denning season for at least 8 years (USFWS and DNRC 2010). Additionally, spring timing restrictions in areas with restricted roads would be applied every year from April 1 – June 15 to provide security for grizzly bears in the spring. Impacts to hiding cover and increased disturbance under the Action Alternative would be additive to any ongoing vegetation management projects on private or USFS lands within the larger surrounding area, including the proposed USFS McKay-Engle project (USDA, 2021) and recent harvest on adjacent private land. A wildfire that burned in 2022 also altered hiding cover on 1,974 acres (3.9%) of the Large CEAA. Hiding cover would persist on approximately 52.5% of the Large CEAA. The greatest risks to bears within the Large CEAA would remain human habitations and associated attractants that bring bears into conflict with people.

WI-2. Canada Lynx – Approximately 494 acres of suitable lynx habitat (79.6% of existing suitable habitat in the Project Area) would be altered by the proposed Action Alternative. Of these acres, 482 acres would be treated with harvest prescriptions that would not retain enough conifer cover to continue providing suitable lynx habitat immediately post-harvest. The remaining 12 acres would receive treatments that would reduce the quality of some habitat attributes but would overall continue to provide suitable lynx habitat. To ensure that forest structural attributes preferred by lynx and lynx prey (snowshoe hares) remain following harvest, some patches of advanced regeneration and shade-tolerant trees would be retained within portions of suitable lynx habitat. Additionally, 15 to 25 tons/acre of coarse woody debris would be retained in accordance with DNRC Forest Management Rules (*ARM 36.11.414*) and retention of downed logs ≥15 inch diameter would be emphasized. Post-harvest, suitable lynx habitat would remain in 22.4% of the Project Area and lynx habitat connectivity within the Project Area would be reduced. An east-west corridor of suitable habitat along McKay Creek and unharvested winter foraging habitat along the southern boundary of the parcel will be maintained and continue to provide connectivity to suitable habitat on surrounding lands. Any lynx that might be using the Project Area could be displaced for up to four years by the proposed activities. Disturbance/displacement and habitat alteration by the proposed DNRC activities would be additive to recent or ongoing forest management projects on private or USFS lands within the larger surrounding area, including recent harvesting on private industry lands adjacent to the Project Area and the proposed USFS McKay-Engle project within the Large CEAA (USDA, 2021). A wildfire that burned in 2022 also altered suitable lynx habitat on 1,974 acres (3.9%) of the Large CEAA. Despite the lack of recent observations (MNHP 2023), the Large CEAA contains >52% suitable habitat for lynx and provides ample connected habitat for lynx persistence at the larger landscape level, should any be present.

WI-3. 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.

WI-4. Bald Eagle – A portion of the Project Area is within the outer edge of the Rock Island bald eagle territory. This eagle territory is primarily associated with Noxon Reservoir, where the eagles nest and likely forage the majority of the time. Appreciable use of the Project Area by bald eagles is unlikely but possible due to the presence of small, fish-bearing streams. Timber harvesting activities in the vicinity of streams could temporarily displace eagles for a short time. Measurable adverse effects to breeding eagles would not be expected.

WI-5. Fisher - Approximately 486 acres of suitable fisher habitat and another 12 acres of preferred cover types would be affected by the proposed activities (81.0% of fisher habitat available in the Project Area). Of the suitable habitat acres, 474 acres would not be suitable for fishers post-harvest due to low amounts of remaining mature conifer cover. Adjacent to riparian habitat along McKay Creek, 12 acres of suitable fisher habitat would have 50% of mature trees removed, but canopy closure will remain sufficient and the habitat on these acres will remain suitable for fishers. To reduce some 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 (Olson 2014). Habitat connectivity in the Project Area would decrease following logging. However, the 144 acres (22.4% of the Project Area) of remaining suitable fisher habitat in the Project Area would continue to provide connectivity through the parcel to adjacent private and USFS lands. All new roads would be restricted by gates but would facilitate non-motorized public use in the parcel which could increase mortality risk from trapping. Suitable fisher habitat would remain in 57.1% (11,565 acres) of the Medium CEAA. Fisher use has been documented within 2 miles of the Project Area (MNHP 2023). Should any fishers be present within the Medium CEAA, habitat alteration and potential disturbance would be additive to any activities occurring or planned on surrounding lands, including the proposed USFS land (McKay-Engle Project, USDA 2021), 922 acres burned by wildfire in 2022, and recent timber harvest on adjacent private lands.

WI-6. Flammulated Owl – No harvest is proposed in the 13 acres (2% of Project Area) of flammulated owl habitat in the Project Area. Appreciable use of the Project Area would not be expected due to low amounts of suitable habitat types. Suitable habitat in the Small CEAA will remain low (5.8% of Small CEAA). If any flammulated owls are present near harvest units, they may be temporarily disturbed. However, negligible effects to flammulated owls in the Project Area and Small CEAA would be expected.

WI-7. Pileated Woodpecker – The proposed activities would affect 494 acres of suitable pileated woodpecker habitat (77.4% of habitat available in the Project Area). Approximately 482 of these acres would be treated with a seed tree prescription that would reduce the mature canopy cover to <10%-15% (5-17 trees per acre) making these stands unsuitable for nesting pileated woodpecker use post-harvest. Harvest prescriptions on 12 acres of pileated woodpecker habitat would reduce habitat quality but maintain sufficient large live trees and canopy closure to remain suitable for use by woodpeckers. To reduce potential adverse effects on pileated woodpeckers, at least 2 large snags and 2 large snag recruitment trees per acre (>21 inches dbh, or largest size class available) would be retained and all snags cut for safety reasons would be left in the harvest unit (*ARM 36.11.411*). Additionally, 15 to 25 tons/per acre of downed wood would be retained, with an emphasis on logs >15” diameter. Approximately 156 acres (24.3%) of the Project Area would remain as suitable habitat post-harvest, including a riparian corridor through the Project Area that would maintain some connectivity to habitat on adjacent ownership. Although the Project Area by itself would not likely continue to support breeding pileated woodpeckers, use by pileated woodpeckers would still be expected considering remaining suitable habitat and adjacent connected habitat within the Small CEAA.

Post-harvest, approximately 61.6% of Small CEAA will remain relatively well-connected suitable habitat and continued use of the Small CEAA by pileated woodpeckers would be anticipated. The habitat alterations to the proposed project would be additive to other forest management activities in the Small CEAA including recent harvests on adjacent private land and proposed USFS land (McKay-Engle Project, USDA 2021).

WI-8 Fringed myotis - Approximately 499 acres of potential fringed myotis habitat would be affected by the proposed timber harvest. Fringed myotis utilize a variety of habitats and roost sites including pine forests (Keinath 2004). If present in the Project Area, they could be temporarily displaced by timber harvesting. At least 2 large snags and 2 large snag recruitment trees per acre (>21 inches dbh, or largest size class available) would be retained and could provide roosting habitat. Current use of the Project Area or Small CEAA by fringed myotis is unknown, however (if present) both areas would likely remain occupied by these bats postharvest.

WI-9. Hoary bat – The proposed activities would affect approximately 499 acres of potential hoary bat habitat. Hoary bats typically roost in tree foliage (Bachen et al. 2020) and if present they could be temporarily displaced by timber harvesting. Potential disturbance would only be expected from late May through September, when hoary bats are in Montana. At least 2 large snags and 2 large snag recruitment trees per acre (>21 inches dbh, or largest size class available) would be retained and could provide roosting habitat. The Project Area and Small CEAA would likely remain occupied by hoary bats during and after harvest, as hoary bats are considered common and widespread throughout Montana (Bachen et al. 2020).

WI-10. Big Game – The Project Area provides 643 acres of winter range habitat for white-tailed deer, mule deer, and elk. The proposed activities would reduce thermal cover and snow intercept on potential white-tailed deer, mule deer, and elk winter range (*DFWP 2008*). Timber harvesting would affect 486 acres of thermal cover (77.3% of thermal cover available in the Project Area). Approximately 474 these acres would be treated with a harvest prescription that would reduce the mature canopy cover such that there would be little capacity of these stands to provide thermal cover during winter conditions. Thermal cover/snow intercept would remain on approximately 154 acres (24.0% of the Project Area) in the Project Area.

Approximately 482 acres (75.5% of available hiding cover) of hiding cover within the Project Area would be reduced by proposed harvest activities. Hiding cover quality would be reduced on additional 12 acres. Retaining some regenerating conifers and submerchantable trees within the harvest units would increase the amount of available hiding cover and reduce sight distances. To mitigate for some adverse effects related to loss of hiding cover, patches of cover would be retained such that no point within seed tree units would be greater than 600 feet to vegetative or topographic screening. Post-harvest, approximately 157 acres (24.4% of the Project Area) in the Project Area will retain tree density sufficient to provide hiding cover.

Approximately 3.9 miles of new permanent road would be constructed, which would decrease habitat security for big game species. However, motorized use by the public would be restricted on all new roads within the Project Area. Visual screening along the 1.1 miles of open roads would be maintained where present. An increase in roads facilitating human access combined with a reduction in hiding cover could result in increased mortality risk to big game species due to hunting. Impacts to hiding cover, security and thermal cover/snow intercept under the Action Alternative would be additive to forest management projects within the Large CEAA, including recent timber harvests on private lands and proposed forest management on USFS lands (McKay-Engle Project, USDA 2021). Additionally, a 2022 wildfire burned 1,974 acres (3.9%) of

the Large CEAA, likely removing thermal and hiding cover. Hiding cover would remain on approximately 52.5% of the Large CEAA, as would thermal cover/snow intercept (52.4% of the Large CEAA). Measurable big game population changes at the scale of the Large CEAA would not be expected because of the Action Alternative.

WI-11. Mature Forest – The proposed action would alter approximately 487 acres of mature forest (79.7% of mature forest within the Project Area). Seed tree harvest on 475 acres would reduce live tree densities to approximately 5-17 trees per acre and reduce overstory canopy cover from ≥40% to below 15% which is too open to be considered mature forest. Thus, these stands would no longer be suitable for wildlife species that prefer dense mature forest with more shaded canopies. However, habitat suitability for species that utilize more open forests would increase under the proposed Action Alternative. Approximately 12 acres of the proposed harvest would occur in the RMZ where 50% of mature trees would be retained. Canopy cover would be ≥40% and these acres would persist as mature forest.
Connectivity of mature forest in the Project Area would be reduced, as large patches of mature forest would be removed by harvesting. The 135 acres (21.0% of the Project Area) of remaining mature forest would include two patches that would provide connectivity through the Project Area, as well as connect mature forest stands within the Small CEAA. The proposed harvesting would remove approximately 6.9% of existing mature forest in the Small CEAA and these changes would be additive to forest management activities occurring at a broader spatial scale including recent harvest on private lands and proposed activities on USFS lands (McKay-Engle Project, USDA 2021). Mature forest abundance would remain relatively high (56.1%) and well connected throughout the Small CEAA.

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 harvesting-related motorized activities more than 100 feet from open roads from April 1 – June 15 per *GB-CY3* (*USFWS and DNRC 2010*).
- Retain visual screening along open roads to the greatest extent practicable per *GB-RZ2* (*USFWS and DNRC 2010*).
- Within all harvest units retaining <25 TPA, no point in the harvest unit can be >600 feet to hiding cover or a topographic break, per GB-NR4 (*USFWS and DNRC 2010*).
- Comply with the 4-year active, 8-year rest management schedule guidelines for commercial harvest on this parcel, per GB-SC2, GB-SC3, GB-CY1, and GB-CY2 (*USFWS and DNRC 2010*).
- Within commercial harvest units, retain patches of advanced regeneration of shade-tolerant trees as per *LY-HB4* (*USFWS and DNRC 2010*).
- Effectively close restricted roads and skid trials in the Project Area via a combination of gates, kelly humps, rocks, and stumps. Maintain public motorized restrictions on restricted and roads during and after harvest activities.
- Retain at least 2 snags and 2 snag recruits per acre >21 inches dbh or the next largest available size class, particularly favoring ponderosa pine, western larch, western red cedar

and Douglas-fir for retention. If snags are cut for safety concerns, they must be left in the harvest unit.

- Retain 15-25 tons/acre of coarse-woody debris and emphasize retention of 15-inch diameter downed logs, aiming for at least one 20-foot-long section per acre (*USFWS and DNRC 2010*).

Literature:

Bachen, D.A., A. McEwan, B. Burkholder, S. Blum, and B. Maxell. 2020. Accounts of Bat Species Found in Montana. Report to Montana Department of Environmental Quality. Montana Natural Heritage Program, Helena, Montana. 58 p.

DFWP. 2008. Maps of moose, elk, mule deer, and white-tailed deer distribution in Montana. *In* Individual GIS data layers. Available online at: https://gis-mtfwp.opendata.arcgis.com/

Green, P., J. Joy, D. Sirucek, W. Hann, A. Zack, and B. Naumann. 1992. Old Growth Forest Types of the Northern Region. R-1 SES. USDA Forest Service, Northern Region, Missoula MT 60pp.

Keinath, D.A. (2004, October 29). Fringed Myotis (*Myotis thysanodes*): a technical conservation assessment. [Online]. USDA Forest Service, Rocky Mountain Region. Available: http://www.fs.fed.us/r2/projects/scp/assessments/ fringedmyotis.pdf 1/27/2023.

MNHP. 2023. Natural Heritage Map Viewer. Montana Natural Heritage Program. Retrieved on January 23, 2023, from http://mtnhp.org/MapViewer.

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.

USDA Forest Service. 2021. McKay-Engle Project: Proposed Action for Scoping. Cabinet Ranger District, Trout Creek, 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		
No-Action														
Smoke	**X**				**X**				**X**					
Dust	**X**				**X**				**X**					
Action														
Smoke		**X**				**X**				**X**				
Dust		**X**				**X**				**X**				

Comments:

AQ-1 The proposed project is located in Montana State Airshed 1 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.

AQ-2 Under the action alternative, truck traffic would produce more dust than the no action alternative.

Air Quality Mitigations:

- Only burn on days approved by the Montana/Idaho Airshed group and DEQ.
- Keep truck speeds down to reduce road dust.

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		
No-Action														
Historical or Archaeological Sites	**X**				**X**				**X**					
Aesthetics	**X**				**X**				**X**					
Demands on Environmental Resources of Land, Water, or Energy	**X**				**X**				**X**					
Action														
Historical or Archaeological Sites	**X**				**X**				**X**				**Y**	**H-1**
Aesthetics		**X**				**X**				**X**			**N**	**A-1**
Demands on Environmental Resources of Land, Water, or Energy	**X**				**X**				**X**					

Comments:
A-1 The harvest units would be visible from McKay Creek.

Mitigations:
H-1 The DNRC archeologist reviewed the project and there are no cultural resources identified with in the project area. If culture resources are found, operation would be stopped and the DNRC archeologist would be notified.

A-1 The harvest units are surrounded by heavily managed private industry and federal timberlands. The harvest units would mimic the surrounding landscape with the exception that the State Lands would retain some standing timber in the form of seed trees.

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.*

- McKay Creek DF Root Rot Permit EA (2010)
- USFS McKay/Engle Project (2022)

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		
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**					
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**					

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		
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**			**N**	**Q-1**
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**			**Y**	**W-1**
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:

Q-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.

W-1 The Engle Peak trailhead is in the sale area as well as the Wanless trailhead a mile down the road from the sale which are all access points to the Cabinet Wilderness Area. New construction of roads and harvesting would open up visuals and pathways for hiking and hunting through the area

Mitigations:

W-1 The Engle Peak trail has been blazed and marked so it is not damaged during harvesting.

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

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 Common Schools Trust. The estimated return to the trust for the proposed harvest is $895,560 based on an estimated harvest of 7.4 million board feet (44,778 tons) and an overall stumpage value of $20 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: Joe Buchanan
Title: Management Forester
Date: February 6, 2023

Finding

Alternative Selected
I select the Action Alternative for implementation.

Significance of Potential Impacts
No significant impacts were identified.

Need for Further Environmental Analysis

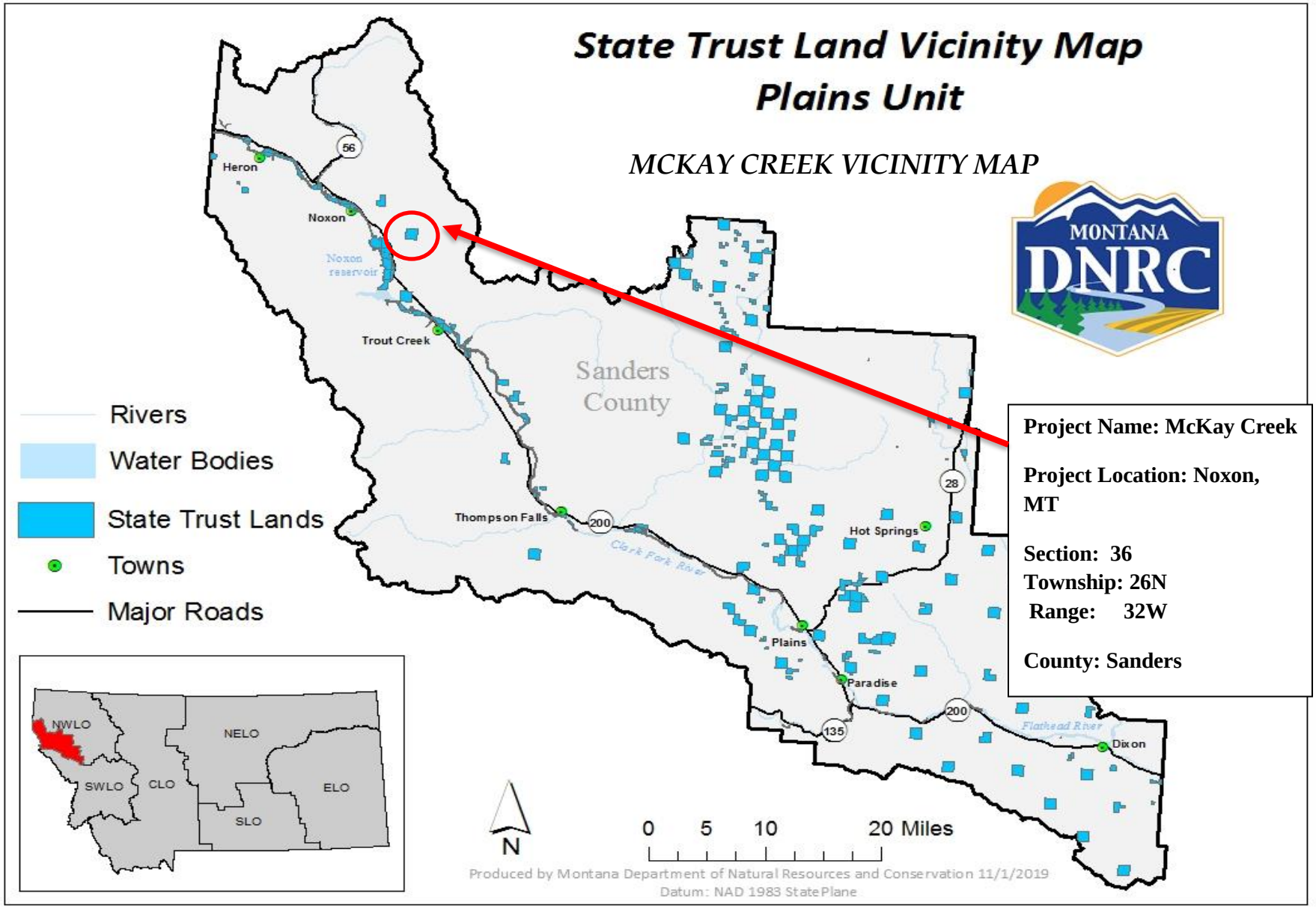
[ ]	EIS	[ ]	More Detailed EA	[X]	No Further Analysis

Environmental Assessment Checklist Approved By:

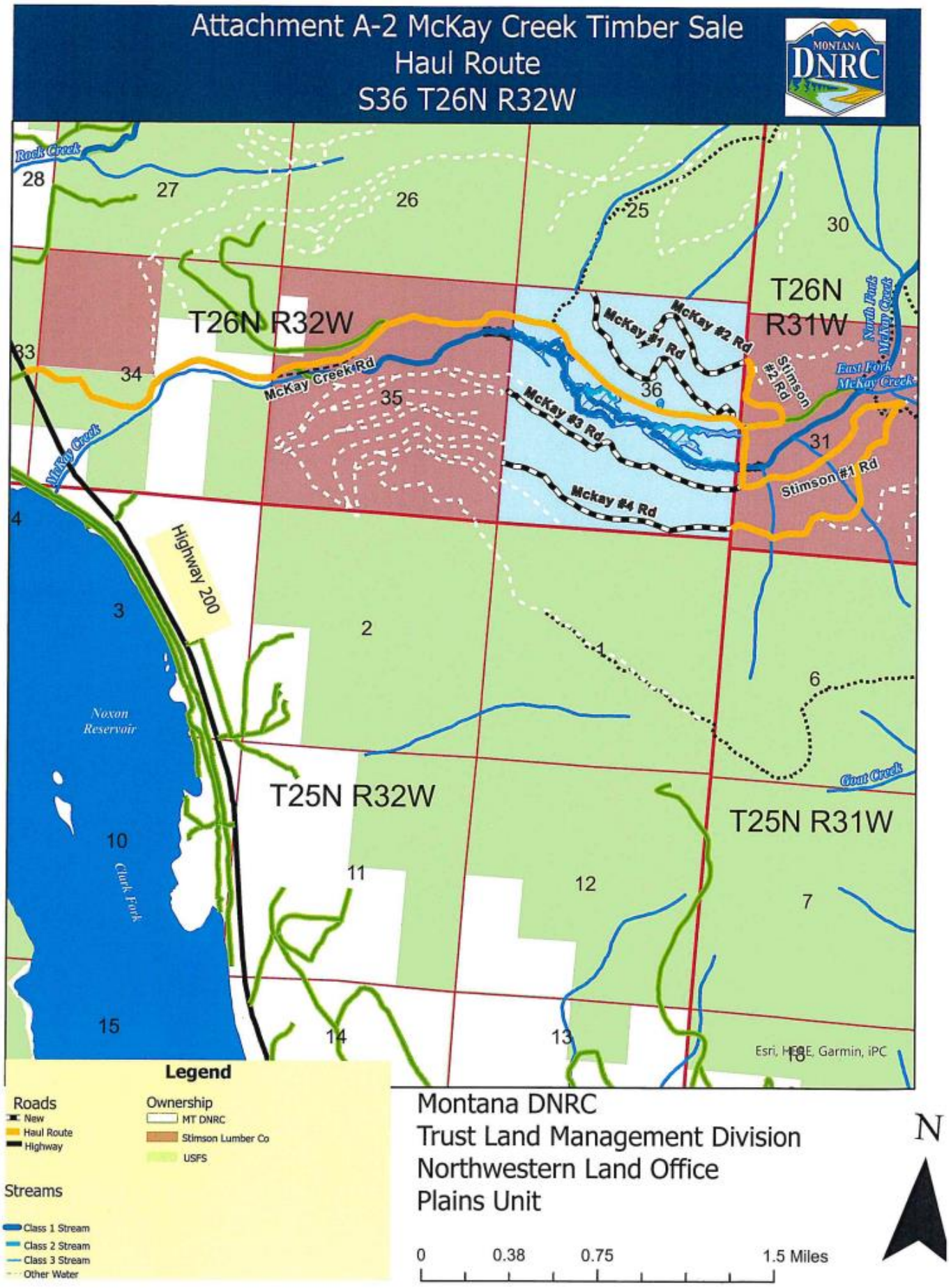
Name: David M Olsen
Title: Plains Unit Program Manager
Date: March 13, 2023
Signature: /s/ *David M. Olsen*

Attachment A - Maps

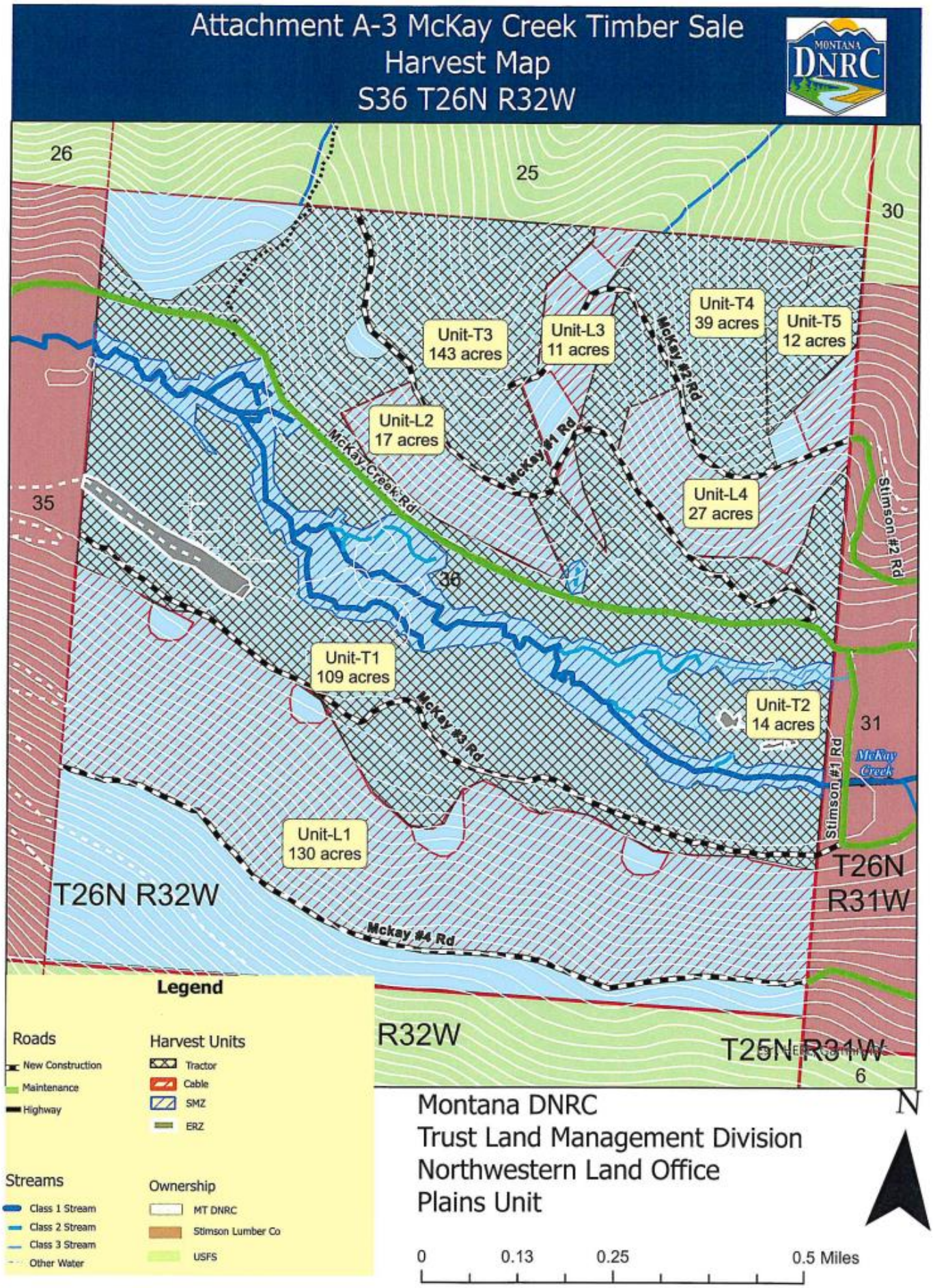
A-1: Timber Sale Vicinity Map



A-2: Haul Route



A-3: Harvest Units



Attachment B- Prescriptions

SILVICULTURAL PRESCRIPTION

SALE/PROJECT NAME: McKay Creek	**DATE:** 2/2/2023
CUTTING / TREATMENT UNIT NUMBER(s): L1	**ACRES:**128
LOCATION (TRS): T26N R32W S36	**EST. HARVEST VOLUME:** 1,440 MBF
WATERSHED: Clark Fork Drainage **AGE CLASS:** 40-99	**ELEVATION:** 2800-3400 ft
HABITAT TYPE GROUP(s):6--Warm & Moist (west)	**ASPECT:** North
CURRENT COVER TYPE: Mixed Conifer	**SLOPE (%):** 41-50%
DESIRED COVER TYPE: Western larch/Douglas-fir	**PREPARED BY:** Joe Buchanan

STAND DESCRIPTION

Forest type is mixed conifer. Species composition is Douglas Fir, Grand Fir, Western Hemlock, Western Red Cedar, Lodgepole Pine and Western White Pine. Multi-storied stand that is well stocked for the entire stand and medium stocked for saw timber. Regeneration present in spots of multiple species. Vigor is just below average and forest health concerns are root rot and bark beetle.

TREATMENT OBJECTIVES	TARGET STAND CONDITIONS
X Move stands toward desired future conditions	Remove unhealthy trees, as well as those with poor vigor and to promote long term forest health, growth and vitality. Move this unit toward the desired future condition of Western Larch/Douglas Fir.
X Emulate natural disturbance regimes	
X Promote/establish regeneration	
X Enhance stand growth and vigor	
X Address insect and disease issues	
X Reduce fuel loading/fire hazard	
X Capture value of dead/dying timber	
X Generate revenue for the trust beneficiaries	
☐ Other:	

PRESCRIBED TREATMENT

Even-Aged Methods	Uneven-Aged Methods	Intermediate Treatments	Salvage Treatments
☐ Clearcutting	☐ Individual Tree Selection	☐ Overstory Removal	☐ Fire Salvage
X Seed Tree	☐ Group Selection	☐ Commercial Thinning	☐ Insect / Disease Salvage
☐ Shelterwood	☐ Old Growth Maintenance	☐ Sanitation	☐ Weather/Blowdown Salvage
☐ check if with reserves	☐ Old Growth Restoration	☐ Precommercial Thinning	☐ Other Salvage

HARVEST IMPLEMENTATION GUIDELINES

Marking System: ☐ Cut Tree ☐ Leave Tree X Sample Mark / Designate x Description ☐ Species Designation

Number/Spacing/Size of Leave Trees: spacing will leave about 5 trees per acre

Species Preference: 1: WP 2: PP 3: WL 4: DF 5: Select

Characteristics of cut or leave trees:

Number of Snags/Snag Recruits: 2 snags and 2 snag recruits >21 dbh per acre

Additional Information:

HARVEST METHOD

Yarding: ☐ Tractor X Skyline ☐ Combination ☐ Excaline ☐ Other:

Ground conditions: X Dry X Frozen X Snow ☐ Other:

Seasonal restrictions: ☐ Summer ☐ Winter X Dates: April 1-June 15

Equipment types/restrictions:

Skid trail location/spacing: 75 ft

Additional Information:

SILVICULTURAL PRESCRIPTION

HAZARD REDUCTION / SLASH TREATMENT				
Slash disposal:	X Pile & burn (landings)	☐ Pile & burn (in-woods)	☐ Broadcast burn	☐ Jackpot burn
	☐ Masticate/Chip	X Lop & Scatter	☐ Hand Pile	☐ Other:
Nutrient Retention: Coarse woody debris (tons/ac): 15-25			☐ Return skid coarse/fine material	
Additional Information:				

SITE PREPARATION				
Method:	X Timber Sale/Dispersed Skidding	☐ Dozer	☐ Excavator	☐ Broadcast Burn
	☐ Slash unwanted regeneration	☐ Chemical/Herbicide	☐ Other:	
Target % scarification:				
Additional Information:				

REGENERATION				
Type of Regeneration:	X Natural	X Planted	☐ Existing Advance	
Fill in below if planting:				
Estimated Number of Seedlings to Plant: 38,784				
Species 1: western white pine		Percent: 50	Species 3: Select from dropdown	Percent:
Species 2: western larch		Percent: 50	Species 4: Select from dropdown	Percent:
Additional Information:				

ANTICIPATED FUTURE TREATMENTS
List approximate dates of post-harvest treatments, including: Slash disposal/hazard reduction: June 2028 Site preparation: June 2030 Planting: March 2029 Regeneration survey: June 2033 Evaluate for PCT: June 2033 Future harvest: June 2088

SILVICULTURAL PRESCRIPTION

SALE/PROJECT NAME: McKay Creek	**DATE:** 2/2/2023
CUTTING / TREATMENT UNIT NUMBER(s): L2, L3, L4	**ACRES:**58
LOCATION (TRS): T26N R32W S36	**EST. HARVEST VOLUME:** 530 MBF
WATERSHED: Clark Fork Drainage **AGE CLASS:** 40-99	**ELEVATION:** 2700-3600 ft
HABITAT TYPE GROUP(s):9--Moderately Cool & Moist (west)	**ASPECT:** South
CURRENT COVER TYPE: Western larch/Douglas-fir	**SLOPE (%):** 51-60%
DESIRED COVER TYPE: Ponderosa pine	**PREPARED BY:** Joe Buchanan

STAND DESCRIPTION

Forested Type is Douglas Fir/ Western Larch. species composition is Douglas Fir, Western Larch, Ponderosa Pine, Grand Fir and White Pine. Age class is 40-99 years old and is multi-storied. Units are well-stocked for entire stand and saw timber with good to average vigor. Regeneration of Douglas fir, Western Larch, Ponderosa Pine, Grand Fir and White Pine is present. Root rot, bark beetles and mistletoe are forest health concerns.

TREATMENT OBJECTIVES	TARGET STAND CONDITIONS
X Move stands toward desired future conditions	Remove unhealthy trees, as well as those with poor vigor and to promote long term forest health, growth and vitality. Move this unit toward the desired future condition of Ponderosa pine.
X Emulate natural disturbance regimes	
X Promote/establish regeneration	
X Enhance stand growth and vigor	
X Address insect and disease issues	
X Reduce fuel loading/fire hazard	
X Capture value of dead/dying timber	
X Generate revenue for the trust beneficiaries	
☐ Other:	

PRESCRIBED TREATMENT

Even-Aged Methods	Uneven-Aged Methods	Intermediate Treatments	Salvage Treatments
☐ Clearcutting	☐ Individual Tree Selection	☐ Overstory Removal	☐ Fire Salvage
X Seed Tree	☐ Group Selection	☐ Commercial Thinning	☐ Insect / Disease Salvage
☐ Shelterwood	☐ Old Growth Maintenance	☐ Sanitation	☐ Weather/Blowdown Salvage
☐ check if with reserves	☐ Old Growth Restoration	☐ Precommercial Thinning	☐ Other Salvage

HARVEST IMPLEMENTATION GUIDELINES

Marking System: ☐ Cut Tree ☐ Leave Tree X Sample Mark / Designate x Description ☐ Species Designation

Number/Spacing/Size of Leave Trees: 10-15 trees/acre

Species Preference: 1: WP 2: PP 3: WL 4: DF 5: Select

Characteristics of cut or leave trees: leave based on preference, avoid mistletoe in DF & WL

Number of Snags/Snag Recruits: 2 snags and 2 snag recruits >21 dbh per acre

Additional Information:

HARVEST METHOD

Yarding:	☐ Tractor	X Skyline	☐ Combination	☐ Excaline ☐ Other:
Ground conditions:	X Dry	X Frozen	X Snow	☐ Other:
Seasonal restrictions:	☐ Summer	☐ Winter	X Dates: April 1-June 15	

Equipment types/restrictions:

Skid trail location/spacing: 75 ft

Additional Information:

SILVICULTURAL PRESCRIPTION

HAZARD REDUCTION / SLASH TREATMENT				
Slash disposal:	X Pile & burn (landings)	☐ Pile & burn (in-woods)	☐ Broadcast burn	☐ Jackpot burn
	☐ Masticate/Chip	X Lop & Scatter	☐ Hand Pile	☐ Other:
Nutrient Retention: Coarse woody debris (tons/ac): 15-25			☐ Return skid coarse/fine material	
Additional Information:				

SITE PREPARATION				
Method:	X Timber Sale/Dispersed Skidding	☐ Dozer	☐ Excavator	☐ Broadcast Burn
	☐ Slash unwanted regeneration	☐ Chemical/Herbicide	☐ Other:	
Target % scarification:				
Additional Information:				

REGENERATION			
Type of Regeneration:	X Natural	X Planted	☐ Existing Advance
Fill in below if planting:			
Estimated Number of Seedlings to Plant: 17,574			
Species 1: ponderosa pine	Percent: 50	Species 3: Select from dropdown	Percent:
Species 2: western larch	Percent: 50	Species 4: Select from dropdown	Percent:
Additional Information:			

ANTICIPATED FUTURE TREATMENTS
List approximate dates of post-harvest treatments, including: Slash disposal/hazard reduction: June 2028 Site preparation: June 2030 Planting: March 2029 Regeneration survey: June 2033 Evaluate for PCT: June 2033 Future harvest: June 2088

SILVICULTURAL PRESCRIPTION

SALE/PROJECT NAME: McKay Creek	**DATE:** 2/2/2023
CUTTING / TREATMENT UNIT NUMBER(s): T1	**ACRES:** 108.6
LOCATION (TRS): T26N R32W S36	**EST. HARVEST VOLUME:** 2,145 MBF
WATERSHED: Clark Fork Drainage **AGE CLASS:** 100-149	**ELEVATION:** 2700-3000 ft
HABITAT TYPE GROUP(s):6--Warm & Moist (west)	**ASPECT:** Flat
CURRENT COVER TYPE: Western larch/Douglas-fir	**SLOPE (%):** 1-10%
DESIRED COVER TYPE: Western white pine	**PREPARED BY:** Joe Buchanan

STAND DESCRIPTION

Forested type is mixed conifer along SMZ, Western Larch out from SMZ. Species composition is Western Larch, Grand Fir, Western Red Cedar, Englemann Spruce, Western Hemlock, Lodgepole Pine and Western White Pine. Stand has good to average vigor, is multi-storied and regeneration of all species present. Stand is well stocked and saw timber is medium stocked and age is 100-149 yrs old. Forest health concerns are root rot and mistletoe.

TREATMENT OBJECTIVES	TARGET STAND CONDITIONS
X Move stands toward desired future conditions	Remove unhealthy trees, as well as those with poor vigor and to promote long term forest health, growth and vitality. Move this unit toward the desired future condition of Western White Pine. Retention and spacing of desirable species and scarify the site sufficiently to make an available seedbed to promote natural regeneration of Western white pine.
X Emulate natural disturbance regimes	
X Promote/establish regeneration	
X Enhance stand growth and vigor	
X Address insect and disease issues	
X Reduce fuel loading/fire hazard	
X Capture value of dead/dying timber	
X Generate revenue for the trust beneficiaries	
☐ Other:	

PRESCRIBED TREATMENT

Even-Aged Methods	Uneven-Aged Methods	Intermediate Treatments	Salvage Treatments
☐ Clearcutting	☐ Individual Tree Selection	☐ Overstory Removal	☐ Fire Salvage
X Seed Tree	☐ Group Selection	☐ Commercial Thinning	☐ Insect / Disease Salvage
☐ Shelterwood	☐ Old Growth Maintenance	☐ Sanitation	☐ Weather/Blowdown Salvage
☐ check if with reserves	☐ Old Growth Restoration	☐ Precommercial Thinning	☐ Other Salvage

HARVEST IMPLEMENTATION GUIDELINES

Marking System: ☐ Cut Tree X Leave Tree ☐ Sample Mark / Designate x Description ☐ Species Designation

Number/Spacing/Size of Leave Trees: 50-60 ft spacing

Species Preference: 1: WP 2: PP 3: WL 4: DF 5: Select

Characteristics of cut or leave trees: Mark leave trees in RMZ , leave trees are in order of preference avoiding mistletoe

Number of Snags/Snag Recruits: 2 snags and 2 snag recruits >21 dbh per acre

Additional Information:

HARVEST METHOD

Yarding:	X Tractor	☐ Skyline	☐ Combination	☐ Excaline	☐ Other:
Ground conditions:	X Dry	X Frozen	X Snow	☐ Other:	
Seasonal restrictions:	☐ Summer	☐ Winter	X Dates: April 1-June 15		

Equipment types/restrictions: Equipment Restriction Zones, can skid across at designated crossings 200 ft apart when dry

Skid trail location/spacing:60 ft

Additional Information:

SILVICULTURAL PRESCRIPTION

HAZARD REDUCTION / SLASH TREATMENT				
Slash disposal:	X Pile & burn (landings)	☐ Pile & burn (in-woods)	☐ Broadcast burn	☐ Jackpot burn
	☐ Masticate/Chip	X Lop & Scatter	☐ Hand Pile	☐ Other:
Nutrient Retention: Coarse woody debris (tons/ac): 15-25			☐ Return skid coarse/fine material	
Additional Information:				

SITE PREPARATION				
Method:	X Timber Sale/Dispersed Skidding	☐ Dozer	☐ Excavator	☐ Broadcast Burn
	☐ Slash unwanted regeneration	☐ Chemical/Herbicide	☐ Other:	
Target % scarification: 35%				
Additional Information:				

REGENERATION			
Type of Regeneration:	X Natural	☐ Planted	☐ Existing Advance
Fill in below if planting:			
Estimated Number of Seedlings to Plant:			
Species 1: Select from dropdown	Percent:	Species 3: Select from dropdown	Percent:
Species 2: Select from dropdown	Percent:	Species 4: Select from dropdown	Percent:
Additional Information:			

ANTICIPATED FUTURE TREATMENTS
List approximate dates of post-harvest treatments, including: Slash disposal/hazard reduction: June 2028 Site preparation: June 2030 Planting: Regeneration survey: June 2033 Evaluate for PCT: June 2033 Future harvest: June 2088

SILVICULTURAL PRESCRIPTION

SALE/PROJECT NAME: McKay Creek	**DATE:** 2/2/2023
CUTTING / TREATMENT UNIT NUMBER(s): T2	**ACRES:**14.2
LOCATION (TRS): T26N R32W S36	**EST. HARVEST VOLUME:** 435 MBF
WATERSHED: Clark Fork Drainage **AGE CLASS:** 40-99	**ELEVATION:** 2700 ft
HABITAT TYPE GROUP(s):6--Warm & Moist (west)	**ASPECT:** Flat
CURRENT COVER TYPE: Mixed Conifer	**SLOPE (%):** 1-10%
DESIRED COVER TYPE: Western white pine	**PREPARED BY:** Joe Buchanan

STAND DESCRIPTION

Forested type is mixed conifer and contains Western Larch, Western Red Cedar, Grand Fir, Western Hemlock, White Pine, Ponderosa Pine and Englemann Spruce. Good to average vigor is well stocked for the entire stand and saw timber. Forest health issues include root rot and mistletoe.

TREATMENT OBJECTIVES	TARGET STAND CONDITIONS
X Move stands toward desired future conditions	Remove unhealthy trees, as well as those with poor vigor and to promote long term forest health, growth and vitality. Move this unit toward the desired future condition of Western White Pine. Retention and spacing of desirable species and scarify the site sufficiently to make an available seedbed to promote natural regeneration of Western white pine.
X Emulate natural disturbance regimes	
X Promote/establish regeneration	
X Enhance stand growth and vigor	
X Address insect and disease issues	
X Reduce fuel loading/fire hazard	
X Capture value of dead/dying timber	
X Generate revenue for the trust beneficiaries	
☐ Other:	

PRESCRIBED TREATMENT

Even-Aged Methods	Uneven-Aged Methods	Intermediate Treatments	Salvage Treatments
☐ Clearcutting	☐ Individual Tree Selection	☐ Overstory Removal	☐ Fire Salvage
X Seed Tree	☐ Group Selection	☐ Commercial Thinning	☐ Insect / Disease Salvage
☐ Shelterwood	☐ Old Growth Maintenance	☐ Sanitation	☐ Weather/Blowdown Salvage
☐ check if with reserves	☐ Old Growth Restoration	☐ Precommercial Thinning	☐ Other Salvage

HARVEST IMPLEMENTATION GUIDELINES

Marking System: ☐ Cut Tree X Leave Tree ☐ Sample Mark / Designate x Description ☐ Species Designation

Number/Spacing/Size of Leave Trees: 50-60 ft spacing

Species Preference: 1: WP 2: PP 3: WL 4: DF 5: Select

Characteristics of cut or leave trees: Mark leave tree in RMZ, leave trees are marked in order of preference, avoid mistletoe

Number of Snags/Snag Recruits: 2 snags and 2 snag recruits >21 dbh per acre

Additional Information:

HARVEST METHOD

Yarding: X Tractor	☐ Skyline	☐ Combination	☐ Excaline	☐ Other:
Ground conditions:	X Dry	X Frozen	X Snow	☐ Other:
Seasonal restrictions:	☐ Summer	☐ Winter	X Dates: April 1-June15	

Equipment types/restrictions: Equipment Restriction Zones when wet, can cross at designated crossings 200 ft apart

Skid trail location/spacing: 60 ft

Additional Information:

SILVICULTURAL PRESCRIPTION

HAZARD REDUCTION / SLASH TREATMENT				
Slash disposal:	X Pile & burn (landings)	☐ Pile & burn (in-woods)	☐ Broadcast burn	☐ Jackpot burn
	☐ Masticate/Chip	X Lop & Scatter	☐ Hand Pile	☐ Other:
Nutrient Retention: Coarse woody debris (tons/ac): 15-25			☐ Return skid coarse/fine material	
Additional Information:				

SITE PREPARATION				
Method:	X Timber Sale/Dispersed Skidding	☐ Dozer	☐ Excavator	☐ Broadcast Burn
	☐ Slash unwanted regeneration	☐ Chemical/Herbicide	☐ Other:	
Target % scarification: 35%				
Additional Information:				

REGENERATION			
Type of Regeneration:	X Natural	☐ Planted	☐ Existing Advance
Fill in below if planting:			
Estimated Number of Seedlings to Plant:			
Species 1: Select from dropdown	Percent:	Species 3: Select from dropdown	Percent:
Species 2: Select from dropdown	Percent:	Species 4: Select from dropdown	Percent:
Additional Information:			

ANTICIPATED FUTURE TREATMENTS
List approximate dates of post-harvest treatments, including: Slash disposal/hazard reduction: June 2028 Site preparation: June 2030 Planting: Regeneration survey: June 2033 Evaluate for PCT: June 2033 Future harvest: June 2088

SILVICULTURAL PRESCRIPTION

SALE/PROJECT NAME: McKay Creek	**DATE:** 2/2/2023
CUTTING / TREATMENT UNIT NUMBER(s): T3, T4, T5	**ACRES:**193
LOCATION (TRS): T26N R32W S36	**EST. HARVEST VOLUME:** 2,920 MBF
WATERSHED: Clark Fork Drainage **AGE CLASS:** 40-99	**ELEVATION:** 2700-3600 ft
HABITAT TYPE GROUP(s):9--Moderately Cool & Moist (west)	**ASPECT:** Southwest
CURRENT COVER TYPE: Douglas-fir	**SLOPE (%):** 31-40%
DESIRED COVER TYPE: Ponderosa pine	**PREPARED BY:** Joe Buchanan

STAND DESCRIPTION

The forest type for these units is Douglas Fir and compose of Douglas Fir, Ponderosa Pine, Western Larch, Grand Fir & White Pine. Age class is 40-99 years old and is well stocked for entire stand and saw timber. The stand structure is multi-storied and regeneration of Douglas fir, Ponderosa pine, Western white pine, Grand fir and Western larch is present. Forest health issues are root rot and bark beetles. Stands have good to average vigor. In 2007 there was an insect/disease salvage approx. 4 acres in size for root rot, douglas fir was taken, leaving Ponderosa pine and Western larch.

TREATMENT OBJECTIVES	TARGET STAND CONDITIONS
X Move stands toward desired future conditions	Remove unhealthy trees, as well as those with poor vigor and to promote long term forest health, growth and vitality. Move this unit toward the desired future condition of Ponderosa pine. Retention and spacing of desirable species and scarify the site sufficiently to make an available seedbed to promote natural regeneration of Ponderosa pine.
X Emulate natural disturbance regimes	
X Promote/establish regeneration	
X Enhance stand growth and vigor	
X Address insect and disease issues	
X Reduce fuel loading/fire hazard	
X Capture value of dead/dying timber	
X Generate revenue for the trust beneficiaries	
☐ Other:	

PRESCRIBED TREATMENT

Even-Aged Methods	Uneven-Aged Methods	Intermediate Treatments	Salvage Treatments
☐ Clearcutting	☐ Individual Tree Selection	☐ Overstory Removal	☐ Fire Salvage
X Seed Tree	☐ Group Selection	☐ Commercial Thinning	☐ Insect / Disease Salvage
☐ Shelterwood	☐ Old Growth Maintenance	☐ Sanitation	☐ Weather/Blowdown Salvage
☐ check if with reserves	☐ Old Growth Restoration	☐ Precommercial Thinning	☐ Other Salvage

HARVEST IMPLEMENTATION GUIDELINES

Marking System: ☐ Cut Tree X Leave Tree ☐ Sample Mark / Designate x Description ☐ Species Designation

Number/Spacing/Size of Leave Trees: 50-60 ft spacing

Species Preference: 1: WP 2: PP 3: WL 4: DF 5: Select

Characteristics of cut or leave trees: Leave trees in order of preference, avoid mistletoe in western larch and douglas fir

Number of Snags/Snag Recruits: 2 snags and 2 snag recruits > 21 dbh per acre

Additional Information:

HARVEST METHOD

Yarding:	X Tractor	☐ Skyline	☐ Combination	☐ Excaline ☐ Other:
Ground conditions:	X Dry	X Frozen	X Snow	☐ Other:
Seasonal restrictions:	☐ Summer	☐ Winter	X Dates: April 1-June 15	

Equipment types/restrictions: restrict or suspend operations when soils are subject to compaction or displacement

Skid trail location/spacing:60 ft

Additional Information:

SILVICULTURAL PRESCRIPTION

HAZARD REDUCTION / SLASH TREATMENT			
Slash disposal: X Pile & burn (landings)	☐ Pile & burn (in-woods)	☐ Broadcast burn	☐ Jackpot burn
☐ Masticate/Chip	X Lop & Scatter	☐ Hand Pile	☐ Other:
Nutrient Retention: Coarse woody debris (tons/ac): 15-25		☐ Return skid coarse/fine material	
Additional Information:			

SITE PREPARATION			
Method: X Timber Sale/Dispersed Skidding	☐ Dozer	☐ Excavator	☐ Broadcast Burn
☐ Slash unwanted regeneration	☐ Chemical/Herbicide	☐ Other:	
Target % scarification: 35%			
Additional Information:			

REGENERATION			
Type of Regeneration: X Natural	☐ Planted	☐ Existing Advance	
Fill in below if planting:			
Estimated Number of Seedlings to Plant:			
Species 1: Select from dropdown	Percent:	Species 3: Select from dropdown	Percent:
Species 2: Select from dropdown	Percent:	Species 4: Select from dropdown	Percent:
Additional Information:			

ANTICIPATED FUTURE TREATMENTS
List approximate dates of post-harvest treatments, including: Slash disposal/hazard reduction: June 2028 Site preparation: June 2030 Planting: Regeneration survey: June 2033 Evaluate for PCT: June 2033 Future harvest: June 2088