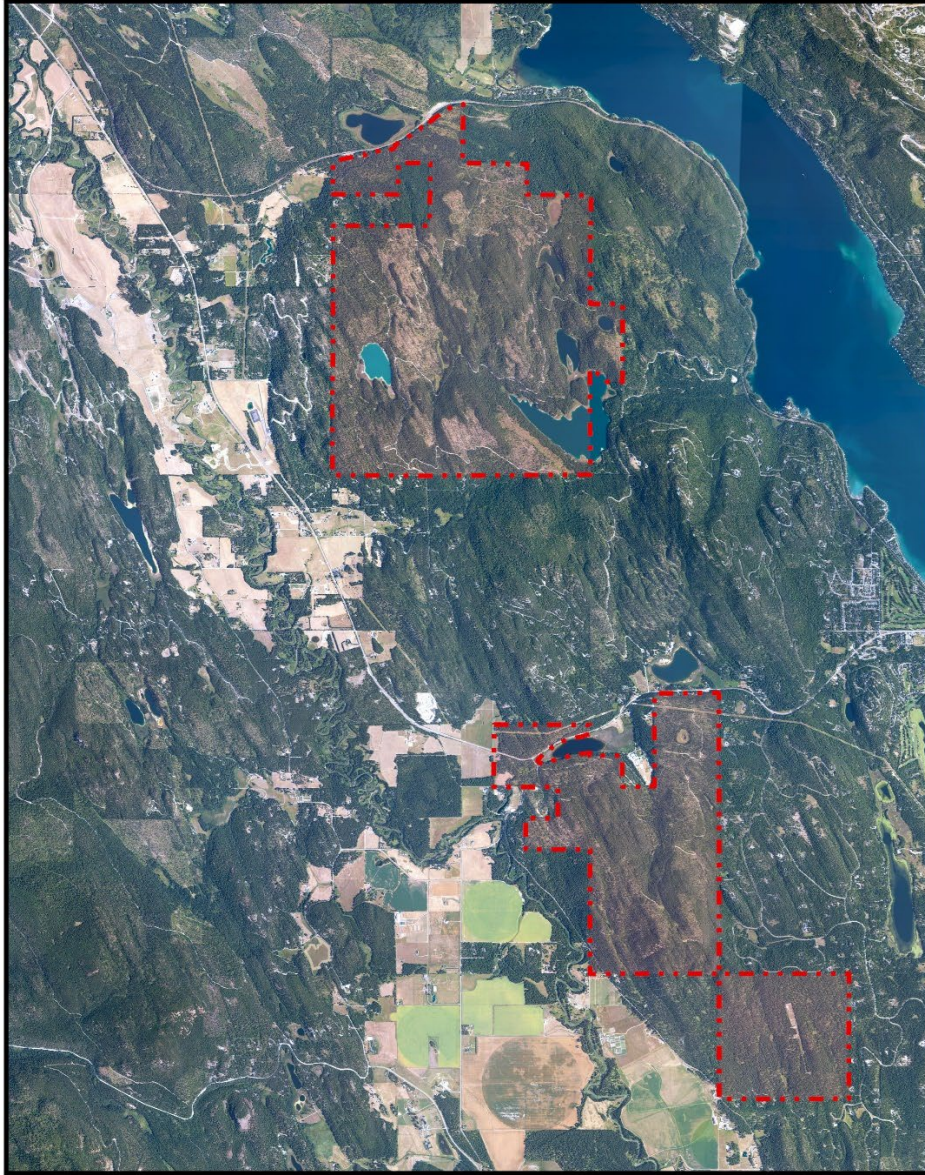


Spencer to Beaver Environmental Assessment



**Kalispell/Stillwater Unit
Northwest Land Office
Montana Department of Natural Resources and Conservation
October 2025**



Spencer to Beaver

Environmental Assessment

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Environmental Assessment

Project Name: Spencer to Beaver Forest Management Project
Proposed Implementation Date: October 2025 – October 2028
Proponent: Kalispell and Stillwater Units, Northwest Land Office, Montana DNRC
County: Flathead

Type and Purpose of Action

Description of Proposed Action:

The Kalispell Unit of the Montana Department of Natural Resources and Conservation (DNRC) is proposing the Spencer to Beaver Forest Management Project. Due to the location of the project area, habitat types, haul routes, and other leading factors, the Kalispell Unit and Stillwater Unit have decided to combine forest management work from the Spencer Area and the Beaver Lakes Area under the purview of Kalispell Unit management. The project is located 4 miles west of Whitefish, 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
Eastern College-MSU/Western College-U of M	T31N R22W S7, 8 T30N R22W S5, 15	1512.75	565.42
Capitol Buildings	T31N R22W S18	637.65	228.74
Montana Tech	T31N R22W S4, S20	964.17	230.71
Montana State University	T31N R22W S17, 19 T30N R22W S33	1417.14	406.29
School for the Deaf and Blind	T30N R22W S9	640	49.54

Objectives of the project include:

- The proposed harvest of 4.5-5.2 million board feet (MMbf) would contribute to the DNRC's sustained yield as mandated by state statute (77-5-223, MCA) to offer for sale approximately 60 MMbf of timber annually and continue to produce revenue over time.
- The revenue generated from this proposal would benefit the Common Schools, Eastern College – MSU/Western College – U of M, Montana Tech, University of Montana, and the School for the Deaf and Blind trusts.
- Enhance the vigor of the regenerated forest stands
- Regenerate new forest stands
- Promote biodiversity on State ownership by managing for appropriate or desired stand structures and species composition based on ecological characteristics such as topography, habitat type, disturbance regimes, and unique characteristics.
- Reduce fire hazard and associated risks of loss to the State of Montana and privately-owned land in Flathead County wildland urban interface.

- Maintain existing recreational experiences within the Beaver Lake Public Recreation Use Easement (PRUE) area of the project.
- Continue to provide recreational experiences within the Spencer Mountain area of the project.

Proposed activities include:

Action	Quantity
Proposed Harvest Activities	# Acres
Seed Tree	44.92
Shelterwood	89.48
Individual Tree Selection	364.85
Commercial Thinning	199.14
Salvage	276.38
Overstory Removal	136.05
Old Growth Maintenance	108.80
Total Treatment Acres	1219.6
Proposed Forest Improvement Treatment	# Acres
Precommercial Thinning	271.1
Proposed Road Activities	# Miles
New permanent road construction	0.20
Road maintenance	20.37
Other Activities	

Duration of Activities:	3 years
Implementation Period:	March 2026-March 2029

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 14, 2025 to February 14, 2025
- PUBLIC SCOPED:
 - The scoping notice was posted on the DNRC Website:
<https://dnrc.mt.gov/News/scoping-notice>
 - Adjacent landowners, City of Whitefish, Statewide Timber Scoping list, Kalispell and Stillwater Timber Scoping lists.
- AGENCIES SCOPED:
 - Montana Fish, Wildlife and Parks (FWP), U.S. Forest Service and internal DNRC staff.
 - Montana Tribal Agencies
- COMMENTS RECEIVED:
 - How many: 75 comments were received in total via phone call and email
 - Concerns: Seventy comments were received from the general public and local residents. These concerns, in no order or preference, included:
 - recreation resources, specifically the Whitefish Trail and Spencer Mountain Trail networks;
 - viewshed and aesthetics, specifically visual quality and noise pollution;
 - vegetation resources, specifically forest cover types, forest age class, old growth, forest patch size and shape, forest fragmentations, stand structure, stand vigor, crown cover, forest insect and disease levels, and sensitive plant populations;
 - Forest fuels and fire behavior;
 - Noxious weeds;
 - Aquatic and fish resources, specifically water yield, sediment delivery, water quality, local fish populations and associated habitat;
 - Wildlife, including decrease in habitat for lynx, bald eagle, grizzly bear, common loon, fisher, pileated woodpecker and big game populations;
 - Soil resources, specifically soil compaction and displacement, erosion, soil productivity, slope stability and soil nutrients;
 - Economics, specifically trust land-generated school funding and local employment;
 - Air quality, specifically dust, smoke and carbon emissions.

One comment from Lincoln Electrical Cooperative (LEC) emphasized the importance of keeping right-of-ways clear of hazard trees. Two comments from logging industry representatives provided general support for the project and emphasized the importance of forest management for overall forest health, forest

products, the local economy and employment. Two comments from local recreation groups (Whitefish Legacy Partners and the Flathead Area Mountain Bikers) expressed concerns about silvicultural prescription and the impacts to trails and public access. These groups emphasized the need to conduct operations to meet DNRC goals and protect the community's interest and investment in the recreation infrastructure, as per the existing Public Recreation Use Easement within the Beaver Lakes Area, by conducting project operations only in the winter and modifying the silvicultural prescription to a shelterwood harvest.

- Results (how were concerns addressed): Prior to the release of the project scoping notice, DNRC staff met with representatives from the City of Whitefish, Whitefish Legacy Partners (WLP), Flathead Area Mountain Bikers (FAMB) and other licensees on two separate occasions to discuss initial project planning proposals and how to best coordinate DNRC's project-related efforts while upholding the existing recreation agreement on the state trust lands. Following the scoping of the project, DNRC staff met with the groups on an additional two occasions to continue discussions about project concerns and how they may be addressed during project operations. In addition, DNRC staff sent monthly updates to the groups via email and in-person meetings to provide consistent communication about the proposed project's development. DNRC also sent out a communication to all individuals who commented during the scoping period with information about the concerns and issues that DNRC gathered from public comments and about the process of project development following scoping. All concerns and questions that were received during scoping have been analyzed in this Environmental Assessment (EA) document or were dismissed from analysis with rationale. Any issues brought up during scoping that were dismissed from analysis are documented in the table below:

ISSUES ELIMINATED FROM FURTHER ANALYSIS	RATIONALE
The proposed activities may have economic impacts associated with non-market issues in the area.	<i>This issue is outside the scope of the project and/or project area.</i>
The proposed activities may have economic impacts on the local recreation industry.	<i>This issue is outside the scope of the project and/or project area.</i>
The proposed activities may affect local air quality through carbon emissions from logging-related operations.	<i>The proposed project would mechanically harvest approximately 4.5-5.2 MMBF, which would produce approximately 7.5-8% of the cumulative annual carbon emissions from commercial timber projects on DNRC Trust Lands. Additional carbon emissions from road construction and road maintenance activities would produce approximately 1.2% and 12.5%, respectively, of the cumulative annual carbon emissions from forest road activities on DNRC Trust Lands. Although carbon emissions would temporarily increase during project implementation, direct project-related carbon emissions would cease following implementation. Due to negligible and temporary effects of project activities on carbon emissions, this issue is dismissed from further analysis.</i>

The proposed activities may contribute to climate change.	<i>Evidence of widespread climate change has been well documented and reported and is an important consideration today (Intergovernmental Panel on Climate Change (IPCC) 2014, 2021, and 2022). In Montana, effects of climate change will be related to changes in temperature and moisture availability, and the response of individual tree species, forests and habitats will be complex and variable, depending local site and stand conditions. Changes in temperature and moisture availability may affect the ability of some tree species to establish and regenerate on some sites. Forest productivity may increase in some areas due to longer growing seasons associated with increased temperature where moisture is not limited but may decrease in other areas where increasing temperature results in decreased water availability (Wade et al. 2017). Drought severity is expected to increase, leading to increases in forest and tree mortality. Changing climate may also lead to changes in the range of some species, resulting in changes in forest composition and distribution (Wade et al. 2017). Given possible changes in the amounts and types of trees and other plants observed in forests, unique vegetation community associations and new climax community types may also begin to appear in the future (Fox 2007). Changing climate is also expected to alter natural disturbance regimes, such as fire and insects, with the resulting effects expected to have greater impact on Montana's forests than changes in temperature and moisture availability that directly affect individual trees and species (Wade et al. 2017). Understanding changes in tree species composition in forests, and the ability of various tree species to thrive under changing climate conditions, may take decades. Predicting possible effects of climate change in forests at local levels is also difficult due to large-scale variables at play, such as possible increases in global evaporation rates, and possible changes in global ocean currents and jet stream. Such outcomes could influence locally observed precipitation amounts and possible influences on natural disturbance regimes (such as changing the average intensity, frequency, and scale of fire events). Normal year to year variation in weather also confounds the ability to identify, understand, predict, and respond to influences of climate change. Given the many variables and difficulty in understanding the ramifications of changing climate, detailed assessment of possible direct, indirect, or cumulative effects of climate change in association with project activities described in this EA is beyond the scope of this analysis. In the face of current uncertainty associated with climate change, DNRC is continuing to manage for biodiversity as guided under the SFLMP. Under the management philosophy of the SFLMP, DNRC will continue to manage for biodiversity using a coarse filter approach that favors an appropriate mix of stand structures and compositions on state lands as described by ARM 36.11.404, while also working to understand relevant ecosystem changes as research findings and changes in climate evolve.</i>
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Internal and external issues and concerns were incorporated into project planning and design and will be implemented in associated contracts.

OTHER PUBLIC INVOLVEMENT:

Tours: One tour for the City of Whitefish, Bar W Guest Ranch, Whitefish Legacy Partners, and Flathead Area Mountain Bikers. One tour just for Flathead Area Mountain Bikers. Two tours for Whitefish Legacy Partners and City of Whitefish.

INTERDISCIPLINARY TEAM (ID):

- Project Leader: Alexander Golden
- Archeologist: Patrick Rennie
- Wildlife Biologist: Victoria Forristal
- Hydrologist: Tony Nelson
- Recreation: Daniel Dobbin
- Other Contributors:
 - Jeff Schmalenberg, Forest Management Bureau, Resource Management Supervisor
 - Emilia Grzesik, Forest Management Bureau, Forest Management Planner

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 Habitat Conservation Plan (HCP) and the associated Incidental Take Permit that was issued by the United States Fish & Wildlife Service (USFWS) in February of 2012 under Section 10 of the Endangered Species Act. The HCP identifies specific conservation strategies for managing the habitats of grizzly bear, Canada lynx, and three fish species: bull trout, west slope cutthroat trout, and Columbia Redband trout. This project complies with the HCP. The HCP can be found at <https://dnrc.mt.gov/TrustLand/about/planning-and-reports>.
- **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: No harvest operations would take place. Future forest conditions would be shaped through natural events such as insect and disease outbreaks, windthrow, and wildfires. No road maintenance or improvements would occur on state owned property. Current conditions and aesthetics of the stand nearby recreation trail systems would see minimal change. Potential increases in dead and dying timber with an eventual increase in forest fuel loading and potential fire risk may occur over time.

Action Alternative: This alternative would produce approximately 4.5-5.2 MMBF (million board feet) of timber volume from a total of 1490.72 project treatment acres. All harvest operations would utilize ground-based machinery (tractor harvest) 89.48 acres would receive a Shelterwood harvest, 44.92 acres would receive a Seed Tree harvest, 199.14 acres would receive a Commercial Thin harvest, 364.85 acres would receive an Individual Tree Selection harvest, 136.05 acres would receive an Overstory Removal harvest, 108.80 acres would receive an Old Growth Maintenance harvest, 276.38 acres would receive a Salvage harvest, and 271.10 acres would receive precommercial Thinning. This alternative would include 20.44 miles of road maintenance and 0.20 miles of new road construction. Weed spraying would occur for three consecutive years post-harvest to address any increase in noxious weed populations along the utilized road systems and associated landings within the project area.

OTHER ALTERNATIVES CONSIDERED BUT DISMISSED:

Action Alternative: This alternative would produce approximately 4.8 MMBF (million board feet) in timber volume from a total of 1490.72 project treatment acres. All harvest operations would utilize ground-based machinery (tractor harvest). 134.40 acres would receive a Seed Tree harvest, 199.14 acres would receive a Commercial Thin harvest, 364.85 acres would receive an Individual Tree Selection harvest, 136.05 acres would receive an Overstory Removal harvest, 108.80 acres would receive an Old Growth Maintenance harvest, 276.38 acres would receive a Salvage harvest, and 271.10 acres would receive precommercial Thinning. Logging slash would be piled and burned post-harvest to mitigate wildfire risk. This alternative would include 20.44 miles of road maintenance and 0.20 miles of new road construction. Weed spraying would occur for three consecutive years post-harvest to address any increase in noxious weed populations along the utilized road systems and associated landings within the project area. This alternative was initially designed with current recreation infrastructure in mind to mitigate repeated future entries within the Spencer Freeride Trail System. A Seed Tree harvest prescription in Units 1 and 2 would have addressed forest management needs, establishment of future regeneration, and mitigate the need for additional entries post silvicultural treatments when compared to other alternatives. This alternative was ultimately dismissed due to other silvicultural treatments addressing aesthetic and recreational impacts more effectively than this alternative, while also achieving very similar forest management goals with less intensive management.

Impacts on the Physical Environment

VEGETATION:

Vegetation Existing Conditions:

History and past management: Current conditions vary throughout the project area due to multiple factors. Wildfires impacted the area east and west of Whitefish, Montana in 1910 that significantly impacted stand structure and canopy cover. Throughout the 20th century and into the 21st there have been multiple harvest operations. Most recent operations have occurred with the Beaver Timber Sale in 1999, Beaver Smith in 2009, Spencer Lake South in 2013, North Spencer in 2014, Beaver Lake in 2020, as well as multiple insect/weather salvage operations in 2023-2024. This has created variation throughout the area and multiple different stand classes, fuel-loading, large woody debris, variation in crown cover, species composition, and regeneration.

Additionally, recreation has played a part in the overall composition of this area. There are multiple trail networks in both the Beaver Lake Area as well as the Spencer Mountain Area. These trails have been made possible by agreements and licenses between The City of Whitefish and The Montana Department of Natural Resources and Conservation. Trail corridors have removed vegetation to create a hard surface composed of native soil and technical features made from wood sourced from the area as well as from local suppliers for the purpose of mountain-biking, horseback riding, hiking, firewood and Christmas tree cutting, and general recreation. Previously built road infrastructure also acts as part of the licensed trails, trails under easement and trailhead infrastructure. Native vegetation and conifers have been removed via these processes and re-vegetation has been removed as necessary for all operations.

There is a mix of cover types throughout the project area, ranging from Mixed Conifer, Western Larch/Douglas-fir, and Douglas-fir. Stand vigor throughout the project area is generally good to moderate but has stagnated in multiple areas. Stand growth has begun to slow due to age and competition between individuals, and lack of regeneration. Age class also varies from 40-99 years and all the way up to 200+ years in Old Growth stands. These stands also range from single story composition, two-storied and multi-storied. With this stand structure composition, crown cover is moderate to well-stocked across the project area.

Old Growth in the project area stands at 435 acres, 185 of those acres would be treated under this alternative. Total Old Growth removed under this alternative would be 73 acres, resulting in 362 acres of Old Growth post-harvest. The Kalispell Unit currently maintains 1,059 acres of Old Growth and the Stillwater Unit maintains 14,050 acres of Old Growth. This alternative would contribute 108 acres not previously identified to the Stillwater Units' new total acreage of 14,158 acres.

Fire Hazard/Fuels: The majority of acres within the project acres are within a mixed fire regime with only one harvest with a low-to-mixed fire regime. Historical fire behavior within this area is consistent throughout the Beaver Lake and Spencer Mountain Area. There is a natural variation of fuel loading within the proposed harvest areas that would contribute to the mixed fire regime. Large woody material is present as well as finer fuels in the form of shrubs and brush species. Ladder fuels are present within Commercial Thin and Individual Tree Selection harvest units, to

an extent. Overstory Removal harvest units have tightly spaced and consistent regeneration growing underneath the previous leave-trees. These have the potential to carry fire throughout the stand and into adjacent areas. Due to the proximity of the state trust lands to the Wildland Urban Interface (WUI), wildfire risk has increased potential to threaten private citizens and privately-owned/public infrastructure.

Insects and Disease: Dwarf mistletoe is present in Douglas-fir and Western Larch. Douglas-fir bark beetle is present in pockets on steeper slopes. Armillaria root rot is present in pockets throughout the area. Red Belt Fungus, Quinine Conk, Indian Paint Fungus, Pouch Fungus, and Red Ring Rot are all present throughout the project area.

Sensitive/Rare Plants: The Montana Natural Heritage Database (<https://mtnhp.mt.gov/>; accessed July 5, 2025) identified the following species within the project area: Panic Grass (*Dichanthelium acuminatum*), Beck Water-marigold (*Bidens beckii*), Sprangletop (*Scolochloa festuacea*), Dense-flower Rein Orchid (*Piperia elongata*), Crested Shieldfern (*Dryopteris cristata*), Slender Cottongrass (*Eriophorum gracile*), Creeping Sedge (*Carex chordorrhiza*), Giant Helleborine (*Epipactis gigantea*) and Kalm's Lobelia (*Lobelia kalmii*).

Noxious Weeds: Houndstongue, spotted knapweed, St. Johnswort, Canada thistle have been identified in the project area.

Figure V-1: Existing Condition of Proposed Treatment Areas. Current conditions of areas proposed for treatment under the Spencer to Beaver Forest Management Project.

Harvest Unit	Habitat Group	Fire Regime	Current Cover Type	Age Class (years)	Desired Future Condition (DFC)	Silvicultural Prescription (RX)	Acres
1	Warm and moist (westside)	Mixed	Douglas-fir	150-199	Western Larch/Douglas-fir	Shelterwood	32.50
2	Warm and moist (westside)	Mixed	Douglas-fir	150-199	Western Larch/Douglas-fir	Shelterwood	56.98
3	Warm and moist (westside)	Mixed	Douglas-fir	150-199	Western Larch/Douglas-fir	Seed Tree	44.92
4	Warm and moist (westside)	Mixed	Douglas-fir	150-199	Wester Larch/Douglas-fir	Commercial Thin With Species Designation	50.39
5	Warm and moist (westside)	Mixed	Western Larch/Douglas-fir	40-99	Western Larch/Douglas-fir	Commercial Thin	42.33
6	Moderately warm and dry (westside)	Low-to-Mixed	Douglas-fir	150-199	Western Larch/Douglas-fir	Individual Tree Selection	35.85

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B1	Warm and moist (westside)	Mixed	Western Larch/Douglas-fir	150-199	Ponderosa Pine	Individual Tree Selection	130.77
B2	Moderately cool and moist (westside)	Mixed	Western Larch/Douglas-fir	100-149	Western Larch/Douglas-fir	Individual Tree Selection	198.23
B3	Warm and moist (westside)	Mixed	Western Larch/Douglas-fir	40-99	Western larch/Douglas-fir	Overstory Removal	68.01
B4	Warm and moist (westside)	Mixed	Douglas-fir	150-199	Western Larch/Douglas-fir	Old Growth Maintenance	108.80
B5	Moderately cool and moist (westside)	Mixed	Western Larch/Douglas-fir	100-149	Western Larch/Douglas-fir	Overstory Removal	38.33
B6	Warm and moist (westside)	Mixed	Mixed Conifer	40-99	Mixed Conifer	Overstory Removal	29.71
B7	Moderately cool and moist (westside)	Mixed	Western Larch/Douglas-fir	40-99	Western Larch/Douglas-fir	Commercial Thin	33.77
BP1	Warm and moist (westside)	Mixed	Douglas-fir	150-199	Ponderosa Pine	Other Salvage	78.80
BP2	Warm and moist (westside)	Mixed	Douglas-fir	100-149	Western Larch/Douglas-fir	Other Salvage	197.58
R1	Moderately warm and dry (westside)	Low-to-mixed	Western Larch/Douglas Fir	40-99	Western Larch/Douglas Fir	Commercial Thin	72.65
Pre Commercial Thinning Unit	Habitat Group	Fire Regime	Current Cover Type	Age Class (years)	Desired Future Condition (DFC)	Silvicultural Prescription (RX)	Acres
1	Moderately cool and moist (westside)	Mixed	Western Larch	0-39	Western Larch/Douglas-fir	Pre Commercial Thin	9.66
2	Moderately cool and moist (westside)	Mixed	Western Larch/Douglas-fir	40-99	Western Larch/Douglas-fir	Pre Commercial Thin	14.92
3	Moderately cool and moist (westside)	Mixed	Western Larch/Douglas-fir	40-99	Western Larch/Douglas-fir	Pre Commercial Thin	15.01
4	Moderately cool and moist	Mixed	Western Larch/Douglas-fir	100-149	Western Larch/Douglas-fir	Pre Commercial Thin	118.47

	(westside)						
5	Warm and moist (westside)	Mixed	Western Larch/Douglas-fir	40-99	Western Larch/Douglas-fir	Pre Commercial Thin	67.96
6	Warm and moist (westside)	Mixed	Western White Pine	0-39	Mixed conifer	Pre Commercial Thin	29.99
7	Moderately cool and moist (westside)	Mixed	Western Larch/Douglas-fir	0-39	Western Larch/Douglas-fir	Pre Commercial Thin	15.09

Figure V-2: Direct, Secondary, and Cumulative Impacts to Vegetation. Potential impacts to vegetation based on Alternatives and associated impacts.

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 Alternative														
Current Cover/DFCs	X					X				X				V-1
Age Class	X					X				X				V-2
Old Growth	X					X				X				V-3
Patch Size and Shape	X					X					X			V-4
Fragmentation	X										X			V-5
Stand Vigor	X										X			V-6
Stand Structure	X										X			V-7
Crown cover	X									X				V-8
Insect and Disease		X					X				X			V-9
Fire/Fuels		X					X				X			V-10
Rare Plants	X				X				X					V-11
Noxious Weeds	X				X				X					V-12
Action Alternative														
Current Cover/DFCs		X				X				X				V-1
Age Class		X				X				X				V-2
Old Growth		X				X				X				V-3
Patch Size and Shape		X				X				X				V-4
Fragmentation			X			X				X				V-5
Stand Vigor				X			X			X				V-6
Stand Structure			X			X				X				V-7
Crown cover			X			X				X				V-8
Insect and Disease				X			X				X			V-9
Fire/Fuels		X				X					X			V-10
Rare Plants		X			X				X				Y	V-11

Vegetation	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Noxious Weeds		X				X				X			Y	V-12

Comments:

V-1: Proposed activities would minimally affect forest cover types as harvest would retain the same species on site and not introduce new species or transition the stand to a new forest type. All proposed harvests would be managed with the Desired Future Condition for the site in mind, based on historical information and previous management. 78.8 acres of Douglas-fir cover type would transition to a Ponderosa pine cover type, 527 acres of Douglas-fir cover type would transition to Western Larch/Douglas-fir cover type, 130.8 acres of Western Larch/Douglas-fir cover type would transition to Ponderosa pine cover type, 29.7 acres of Mixed Conifer cover type be maintained as a Mixed Conifer cover type, and 453.3 acres of Western Larch/Douglas-fir cover type would be maintained as Western Larch/Douglas-fir cover type.

V-2: Seed Tree, Shelterwood, and Overstory Removal prescriptions would transition mature stands to a younger stand class by the removal of mature timber. These treatments would transition the harvest area to a seedling/sapling (0-39 years) age class following the successful regeneration of the harvest area. The potential 276.38 acres of salvage units listed may also transition the stand class dependent upon the amount of salvage needing to be removed and associated prescription details. However, all other silvicultural prescriptions would maintain current age classes for proposed harvest units.

V-3: Salvage harvest of Unit BP2 would remove 73 acres of old growth from the project area. The Old Growth Maintenance unit would add and maintain 108.80 acres of old growth to the Stillwater Unit previously unidentified. This prescription would leave all trees over 21" in diameter and only harvest half of the merchantable timber under that diameter class. The Kalispell Unit currently maintains 1,059 acres of old growth and the Stillwater Unit maintains 14,050 acres of old growth. Stillwater Unit would see a net increase of 35.8 acres or 0.25% of the total amount of old growth. Kalispell would not see any change to Old Growth.

V-4: Proposed activities may affect forest patch size and shape on the landscape through tree removal. Regarding this analysis, a "patch" is defined as a contiguous area of vegetation similar in characteristics, such as tree height, stocking, species composition, or age class. The patch can be composed of a stand, a part of a stand, or many stands.

V-5: Surrounding forests and other harvest prescriptions allow for forest connectivity throughout the project area. Other prescriptions maintain overstory and connectivity throughout the project.

V-6: Through proposed treatments, stands will benefit by reducing competition between individual trees for resources such as light, water, and nutrients. As well as competition of crown dominance and class stratification. This will lead to an increase in overall vigor in the future.

V-7: Overstory Removal, Shelterwood, and Seed Tree prescriptions would alter stand structure by removing the majority of mature overstory and creating a single structure class within the harvest area. Given time, the future stand would be made up of mature overstory trees and a secondary class of regeneration. All other prescriptions would maintain and promote existing stand structure.

V-8: Overstory Removal and Seed Tree may affect 170.97 acres of forest crown cover by removing the majority of mature overstory canopy. All other proposed silvicultural treatments have a minimal effect on the forest canopy cover within the project area.

V-9: Proposed forest management activities would directly address the presence and effect of insects and disease via the removal of diseased and affected individuals. Logging slash would be created post harvest which may create a vector for insects and disease. However, with the proper disposal of slash (the subsequent burning of landing piles), these impacts can be effectively mitigated.

V-10: Management of these areas would result in an overall decrease in forest fuels as well as a marked decrease in ladder fuels. This would lessen the risk of increased fire behavior within the Wildland Urban Interface surrounding the project area and reduce future risk by increasing crown spacing and the removing dead/dying material.

V-11: Areas within the Streamside Management Zone (SMZ) and Other Bodies of Water (OBW) within the harvest areas have been flagged and painted and would not be harvested or subjected to operations. In the instance that these species or other sensitive species are found concurrent with operation, the immediate area would be flagged off and avoided until a decision has been made so as not to impact local presence.

V-12: Noxious weeds tend to thrive in disturbed landscapes and are present throughout the project area currently. Harvest activities may increase the presence of noxious weeds post-harvest. Machinery may also aid in seed dispersal. The DNRC would apply herbicide for three years post-harvest to mitigate disturbed areas.

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

- Contain operations to only proposed treatment area and operate in accordance with all previous agreements held within the project area and proposed silvicultural prescriptions.
- Require all harvesting to be completed with appropriate ground-based machinery and maintain specifications to the Timber Sale Contract.
- Dispose of logging slash through pile burning operations post management in accordance with regulations/approval set by the Montana/Idaho Airshed group.
- Require all tracked or wheeled equipment to be cleaned of noxious weeds prior to the beginning of operations.
- Control the spread of noxious weeds with post-herbicide applications on established and new weed populations.
- Require prompt vegetation seeding of all disturbed roadside sites. Roads used and closed as part of this document would be re-seeded and reshaped to prevent unlawful motorized use.
- If rare plants are found during the project period, operations will be diverted away from the population and further review by DNRC and plant specialists.

Spencer to Beaver – Soils Analysis

Analysis Prepared By:

Name: Tony Nelson
Title: Hydrologist, Montana DNRC

Introduction

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

Issues and Measurement Criteria

Soil Physical Disturbance

Analysis of soil physical disturbance addresses the issue that timber harvesting and associated activities may affect soil conditions in the proposed project area through ground-based and cable yarding activities, and through repeated entries to previously harvested areas. Operation of ground-based machinery can displace fertile layers of topsoil, which can lead to a decrease in vegetation growth. Ground-based machinery can also lead to compaction of the upper layers of soil. Compaction decreases pore space in soil, reduces its ability to absorb and retain water, and can increase runoff and overland flow. These conditions can also lead to a decrease in vegetation growth. Surface erosion can also affect vegetation growth and water quality. Sheet and rill erosion can remove fertile surface layers of soil, and also make revegetation difficult.

Nutrient Cycling

Nutrient cycling, microbial habitat, moisture retention and protection from mineral erosion are provided by coarse and fine woody debris in forested environments (Harmon et al, 1986). Forest management can affect the volumes of fine and coarse woody debris through timber harvesting and result in changes to potentially available nutrients for long-term forest production.

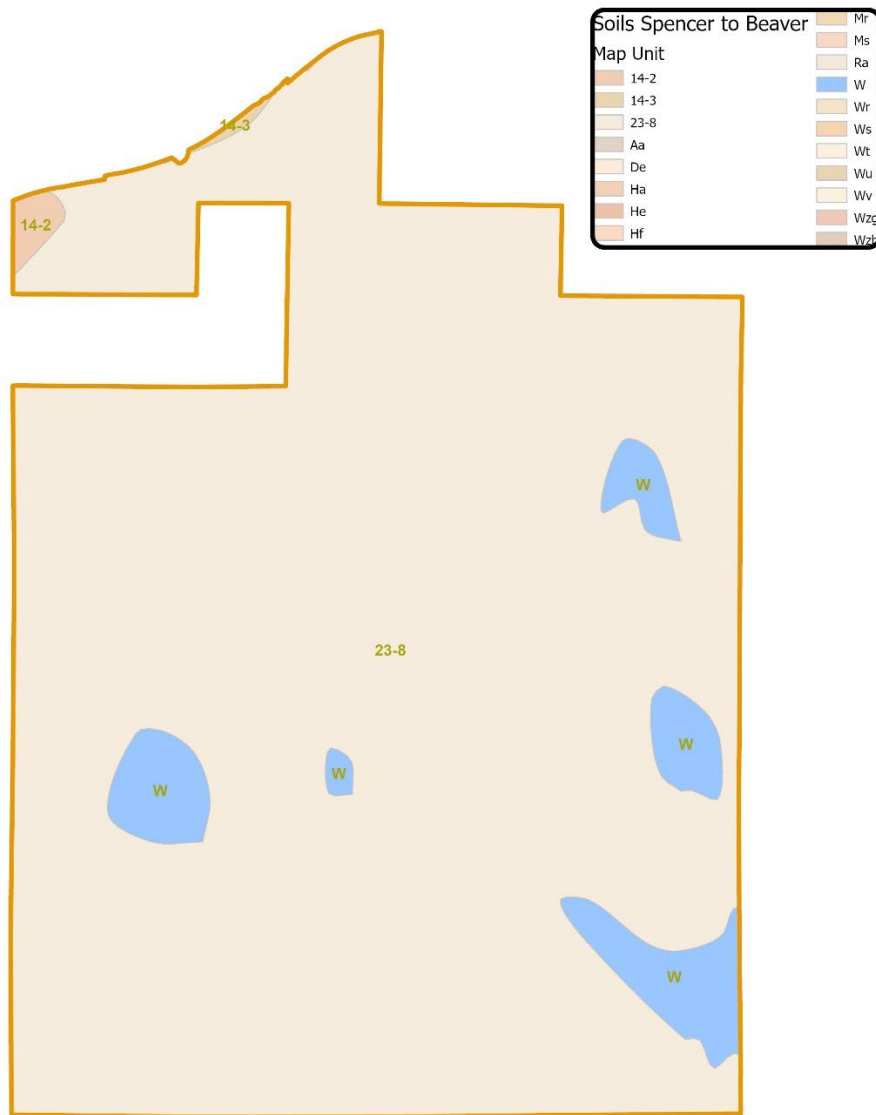
Slope Stability

Slope stability can be affected by timber management activities by removing stabilizing vegetation, concentrating runoff, or by increasing the soil moisture. The primary risk areas for slope stability problems include, but are not limited to, landtypes that are prone to soil mass movement, and soils on steep slopes (generally over 60 percent).

Analysis Areas

The analysis area for evaluating soil physical disturbance and nutrient cycling will include areas proposed for harvest within the gross project area. Analysis area for existing conditions and slope stability will include DNRC owned land within the Spencer to Beaver project area. A map of the Landtypes in the Spencer to Beaver project area is found below in **Figures S-1 and S-2**.

Figure S-2 – Spencer to Beaver Landtype Map – Beaver Lake Parcels



Analysis Methods

Physical Disturbance

Impacts to soil physical disturbance will be analyzed by evaluating the current levels of soil disturbance in the proposed project area based on field review and aerial photo review of existing and proposed harvest units. Percent of area affected is determined through pace transects, measurement, aerial photo interpretation, and GIS to determine skid trail spacing and skid trail width. From this, skid trail density and percent of area impacted are determined.

Estimated effects of proposed ground-based and cable yarding activities will be assessed based on findings of DNRC soil monitoring (DNRC, 2011). Soil erosion potential will be measured using the K-value as determined by the NRCS (1996). A description of the K-value and its associated interpretations is found in **Table S-2**.

Nutrient Cycling

Nutrient cycling will be analyzed by determining levels of coarse woody debris from research on habitat types similar to those found in the project area. The method for quantifying the coarse woody debris is described in the *Handbook for Inventorying Downed Woody Material* (Brown, 1974). Potential impacts to nutrient cycling will be assessed by evaluating risks to nutrient pools and long-term site productivity from timber sale contract requirements and mitigation measures.

Slope Stability

Slope stability risk factors will be analyzed by reviewing the Web Soil Survey to identify landtypes listed as high risk for mass movement. Field reconnaissance will also be used to identify any slopes greater than 60 percent as an elevated risk for mass movement.

Existing Conditions

Geology

The geology, landform and parent materials in the project area are generally quartzite and argillite bedrock soils with small areas of glacial till or glacial drift influence. Volcanic ash surface layers are common, especially on northern aspects. The majority of the bedrock consists of slightly metamorphosed sedimentary rocks formed from sand, silt, clay, and carbonate materials deposited in an ancient shallow sea during the Precambrian period.

Physical Disturbance (Compaction and Displacement)

Soil physical disturbance can be affected through management activities. In the gross project area, DNRC has conducted timber harvesting since the 1920's. Timber sale records dating back to the 1920s indicate most of the proposed project area has been harvested using a combination of ground-based and cable yarding methods. Ground-based yarding can create soil impacts through displacement and compaction of productive surface layers of soil, mainly on heavily used trails. Existing skid trails are spaced between 60 and 120 feet apart, and none were identified as erosion or sediment sources. Trails are still apparent, but most are well vegetated and past impacts are beginning to ameliorate from freeze-thaw cycles and root penetration. Based on pace transects of trail spacing, knife penetration tests for compaction, and ocular estimates of revegetation, approximately 10% of previously ground-skidded harvest units are in an impacted condition in the proposed project area.

Table S-2 – Soil Map Unit Description

Map Unit	Description	Acres	Analysis Area	Landtype Description	Compaction hazard	Erosion Hazard	Displacement Hazard
14-2	Glossic Cryoboralfs, lacustrine substratum	13	0.2	Moraines, flood plains	L	M	H
14-3	Aquepts, lacustrine substratum	4	0.1	Terraces, moraines, flood plains	L	M	H
23-8	Andeptic Cryoboralfs-Andic Cryochrepts complex, hilly	2902	53.8	Mountain slopes	M	M/H	M
Aa	Alluvial land, poorly drained	7	0.1	Bottomland	M	M	H
De	Depew silty clay loam, 0-3%	14	0.3	Terraces	H	M	H
Ha	Half Moon silt loam, 0-3%	11	0.2	Terraces	M	H	H
He	Half Moon very fine sandy loam, 7-12%	1	0.0	Terraces	M	H	H
Hf	Half Moon soils, 12-45%	5	0.1	Terraces	M	H	H
Mr	Mountainous land	21	0.4	Moraines	M	M	H
Ms	Muck and peat	3	0.1	Flood plains	NR	M	H
Ra	Radnor silt loam, 0-3%	2	0.0	Depressions	H	M	H
Wr	Whitefish cobbly silt loam, 0-7%	35	0.7	Moraines	M	M	H
Ws	Whitefish cobbly silt loam, 7-12%	13	0.2	Moraines	M	M	H
Wt	Whitefish cobbly silt loam, 12-20%	475	8.8	Moraines	M	M	H
Wu	Whitefish cobbly silt loam, 20-45%	29	0.5	Moraines	M	M	H
Wv	Whitefish gravelly silt loam, 0-7%	1	0.0	Moraines	M	L	H
Wzg	Whitefish stony silt loam, 12-20%	87	1.6	Moraines	M	M	H

Wzh	Whitefish stony silt loam, 20-45%	1509	28.0	Moraines	M	M	H
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Nutrient Cycling

Nutrient cycling was assessed in the proposed project area by stand walk-throughs to estimate the current levels of coarse woody debris. These evaluations found no apparent deficiencies in coarse woody debris in any of the stands proposed for harvest. Approximately 685 of the 1,219 acres proposed for harvest have been previously managed for timber production. All other acres should closely mirror natural conditions found in research. These results appeared generally within the recommended range discussed in *Managing Coarse Woody Debris in Forests of the Rocky Mountains* (Graham et. al., 1994) on similar habitat types. Sub-alpine fir and Douglas-fir habitat types in Montana are recommended to have a range of 7 to 25 tons/acre to maintain forest productivity.

Slope Stability

Slope stability was evaluated in the proposed project area through field review and aerial photo interpretation. Soil types in the project area range from gentle/flat in the valley bottoms to modest slopes (up to 45%) on convex ridges and glacially scoured ridges and hillsides. The Web Soil Survey reports the findings in the *Upper Flathead Valley Area, Montana (MT617)* and *Flathead National Forest Area, Montana (MT619)* (NRCS, 1998) soil surveys. Analysis of soils data in the proposed project area revealed that there are no map units with marginal stability concerns in the proposed project area. There are no areas within the proposed project area with slopes greater than 60%. No areas of slope instability or mass movement were identified during field reconnaissance. Because no areas of the slope instability were identified in any parcel of the proposed project area, and because none of the map units in the proposed project area is listed as a high risk for slope stability, slope stability will not be evaluated on this project in the remainder of this analysis. A list of soil map units found in the Spencer to Beaver project area and their associated management implications is found in **Table S-2**.

Environmental Effects

No Action Alternative: Direct, Secondary, and Cumulative Effects

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

Effects of Action Alternative: Direct, Secondary, and Cumulative Effects

Physical Disturbance (Compaction and Displacement)

Direct and Secondary

Based on DNRC soil monitoring on soils and sites similar to those found in the project area, direct impacts to soil physical disturbance would be expected on up to 195 of the total 1,219 acres proposed for harvesting in the proposed project area. Soil monitoring conducted on DNRC lands shows that sites harvested on DNRC lands statewide on similar soils with ground-based machinery had a range of impacts from 1 to 33 percent of the acres treated, with an average disturbance rate of 15.9% (DNRC, 2011). These impacts include operations on dry soils in non-winter conditions. As a result, the extent of impacts expected would likely be similar to those reported by DNRC soil monitoring (DNRC, 2011), or approximately 1 to 33 percent of

ground-based harvested acres. The proposal includes 1,219 acres of ground-based mechanical harvesting and construction of approximately 0.25 miles of new road.

Ground-based site preparation would be achieved through dispersed skidding on ground-based units. These activities would also generate direct impacts to the soil physical disturbance values. Site-preparation disturbance would be intentionally done, and these impacts are considered light and promote reforestation of the site. **Table S-3** summarizes the expected impacts to the soil resource as a result of the Action Alternative. These activities would leave approximately 16.0 percent of the proposed harvest units in an impacted condition. This level is below the range analyzed for in the *EXPECTED FUTURE CONDITIONS* section of the *SFLMP*, and well within the 20-percent impacted area established as a level of concern in the *SFLMP* (DNRC 1996). This level translates to a low risk of low direct and secondary impacts to soil physical disturbance. These impacts would likely persist for 20-40 years, depending on site specific conditions. In addition, BMPs (Best Management Practices) and a combination of mitigation measures would be implemented to limit the area and degree of soil impacts as noted in ARM 36.11.422 and the *SFLMP* (DNRC, 1996).

Cumulative

Cumulative effects to soil physical disturbance may occur from repeated entries into a forest stand where additional ground is impacted by equipment operations. With this alternative, approximately 685 of the 1,219 acres proposed for harvesting have had previous ground-based timber sale operations. Existing skid trails where compaction has begun to ameliorate through freeze-thaw cycles and revegetation would return to a higher level of impact due to this alternative. Additional trails may also be required if existing trails are in undesirable locations. The remaining acres proposed for harvesting have not been previously managed. Cumulative effects to soil physical disturbance in these areas would be identical to those displayed in the Direct and Secondary Effects section of this analysis. Cumulative impacts to soil physical disturbance under the Action Alternative would fall below the range analyzed for in the *EXPECTED FUTURE CONDITIONS* section of the *SFLMP* and are well within the 20-percent impacted area established as a level of concern in the *SFLMP* (DNRC, 1996). This level translates to a low risk of low cumulative impacts to soil physical disturbance. These impacts would likely persist for 20-40 years, depending on site specific conditions.

Table S-3 – Detrimental Soil Disturbance for the Action Alternatives

Area of Analysis	Total Area (Acres)	Disturbance Rate (%)	Affected Area (Acres)
Ground Based Harvest Units (including landings)	1,219	15.9	194
Roads *	0.8	100	0.8

* Assuming an average width of 25 feet, roads are approximately 3 acres per mile

Nutrient Cycling

Direct and Secondary

Direct and secondary effects to nutrient cycling may include a slight decrease in coarse woody debris from the Action Alternative by removing standing timber. This would present a low risk of low direct and secondary effects to nutrient cycling. These effects are estimated to persist for a moderate time duration. Some stands where woody debris levels are low may see an increase in large woody debris as a result of the proposed harvesting due to material being intentionally left on the ground. In addition, this alternative would lead to an increase in fine woody material in the form of limbs and tree tops being left after harvest. Through the timber sale contract,

approximately 7-25 tons of coarse woody material would be left on the ground following harvesting activities, as well as fine material for nutrient retention.

Cumulative

Risk of cumulative effects to nutrient cycling from nutrient pool loss would be low. This would present a low risk of low cumulative effects to nutrient cycling. These effects are estimated to persist for a moderate time duration. This alternative would follow research recommendations found in Graham (1994) for retention of coarse and fine woody debris through contract clauses and site-specific mitigation measures.

Soils Mitigations

- Limit equipment operations to periods when soils are dry (less than 20% oven-dried weight), frozen or snow-covered in order to minimize soil compaction and rutting, and to maintain drainage features. Check soil moisture conditions prior to equipment start-up.
- On ground-based units, the logger and sale administrator would agree to a skidding plan prior to equipment operations. Skid trail planning would identify which existing trails to use and how many additional trails are needed.
- Do not use existing trails if they are located in draw bottoms or other unfavorable locations.
- Grass seeding or other erosion control measures may be required to stabilize some trails.
- Limit ground-based operations to slopes less than 40% unless they can be used without causing excessive displacement or erosion.
- Keep skid trails to 20 percent or less of the harvest unit acreage. Provide for surface drainage on all roads and skid trails concurrent with operations.
- Slash disposal: Limit the total of disturbance and scarification to 30-40 percent of harvest units.
- Limit dozer piling to slopes less than 35 percent and limit excavator piling to slopes less than 40 percent unless it can be completed without causing excessive erosion.
- Retain between 7 and 25 tons/acre of woody debris 3-inches in diameter or greater (depending on habitat type) and a feasible majority of fine branches and needles 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 fine 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.

Soils References

- Brown, J. K. 1974. *Handbook for Inventorying Downed Woody Material*. In: USDA and Forest Service (editors). Ogden, Utah: Intermountain Forest and Range Experiment Station.
- DNRC, 2011. DNRC Compiled Soils Monitoring Report on Timber Harvest Projects. Missoula, MT.
- DNRC, 1996. State Forest Land Management Plan. Montana Department of Natural Resources and Conservation. Missoula, MT.

- 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 Forests of the Rocky Mountains. USDA Forest Service Research Paper. INT-RP-447. 13 pp.
- NRCS, 1995. MT634 – Soil Survey of Kootenai National Forest Area, Montana-Idaho. United States Department of Agriculture Natural Resources Conservation Service.
- NRCS, 1998. MT619 – Soil Survey of Flathead National Forest Area, Montana. United States Department of Agriculture Natural Resources Conservation Service.

Water Resources Analysis

Analysis Prepared By:

Name: Tony Nelson

Title: Hydrologist, Montana DNRC

Introduction

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

Issues and Measurement Criteria

The following issues encompass the specific issues and concerns raised through public comment and scoping of the proposed project. For a specific list of individual comments and concerns, please refer to the project file, located at the DNRC Stillwater Unit office.

Sediment Delivery

Sediment delivery and subsequent water quality impacts can be affected by timber harvesting and related activities (such as road construction), by increasing the production and delivery of fine sediment to streams. Construction of roads, skid trails, and landings can generate and deliver substantial amounts of sediment through the removal of vegetation and exposure of bare soil. In addition, removal of vegetation near stream channels reduces the sediment-filtering capacity and may reduce channel stability and the amounts of large woody material. Large woody debris is a very important component of stream dynamics, creating natural sediment traps and energy dissipaters to reduce the velocity and erosive power of stream flows. Other aspects of sediment analysis can also be found in the Fisheries Resources Assessment.

Measurement Criteria: Sediment from roads, harvesting activities and vegetative removal will be analyzed qualitatively through data collected during past statewide and DNRC internal BMP field reviews.

Water Yield

Water yield increases can result from timber harvesting and associated activities, which can affect the timing, distribution, and amount of water yield in a harvested watershed. Water yields increase proportionately to the percentage of canopy removal (*Haupt, 1976*), because removal of live trees reduces the amount of water transpired, leaving more water available for soil saturation and runoff. Canopy removal also decreases interception of rain and snow and alters snowpack distribution and snowmelt, which lead to further water-yield increases. Higher water yields may lead to increases in peak flows and peak-flow duration, which can result in accelerated streambank erosion and sediment deposition. Vegetation removal can also reduce peak flows by changing the timing of snowmelt. Openings will melt earlier in the spring with solar radiation and have less snow available in late spring when temperatures are warm. This effect can reduce the synchronization of snowmelt runoff and lower peak flows.

Measurement Criteria: The water yield increase for the project area streams and lakes was determined using field review and aerial photo interpretation. Visual inspection of the runoff

patterns and stream channel stability within the Spencer to Beaver project area were used to assess the impacts of past management to water yield. Aerial photo interpretation was used to determine the extent of past management in these watersheds.

Regulatory Framework

The following plans, rules, and practices have guided project planning and/or will be implemented during project activities:

Montana Surface Water Quality Standards

According to the Montana Surface Water Quality Standards found in *ARM 17.30.608 (1)(a)*, this portion of the Flathead River drainage, including the Stillwater River, its tributaries and the various lakes found within the proposed project area, is classified as B-1. Among other criteria for B-1 waters, no increases are allowed above naturally occurring levels of sediment, and minimal increases over natural turbidity. "Naturally occurring," as defined by *ARM 17.30.602 (19)*, includes conditions or materials present during runoff from developed land where all reasonable land, soil, and water conservation practices (commonly called Best Management Practices or BMPs) have been applied. Reasonable practices include methods, measures, or practices that protect present and reasonably anticipated beneficial uses. These practices include, but are not limited to, structural and nonstructural controls and operation and maintenance procedures. Appropriate practices may be applied before, during, or after completion of activities that could create impacts.

Designated beneficial water uses within the project area include cold-water fisheries and recreational use in the streams, wetlands, and lakes in the surrounding area. Several existing surface water rights exist in the Stillwater River corridor adjacent to the proposed project area. They include stock watering, irrigation, fish and wildlife, and domestic use. Each of these surface water rights are located on private land adjacent to parcels of DNRC Trust Lands in the proposed project area.

Water-Quality-Limited Waterbodies

None of the streams or lakes in the proposed project area are currently listed as water-quality-limited waterbodies in the *2020 Montana 303(d)* list (*DEQ, 2020*). Reaches of the Stillwater River approximately adjacent to the proposed project area are listed as not fully supporting aquatic life. Probable causes are listed as Alteration in stream-side or littoral vegetative covers (*with probable sources listed as Site Clearance (Land Development or Redevelopment), Agriculture, Loss of Riparian Habitat*); and Sedimentation-Siltation (*with probable sources listed as Loss of Riparian Habitat, Site Clearance (Land Development or Redevelopment), Upstream Source*). A total maximum daily load (TMDL) has been developed, but these are the issues that still persist in this river system. DNRC is an active partner and participant in this process. All proposed activities within the Project Area would implement activities to alleviate identified sources of sediment and comply fully with all TMDL requirements.

Montana Streamside Management Zone (SMZ) Law

By the definition in *ARM 36.11.312 (4)*, several stream reaches in the proposed project area are Class 2 streams. These streams have flow for more than 6 months each year but do not

contribute flow to downstream waters. A Class 1 stream is defined as a stream that supports fish; or a stream that normally has surface flow during 6 months of the year or more, and contributes surface flow to another stream, lake or other body of water (*ARM 36.11.312 (3)*). A Class 3 stream is defined as a stream that does not support fish, normally has surface flow during less than 6 months of the year, and rarely contributes surface flow to another stream, lake or other body of water (*ARM 36.11.312 (5)*). According to *ARM 36.11.312 (4)*, a Class 2 stream is a portion of a stream that is not a Class 1 or Class 3 stream segment.

Forest Management Rules

In 2003, DNRC drafted Administrative Rules for Forest Management. The portion of those rules applicable to watershed and hydrology resources include *ARM 36.11.422* through *426*. All applicable rules will be implemented if they are relevant to activities proposed with this project.

Analysis Areas

Sediment Delivery

Analysis area for direct, indirect and cumulative effects to sediment delivery will be analyzed on all existing roads in and leading to the proposed project area; and on stream channels for in-channel sources of sediment and harvest unit areas for harvest-related sediment sources. Additional sites on proposed haul routes located outside the project area will be assessed qualitatively for their potential to affect downstream water bodies.

Water Yield

Direct, indirect, and cumulative effects to water yield will be analyzed in the stream and lake systems within the proposed project area. All existing activities on all ownerships and proposed activities related to the Spencer to Beaver project, including road construction, within each Project Area watershed will be analyzed using methods described below. These areas were chosen as an appropriate scale of analysis, and will effectively display the estimated impacts of proposed activities.

Analysis Methods

Where risk is assessed in both sediment-delivery and water-yield analyses, the following definitions apply to the level of risk reported:

- low risk means that impacts are unlikely to result from proposed activities,
- moderate risk means that there is approximately a 50 percent chance of impacts resulting from proposed activities, and
- high risk means that impacts are likely to result from proposed activities.

Where levels or degrees of impacts are assessed in this analysis, the following definitions apply to the degree of impacts reported:

- very low impact means that impacts from proposed activities are unlikely to be measurable or detectable and are not likely to be detrimental to the water resource;
- low impact means that impacts from proposed activities would likely be measurable or detectable, but are not likely to be detrimental to the water resource;
- moderate impact means that impacts from proposed activities would likely be measurable or detectable, and may or may not be detrimental to the water resource;
- high impact means that impacts from proposed activities would likely be measurable or detectable, and are likely to have detrimental impacts to the water resource.

Sediment Delivery

Analysis methods to assess sediment delivery will include qualitative assessments where stream crossings exist within the proposed project area using visual inspection and lineal measurement to determine the road surface area delivering to a stream. Sediment from roads, harvesting activities and vegetative removal will be analyzed qualitatively through data collected during past statewide and DNRC internal BMP field reviews.

Water Yield

Analysis methods to assess water yield increases for the project area streams was determined using field review and aerial photo interpretation. Visual inspection of the runoff patterns and stream channel stability within the Spencer to Beaver project area were used to assess the impacts of past management to water yield. All existing activities on all ownership within project area watersheds and proposed activities related to the Spencer to Beaver project will be analyzed using methods described above.

Existing Conditions

General Description

The following section will describe the existing conditions within the proposed project area and the analysis areas that are relevant to the issues discussed above in this analysis.

Sediment Delivery

Sediment delivery in these parcels was reviewed by a DNRC hydrologist in 2024 and 2025. Two stream channels were identified in the northern parcels of the Beaver Lakes portion of the project area. Two unnamed discontinuous perennial streams flow through a portion of the project area. These are class 2 streams with an approximately 2 to 3-foot bankfull widths. The streams were classified as a B3/4 channel using a classification system developed by *Rosgen* (1996). Channel types rated as “B” are typically in the 2- to 4-percent gradient range, and have a moderate degree of meander (sinuosity). Channel-bed materials in B3/4 types are mainly cobble and gravel. No areas of unstable or actively down-cut channels were identified during field reconnaissance. Large woody debris was found in adequate supply to support channel form and function. Woody material in a stream provides traps for sediment storage and gradient breaks to reduce erosive energy and work as flow deflectors to reduce bank erosion. No evidence of past SMZ harvesting was found. Based on these findings, no in-channel sources of erosion or deposition were identified in project area streams.

No other sediment delivery from the existing road system was identified on any of the proposed haul routes within or leading to the project area. The existing road system in the proposed project area is low to moderate standard native-surfaced road. Some reaches have a crushed gravel surface to help them withstand heavy recreational use. Most reaches meet applicable best management practices for surface drainage and erosion control. Road surfaces on gated systems are mainly densely vegetated with grass/forbs and are not actively eroding. Improvements to BMPs at specific sites may be required prior to use. Most road grades are generally under 8%. The road system was constructed to access timber harvesting by the Montana DNRC during past entries, and is also used to facilitate recreational use and access to numerous lakes and campgrounds within the proposed project area. Most of the road segments in the project area are not causing active erosion or sediment delivery to streams.

Water Yield

No water yield impacts were identified from past activities in and around the proposed project area streams, draws or lakes. Past management activities consist of timber management and recreational use on state land.

Evidence of water yield increases was not found during field reconnaissance of the proposed project area. As a result, it was determined that a detailed water yield analysis would not be necessary for the proposed project area. None of the broad ephemeral draws within the proposed project area have any evidence of overland flow (channel scour, re-alignment of litter, definable banks). Defined stream channels showed no evidence of instability from water yield increases, and very little scouring effect from annual runoff events. As a result, water yield increases resulting from past activities in the watershed have not been sufficient to destabilize stream channels, or to scour a channel in any of the broad draws throughout the project area. After evaluating the watershed cumulative effects risks along with the current conditions in the Spencer to Beaver project area, by ARM 36.11.423, a detailed quantitative watershed analysis is not needed in these parcels.

Environmental Effects

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

Sediment Delivery

Direct and Secondary

Under this alternative, no timber harvesting or related activities would occur. Sediment from all sources would continue as described in Existing Conditions.

Cumulative

No additional cumulative impacts from sediment delivery would be expected. Sediment delivery sites from roads on the proposed haul routes would remain unchanged, as would the sediment sources described in Existing Conditions.

Water Yield

Direct and Secondary

No increased risk of increases or reductions in annual water yield would result from this alternative.

Cumulative

No increase in water yield would be associated with this alternative. As vegetation continues toward a fully forested condition, annual water yields would also be expected to gradually decline.

Effects of Action Alternative: Direct, Secondary, and Cumulative Effects

Sediment Delivery

Direct and Secondary

There is a low risk of direct or secondary effects to sediment delivery to streams from the timber harvesting activities proposed in either Action Alternative. The SMZ law, Administrative Rules for Forest Management, Riparian Management Zones (RMZ), channel migration zones (CMZ) on fish-bearing Class 1 streams, and applicable BMPs would be applied to all harvesting activities, which would minimize the risk of sediment delivery to draws and streams. The Montana BMP audit process has been used to evaluate the application and effectiveness of forest-management BMPs since 1990; this process has also been used to evaluate the application and effectiveness of the SMZ Law since 1996. During that time, evaluation of ground-based skidding practices near riparian areas has been rated 92 percent effective, and these same practices have been found effective over 99 percent of the time from 1998 to present (*DNRC 1990 through 2024*). Since 1996, effectiveness of the SMZ width has been rated over 99 percent (*DNRC 1990 through 2024*). As a result, with the application of BMPs and the SMZ Law, proposed activities are expected to have a low risk of low impacts to sediment delivery.

There is a low risk of direct or secondary effects to sediment delivery to streams from the use of existing roads proposed in the Action Alternative. The existing road system meets BMP standards, and no direct sources of sediment were identified. Applicable BMPs would be maintained or improved on approximately 20.37 miles of existing roads within and leading to the proposed project area. Use of existing closed roads to haul timber would present a low risk of low impacts to sediment delivery due to vegetation loss on existing grassed-in roads.

There is a high risk of low impacts to sediment delivery from construction of approximately 0.25 miles of new road. No new stream crossings are proposed on any of these miles of proposed new road. The risk of sediment delivery would remain elevated for 2 to 3 years after project completion while bare soils are revegetated.

Cumulative

Risk of sediment delivery and sediment loading to the Stillwater River and waters downstream from the proposed project area would be slightly increased from current levels in the short term and below current levels in the long term. Maintenance and improvement of existing erosion control and surface drainage on the existing road system would yield erosion rates similar to or below current levels. Overall, there is a high risk of short-term low-level increases in sediment loading for about 2 to 3 years. However, water quality standards are expected to be met and there is a low risk of impacts to beneficial uses.

Water Yield

Direct and Secondary

There is a low risk of very low direct or secondary effects to water yield from harvesting approximately 1,219 acres of timber under this alternative within the proposed project area. It is a low risk that this level of harvesting would be sufficient to generate measurable increases in water yield in any streams located within or near the project area or cause channel instability. The stability of channels would be sufficient to handle any anticipated increases without measurable change. It is also a low risk that this level of harvesting would be sufficient to generate flow in ephemeral draws sufficient to scour new channels. As a result, there is a low risk of very low direct or secondary impacts to water yield in project area drainages as a result of either proposed Action Alternative.

Cumulative

The proposal is to harvest the stands within the proposed project area with a shelterwood prescription. Cumulative effects to water yield in this parcel are not anticipated for the following reasons: 1) The well-drained nature of the soils would absorb additional available and not produce increased surface runoff, and would in turn produce little or no detectable change in water yield from upland sites, 2) Flows in project area streams and draws are stable, channels have not shown increased lateral or vertical erosion that could be attributed to increased flows, so any increases in water yield present a low risk of increased in-channel erosion or other channel adjustments, and 3) The other streams and ephemeral draws within these parcels are stable and vegetated with a dense mat of grass and forbs vegetation or armored with bed materials, making them capable of handling potential water yield increases without destabilizing.

Water Resources Mitigations

Hydrologic related resource mitigations that would be implemented with the proposed Action Alternative include:

- implement Riparian Management Zones on all Class 1 lakes based on site-potential tree heights in the project area
- implement BMPs on all new roads and improve BMPs on existing roads where needed
- use spot-blading on existing roads to preserve as much of the existing vegetative cover as possible on vegetated road surfaces

Water Resources References

DNRC, 1990-2018. Montana Forestry Best Management Practices Monitoring. Missoula, Montana.

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Fisheries Resources Assessment

Assessment Prepared By:

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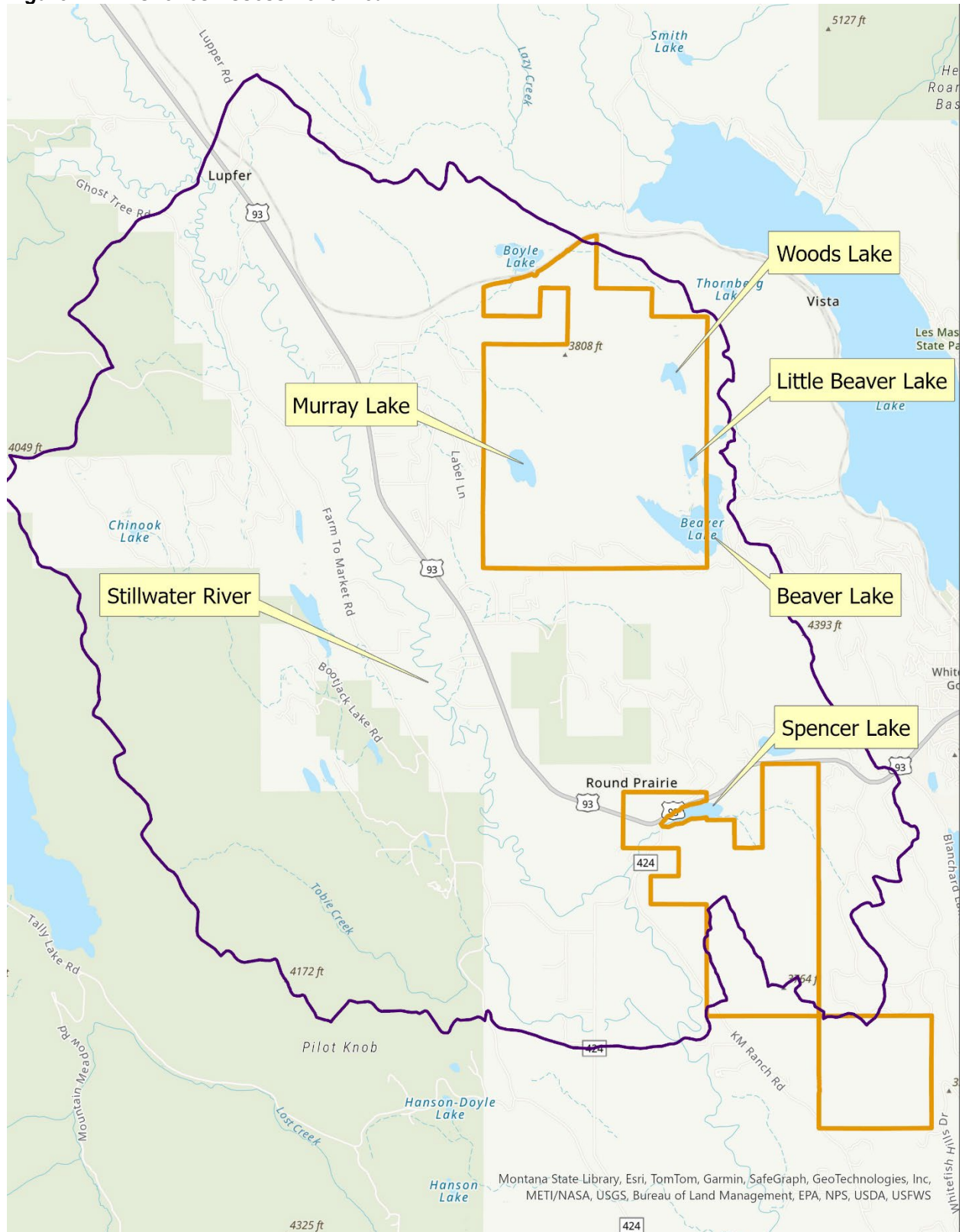
Introduction

The following assessment will disclose anticipated effects to fisheries resources within the Spencer to Beaver project area.

Assessment Areas

The assessment area for direct, indirect and cumulative effects will be used to evaluate the existing and potential impacts to fisheries resources associated with the proposed project. The assessment area was chosen because it includes (1) the watershed of known or potential fish-bearing streams and lakes and (2) the proposed harvest units and haul routes that could have foreseeable, measurable, or detectable impacts to those fisheries resources. The assessment area is shown in Figure F1 below.

Figure F1 – Fisheries Assessment Area



Assessment Methods

Methodology to assess the status and potential impacts of the proposal to fish populations will include presence/absence determinations in project area parcels and evaluating risk factors to habitat degradation. The risk factors to habitat degradation were evaluated with a sediment source inventory during preparation of the Spencer to Beaver project. The inventory included cataloging channel stability, in-channel and out-of-channel sediment sources.

The descriptions of foreseeable adverse impacts to fisheries resources are described in Table F1 – Descriptions of foreseeable adverse impacts. Positive impacts to fisheries resources will also be described, if applicable, using information on impact extent and duration.

Table F1 – Descriptions of foreseeable adverse impacts.

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

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

Issues

For the purposes of this environmental assessment, issues will be considered actual or perceived effects, risks, or hazards as a result of the proposed alternatives. Issues, in respect to this environmental assessment, are not specifically defined by either the Montana Environmental Policy Act or the Council on Environmental Quality.

Fisheries resource issues raised internally include: the proposed actions may adversely affect fisheries habitat features, including channel forms, stream temperature and connectivity.

Regulatory Framework

The US Fish and Wildlife Service has listed bull trout as ‘threatened’ under the Endangered Species Act. Both bull trout and westslope cutthroat trout are listed as S2 Montana Animal Species of Concern. Species classified as S2 are considered to be at risk due to very limited and/or potentially declining population numbers, range, and/or habitat, making the species vulnerable to global extinction or extirpation in the state (Montana Fish, Wildlife and Parks, Montana Natural Heritage Program, and Montana Chapter American Fisheries Society Rankings). DNRC has also identified bull trout and westslope cutthroat trout as sensitive species (ARM 36.11.436).

DNRC is a cooperator and signatory to the following relevant agreements: Restoration Plan for Bull Trout in the Clark Fork River Basin and the Kootenai River Basin, Montana (2000), Memorandum of Understanding (2005) for the Swan Valley Bull Trout Work Group, and Memorandum of Understanding and Conservation Agreement for Westslope Cutthroat Trout and Yellowstone Cutthroat Trout in Montana (2007). All 3 agreements contain land management conservation strategies or action items utilized by DNRC as decision-making tools.

Fisheries-specific forest management ARMs (36.11.425 and 36.11.427), the SMZ Law and rules, and other site-specific prescriptions would be implemented as part of any action alternative.

All waterbodies contained in the fisheries analysis area(s) are classified as B-1 in the Montana Surface Water Quality Standards (ARM 17.30.608[1][a]). The B-1 classification is for multiple beneficial-use waters, including the growth and propagation of cold-water fisheries and associated aquatic life. Among other criteria for B-1 waters, a 1-degree Fahrenheit maximum increase above naturally occurring water temperature is allowed within the range of 32 to 66 degrees Fahrenheit (0 to 18.9 degrees Celsius), and no increases are allowed above naturally occurring concentrations of sediment or suspended sediment that will harm or prove detrimental to fish or wildlife. In regard to sediment, naturally occurring includes conditions or materials present from runoff or percolation from developed land where all reasonable land, soil, and water conservation practices have been applied (ARM 17.30.602[19]). Reasonable practices include methods, measures, or practices that protect present and reasonably anticipated beneficial uses (ARM 17.30.603[25]). The State has adopted BMPs through its Nonpoint Source Management Plan as the principle means of controlling nonpoint source pollution from silvicultural activities.

Existing Conditions

Lower Stillwater River Assessment Area

The Stillwater River – Tobie Creek sub-watershed of the Lower Stillwater River watershed define the boundary of this assessment area. The proposed activities that may affect fisheries resources in the Lower Stillwater River assessment area include: upland and RMZ timber harvest; forest road construction; and forest road utilization for timber hauling and equipment transportation. The fisheries resource variables potentially affected by the proposed actions are channel forms, sediment, flow regime, stream shading, stream temperature, and connectivity.

Bull trout are known to occur throughout approximately 10 miles of stream reaches in the Lower Stillwater River watershed. Westslope cutthroat trout are known to occur throughout several of the lakes in the Spencer to Beaver project area, including Beaver, Little Beaver, Murray, Rainbow, Woods and Spencer Lakes. Other fish species known to inhabit project area lakes and streams include: Brook trout, Flathead minnow, Kokanee salmon, Rainbow trout, and Redside shiner.

Channel forms comprise the primary spatial component of fisheries habitat and include the frequency and volume of different slow and fast water features. Stream temperature is the primary thermal component of fisheries habitat and typically includes watershed-specific seasonal and daily fluctuations. Although channel forms and stream temperature are a function of numerous environmental processes, the variables of sediment, flow regime, woody debris and stream shading are major contributors that are also potentially affected by the proposed actions. Furthermore, the ranges of conditions of all of these variables throughout a watershed are highly varied, and the mechanisms by which they are naturally affected are also numerous and complex. For the purposes of this environmental assessment, potentially measureable or detectable effect mechanisms to these variables will be used to evaluate existing conditions and the foreseeable effects of the proposed actions. Site-specific surveys within project area lands serve as a resource subsample to extrapolate foreseeable effects across the assessment area.

Road-stream crossings and roads adjacent to stream channels (both perennial and intermittent stream channels) may be major sources of existing direct and indirect effects to the sediment component of fisheries habitats. No road-stream crossings were identified in the proposed project area on DNRC-managed land. Road-stream crossing density per square mile is 0 in the proposed project area on DNRC-managed land. The length of all roads within 300 feet of all streams is 0.55 miles. The density of adjacent roads within 300 feet of a stream is less than 0.01 miles per square mile in the proposed project area. No direct sediment delivery was observed during field reconnaissance from roads located adjacent to streams. Sediment delivery is analyzed in the watershed and hydrology portion of the analysis. While the precise level and extent of impact from each individual road-stream crossing or adjacent road is unknown, the expected existing direct and indirect impact to sediment from road sources is low in the proposed project area due to low-level proximity of roads to fish-bearing streams.

Flow regime components include total annual water yield and peak seasonal flow timing, duration and magnitude. In addition to the physical geography of a watershed, this variable is also greatly affected by both natural disturbances and land management activities. The Water Resources analysis indicates that the existing condition in the assessment area is expected to be within the historic range of variability.

Riparian zone vegetation heavily influences the delivery and in-channel frequency of woody debris, a major component of channel forms. The riparian zone is also a major regulator (shading) of stream temperature, since direct solar radiation is an important driver of stream thermal regimes, especially during peak seasonal periods. Riparian vegetation in the unnamed discontinuous, perennial streams in the proposed project area is mainly a mature forest overstory with hardwood shrubs in the understory. Riparian vegetation along the Stillwater River was not evaluated for this analysis due to the Stillwater River being located a minimum of 600 feet from any portion of the proposed project area. Based on field reconnaissance, stream shading is adequate to maintain shade cover on stream reaches in the assessment area.

While the level of impact from each affected riparian zone is unknown, the expected existing direct and indirect impact to both woody debris and stream temperature is low in the assessment area.

No existing impacts to fisheries connectivity were found in the proposed project area.

Other existing impacts to fisheries resources in the analysis area, but outside of the immediate project area include: high impacts to native fish species through displacement, disease, and hybridization by nonnative species; road-stream crossings that likely affect habitat connectivity; recreational fishing pressures; stream dewatering for agricultural or other purposes; and off-road vehicle impacts. (Past potential effects from forest management activities performed on all land ownerships are included in the assessment of existing direct and indirect effects.) The combination of direct and indirect effects and other existing impacts are expected to have an existing moderate cumulative impact to fisheries resources in the assessment area.

Environmental Effects

The environmental effects section will compare the existing conditions to the anticipated effects of the proposed No-Action and Action Alternatives to determine the foreseeable impacts to associated fisheries resources.

Lower Stillwater River Assessment Area

No Action Alternative: Direct, Indirect, and Cumulative Effects

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

Future-related actions considered part of cumulative impacts include other forest management practices; continued high impacts to native fish species by nonnative species; a stable to declining number of road-stream crossings that affect habitat connectivity; stable to increasing recreational fishing pressures; ongoing stream dewatering for agricultural or other purposes; and ongoing off-road vehicle impacts. Open, public roads that intersect the analysis areas will continue to be utilized year-round for forest management, recreation and other purposes. Consequently, foreseeable cumulative impacts to fisheries resources are expected to be similar to those described in Existing Conditions.

Effects of Action Alternative: Direct, Indirect, and Cumulative Effects

The proposed actions and affected fisheries resources in all analysis areas are broadly described in Chapter 2 of this analysis. Project-specific BMPs and road maintenance would be applied to all segments of the haul routes through the assessment area (see Water Resources analysis). All impact descriptions are short-term unless otherwise noted.

Increased truck traffic can accelerate the mobilization and erosion of roadbed material on roads located adjacent to streams. However, through the implementation of project-specific BMPs and road maintenance, the associated road sites would be expected to deliver most mobilized sediment away from the stream and road prism and filter eroded material through roadside vegetation. There are no existing road-stream crossings in the proposed project area, so the road-stream crossing density is 0 sites per square mile. The Action Alternatives would construct approximately 0.25 miles of new road and would not construct any new road-stream crossings.

The length of roads that would be used within 300 feet of all streams is 0.55 miles. None of the proposed 0.25 miles of new temporary road would be constructed within 300 feet of a stream. Project-specific BMPs and road maintenance would be expected to substantially offset the risk of increased sediment delivery due to project-specific vehicle traffic. As a result, low impacts to sediment are expected in the assessment area.

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

As described in the Water Resources analysis, the levels of proposed timber harvest is not expected to lead to measureable increases in water yield or consequent changes in flow regime.

Neither Action Alternative would propose harvest within an established Riparian Management Zones (RMZ) along class 1 streams or fish-bearing lakes. The established RMZ for the project area is 82 feet based on 100-year site-index site-potential tree heights. Rules within the RMZ establish a 50-foot no-cut buffer, and allow harvest of 50 percent of merchantable trees between 50 and 82 feet away from fish-bearing streams and lakes and non-fish-bearing perennial streams. Neither Action Alternative would propose harvest within an established Streamside Management Zones (SMZ). All proposed harvesting activities would follow all applicable laws and rules. An analysis of riparian harvest prescriptions in the Environmental Impact Statement for the Forested State Trust Lands Habitat Conservation Plan indicates a low risk of impacts to woody debris and stream shading (and stream temperatures affected by direct solar radiation). Due to the very limited magnitude and extent of this management action, low impact to woody debris and stream shading is expected in the proposed project area.

Due to the potential effects to riparian shading, a consequent low impact to stream temperature is expected in the proposed project area.

As part of the consideration of cumulative effects, all direct, indirect and other related impacts described in the Existing Conditions and Environmental Effects for the No-Action Alternative would be expected to continue. Additionally, low direct and indirect impacts may occur to channel forms, and low direct and indirect impacts may occur to stream temperature as a result of implementing the proposed actions. Considering all of these impacts collectively, a low risk of cumulative impacts to fisheries resources are expected in the proposed project area.

Fisheries Mitigations

Fisheries related resource mitigations that would be implemented with the proposed Action Alternative include:

- Applying all applicable Forestry BMPs (including the SMZ Law and Rules) and Forest Management Administrative Rules for fisheries, soils, and wetland riparian management zones (ARMs 36.11.425 and 36.11.426)

Fisheries References

Wildlife Resources Analysis

Analysis Prepared By:

Name: Vicki Forristal

Title: Wildlife Biologist, Montana DNRC

Introduction

The following analysis will disclose the anticipated direct, secondary, and cumulative effects to wildlife associated with the No-Action and Action Alternatives.

Issues

- Mature forest cover, old-growth, and connectivity. The proposed activities could decrease forested cover, which may reduce habitat connectivity and suitability for wildlife species associated with mature and old-growth forest.
- Canada lynx. The proposed activities could result in the modification of habitat preferred by Canada lynx and decrease the area's suitability for lynx.
- Grizzly bears. The proposed activities could alter grizzly bear cover, reduce secure areas, and increase human access, which could adversely affect bears by displacing them from important habitats and/or increase risk of human-caused bear mortality.
- Common Loons. The proposed activities could alter shoreline nesting habitat or disturb common loons during the breeding season, which could adversely impact loon reproduction.
- Fishers. The proposed activities could decrease habitat suitability for fishers by decreasing canopy cover in forest stands, decreasing abundance of snags and coarse woody debris, and elevating risk of trapping mortality due to increased road access.
- Pileated woodpeckers. The proposed activities could reduce tree density and alter the structure of forest stands, which could reduce habitat suitability for pileated woodpeckers.
- Big game. The proposed activities could reduce habitat quality for big game, especially during the fall hunting and winter seasons, by removing forest cover, and disturbing animals.
- Bald eagle. The proposed activities could reduce bald eagle nesting and perching structures and/or disturb nesting bald eagles.
- Nesting raptors. The proposed activities could reduce nesting structures and habitat for northern goshawk, osprey, and red-tailed hawks.

Regulatory Framework

The following plans, rules, and practices have guided this project's planning and/or will be implemented during project activities: *DNRC Forest Management Rules, the Endangered Species Act, the Migratory Bird Treaty Act, and the Bald and Golden Eagle Protection Act.*

Analysis Areas

Direct and Secondary Effects Analysis Area

Direct and indirect effects of the proposed activities on all species/issues were analyzed within the project area (FIGURE WI-1), which consists of portions of non-contiguous DNRC parcels in sections 7,8,16, 17,18,19, 20, 21, and 33 of T31N, R22W and sections 4, 5, 9, 15, of T30N R22W.

Cumulative Effects Analysis Areas

The cumulative effects of the proposed activities on all species/issues were analyzed at a broad surrounding landscape scale that varies according to the issue or wildlife species being discussed. Cumulative effects analysis areas are named according to the relative size of the area and are summarized in TABLE WI-1 and FIGURE WI-1. Cumulative effects analysis areas (CEAAs) include the project area as well as lands managed by other agencies and private landowners. Detailed descriptions of each analysis area are located in the **Affected Environment** section for each issue or wildlife species evaluated (e.g., Canada lynx, pileated woodpecker, etc.). In general, CEAAs were delineated to approximate the size of a focal species' home range or to approximate a surrounding landscape in which the proposed activities could most likely have measurable cumulative effects to wildlife habitat.

Table WI-1 - Wildlife Analysis Areas. *Descriptions of the areas used to analyze the proposed project's effects on wildlife species/issues.*

Analysis Area Name	Description	Total Acres	Issues/Species Analyzed
Project Area	<i>Portions of sections 7,8, and 33 of T31N, R22W, sections 16, 17, 18, 19, 20 & 21 of T31N R22W, portions of sections 4,5 of T30N, R22W, and sections 9 & 15 of T30N, R22W.</i>	5,397	Direct & indirect effects for all issues/species
Small CEAA	The project area and portions of sections surrounding it.	19,937	Mature forest cover, pileated woodpeckers, fisher
Large CEAA	Portions of the Lazy Creek, Whitefish Lake, Stillwater-Tobie Creek, Whitefish River-Whitefish, and Stillwater River-Beaver Creek HUC12 subwatersheds.	36,040	Canada lynx, grizzly bear, big game

Analysis Methods

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

Road density was calculated in linear miles per square mile by dividing the number of road miles by the specified analysis area in square miles. Open road mileage and density include both public and private access roads.

The coarse-filter wildlife analysis section includes analyses of the direct, secondary, and cumulative effects of the proposed alternatives on old-growth forest and connectivity of mature forest habitat.

In the fine-filter analysis, individual species of concern are evaluated. These species include wildlife species federally listed under the Endangered Species Act, species listed as sensitive by DNRC, and species managed as big game by the Montana Department of Fish Wildlife and Parks (DFWP).

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

Table WI-2 Recent projects. *Recent projects that could contribute to cumulative effects and the number of harvested or potentially affected acres that occur in each analysis area.*

Project Name	Agency	Status	Project Area	Small CEAA	Large CEAA
Beaver Lake 2020	DNRC	Closed	651	651	651
Boyle Lake 2020	DNRC	Closed	0	207	207
KM Ranch Fuels Reduction	DNRC	Closed	0	0	259
Lazy Swift #2	DNRC	Closed	0	1	97
Lupfer Morrill	DNRC	Closed	0	0	16
North Lake Salvage	DNRC	Active	0	72	75
North Spencer	DNRC	Closed	874	939	939
North Spencer Beetle Salvage	DNRC	Closed	381*	381*	381*
Spencer Blowdown Salvages 2017 & 2018	DNRC	Closed	550*	550*	550*

Round Prairie	DNRC	Active	55	178	251
Spencer Lake South	DNRC	Closed	543	689	689
Twin Bridges	DNRC	Closed	27	27	27
Ray Kuhns Forest Habitat Improvement and Fuels Reduction Project	DWFP	Active	0	0	288

*Occurred within the footprint of the North Spencer Timber Sale. Scattered small patches were salvaged within the area reported.

Coarse Filter Wildlife Analysis

Issue

The proposed activities could decrease forested cover, which may reduce habitat connectivity and suitability for wildlife species associated with mature and old-growth forest.

Introduction

A variety of wildlife species rely on older, mature forests to meet some or all of their life history requirements. Mature forests, generally characterized by abundant large-diameter trees and dense canopy cover, play an important role in providing food, shelter, breeding sites, resting areas, and/or travel corridors for certain animals. Wildlife use of older, mature forests is species-specific; some species use this habitat exclusively, other species only temporarily or seasonally, and some species avoid mature forests altogether. Several species known to be strongly associated with mature and old forests include American marten (*Martes americana*), northern goshawk (*Accipiter gentilis*), and winter wrens (*Troglodytes troglodytes*).

Forested landscapes in the western United States were historically shaped by natural disturbance events; primarily wildfire, blowdown, and pest outbreaks. Resulting landscape patterns were a mosaic of forest patches varying in age, species composition and development. Timber harvest, like high-severity wildfire and blowdown, is a disturbance event that often creates open patches of young, early-successional habitat. Patch size, age, shape, abundance, and distance to similar patches (connectivity) can be factors influencing wildlife use. The way through which patch characteristics influence wildlife use and distribution are dependent upon the particular species and its habitat requirements. Temporary non-forested openings, patches, and forest edges created by timber harvest and associated roads may be avoided by certain wildlife species adapted to mature, well-stocked forests. In contrast, other wildlife species flourish in early seral habitats created by disturbance. Connectivity of forest stands under historical fire regimes in the vicinity of the project area was likely relatively high as fire differentially burned various habitats across the landscape (Fischer and Bradley 1987).

Analysis Area

The analysis area for direct and indirect effects is the project area and the analysis area for cumulative effects is the 19,937-acre Small CEAA as described in TABLE WI-1 and depicted in FIGURE WI-1. The Small CEAA is large enough to support a diversity of species that use mature forested habitat and/or require connected forested habitats and centers evaluation of cumulative effects on those areas most likely to be affected by the proposed action.

Measurement Criteria

Mature forested habitat was defined as forest stands over 1 acre in size with $\geq 40\%$ canopy cover comprised primarily of trees ≥ 9 inches dbh. Forested stands containing trees of at least this size and density were considered adequate for providing minimal conditions necessary to facilitate movements of many wildlife species that benefit from well-connected mature forest conditions across the landscape. On DNRC-managed lands, old-growth stands were identified using the tree density, age, and size standards published in Green et al. (1992). Road density was calculated in linear miles per square mile by dividing the number of road miles by the specified analysis area in square miles. Factors considered in the analysis include: 1) availability of mature forested habitat ($\geq 40\%$ canopy cover, ≥ 9 inches dbh, ≥ 1 acre) and old-growth forest, 2) average patch size, 3) the degree of timber harvesting, 4) open and restricted road density, and 5) the availability of potential travel corridors.

Affected Environment

The project area currently contains approximately 2,728 acres (50.5% of project area) of mature forest stands (≥ 1 acre) that have a reasonably well-developed canopy (≥ 9 -inch dbh, $\geq 40\%$ crown closure). Mature forest in the project area consist primarily of Douglas-fir, Douglas-fir/western larch, and western larch stands. Within the project area, there are 57 patches of mature forest that range from 1 to 808 acres in size (TABLE WI-3, FIGURE WI-2). Eight of these patches exceed 40 acres (range 40 to 808 acres) and contain 87.7% of the mature forest in the project area. Several of the mature forest patches are connected to mature forest stands outside of the project area. Forest health issues are impacting portions of the project area and include beetle activity, mistletoe, and root rot. Overall, mature forest abundance is moderate in the project area.

Old-growth forest, as defined by Green et. al (1992), is present on 435 acres (8.1% of project area) within the project area. There are six isolated patches of old growth that range in size from 33 to 114 acres and are all located in the Beaver Lakes portion of the project area (TABLE WI-3, FIGURE WI-3, TABLE WI-4). Habitat availability and connectivity for species requiring larger patches of old-growth is limited. Existing old growth is adjacent to some mature forest which may provide additional suitable habitat. Old growth abundance and connectivity in the project area is low.

Mature forest and old growth abundance and connectivity within the project area has been influenced by prior timber harvest. In the last 10 years, 2,150 acres of timber harvesting has occurred in the project area. Many of these harvested acres are comprised of young, regenerating trees with few large, scattered trees that do not provide suitable habitat for species that utilize well-stocked, mature forests. Mature forest and old growth connectivity within the project area, and to these habitats on adjacent lands, is further reduced by natural and anthropogenic features including roads, lakes, agricultural fields, and a major powerline corridor. Approximately 38.0 miles (4.5 miles/sq. mile) of roads exist in the project area, of which 18.1 miles (2.1 miles/sq. mile) are open to public motorized use and 19.9 miles (2.4 miles/sq. mile) are restricted. Due to existing mature forest abundance, patch characteristics, and existing road densities, connectivity for species using well-stocked, mature forest is moderate within the project area.

Within the Small CEAA, Montana Department of Natural Resources and Conservation (DNRC) manages 6,606 acres (33.1%) and USDA Forest Service (USFS) manages 519 acres (2.6%), and 12,439 acres (64.2%) are privately owned. Approximately 3,611 acres (18.1%) in the Small CEAA are comprised of lakes, wetlands, agriculture, and other non-forested habitat. Presently, 36.6% (7,289 acres) of the Small CEAA contains mature forest stands possessing $\geq 40\%$ crown

closure, of which 45.2% (3,299 acres) is located on DNRC-managed lands. Patches of mature forest range from 1 to 1,791 acres and average 26 acres in size (278 patches, see TABLE WI-3 – Mature Forest Attributes). On DNRC managed lands within the CEAA, there are approximately 455 acres (2.3% of the CEAA) of old-growth forest. Old growth status is unknown on other ownerships. There are 7 patches of old-growth with an average patch size of 65.0 acres (TABLE WI-4). Forested areas within the Small CEAA have had variable levels of forest management in the past which has influenced the abundance and connectivity of mature and old growth forest. Logging over the last 10 years has resulted in approximately 5,528 acres of harvest on DNRC managed lands (27.7% of the CEAA). The Round Prairie Timber Sale is currently removing mature forest within the CEAA (TABLE WI-2). In addition to past timber harvest, natural and anthropogenic features such as lakes and roads reduce mature and old growth forest connectivity. Approximately 121.3 miles (3.9 miles/sq. mile) of roads exist within the CEAA. Of these roads, there are 82.7 miles of open roads that equate to a density of 2.7 miles/square mile. In the Small CEAA, mature forest habitat abundance, as well as landscape connectivity are moderate for species that require and/or prefer these conditions. Across the CEAA, old-growth abundance and connectivity is low.

Table WI-3 – Mature Forest Attributes. Acreages and patch size metrics of mature forested habitat ($\geq 40\%$ canopy cover, ≥ 9 inches dbh, patches > 1 acre) pre- and post-harvest in the project area and Small CEAA for the proposed Spencer to Beaver Forest Management Project. Percent of the total corresponding analysis area is in parentheses.

Mature Forest Attribute	project area		Small CEAA	
	Existing	Post-Harvest	Existing	Post-Harvest
Acres of Mature Forest	2,727.6 (50.5%)	2,140.8 (39.7%)	7,289.0 (36.6%)	6,697.3 (33.6%)
Number of Patches	57	56	278	286
Average Patch Size (acres)	47.9	38.2	26.2	23.4
Minimum Patch Size (acres)	1.0	1.0	1.0	1.0
Maximum Patch Size (acres)	807.8	586.5	1,790.5	1,427.5

Table WI-4 – Old-Growth Attributes. Acreages and patch size metrics of old-growth forests (Green et al. 1992) pre- and post-harvest in the project area and DNRC managed lands in the Small CEAA for the proposed Spencer to Beaver Forest Management Project. Percent of the total corresponding analysis area is in parentheses.

Old Growth Attribute	project area		Small CEAA	
	Existing	Post-Harvest	Existing	Post-Harvest
Acres of Old Growth	434.9 (8.1%)	360.1 (6.7%)	454.9 (2.3%)	380.1 (1.9%)
Number of Patches	6	6	7	7
Average Patch Size (acres)	72.5	60.2	65.0	54.3
Minimum Patch Size (acres)	33.4	11.8	20.0	11.8
Maximum Patch Size (acres)	114.0	114.0	114.0	114.0
Number of large patches greater than 80 acres	3	3	3	3
Average size for large patches	99.6	98.0	99.6	98.0

Environmental Effects – Mature Forest Cover, Old Growth, and Connectivity

No Action Alternative: Direct and Secondary Effects

None of the proposed forest management activities would occur. This would result in: 1) no immediate changes to existing stands; 2) no appreciable changes to forest age, the distribution of forested cover, or landscape connectivity; and 3) no changes to wildlife use. Thus, no short-term direct or indirect effects to old-growth or mature forested habitat suitability and connectivity would be anticipated.

No Action Alternative: Cumulative Effects

None of the proposed forest management activities would occur. Therefore: 1) no immediate changes to existing stands would occur, 2) no further changes to the suitability of mature forested cover or connectivity would be anticipated, and 3) no changes to wildlife use would be expected. Past and ongoing forest management projects have affected mature forest wildlife habitat in the CEAA, and other proposed projects could affect mature forest habitat in the future (see TABLE WI-2). Thus, no additional short-term cumulative effects to old-growth, mature forested habitat suitability and connectivity would be anticipated.

Action Alternative: Direct and Secondary Effects

Under the Action Alternative, approximately 1,354 acres (25.1% of the project area) would be altered by the proposed activities. Of these acres, 694 acres (12.9% of the project area) of well-stocked, mature forest would undergo harvesting. Harvest treatments that would reduce overstory crown closure to less than 40% would directly remove 572 acres of mature forest. An additional 15 acres of mature forest would be indirectly removed due to reductions in patch size to less than one acre. In total, 587 acres (21.5% of existing mature forest) of mature forest would be effectively removed. Approximately 107 acres would undergo treatments that reduce stand density but retain mature forest with an overstory crown closure of at least 40% and patch size ≥ 1 acre. Average patch size of mature forest within the project area would be reduced from 47.9 to 38.2 acres (20.6% reduction) and the number of patches would decrease from 57 to 56 (TABLE WI-3, FIGURE WI-2). Approximately 2,140 acres (39.7% of project area) of mature forest in the project area with $\geq 40\%$ crown closure would persist after harvesting and could provide suitable habitat for species utilizing mature forest. Overall connectivity of mature forest within the project area would decrease but remain moderate. Interior habitat of remaining patches would be reduced which could negatively impact species that rely on large, contiguous areas of mature forest. In the Beaver Lakes area, connectivity of mature forest would persist between Boyle Lake, Beaver Lake, Woods Lake and Dollar Lake. However, mature forest in the western portion of the Beaver Lakes area would largely be removed leaving mature forest around Murray Lake disconnected from other patches. In the Spencer Lake area, mature forest would remain fairly well connected.

Approximately 187 acres (42.9% of existing) of old growth would be impacted by the proposed harvest activities. Proposed harvest on 75 of these acres (17.1% of existing) would remove old growth. Post harvest, old growth stands would remain on 360 acres (6.7% of project area) in the project area. The number of old growth patches would stay the same, but the average patch size would be reduced by 12 acres (17.0% reduction, TABLE WI-4). Three large patches (>80 acres) of old growth would remain after harvest. After the harvest activities, remaining patches of old growth would continue to be poorly connected.

Under the Action Alternative, approximately 0.2 miles of new, permanent restricted road would be built in the Spencer Lake area of the project area. Approximately 11.6 miles of restricted road 7.4 miles of open road, and 2.9 miles of temporary road would be used for activities. Functional open road density during activities would increase from 2.1 to 3.9 miles/sq. mile. Restricted

roads opened for harvesting would remain restricted to public motorized use during harvest activities. Post-harvest, open road density would not change, and total road density would increase very slightly due to the construction of 0.2 miles of restricted road.

Thus, moderate adverse direct and secondary effects to connectivity and suitability of mature forest and moderate impacts to old-growth habitat in the project area would be expected since: 1) harvesting would appreciably reduce tree density and existing cover on approximately 587 acres (21.5%) of existing available mature stands and 75 acres (17.1%) of existing old-growth stands (TABLES WI-3 and WI-4); 2) connectivity of mature and old-growth forest would be altered with a decrease in average patch size of 10 and 12 acres, respectively; 3) a measure of habitat availability and connectivity would be maintained on 2,140 acres (39.7% of project area) of mature forest, and 360 acres (6.7%) of old growth would remain poorly connected; 4) three large patches of old-growth (>80 acres) would be retained; and 5) functionally open roads would increase in the short-term by 1.8 miles/sq. mile and there would be no changes to long-term open road density.

Action Alternative: Cumulative Effects

Under the Action Alternative, timber harvesting would alter 699 acres of the 7,289 acres (9.6% of available) of mature forest habitat available in the Small CEAA. Harvest treatments would directly remove 576 acres and indirectly remove another 16 acres where patches are reduced to under one acre (TABLE WI-3). In total, 592 acres (8.1% of available) of mature forest would be removed in the Small CEAA. Reductions in the availability and quality of suitable mature forested habitat would be additive to past and planned harvest activities within mature forests in the Small CEAA (TABLE WI-2). After the harvest activities, 33.6% of the CEAA would remain existing mature, forested habitats. Mature forest connectivity would be reduced, the number of patches would increase (278 to 286) and average size of patches would decrease (from 26 to 23 acres) (TABLE WI-3). Given habitat conditions within the surrounding forested landscape, connectivity of mature forest in the northern part of the CEAA (north of Highway 93) would be altered to a moderate degree, while connectivity in the southern portion of the CEAA would be altered to a low degree. After harvest, habitat conditions within regeneration treatments would be unsuitable for species preferring well-stocked mature or old-growth forest, while those species using forest stands with widely spaced large-diameter seral species or young, regenerating forest would experience an increase in habitat.

Approximately 187 acres (41.0% of available old-growth within the CEAA) of old-growth forest would be altered by harvesting treatments and 75 acres (16.4% of available old-growth within the CEAA) would be effectively removed (TABLE WI-4). Remaining old-growth patches would decrease in average size from 65 acres to 54 acres; 3 patches greater than 80 acres would remain across the CEAA (TABLE WI-4). After harvest, the largest patch of old growth within the CEAA would be 114 acres, of which 109 acres would undergo an old growth maintenance treatment. Connectivity between old growth patches would remain low. However, most old-growth patches within the CEAA would be connected to interspersed mature forest patches within the CEAA which would likely provide a larger effective patch size for some old-growth associated species. Reductions in the availability of suitable mature forested and old-growth habitat would be additive to past, proposed, or ongoing harvest activities in the Small CEAA (TABLE WI-2).

Under the Action Alternative, 0.2 miles of restricted road and 2.9 miles of temporary road would be built. Road use during the proposed activities would increase on 8.9 miles of open road and 11.6 miles of restricted roads. During activities, open road density would increase from 2.7 miles/sq. mile to 3.1 miles/sq. miles within the CEAA for up to 4 years. Increased road use and

associated disturbance under the proposed Action Alternative would be additive to anticipated increases in open road traffic associated with other active projects within the CEAA (see TABLE WI-2).

Thus, low adverse cumulative effects to connectivity and suitability of mature forest and moderate cumulative effects to old-growth habitat in the Small CEAA would be expected as a result of the Action Alternative since: 1) the abundance of mature forested and old-growth habitat in the CEAA would decrease by 8.1% and 16.4%, respectively (TABLES WI-3 and WI-4); 2) approximately 6,697 acres (33.6% of CEAA) of mature forest and 380 acres (1.9% of CEAA) of old-growth within the CEAA would continue to provide habitat; 3) average patch size of suitable habitat would decrease by 3 acres for mature forest and 11 acres for old-growth forest; 4) some habitat connectivity with larger patches in the CEAA would be maintained; and 5) temporary increases in open roads would occur and long-term open road density would not change.

Fine Filter Wildlife Analysis

In the fine-filter analysis, individual species of concern are evaluated. These species include those listed as threatened or endangered under the Endangered Species Act of 1973, species listed as sensitive by DNRC, and animals managed as big game by Montana DFWP. TABLE WI-4 – Fine Filter provides an analysis of the anticipated effects for each species.

Table WI-5 – Anticipated Effects of the Spence Beaver Forest Management Project on wildlife species.

Species/Habitat	[Y/N] Potential Impacts and Mitigation Measures N = Not Present or No Impact is Likely to Occur Y = Impacts May Occur (Explain Below)
Threatened and Endangered Species	
Canada lynx (<i>Felix lynx</i>) Habitat: Subalpine fir habitat types, dense sapling, old forest, deep snow zones	[Y] Detailed Analysis Provided Below - The project area contains approximately 2,450 acres of suitable lynx habitat.
Grizzly bear (<i>Ursus arctos</i>) Habitat: Recovery areas, security from human activity	[Y] Detailed Analysis Provided Below. A portion of the project area occurs in non-recovery occupied habitat of the Northern Continental Divide Ecosystem (NCDE, Wittinger 2002, USFWS 1993).
Yellow-billed cuckoo (<i>Coccyzus americanus</i>) Habitat: Open cottonwood riparian forest with dense brush understories (Lake and Flathead counties)	[N] No suitable open cottonwood riparian habitat occurs in the vicinity of the project area and yellow-billed cuckoos have not been observed in the area (MNHP 2024). Thus, no direct, indirect, or cumulative effects to yellow-billed cuckoos would be expected to occur as a result of either alternative.

Species/Habitat	[Y/N] Potential Impacts and Mitigation Measures N = Not Present or No Impact is Likely to Occur Y = Impacts May Occur (Explain Below)
Wolverine <i>(Gulo gulo)</i> Habitat: Alpine tundra and high-elevation boreal forests that maintain deep persistent snow into late spring	[N] No potentially suitable wolverine habitat exists within the proposed project area. The project area does not maintain deep snow into late spring and does not contain high-elevation alpine habitat. Appreciable use of the area is not expected. Given the large home range area (average 150+ sq. miles) wolverines occupy, and long distances wolverines typically cover during their movements, the proposed activities would not be expected to measurably affect use of the area by wolverines. Thus, no direct, indirect, or cumulative effects to wolverines would be expected to occur as a result of either alternative.
Sensitive Species	
Bald eagle <i>(Haliaeetus leucocephalus)</i> Habitat: Late-successional forest less than 1 mile from open water	[Y] The proposed harvest is located over 1 mile from any recorded nest site. No known bald eagle nests are located in the project area. However, the project area overlaps with the home ranges of several pairs of bald eagles (MNHP 2025, DNRC unpublished data). Eagles have been observed foraging over lakes in the project area including Spencer Lake, Beaver Lake, Little Beaver Lake, Murray Lake, Dollar Lake and Woods Lake. The proposed harvesting would not impact any shoreline habitat within 50 feet of the lake edge and large emergent trees and snags would be retained. Any eagles foraging in close vicinity to active harvesting operations could be temporarily displaced. The proximity of known nest sites to open roads, recreational areas, and residences suggests that these eagles are habituated to moderate levels of human disturbance and nesting eagles would not likely be appreciably affected by the increase in disturbance associated with the proposed activities. Thus, low adverse direct, secondary, or cumulative effects to bald eagles would be anticipated as a result of the Action Alternative.
Black-backed woodpecker <i>(Picoides arcticus)</i> Habitat: Recently burned or beetle-infested forest	[N] No recently burned areas (<5 years) occur within 2 miles of the project area. Thus, no direct, indirect, or cumulative effects to black-backed woodpeckers would be expected to occur as a result of either alternative.
Coeur d'Alene salamander <i>(Plethodon idahoensis)</i> Habitat: Waterfall spray zones, talus near cascading streams	[N] No known moist talus or streamside talus habitat occurs within proposed harvest areas. Thus, no direct, indirect, or cumulative effects to Coeur d'Alene salamanders would be expected to occur as a result of either alternative.
Columbian sharp-tailed grouse <i>(Tympanuchus Phasianellus columbianus)</i> Habitat: Grassland, shrubland, riparian, agriculture	[N] No suitable grassland communities occur in the project area. Thus, no direct, indirect, or cumulative effects to Columbian sharp-tailed grouse would be expected to occur as a result of either alternative.
Common loon <i>(Gavia immer)</i> Habitat: Cold mountain lakes, nest in emergent vegetation	[Y] Detailed Analysis Provided Below. Suitable lake habitat occurs within the project area and several pairs of loons are known to breed in the area.
Fisher <i>(Martes pennanti)</i> Habitat: Dense mature to old forest less than 6,000 feet in elevation and riparian	[Y] Detailed Analysis Provided Below – Approximately 1,179 acres of suitable fisher habitat occur within the project area.

Species/Habitat	[Y/N] Potential Impacts and Mitigation Measures N = Not Present or No Impact is Likely to Occur Y = Impacts May Occur (Explain Below)
Flammulated owl <i>(Otus flammeolus)</i> Habitat: Late-successional ponderosa pine and Douglas-fir forest	[N] Approximately 766 acres of potential flammulated owl habitat occur in the project area. However, no potentially suitable habitat would be impacted by harvest. Thus, no direct, indirect, or cumulative effects to flammulated owl would be expected to occur as a result of either alternative.
Fringed myotis (<i>Myotis thysanodes</i>) Habitat: Low elevation ponderosa pine, Douglas-fir and riparian forest with diverse roost sites including outcrops, caves, mines	[N] No suitable caves or mine tunnels are known to occur in the project area. A potentially suitable tunnel associated with the BNSF Railroad is located in the Small CEAA. However, no harvest activities would occur within 500 feet of the tunnel and any bats that utilize the tunnel are acclimatized to considerable disturbance associated with the railroad. Thus, no direct, indirect, or cumulative effects to fringed myotis would be expected to occur as a result of either alternative.
Harlequin duck <i>(Histrionicus histrionicus)</i> Habitat: White-water streams, boulder and cobble substrates	[N] No potentially suitable high-gradient streams occur within the project area. Thus, no direct, indirect, or cumulative effects to harlequin ducks would be expected to occur as a result of either alternative.
Hoary bat (<i>Lasiurus cinereus</i>) Habitat: Coniferous and deciduous forests and roost on foliage in trees, under bark, in snags, bridges	[Y] The project area contains potential hoary bat habitat, although no hoary bats have been documented in the project area (MNHP 2025). Logging may disturb bats or remove roost sites when they are present in Montana between May and September (Bachen et. al. 2020). To reduce adverse impacts to bats, large diameter snags and snag recruits would be retained according to ARM 36.11.411. Thus, negligible adverse direct, secondary, or cumulative effects to hoary bats would be expected to occur as a result of the Action Alternative. No direct, secondary, or cumulative effects would be anticipated as a result of the No Action Alternative.
Northern bog lemming <i>(Synaptomys borealis)</i> Habitat: Sphagnum meadows, bogs, fens with thick moss mats	[N] Some potentially suitable wetlands occur within the project area. However, no sphagnum meadows, bogs or fens are known to occur. No bog lemmings have ever been reported within the project area or any of the CEAA's (MNHP 2025). Additionally, wetland habitat would not undergo harvesting or motorized activities. Thus, negligible direct, indirect, or cumulative effects to northern bog lemmings would be expected to occur as a result of the Action Alternative.
Peregrine falcon <i>(Falco peregrinus)</i> Habitat: Cliff features near open foraging areas and/or wetlands	[N] No known cliffs suitable for peregrine falcon nesting exist within the project area. Recent or historical observations of peregrine falcons within the project area are lacking (MNHP 2015). Thus, no direct, indirect, or cumulative effects to peregrine falcons would be anticipated as a result of either alternative.
Pileated woodpecker <i>(Dryocopus pileatus)</i> Habitat: Late-successional ponderosa pine and larch-fir forest	[Y] Detailed Analysis Provided Below - Approximately 2,548 acres of suitable pileated woodpecker habitat occur in the project area.

Species/Habitat	[Y/N] Potential Impacts and Mitigation Measures N = Not Present or No Impact is Likely to Occur Y = Impacts May Occur (Explain Below)
Townsend's big-eared bat (<i>Plecotus townsendii</i>) Habitat: Caves, caverns, old mines	[N] No suitable caves or mine tunnels are known to occur in the project area. A potentially suitable tunnel associated with the BNSF Railroad is located in the Small CEAA. However, no harvest activities would occur within 500 feet of the tunnel and any bats that utilize the tunnel are acclimatized to considerable disturbance associated with the railroad. Thus, no direct, indirect, or cumulative effects to Townsend's big-eared bats would be expected to occur as a result of either alternative.
Big Game Species	
Elk (<i>Cervus canadensis</i>)	[Y] The project area contains winter range habitat for white-tailed deer, mule deer, elk and moose (DFWP 2008).
White tailed deer (<i>Odocoileus virginianus</i>)	
Mule Deer (<i>Odocoileus hemionus</i>)	
Moose (<i>Alces alces</i>)	
Other	
Northern Goshawk (<i>Accipiter gentilis</i>) Habitat: Mature stands with open understory for nesting	[Y] An active goshawk nest was discovered within the project area in the spring of 2025. To reduce adverse impacts to goshawks logging and road construction would be prohibited from April 1 - August 15 within ¼ mile of the nest. The nest tree and all mature trees (≥9 inches dbh) within 100 feet of the nest tree would be retained. Occupancy status and nest location would be surveyed each spring to ensure that the correct area is protected with timing restrictions. After harvest, goshawks are unlikely to continue nesting in this stand due to reductions in basal area and canopy closure. Considering habitat conditions on surrounding lands and the proposed harvest prescriptions, continued use of the territory is possible. Thus, high adverse direct and secondary impacts and moderate cumulative effects to northern goshawks would be anticipated as a result of either alternative.
Osprey (<i>Pandion haliaetus</i>) Habitat: Nest sites near fish-bearing water body	[Y] An active osprey nest was identified in the spring of 2025 in the project area, south of Boyle Lake and less than 400 feet from the BNSF railway tracks. Regular substantial disturbance occurs as a result of frequent train traffic; however, other human disturbance in the area is low. No harvesting is proposed within at least 200 feet of the nest tree. To reduce adverse impacts to osprey during nesting, logging activities would be prohibited from April 1 - August 15 within ¼ mile of the nest. Occupancy status and nest location would be surveyed each spring to ensure that the correct area is protected with timing restrictions. Thus, low adverse direct and secondary impacts and negligible cumulative effects to ospreys would be anticipated as a result of either alternative.

Species/Habitat	[Y/N] Potential Impacts and Mitigation Measures N = Not Present or No Impact is Likely to Occur Y = Impacts May Occur (Explain Below)
Red-tailed hawk (<i>Buteo jamaicensis</i>) Habitat: Wide ranging habitat generalist including forests, grasslands and agricultural fields	[Y] In the spring of 2025, an active red-tailed hawk nest was found within the project area. To reduce adverse impacts to nesting red-tailed hawks, all harvest-related operations would be prohibited from April 1 - August 15 within ¼ mile of the nest. The nest tree and all mature trees (≥9 inches dbh) within 100 feet of the nest tree would be retained. Occupancy status and nest location would be surveyed each spring to ensure that the correct area is protected with timing restrictions. Red-tailed hawks are likely to continue to use this territory after harvest activities are complete. Thus, considering that timing restrictions would be implemented to reduce potential for disturbance and that short term displacement is possible, moderate adverse direct and secondary impacts and negligible cumulative effects to red-tailed hawks would be anticipated as a result of either alternative.

Threatened and Endangered Species

CANADA LYNX

Issue

The proposed activities could result in the modification of habitat preferred by Canada lynx and decrease the area's suitability for lynx.

Introduction

Canada lynx are listed as "threatened" under the Endangered Species Act. Canada lynx are associated with subalpine fir forests, generally between 4,000 to 7,000 feet in elevation in western Montana (Ruediger et al. 2000). Lynx abundance and habitat use are strongly associated with snowshoe hare populations; thus, activities which decrease habitat quality for snowshoe hares can reduce the availability of prey for lynx. Lynx habitat in western Montana consists primarily of stands that provide habitat for snowshoe hares including young and mature coniferous stands with high levels of horizontal cover (Squires et al. 2010, Squires et al. 2013). Forest type, tree densities, natural disturbance history, and time since harvesting play important roles in shaping the suitability of foraging habitat for lynx. Mature forest stands with abundant horizontal cover and coarse woody debris provide structure important for foraging, denning, travel, and security. These conditions are found in a variety of habitat types (Pfister et al. 1977), particularly within the subalpine fir series. Historically, northwest Montana contained a variety of stand types with differing fire regimes. This variety of stand types, combined with patchy elevation and snow-depth gradients preferred by lynx, likely formed a non-continuous mosaic of lynx and non-lynx habitats (Fischer and Bradley 1987, Ruggiero et. al. 1999, Squires et al. 2010). Forest management considerations for lynx include providing a mosaic of young and mature lynx habitats that are well connected across the landscape.

Analysis Area

The analysis area for direct and indirect effects is the project area and the analysis area for cumulative effects is the 36,040-acre Large CEAA as described in TABLE WI-1 and depicted in FIGURE WI-1. The Large CEAA is large enough to encompass one or more lynx home ranges, is centered on the project area, and is defined according to geographic features (e.g., ridgelines,

forest habitat, high traffic roads) which are likely to influence movements of Canada lynx in the vicinity of the project area; providing a reasonable analysis area for Canada lynx that could be influenced by project-related activities.

Measurement Criteria

Factors considered in the analysis include: 1) the level of harvesting, 2) the availability of suitable lynx habitat, and 3) landscape connectivity. Suitable lynx habitat was subdivided into the following lynx habitat classes: 1) winter foraging, 2) summer foraging, 3) other suitable, and 4) temporary non-habitat. Other suitable lynx habitat is defined as habitat that has the potential to provide connectivity and lower quality foraging habitat but does not contain the necessary attributes to be classified as winter or summer foraging habitat classes. The temporary non-habitat category consists of forested stands that are not expected to be used by lynx until suitable horizontal cover develops. All habitat classes were identified according to DNRC's lynx habitat mapping protocols (USFWS and DNRC 2010). On non-DNRC lands, lidar canopy height models and USFS vegetation maps were used to identify potential lynx habitat which was defined as any stand >1 acre with at least 40% canopy closure of vegetation/trees greater than 6 feet in height.

Affected Environment

Approximately 3,109 acres (57.6% of project area) of potential lynx habitat occurs in the 5,397-acre project area. Of this potential lynx habitat, 2,458 acres (45.6% of project area) are currently providing suitable habitat (TABLE WI-6). Suitable lynx habitat within the project area is defined as the sum of the summer foraging, other suitable, and winter foraging lynx habitat categories. In the project area, lynx habitat is found primarily in the Beaver Lakes area and only at the very northern end of the Spencer Lake area. Winter foraging habitat is the most abundant type of suitable habitat (TABLE WI-6). Throughout much of the northern portion of the project area habitat types and forest structure are favorable for lynx. However, the project area is below the typical elevation range and winter snowfall levels preferred by lynx (Ruediger et al. 2000). Where lynx habitat types exist, habitat connectivity is relatively high. Existing habitat fragmentation is a result of landscape features (e.g. lakes), recent timber harvest (Table WI-2), and human development (e.g. residential development and highway corridor) which may impede movement of lynx across the landscape (Ruediger et. al. 2000). Motorized and non-motorized human access and use of the project area is high year-round. Hiking and mountain biking are popular on miles of authorized trails in both the Beaver Lake and Spencer Lake areas. Dispersed non-motorized use includes hunting, fishing, firewood cutting, and camping. In the winter, snowmobiling occurs in the Beaver Lakes area. No lynx observations have been recorded in the project area in the last 30 years (MNHP 2025).

The Large CEAA contains approximately 3,780 acres (10.5% of CEAA) of suitable lynx habitat on DNRC lands and another 13,654 acres (37.9% of CEAA) of potentially suitable habitat on other ownerships (TABLE WI-6). However, the potential habitat identified south of Highway 93 is likely poor quality due to habitat types that are not preferred by lynx. The remaining portions of the CEAA that do not provide lynx habitat consist primarily of human development, wetlands, lakes, agricultural fields, and logged stands with <40% canopy cover. DNRC manages 24.4% of the CEAA, USDA Forest Service administers 1.5%, private timber companies own 0.8%, and other private owners and lakes account for 70.3% of the CEAA. Approximately 5,023 (13.9%) of the CEAA has been harvested within the last 25 years and reduced the availability of suitable lynx habitat containing mature trees. Overall, habitat suitability and connectivity for lynx is high north of Highway 93, and although potential habitat is abundant south of Highway 93, it is likely poor quality and it is highly fragmented by human development. Use of the CEAA by lynx is possible, although reports of lynx observations are rare (MNHP 2025).

Table WI-6 – Lynx habitat. Estimates of existing lynx habitat and habitat that would persist post-harvest on DNRC lands in the project area and cumulative effects analysis area. Percent refers to the percentage of the lynx habitat category of the total potential habitat^a present on DNRC-managed lands.

Lynx Habitat Category	Acres of lynx habitat			
	project area		Cumulative Effects Analysis Area	
	Existing	Post-Harvest	Existing	Post-Harvest
Other Suitable	735 (23.6%)	499 (16.1%)	1,000 (19.8%)	764 (15.2%)
Summer Forage	79 (2.5%)	21 (0.7%)	157 (3.1%)	100 (2%)
Temporary Non-suitable	659 (21.2%)	1,419 (45.6%)	1,264 (25.1%)	2,024 (40.1%)
Winter Forage	1,637 (52.6%)	1,169 (37.6%)	2,623 (52%)	2,156 (42.7%)
Grand Total: Suitable Lynx Habitat ^b	2,450 (78.8%)	1,689 (54.3%)	3,780 (74.9%)	3,020 (59.9%)

^aTotal potential lynx habitat describes all areas that contain appropriate habitat types for lynx (i.e., sum of summer forage, winter forage, other suitable, and temporary non-suitable lynx habitat classes).

^bTotal suitable lynx habitat describes all DNRC lynx habitat categories that contain structural attributes necessary for use by lynx (i.e., sum of summer forage, winter forage, other suitable lynx habitat classes).

Environmental Effects – Canada Lynx

No Action Alternative: Direct and Secondary Effects on Canada Lynx

Under this alternative, no changes in lynx habitat elements would be expected in the project area and landscape connectivity would not be altered. Thus, no direct or indirect effects influencing lynx habitat suitability would be expected to occur in the project area.

No Action Alternative: Cumulative Effects on Canada Lynx

No appreciable change in lynx habitats would occur under this No-Action Alternative, and no further changes in landscape connectivity would be anticipated. Future forest management projects not associated with the proposed Spencer to Beaver Forest Management Project could alter lynx habitat in the future (TABLE WI-2). Activities on non-DNRC lands could continue altering lynx habitat and create disturbance within the CEAA. Thus, no additional cumulative effects to suitable lynx habitat are expected to result from the No-Action Alternative that could affect lynx habitat suitability in the CEAA.

Action Alternative: Direct and Secondary Effects on Canada Lynx

Under the Action Alternative, the proposed activities would alter approximately 1,003 acres (40.8%) of the 2,450 acres of suitable lynx habitat available in the project area. Proposed harvest prescriptions on 430 acres (26.2% of available) of winter foraging lynx habitat and 330 acres (44.9% of available) of other suitable lynx habitat would decrease mature tree abundance such that total crown closure would be reduced to <40% converting these acres to temporary non-suitable habitat (TABLE WI-6) for the next 15-20 years. Approximately 242 acres of would be treated with prescriptions that would retain sufficient mature tree densities and horizontal vegetation to still be considered suitable habitat. Where operationally feasible and available, existing patches of shade-tolerant sub-merchantable conifers would be retained in commercial harvest units where winter foraging habitat exists. The total area of these patches would not be

expected to comprise more than 10% of the acres proposed for harvest. In all Precommercial thinning units, some small shade tolerant trees would be retained in addition to species/spacing guidelines so that suitable lynx habitat would remain. Growth of retained mature trees and patches of sapling to pole-sized conifers, combined with post-harvest conifer regeneration following harvest, would shorten the time harvested stands would be temporarily unsuitable for lynx. Activities associated with active logging operations could temporarily displace any lynx using the area for 1-4 years. Following proposed logging, 1,689 acres (54.3% of project area) of suitable lynx habitat would remain within the project area (TABLE WI-6). In all proposed harvest units, at least 2 snags and 2 snag recruits per acre (≥ 21 in. dbh) would be retained where they exist, otherwise the next largest size class. Additionally, 7 to 25 tons/acre of coarse woody debris would be retained with an emphasis on retaining large, downed logs at least 15-inch diameter where they occur. This would provide future horizontal cover and security structure for lynx and lynx prey once harvest units have regenerated back into suitable habitat. Therefore, under the Action Alternative, moderate adverse direct and indirect effects to habitat suitability for Canada lynx would be expected since: 1) the amount of existing suitable lynx habitat in the project area would be reduced by 31.1% (TABLE WI-6); 2) habitat quality would be altered on an additional 242 acres of suitable lynx habitat (9.9% of existing), and these acres would remain suitable; 3) overall landscape connectivity would decrease through the project area, but adequate suitable habitat would remain to maintain suitable habitat connectivity in the project area; and 4) coarse woody debris and small shade-tolerant conifers would be retained where feasible to promote forest structural complexity in harvest units, expediting their growth back into suitable lynx habitat.

Action Alternative: Cumulative Effects on Canada Lynx

Under the Action Alternative, approximately 1,356 acres (3.8%) of the 36,040-acre CEAA would be altered by harvesting. Harvesting would affect 1,003 acres of currently suitable lynx habitat and 760 of these acres would be converted to temporarily unsuitable lynx habitat. Following proposed harvesting, the CEAA would contain 16,675 acres (46.3% of the CEAA) of suitable lynx habitat, of which 3,020 acres are on DNRC managed lands (TABLE WI-6). Expected reductions in suitable lynx habitat and increases in temporary non-suitable habitat in the proposed harvest units would not be expected to appreciably alter long-term lynx use of the CEAA. Suitable lynx habitat within the CEAA could be altered by ongoing and proposed DNRC forest management activities (see TABLE WI-2). Alteration of suitable lynx habitat under the Action Alternative would be additive to these projects. Furthermore, increased levels of motorized activities associated with the Action Alternative would be additive to disturbance from current and proposed timber sales, which could temporarily displace lynx should they be present near the proposed project area and associated roads. Thus, for the Action Alternative, low adverse cumulative effects to lynx and the suitability of their habitat would be expected as a result of proposed activities since: 1) baseline habitat suitability would remain high north of Highway 93 and poor south of Highway 93, overall the 46.3% of the CEAA would have potentially suitable habitat; 2) existing suitable lynx habitat within the CEAA would be reduced by 4.4% and those areas would remain unsuitable for at least 15-20 years; 3) stands converted to temporary non-suitable habitat in old logging units would continue maturing and developing into suitable habitat within the CEAA in the absence of additional disturbance; 4) overall habitat connectivity within the CEAA would be affected by a low degree by the proposed activities; and 5) lynx could be temporarily displaced by logging activities in parts of the CEAA for up to four years.

GRIZZLY BEAR

Issue

The proposed activities could alter grizzly bear cover, reduce secure areas, and increase human access, which could adversely affect bears by displacing them from important habitats and/or increase risk of human-caused bear mortality.

Introduction

Grizzly bears are opportunistic omnivores that inhabit a variety of habitats in Montana. Preferred grizzly bear habitat includes avalanche chutes, fire-mediated shrub fields, and riparian areas, all of which provide seasonal food sources (Servheen 1983, McLellan and Hovey 2001). Grizzly bears are federally listed as a threatened species and primary threats are related to human-bear conflicts and long-term habitat loss associated with human development (Mace and Waller 1997). Reductions in vegetative cover and increased disturbances, such as those associated with timber harvest, can lower effective use of habitat by bears and render bears more vulnerable to human-caused mortality (Servheen et. al. 1999). Forest management considerations for grizzly bears include minimizing potential for conflicts with humans, minimizing adverse effects to cover, minimizing access and the construction of new roads, and reducing disturbance levels during the non-denning season, especially in the spring and fall periods when grizzly bears have important nutritional demands.

Analysis Area

The analysis area for direct and indirect effects is the project area and the analysis area for cumulative effects is the 36,040-acre Large CEAA as described in TABLE WI-1 and depicted in FIGURE WI-1. The Large CEAA approximates the home range size of a male or female grizzly bear in northwest Montana and is defined by landscape features (i.e., ridgelines, well-traveled open roads) which are likely to influence movements of a grizzly bear in the vicinity of the project area; providing a reasonable analysis area for grizzly bear that could be influenced by project-related activities.

Measurement Criteria

Factors considered in the analysis included: 1) the degree of harvesting, 2) the availability of visual screening cover, 3) risk of displacement from important grizzly bear habitat including spring habitat and riparian habitat, and 4) open and restricted road densities. Grizzly bear visual screening was considered to be vegetation that will hide 90% of a grizzly bear at a distance of 200 feet. Hiding cover on DNRC lands was estimated by evaluating forest stand size class and the total crown density of all trees in the stand using field-collected, GIS, and forest inventory data. On non-DNRC lands, hiding cover was considered areas where lidar canopy height models identified areas where vegetation was greater than 2 feet in height.

Affected Environment

The 3,179 acres in the northern part of the project area are in non-recovery occupied habitat of the NCDE (USFWS 1993). Grizzly bear use presence been documented throughout the project area and continued use by bears is anticipated. Approximately 5,134 acres (95.1% of project area) of grizzly bear hiding cover is present within the proposed project area. The abundance of vegetative cover likely contributes to security for bears and facilitates their ability to move freely within the project area. Preferred riparian and wetland areas are limited within the project area. There is no grizzly bear denning habitat in the project area. Highway 93 and the railroad tracks bisect, or are adjacent to, portions of the project area; both of these features can impede grizzly bears movement through the landscape. Human access and use of the project area is high year-round and includes authorized trails for non-motorized uses including mountain biking, horseback riding, and hiking. Hunting, camping, firewood cutting, boating, snowmobiling, and huckleberry picking also occur in the project area. Managing human access is an important factor in management of grizzly bear habitat. Presently, open road density in the proposed

project area is 2.1 miles/sq. mile and total road density is 4.5 miles/sq. mile. Due to existing high levels of human use and the abundance of open roads in project area, grizzly bear security within the project area is low.

The 36,040-acre Large CEAA is comprised of 17,957 acres of non-recovery occupied habitat associated with the NCDE Recovery Area (USFWS 1993). Habitat in the CEAA is fragmented by Highway 93, a 70-mph two-lane state highway, the Burlington Northern Santa Fe (BNSF) railroad corridor on which at least 20-30 trains travel per day, the Stillwater River, multiple lakes, a powerline corridor, agricultural fields, and residential development. Grizzly bear use of the area is well-documented and continued use of the CEAA by bears is likely. The CEAA contains approximately 24,561 acres (68.2% of CEAA) of hiding cover. Forest habitats across the CEAA are a combination of age classes, ranging from recently harvested stands to mature stands. Approximately 5,023 acres (13.9% of the CEAA) of DNRC-managed land has been harvested within the last 25 years in the CEAA. These areas primarily consist of younger stands with regenerating trees that provide some hiding cover. Ongoing forest management activities projects within the CEAA (see TABLE WI-2) are sources of disturbance and are currently altering grizzly bear habitat. Human disturbance levels are closely tied to road abundance and access. Open road density within the CEAA is approximately 3.0 miles/sq. mile and total road density is approximately 3.9 miles/sq. mile. The greatest risk factors for bears within or near the CEAA are likely associated with homes, developments, highways, and railroad activities. Areas where high levels of human recreational use occur are also higher-risk localities for grizzly bears. Unnatural attractants potentially associated with these areas could increase the probability of human-bear conflicts, which can result in bear mortalities.

Environmental Effects – Grizzly Bear

No Action Alternative: Direct and Secondary Effects on Grizzly Bear

Under this alternative, no proposed project activities would occur. Thus, no direct or indirect effects associated with grizzly bear displacement or human-caused bear mortality risk would be anticipated as a result of the No-Action Alternative.

No Action Alternative: Cumulative Effects on Grizzly Bear

Under this alternative, no proposed project activities would occur. Past forest management projects not associated with the proposed Spencer to Beaver Forest Management Project have affected grizzly bear habitat in the CEAA, and ongoing and proposed projects could alter bear habitat in the future (TABLE WI-2). Activities on non-DNRC lands could continue altering grizzly bear habitat and create disturbance within the CEAA. Thus, since no additional changes in available habitats or level of human disturbance would be anticipated as a result of the No-Action Alternative, no cumulative effects to grizzly bear displacement or effects involving mortality risk would be anticipated.

Action Alternative: Direct and Secondary Effects on Grizzly Bear

Under the Action Alternative, 1,322 acres (25.8% of available) of grizzly bear hiding cover would be impacted by the proposed harvest. Of these acres, hiding cover would be removed on 724 acres (14.1% of available) due to reductions in stand density. Sight distances within all proposed harvest units would increase as a result of the proposed activities. In some units, topography and retention of patches of regenerating conifers and submerchantable trees would reduce sight distances and maintain some hiding cover. Hiding cover in harvest units would be expected to recover within 15 to 20 years following proposed treatments as shrub and tree regeneration proceeds. Existing stands of adjacent dense regenerating conifers, neighboring mature forest patches, and topographic breaks would exist in such a manner that no point in harvest units in (non-recovery occupied habitat) NROH would be greater than 600 feet to

screening cover. Existing riparian cover along Class 1 and 2 streams would be retained and offer movement corridors as well as hiding cover for bears in this preferred habitat. Hiding cover would be more heavily impacted on the western portion of the Beaver Lakes area where previously harvested units adjacent to proposed units already lack hiding cover. However; vegetative cover would remain from Boyle Lake to Beaver Lake and could facilitate travel through the central and eastern portion of that area. Under the Action Alternative, hiding cover would be removed in the proposed harvest units south of Spencer Lake. However, hiding cover would remain abundant and widespread elsewhere in the Spencer Lake portion of the project area. Should grizzly bears be present in the area at the time of harvest operations, they could be temporarily (1-4 years) displaced by harvest activities. Proposed activities in grizzly bear habitat would reduce grizzly bear security, possibly resulting in increased stress and/or energy expenditures to endure the disturbance or causing bears to temporarily move away from the area. Continued use of the project area by grizzly bears would be anticipated during and after harvesting activities. Spring restrictions on commercial forest management activities would apply to harvest units in NROH, which would minimize disturbance to bears during the spring period. Additionally, contract requirements would assist in mitigating the risk of bear-human conflict by specifying that contractors are not permitted to carry firearms on the work site and that unnatural attractants must be stored or disposed of in a bear-resistant manner.

Motorized activities associated with the Action Alternative, such as the use of restricted roads and the construction of approximately 0.2 miles of new restricted road, could affect grizzly bears by temporarily (1 to 4 years) disturbing or displacing from the area. The use of up to 11.6 miles of restricted roads and 7.4 miles of open road would increase motorized vehicle activity during the non-denning season for up to 4 years. The use of restricted roads would contribute to open road density in the short term (1 to 4 years); increasing potential for disturbance to grizzly bears. Functionally open road amounts could increase temporarily from 18.1 miles (density 2.1 mi./sq. mi.) up to 32.7 miles (density 3.9 miles/sq. mi.) during project operations. Restricted roads opened for harvesting would remain restricted to the public during harvest activities.

Thus, under the Action Alternative, low adverse direct or indirect effects to grizzly bears associated with displacement and mortality risk would be expected since: 1) moderate levels of temporary (1-4 years) disturbance and displacement would be anticipated; 2) hiding cover on 724 acres (13.4% of project area) would be removed, but would be expected to recover in 15-20 years; 3) hiding cover would remain on approximately 4,410 acres (81.7% of project area) of the project area; 4) vegetation retention patches and topography would reduce sight distances; 5) commercial harvest would be restricted during the spring period in NROH; 6) short-term increases in functional open road densities from 2.1 mi/sq. mi. to 3.9 miles/sq. mi. would be anticipated; and 7) long-term open road density would not change.

Action Alternative: Cumulative Effects on Grizzly Bear

Approximately 724 acres (2.9% of available in the CEAA) of grizzly bear hiding cover in the Large CEAA would be removed as a result of the Action Alternative. Hiding cover would be reduced on an additional 598 acres (1.7% of CEAA). Removal of hiding cover and anticipated elevated disturbance levels would be additive to past timber harvesting and current forest management projects (see TABLE WI-2). Mature stands and young, fully stocked stands that provide hiding cover would continue to make up approximately 23,837 acres (66.1%) of the CEAA. Early successional stages of vegetation occurring in harvest units could provide foraging opportunities that do not exist in some mature stands across the CEAA. Continued use of the CEAA by grizzly bears would be anticipated during and after project activities.

Collectively, short-term (1 to 4 years) increases in human disturbance would be anticipated in the CEAA, but contract requirements would lessen risk of human-bear conflicts during active harvest operations (e.g. proper storage/disposal of unnatural attractants, prohibit possession of firearms, etc.). The increased use of road systems during the proposed project would temporarily increase human disturbance and displacement risk for grizzly bears within a portion of the CEAA. A short-term increase in functional open road density would occur, increasing from 3.0 miles/sq. mi. to 3.2 miles/sq. mile in the CEAA. The construction of 0.2 miles of restricted road would very slightly increase the density of permanent roads within the CEAA. Disturbance associated with temporarily accessed roads would be additive to that occurring on roads used for other ongoing forest management projects (see TABLE WI-2). The greatest risks to bears within the CEAA would remain human habitations and associated attractants that bring bears into conflict with people.

Thus, as a result of the Action Alternative, low adverse cumulative effects to grizzly bears associated with displacement or effects involving mortality risk would be expected in the short term (1 to 4 years) and long term (15 to 20 years) since: 1) short-duration (1 to 4 year) increases in human disturbance levels would be expected within the CEAA; 2) hiding cover would be removed in the short-term (~15 to 20 years) on a relatively small portion (2.9%) of the CEAA; 3) approximately 66.1% of the CEAA would continue to provide hiding cover (23,837 acres); and 4) short-term increases in functional open road densities from 3.0 miles/sq. mi. to 3.2 miles/sq. mi. would be anticipated and long-term open road density would not change.

Sensitive Species

COMMON LOON

Issue

The proposed activities could alter shoreline nesting habitat or disturb common loons during the breeding season, which could adversely impact loon reproduction.

Introduction

The common loon is a large, aquatic bird that preys primarily on fish, but will also consume frogs, salamanders, snails, leeches, and aquatic insects. Loons are highly territorial, and typically only one pair nests on a small to mid-size lake. Nests can be located on small islands, partially submerged logs, or on floating mats of herbaceous vegetation. Loons are poorly adapted to living out of the water; therefore, nests are generally located where they can slip directly from the nest into the water. Loons are sensitive to human disturbance and are usually associated with water bodies with relatively low levels of human activity. Human disturbance during the nesting and early chick-rearing period (mid-April thru mid-July) could lead to nest failures if the adults are disturbed and leave the nest unattended for even short periods of time. Adverse impacts that can affect reproduction of loons include direct loss of nesting and nursery habitat, and loss of young to avian predators such as bald eagles. However, loon reproduction can also be adversely affected by recreational disturbance caused by humans (Titus and VanDruff 1981, Croskery 1991, Kelly 1992, Paugh 2006).

Analysis Area

Direct, indirect, and cumulative effects were analyzed within 500 feet of the shorelines of Beaver, Murray, Little Beaver, Dollar, Woods, and Spencer lakes. All of these lakes are within or adjacent to the project area. Breeding loons use these lakes and could potentially be affected by the proposed Action Alternative.

Measurement Criteria

Effects were analyzed using a combination of field evaluations and aerial photograph interpretation. Factors considered include the amount of shoreline disturbance, level of recreational pressure on the lakes, and available nesting habitat.

Affected Environment

Common loons have attempted to nest on Beaver, Murray, Little Beaver, Woods, and Spencer lakes. Successful breeding and fledging of young has occurred on all of these lakes except for Woods Lake. Dollar Lake is within the project area and considered potential loon habitat, however, there have not been any documented nesting attempts on this lake. With the exception of the eastern half of Beaver and Spencer lakes, DNRC-managed lands surround these water bodies. The level of existing human disturbance on these lakes varies by location. Beaver Lake contains motorized and non-motorized watercraft (including water-skiers), lakeside cabins, docks and regular fishing pressure. Murray lake has a well-traveled open road in close proximity, receives heavy non-motorized use, fishing pressure, and shoreline recreation such as swimming. Woods Lake and Dollar Lake have moderate amounts of shoreline recreation and occasional non-motorized watercraft. Little Beaver Lake has occasional shoreline or non-motorized fishing pressure. Spencer Lake receives moderate shoreline fishing pressure and considerable disturbance from motorized use associated with Highway 93. Loons at all of the analysis lakes demonstrate some habituation to human disturbance and noise.

Shoreline development and recreationalists (primarily anglers) are likely the greatest risk factors causing disturbance of breeding loons. People recreating with watercraft likely disturb loons, although cooperators and volunteers (e.g. USFS, Montana Loon Society) place signage on these lakes asking recreationalists to keep their distance from nesting areas. Given the popularity these lakes and their relatively small size, these signs likely have limited effectiveness. Despite moderate to high amounts of recreational use and disturbance, loons on several of these lakes have successfully hatched at least one chick.

Environmental Effects – Common Loon

No Action Alternative: Direct and Secondary Effects on Common Loons

Under this alternative, no proposed project activities would occur. Thus, no direct or indirect effects to shoreline habitat or disturbance levels would be anticipated as a result of the No-Action Alternative.

No Action Alternative: Cumulative Effects on Common Loons

Under this alternative, no proposed project activities would occur. Thus, since no additional changes in shoreline habitat or human disturbance would be anticipated as a result of the No-Action Alternative, no cumulative effects to common loons would be anticipated.

Action Alternative: Direct, Secondary and Cumulative Effects on Common Loons

Proposed activities would alter up to 45 acres of uplands within 500 feet of the analysis lakes. Proposed harvest could increase sight distances and the associated potential for disturbance to loons, however, no harvesting would occur within 50 feet of the lakes and wetland nesting habitat would not be disturbed. Thus, vegetation along the lakeshore and potential nesting habitat would not be appreciably altered. These lakes would be surveyed throughout the common loon breeding season, prior to harvest activities. For all lakes where loons are nesting, mechanized activity within 500 feet of nest sites or potential nest sites would be prohibited from April 15 through July 15 each year to protect nesting loons (ARM 36.11.436 (9)). No new

permanent roads or developments would occur within 500 feet of any known nest sites. Should a pair of loons establish a nest closer to the proposed units, additional mitigation measures would be developed prior to harvesting to minimize effects to nesting loons. Existing disturbance levels and recreational use of these lakes would persist. The proposed activities would be additive to any sources of disturbance originating from private land, the Highway 93 reconstruction project, or the Round Prairie Timber Sale (DNRC 2024). Thus, low direct, indirect, and cumulative effects to nesting common loons and chick recruitment would be anticipated under the Action Alternative since: 1) short-term disturbance would occur within 500 feet of lakes where loons could be present, however, harvest activities would not occur during the nesting season and no appreciable changes in shoreline disturbance or vegetation would be anticipated; 2) no changes to available nesting habitat would be expected; 3) current levels of human recreational use within loon habitat would not appreciably change; and 4) existing sources of nest failure or chick mortality would remain unchanged in the long-term.

FISHER

Issue

The proposed activities could decrease habitat suitability for fishers by decreasing canopy cover in mature forest stands, decreasing abundance of snags and coarse woody debris, and by increasing roads, which could elevate risk of trapping mortality.

Introduction

In the Rocky Mountains, fishers prefer mesic late-successional forests with complex vertical and horizontal structure, large-diameter trees, and relatively dense canopies (Schwartz et al. 2013, Raley et al. 2012). Fishers generally avoid large openings, clearcuts, and ponderosa pine and lodgepole pine stands (Schwartz et al. 2013). Fishers prey upon snowshoe hares, ungulate carrion, porcupines, birds, and small mammals as well as seasonally available fruits and berries. Fisher resting and denning sites are found in cavities of live trees and snags, downed logs, brush piles, mistletoe brooms, squirrel and raptor nests, and holes in the ground. Forest-management considerations for fishers involve providing upland and riparian resting and denning habitat, retaining adequate snags and downed woody debris, maintaining a network of travel corridors, and reducing trapping risk associated with motorized access.

Analysis Area

The analysis area for direct and indirect effects is the project area and the analysis area for cumulative effects is the 19,937-acre Small CEAA as described in TABLE WI-1 and depicted in FIGURE WI-1. The Small CEAA is centered on the project area and is defined according to geographic features and could support the home range of at least one male and female fisher given enough suitable habitat; providing a reasonable analysis area for fishers that could be influenced by project-related activities.

Measurement Criteria

Factors considered in the analysis include: 1) the degree of harvesting, 2) availability and structure of preferred fisher habitats, 3) landscape connectivity, and 4) human access as it relates to risk of trapping mortality. Habitat structure considered appropriate for fisher use includes stands with 40-100% total stocking density with $\geq 10\%$ canopy closure of mature forest (≥ 9 inches dbh). On other ownerships, potential fisher habitat was identified using lidar canopy height models to detect areas of mature forest ($\geq 40\%$ canopy closure of trees ≥ 65 feet in height) stands ≥ 1 acre in size situated below 6,000 feet in elevation.

Affected Environment

The proposed project area contains 1,188 acres (22.0% of project area) of potentially suitable fisher habitat. These acres contain habitat features necessary for fisher resting and denning sites and serve to maintain landscape connectivity. Additionally, there are approximately 575 acres (10.7% of project area) of temporarily non-suitable habitat which consists of cover types preferred by fishers, but these stands are currently lacking the structural components (e.g., large trees) necessary for use by fishers. The remaining 3,634 acres (67.3%) are not considered fisher habitat because they are not the correct forest cover types, non-forested areas, or lakes. Fisher habitat is scattered and poorly connected throughout the project area. Habitat connectivity in the project area is low and is impacted by prior forest management, landscape features (e.g. lakes), and human development (e.g. highway). Open roads facilitate firewood gathering, which can affect the abundance of snags and downed coarse wood used by fishers. Additionally, open roads and trails can offer trappers convenient access which increases trapping risk to fishers should they be using the area. Approximately 38.0 miles (4.5 miles/sq. mile) of roads exist in the project area, of which 18.1 miles (2.1 miles/sq. mile) are open to public motorized use and 19.9 miles (2.4 miles/sq. mile) are restricted to public motorized use. Overall, within the project area, fisher habitat suitability and connectivity is low and risk factors are high. Use of the project area by fishers is possible, but appreciable use is unlikely due to the factors listed above and lack of sightings or detections in the area (MNHP 2025, Krohner et. al 2022).

Historical records of fisher occurring in the Small CEAA within the last 30 years are lacking (MNHP 2025, Krohner et. al 2022). Fisher use of the CEAA is unlikely, but possible. Within the CEAA, there are 5,502 acres (27.6% of the CEAA) of potentially suitable fisher habitat. However, many of these stands may be forest types that are unsuitable for fisher. Additionally, some stands are isolated by non-forested areas that fisher would be unlikely to traverse. Riparian habitat throughout the CEAA is limited. There are approximately 82.7 miles of open roads (2.7 miles/sq. mile) in the CEAA could facilitate access by trappers, however many of these roads access residential areas or unsuitable habitat. Trapping of fishers is not currently legal in the CEAA, however, fisher can be trapped incidentally in traps set for other target species. Habitat suitability for fishers is low, and risk factors are high within the CEAA.

Environmental Effects – Fisher

No Action Alternative: Direct and Secondary Effects on Fishers

Under this alternative, no proposed project activities would occur. Thus, no direct or indirect effects associated with fisher habitat suitability or trapping mortality risk would be anticipated as a result of the No-Action Alternative.

No Action Alternative: Cumulative Effects on Fishers

Under this alternative, no proposed project activities would occur. Past forest management projects not associated with the proposed Spencer to Beaver Forest Management Project have affected fisher habitat in the CEAA, and ongoing and proposed projects could alter fisher habitat in the future (TABLE WI-2). Activities on non-DNRC lands could continue altering fisher habitat and create increased trapping risk within the CEAA. Thus, since no additional changes in available habitat or level of human access would be anticipated as a result of the No-Action Alternative, no cumulative effects to fisher habitat suitability or trapping mortality risk would be anticipated.

Action Alternative: Direct and Secondary Effects on Fishers

Under the Action Alternative, 508 acres of the 1,188 acres (42.8% of existing habitat) of suitable fisher habitat in the project area would be harvested. Of these acres, approximately 339 acres

(28.5% of existing habitat) would no longer consist of forest structure suitable for appreciable use by fishers for at least 80 years. After harvest activities are complete, 849 acres (15.7% of project area) of suitable fisher habitat would remain in the project area. In all areas, harvest prescriptions call for retention of at least 2 snags and 2 snag recruits per acre (≥ 21 in. dbh) where they exist, otherwise the next largest size class. In addition, 7 to 25 tons/acre of coarse woody debris per acre would be retained within harvest units except in high hazard fuels reduction areas. Firewood cutting would continue to limit snags and coarse woody debris along open roads in the project area. Long-term open road density during the trapping season would not change. The clearing of overgrown roads and construction of 0.2 miles of new restricted road and 2.9 miles of temporary road could increase trapping risk by a minor degree by making some areas more accessible to snowmobiles. If present near the project area, fishers could be displaced for up to 4 years. Thus, low adverse direct and indirect effects would be anticipated as a result of the Action Alternative, that would affect fisher habitat suitability in the project area since: 1) habitat availability would be reduced by 339 acres (28.5%) but some large snags, snag recruits, and coarse woody debris would be retained; 2) an additional 169 acres of suitable fisher habitat would be impacted, but would continue providing suitable habitat post-harvest; 3) landscape connectivity would remain moderate; 4) overall risk factors associated with motorized human access levels would increase slightly; and 5) use of the area by fishers is unlikely.

Action Alternative: Cumulative Effects on Fisher

Approximately 508 acres (9.2%) of the 5,502 acres of suitable fisher habitat in the Small CEAA would be harvested under the Action Alternative. Of these acres, approximately 339 acres (6.2% of available) of suitable habitat would reduce overstory crown closure enough to render it temporarily unsuitable for use by fishers. Reductions in fisher habitat would be additive to the changes associated with current and planned timber harvesting in the CEAA (TABLE WI-2), and past harvesting within the last 40 years. Approximately 5,163 acres (25.9%) of the 19,937-acre cumulative effects analysis area would remain as suitable fisher habitat. Reductions in landscape connectivity of suitable fisher habitat within the CEAA would occur; but would remain moderate. Potential trapping mortality would be minimally influenced, as there would be no change in public motorized access during the trapping season. Thus, under the Action Alternative, low adverse cumulative effects would be anticipated that would affect fisher habitat suitability within the CEAA since: 1) existing baseline suitability and connectivity of potential fisher habitat within the CEAA is moderate but appreciable use of the CEAA by fishers is unlikely; 2) 5,163 acres (25.9% of the project area) would remain as suitable habitat; 3) harvesting would alter tree density, snags, and stand structure in 9.2% of existing suitable fisher habitat within the CEAA; 4) overall habitat connectivity would be reduced but remain moderate; and 5) no appreciable change in the risk of snag/coarse woody debris loss and trapping mortality would be expected.

PILEATED WOODPECKER

Issue

The proposed activities could reduce tree density and alter the structure of mature forest stands, which could reduce habitat suitability for pileated woodpeckers.

Introduction

Pileated woodpeckers play an important ecological role by excavating cavities that are used in subsequent years by many other species of birds and mammals. Pileated woodpeckers excavate the largest cavities of any woodpecker. Preferred nest trees are western larch, ponderosa pine, cottonwood, and quaking aspen, usually 20 inches dbh and larger. Pileated woodpeckers primarily eat carpenter ants, which inhabit large, downed logs, stumps, and snags.

Aney and McClelland (1985) described pileated nesting habitat as “stands of 50 to 100 contiguous acres, generally below 5,000 feet in elevation with basal areas of 100 to 125 square feet per acre and a relatively closed canopy.” Necessary feeding and nesting habitat attributes include large snags, large, decayed trees, and downed wood, which closely tie these woodpeckers to mature forests with late-successional characteristics. The density of pileated woodpeckers is positively correlated with the amount of dead and/or dying wood in a stand (McClelland 1979).

Analysis Area

The analysis area for direct and indirect effects is the project area and the analysis area for cumulative effects is the 19,937-acre Small CEAA as described in TABLE WI-1 and depicted in FIGURE WI-1. The Small CEAA is centered on the project area and provides a sufficient area to support multiple pairs of pileated woodpeckers if enough suitable habitat is present (Bull and Jackson 2020).

Measurement Criteria

Factors considered in the analysis include: 1) the degree of harvesting and 2) the amount and structure of pileated woodpecker preferred habitat types. On DNRC-managed lands, sawtimber stands averaging ≥ 100 years old within preferred pileated cover types (ARM 36.11.403(63)) with $\geq 40\%$ canopy closure were considered potential pileated woodpecker habitat. On non-DNRC lands, lidar canopy height models and vegetation maps were used to identify potential pileated woodpecker habitat. Pileated woodpecker habitat was defined as any stand with at least 40% canopy closure of trees greater than 65 feet in height and of an appropriate forest type.

Affected Environment

In the project area, there are approximately 2,552 acres (47.3% of project area) of potential pileated woodpecker habitat. Current potential pileated habitat within the project area consists primarily of mature Douglas-fir and western larch forest. Suitable habitat is patchy throughout the Beaver Lakes portion of the project area and fragmented by recent harvest (TABLE WI-2). Habitat in the Spencer Lake portion of the project area is more abundant and well-connected. There are 6 habitat patches ≥ 50 acres (range 64-898 acres) that average 408 acres in size. The largest habitat patch in the project area is in the Spencer Lake area and is 896 acres in size. Some areas in the project area have numerous large snags while other areas currently lack sufficient large snags. Firewood gathering, which can result in a reduction of snags and downed logs valuable as woodpecker nesting and foraging substrates, is high throughout the project area due to the abundance of open roads. Thus, habitat quality and abundance is moderate within the project area.

The Small CEAA contains approximately 7,281 acres (36.5% of the CEAA) of potential pileated woodpecker habitat. Of these acres, 3,081 acres (15.5% of the CEAA) are located within DNRC lands. There are 16 patches ≥ 50 acres (range 50 to 1,920 acres) and average 356 acres in size. The remaining patches totaling 1,935 acres are < 50 acres in size, which is likely more appropriate for foraging than for nesting. Harvesting of 4,115 acres (20.6% of the CEAA) on DNRC managed lands within the last 25 years has altered forest habitat and created forest conditions in some areas that are currently unsuitable for use by pileated woodpeckers. Appreciable use of the CEAA and project area by pileated woodpeckers would be expected.

Environmental Effects – Pileated Woodpeckers

No Action Alternative: Direct and Secondary Effects on Pileated Woodpeckers

Under this alternative, no proposed project activities would occur. Thus, no direct or indirect effects to pileated woodpecker habitat suitability would be anticipated as a result of the No-Action Alternative.

No Action Alternative: Cumulative Effects on Pileated Woodpeckers

Under this alternative, no proposed project activities would occur. Past forest management projects not associated with the proposed Action Alternative have affected pileated woodpecker habitat in the CEAA, and ongoing and proposed projects could affect habitat suitability in the future (TABLE WI-2). Activities on non-DNRC lands could continue altering pileated woodpecker habitat within the CEAA. Thus, since no additional changes in available habitat would be anticipated as a result of the No-Action Alternative, no cumulative effects to pileated woodpecker habitat suitability would be anticipated.

Action Alternative: Direct and Secondary Effects on Pileated Woodpeckers

Under the Action Alternative, 601 acres (23.5% of available) of pileated woodpecker habitat would be altered by the proposed activities. Proposed harvest prescriptions on 496 acres (19.4% of available) would open stands to <40% canopy cover causing the structure of these stands to become unsuitable for appreciable use by pileated woodpeckers. The remaining 105 acres would undergo less intensive harvesting and would likely retain some suitable habitat for pileated woodpeckers post-harvest, although fewer large trees and snags available for nesting and foraging. Patch size and connectivity of suitable habitat would be reduced, particularly in the Beaver Lakes portion of the project area. Several remaining patches would remain connected to larger patches of suitable habitat outside of the project area. Five large patches ≥ 50 acres (range 178 to 725 acres, average 397 acres) would remain within the project area and could provide nesting habitat for pileated woodpeckers. Some snags would be removed by the proposed harvest, but at least 2 large snags and 2 large snag recruitment trees per acre (>21 inches dbh, or next largest size class) would be retained where present (ARM 36.11.411). Approximately 7 to 25 tons/acre of coarse woody debris would be left in harvest units (except within high hazard fuels reduction areas), with an emphasis on downed logs >15 inches diameter. Disturbance associated with harvesting could adversely affect pileated woodpeckers within the project area for up to 4 years, should they be present. Thus, moderate adverse direct and indirect effects to pileated woodpecker habitat suitability in the project area would be anticipated as a result of the Action Alternative since: 1) harvesting would reduce pileated woodpecker suitable habitat availability by 496 acres (23.5% of existing), and 38.1% of the project area (2,056 acres) would remain suitable habitat; 2) forest structural changes would occur, but mitigations would include retention of snags and coarse woody debris (ARM 36.11.411, ARM 36.11.414); 3) connectivity would decline, average patch size of suitable habitat would decrease, and five patches over 50 acres would remain; and 4) pileated woodpeckers could be temporarily displaced for up to 4 years due to disturbance from forest management activities.

Action Alternative: Cumulative Effects on Pileated Woodpeckers

Under the Action Alternative, pileated woodpecker habitat would be altered on 601 acres (3.0% of Small CEAA) of the 3,081 acres of potentially suitable habitat in the CEAA. Approximately 496 of these acres (6.8% of available) would not provide suitable pileated woodpecker habitat post-harvest. The remaining 105 acres would undergo an old growth maintenance that would retain enough large trees to continue providing suitable habitat; however, the abundance of some preferred habitat elements would be reduced. In all harvest units, snags, coarse woody debris, and potential nesting trees would be retained in the project area according to forest management ARM 36.11.411 & ARM 36.11.414. Post harvest, 17 patches ≥ 50 acres (range 53 to 1,233 acres) with an average size of 280 acres would remain. These 4,762 acres would be

expected to continue to provide breeding habitat for pileated woodpeckers. An additional 2,202 acres would continue to provide foraging habitat for pileated woodpeckers. Changes in pileated woodpecker habitat suitability would be additive to past, proposed and ongoing activities occurring in the Small CEAA (TABLE WI-2). Disturbance associated with the proposed activities could adversely affect pileated woodpeckers in the vicinity of the project area for up to 4 years. Timber harvesting throughout the CEAA and firewood gathering along open roads would continue to limit the abundance of snags and woody debris within more accessible areas of the CEAA. Thus, low cumulative effects to habitat suitability for pileated woodpeckers would be anticipated since: 1) 3.0% of suitable pileated woodpecker habitat currently present within the CEAA would be altered; 2) approximately 34.0% of the CEAA would contain suitable habitat post-harvest; 3) patch size of suitable habitat would decrease and connectivity of suitable habitat would be altered within the CEAA; and 4) some snags and snag recruits would be removed in the proposed harvest areas for operational and human safety purposes, however, mitigation measures would retain at least 2 large snags and 2 large recruitment trees per acre, as well as 7 to 25 tons/acre of coarse woody debris in harvested areas.

BIG GAME

ELK, MOOSE, WHITE-TAILED DEER, AND MULE DEER

Issue

The proposed activities could reduce habitat quality for big game, especially during the fall hunting and winter seasons, by removing forest cover and disturbing animals.

Introduction

Timber harvesting can affect big game and habitat quality through disturbance during harvest activities, removal of forest crown closure used for hiding and thermal cover, and by creating openings in the forest used for foraging. Forested cover on winter range enables big game survival by ameliorating the effects of severe winter weather conditions. Winter ranges tend to be areas found at lower elevations that support concentrations of big game, which are widely distributed during the remainder of the year. Suitable winter ranges have adequate midstory and overstory vegetative cover that reduces wind velocity and intercepts snow, while moderating ambient temperatures. Besides providing a moderated climate, snow-intercept capacity of tree branches effectively lowers snow depths, which enables big game movement and access to forage. Snow depths differentially affect big game; deer are most affected, followed by elk, then moose.

Timber harvesting can increase big game (e.g., elk) vulnerability by changing the size, structure, juxtaposition, and accessibility of areas that provide security during times of hunting pressure (Hillis et al. 1991). As visibility and accessibility increase within forested landscapes, elk and deer have a greater probability of being observed and, subsequently, harvested by hunters. Because the female segments of the elk and deer populations are normally regulated carefully during hunting seasons, primary concerns are related to a substantial reduction of male animals and resulting decrease in hunter opportunity.

Analysis Area

The analysis area for direct and indirect effects is the project area and the analysis area for cumulative effects is the 36,040-acre Large CEAA as described in TABLE WI-1 and depicted in FIGURE WI-1. The Large CEAA is defined according to geographic features (e.g., watershed boundaries, state highways), which provide a reasonable biological analysis unit for big game animals that could be influenced by project-related activities.

Measurement Criteria

Factors considered in the analysis include: 1) the degree of timber harvesting, 2) the availability and structure of forest cover on big game winter range, and 3) the level of human access for recreational hunting. Big game thermal cover was considered forested habitat (as identified by lidar canopy height models) with $\geq 60\%$ canopy cover over 26 feet (8 meters) in the Large CEAA. Marginal thermal cover with canopy cover between 40% and 60% was also identified.

Hiding cover on DNRC lands was estimated by evaluating forest stand size class and the total crown density of all trees in the stand using GIS and forest inventory data. On non-DNRC lands, hiding cover was identified using lidar canopy height/canopy closure models and was considered vegetation greater than 2 feet in height.

Affected Environment

The project area contains 5,397 acres (100.0%) of white-tailed deer and moose winter range, 1,418 acres (26.3%) of mule deer winter range, 1,112 acres (20.6%) and elk winter range, as identified by DFWP (2008). Evidence of summer deer use was also observed during field visits to the project area. The project area contains approximately 5,134 acres (95.1% of the project area) of habitat that is currently providing hiding cover for big game. Approximately 1,889 acres (35.0% of the project area) provide thermal cover and snow intercept for wintering big game. Thermal cover in the Beaver Lakes portion of the project area is relatively well-connected, whereas thermal cover in the Spencer Lake area of the project area occurs in smaller patches. Lakes, wetlands, rocky areas, past forest management, and roads break up connectivity of thermal cover in the project area. Additionally, 2,146 acres (39.8% of project area) of marginal thermal cover occurs in the project area. Marginal thermal cover is more abundant and well-connected in the Spencer Lake portion of the project area and scattered in smaller patches in the Beaver Lake portion of the project area. The density of open roads in the project area is 2.1 miles/sq. mile and total road density is 4.5 miles/sq. mile. Human disturbance in the project area is high due to the proximity to the Flathead Valley, open roads, and miles of authorized trails that provide abundant recreational opportunities in the area. Elk security habitat as defined by Hillis et. al. (1991), is not present in the project area due to existing roads, vegetation, and landscape features. Overall, a high proportion (74.8%) of the project area provides at least marginal thermal cover/snow intercept for wintering big game and big game security is low within the project area.

Within the Large CEAA, white-tailed deer winter range occupies approximately 36,040 acres (100.0%), 8,330 acres (23.1%) is mule deer winter range, 14,180 acres (39.3%) is elk winter range, and 33,774 acres (93.7%) is moose winter range. Presently, approximately 8,100 acres (22.5%) within the CEAA are providing thermal cover and snow intercept for big game. An additional 4,740 acres (15.0% of the CEAA) of marginal thermal cover is also present. Hiding cover is present on 24,561 acres (68.2%) in the CEAA. In the last 25 years, approximately 5,023 acres (13.9% of the CEAA) of harvesting on DNRC managed lands has reduced thermal cover and snow intercept on big game winter range within the CEAA. Recent harvests have reduced the quality and quantity of usable cover on winter range within the area, but they may have increased forage quality and quantity by opening the forest overstory canopy. However, forage occurring in forest openings is often not available to wintering animals during appreciable portions of the winter due to deep, crusted snow conditions. Encroachment of noxious weeds into recently logged areas has also likely offset some of the potential gain in forage production. Abundance and connectivity of thermal cover and snow intercept on big game winter range within the CEAA is also reduced by agricultural fields and housing developments. Open road density within the CEAA is 3.7 miles/sq. mile and total road density is 4.6 miles/sq. mile. Due to

its proximity to the Flathead Valley, the CEAA receives high levels of hunter access, especially in areas where roads, both open and restricted, are more numerous. Overall, winter range habitat quality is moderate and big game security is low within the CEAA.

Environmental Effects

No Action Alternative: Direct and Secondary Effects on Big Game

No changes in big game habitat would be expected as no timber harvesting activities associated with the Spencer to Beaver Forest Management Project would occur. Existing cover would continue to contribute to winter range quality and hiding cover would not be altered in the short term. No appreciable changes to winter carrying capacity would be anticipated. No direct effects to big game winter ranges would be anticipated. Since subtle changes in thermal cover due to continued tree mortality and successional advances would not change appreciably, and the levels of human disturbance would remain similar, indirect effects to big game winter ranges would be negligible adverse effects that gradually affect the winter ranges and the deer that use this resource during the next few decades. Thus, no immediate direct or indirect effects to big game habitat in the project area would be anticipated since: 1) no changes to big game habitat would be anticipated and continued mortality and successional advances would not change appreciably, and 2) the level of human access would remain unchanged.

No Action Alternative: Cumulative Effects on Big Game

No additional changes in big game habitat would be expected as no timber harvesting activities associated with the Spencer to Beaver Forest Management Project would occur. Stands that are providing thermal cover and snow intercept would be expected to continue providing these attributes. Past and ongoing forest management projects not associated with the proposed Spencer to Beaver Forest Management Project have affected big game habitat in the CEAA, and other proposed projects could disturb big game species and/or alter habitat quality in the future (TABLE WI-2). Activities on other ownerships could continue altering big game winter range habitat and create disturbance within the CEAA. Gradual reductions in canopy cover and mature forest habitat suitability are likely to continue due to tree mortality from insects and disease and continued human development. Human disturbance levels across the winter ranges would be anticipated to continue at similar levels. No additional cumulative effects to big game habitat quality are expected to result from the No-Action Alternative that could affect big game species in the CEAA since: 1) no big game habitat would be altered and continued maturation of forest cover in harvested areas would improve thermal cover and snow intercept, and 2) the level of human access would remain unchanged.

Action Alternative: Direct and Secondary Effects on Big Game

Under the Action Alternative, approximately 1,354 acres (25.1% of project area) of big game habitat would be impacted by harvest within the project area. The proposed activities would alter approximately 504 acres (26.7% of existing) of thermal cover and 537 acres (25.0% of existing) of marginal thermal cover. Of these acres, the proposed harvest would remove thermal cover on approximately 396 acres (21.0% of available) and marginal thermal cover on 506 acres (23.6% of available). In these stands, the resulting forest canopy would be too open to effectively function as thermal cover/snow intercept for the next 40-60 years. Post-harvest, 1,493 acres (27.7% of project area) of the project area would continue to function as thermal cover/snow intercept for big game, and an additional 1,640 acres (30.4% of project area) would continue to provide marginal thermal cover. The biggest impact to thermal & marginal thermal cover would occur in the south central and western portion of the Beaver Lakes area where large patches of thermal cover and marginal thermal cover would be removed. These proposed units are adjacent to other recently harvested areas that lack thermal cover/snow intercept. Remaining patches in this area would be less effective due to fragmentation and a higher edge

to interior ratio. Proposed timber harvesting would not prevent big game movement through the project area in winter and could stimulate browse production within the units.

The proposed Action Alternative would impact approximately 1,322 acres of hiding cover (25.7% of existing) within the project area. Sight distances would increase within all proposed harvest units, but prescriptions on 589 of these acres would retain tree densities that would continue to provide hiding cover. Proposed prescriptions on 724 acres (14.1% of existing) would remove the ability of these stands to hide or screen big game. Topographic breaks and the retention of some regenerating conifers and submerchantable trees within harvest units would reduce sight distances and provide some hiding cover within proposed harvest units. Hiding cover in harvest units would be expected to recover within 15 to 20 years following proposed treatments as shrub and tree regeneration proceeds. Post-harvest, 4,410 acres (81.7% of project area) of hiding cover would remain in the project area.

Short-term (1-4 years) displacement of big game would be expected as a result of the proposed motorized logging disturbance. Approximately 0.2 miles of new, permanent restricted road and 2.9 miles of temporary would be constructed. Approximately 11.6 miles of existing restricted road and 7.8 miles of open road within the project area would see a temporary increase in use during harvest activities. During all phases of the project, any currently restricted roads would be restricted from motorized use by the public and remain closed after completion of project activities. Long-term open road density would not change, and the level of human access would remain similar. The extensive network of trails and open and restricted roads would continue to facilitate hunter and recreational access after the proposed activities are completed.

Thus, moderate adverse direct and indirect effects to big game security habitat and winter range habitat quality would be expected since: 1) 21.0% of available thermal and 23.6% of marginal thermal cover in the project area would be removed by harvesting; 2) thermal cover/snow intercept would persist on 27.7% (1,493 acres) of the project area and marginal thermal cover would persist on 30.4% (1,640 acres) of the project area; 3) 14.1% of hiding cover within the project area would be removed by harvesting; 4) logging activities would create disturbance in this area for 1 to 4 years; 5) the behavioral adaptability of white-tailed deer, such as winter feeding on lichens and food sources made more available by timber harvesting; and 6) long-term open road density would not change.

Action Alternative: Cumulative Effects on Big Game

The proposed Action Alternative would impact 1,354 acres (3.8%) of big game habitat in the Large CEAA. The proposed harvesting would alter 504 acres (6.2% of available) of thermal cover in the CEAA. Forest stands providing thermal cover and snow intercept would be removed by harvesting on 396 acres (4.9% of existing). These acres would be too open to provide adequate thermal cover/snow intercept after project completion. This reduction in thermal cover and snow intercept would be additive to past, proposed, and ongoing forest management projects within the CEAA (TABLE WI-2). The proposed activities would alter 1,322 acres of hiding cover and remove 724 acres of hiding cover (2.9% of available) of hiding cover in the CEAA. Some dense patches of regenerating conifers (>6 feet height) and some canopy cover would be retained, providing some residual cover in harvest units. Appreciative changes in big game distribution or abundance during the winter would not be expected at the scale of the CEAA.

Harvesting and motorized disturbance within the CEAA associated with the proposed project could temporarily displace wintering big game for up to 4 years, with elk most affected. Under the Action Alternative, use of existing restricted roads and construction of temporary roads for

harvesting activities could temporarily increase access and disturbance on 8.9 miles of open road and 11.6 miles of restricted and within the CEAA. After harvesting, the extensive network of trails and open and restricted roads would continue to facilitate hunter and recreational access.

Thus, low adverse cumulative effects to big game winter range and big game security would be expected since: 1) Harvesting would remove 2.9% (724 acres) of hiding cover and 23,837 (66.1% of CEAA) acres would remain; 2) existing thermal cover and snow intercept on winter range in the CEAA would be altered, and approximately 7,704 acres (21.4% of CEAA) of stands with these attributes would remain after harvest; 3) some canopy cover and regenerating conifer patches would be retained in harvest units; 4) overall habitat quality and connectivity within the larger winter range would not be appreciably altered; 5) logging activities would create additional disturbance on a portion of the CEAA and be additive to existing forest management activities in the area; and 6) 0.2 miles of permanent restricted road would be constructed, but long-term open road densities would not change appreciably.

Wildlife Mitigations

- If a threatened or endangered species is encountered, consult a DNRC biologist immediately. Similarly, if undocumented nesting raptors are encountered within ½ mile of the project area contact a DNRC biologist.
- Prohibit contractors and purchasers conducting contract operations from carrying firearms while on duty as per ARM 36.11.432(1)(c).
- 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 per ARM 36.11.432(1)(d).
- North of Highway 93, prohibit all harvesting-related motorized activities more than 100 feet from open roads from April 1 – June 15 per ARM 36.11.432 (2)(c).
- Restrict public access at all times on restricted roads that are opened for harvesting activities. Effectively close all restricted roads following harvest completion to reduce the potential for unauthorized motor vehicle use and/or loss of snags to firewood gathering.
- Provide visual screening along open roads to the extent practicable by retaining available submerchantable trees and brush.
- Retain patches of advanced regeneration of shade-tolerant trees within commercial harvest units as per ARM 36.11.428 (4)(f). This mitigation pertains to EA units: B1, B2, B3, B4, B5, B6, B7, BP1, and BP2.
- In all precommercial thinning units, retain small, shade-tolerant trees that do not pose competition risks to crop trees as per ARM 36.11.428 (4)(e).
- Prohibit mechanized forest management activities within 500 feet of nesting common loons between April 15 and July 15 per ARM 36.11.436 (9). This may include portions of EA harvest units 1, 2, B2, B7, BP1, BP2, and PCT7.
- Retain at least 2 snags and 2 snag recruits per acre (>21" dbh or largest available size class), particularly favoring western larch, ponderosa pine and Douglas-fir for retention. In harvest units adjacent to open roads, retain snags at least 200 feet from the road when possible. If snags are cut for safety concerns, leave them in the harvest unit.
- Retain 7 to 25 tons/acre coarse-woody debris according to ARM 36.11.414 and emphasize retention of 15-inch diameter downed logs aiming for at least one 20-foot-long section per acre ARM 36.11.428 (4)(b).

- Restrict all motorized harvest activities within ¼ mile of the goshawk, osprey, and red-tailed nest trees from April 1-August 15. Retain all trees within a 100-foot radius of the nest trees. Timing restrictions may be lifted if the territory is unoccupied.

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Figure WI-1 – Wildlife Analysis Areas for the proposed Spencer to Beaver Forest Management Project.

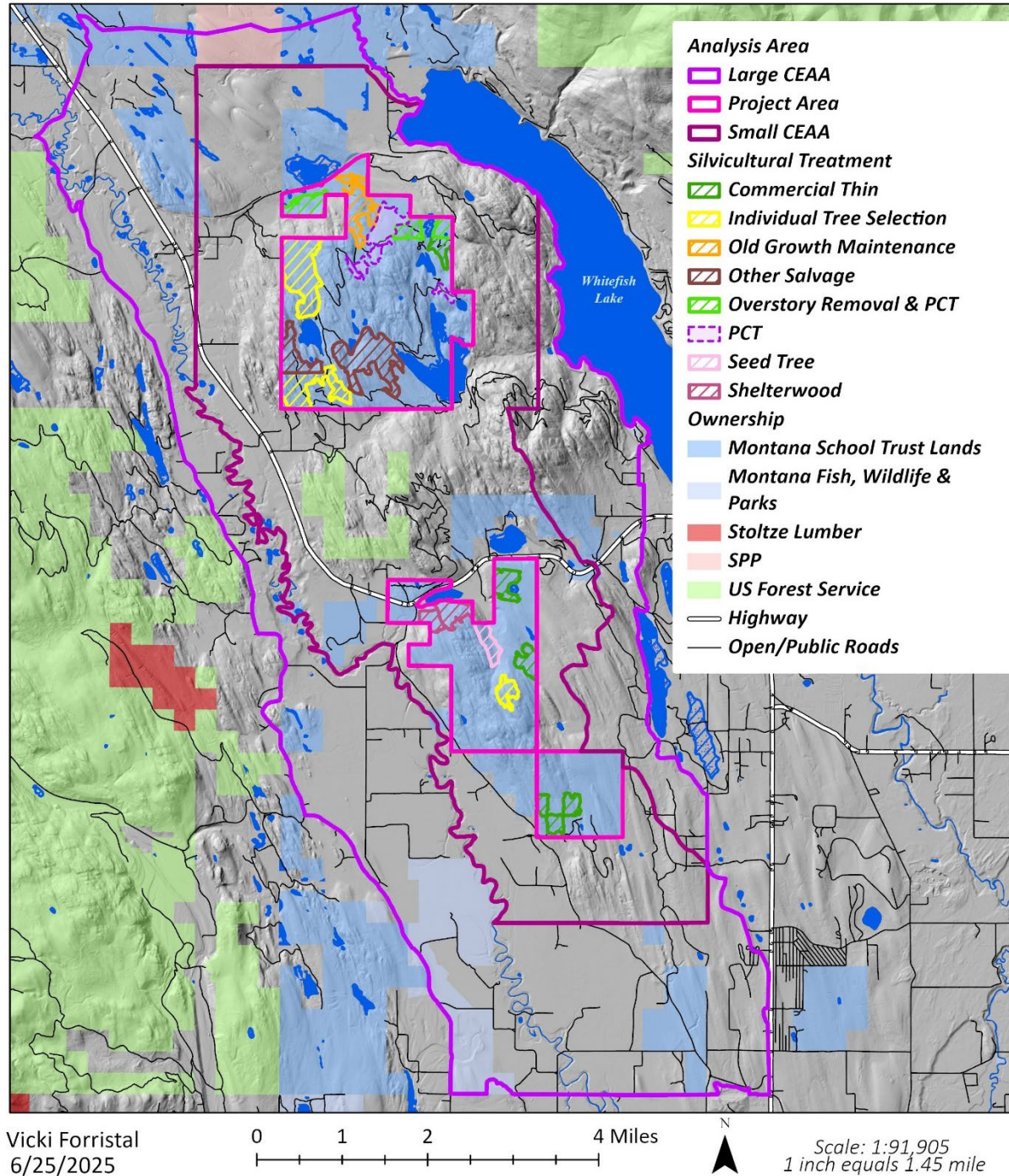


Figure WI-2 - Mature Forested Habitat and Landscape Connectivity. Relationship of the project area, Small CEAA, and proposed units to mature forested stands and potential connectivity for the proposed Spencer to Beaver Forest Management Project.

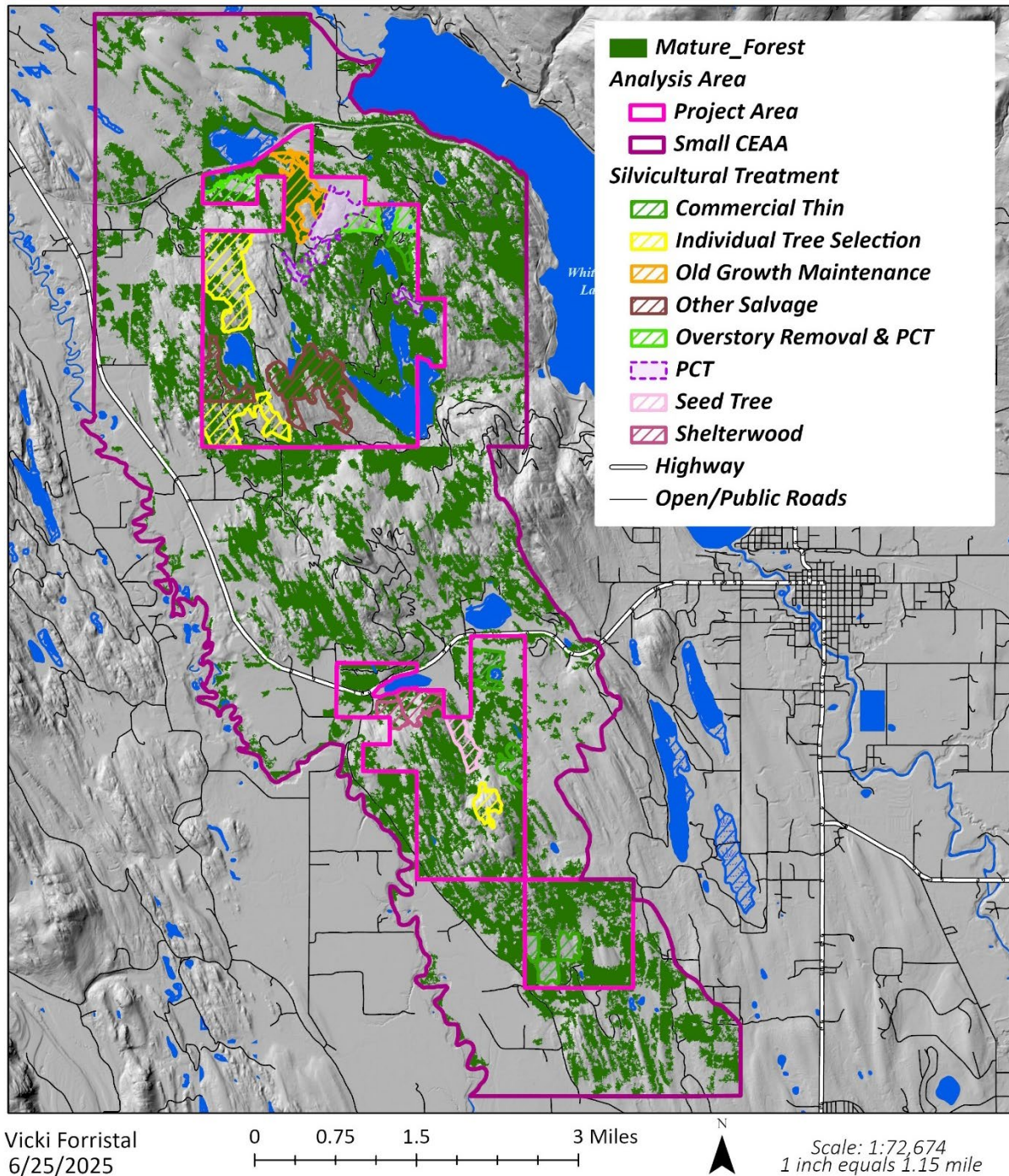
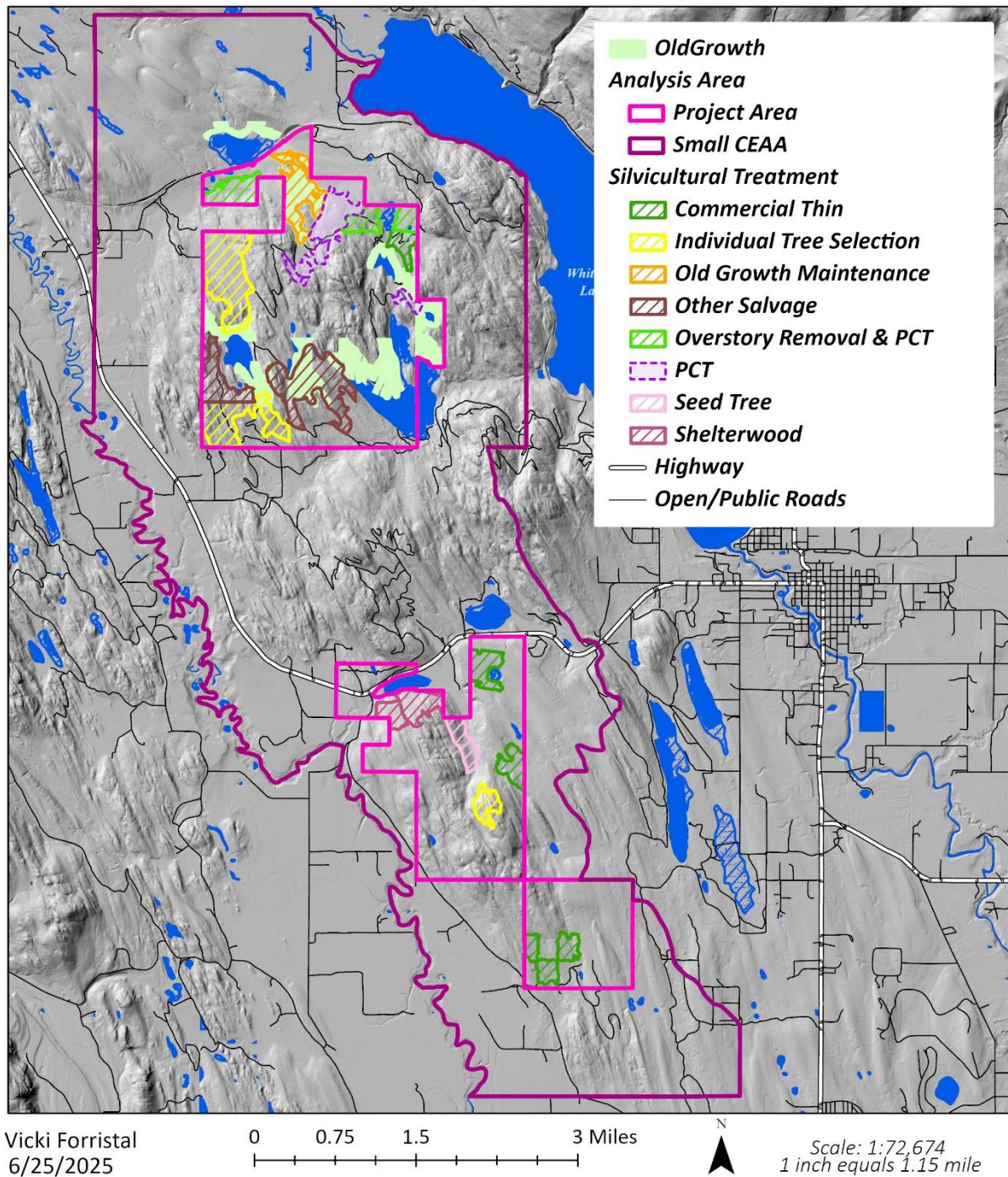


Figure WI-3 – Old Growth Habitat and Landscape Connectivity. Relationship of the project area and proposed units to old growth stands for the proposed Spencer to Beaver Forest Management Project.



AESTHETICS:

Aesthetics play an important role in the design and operation of the proposed treatments within the project area. The Beaver Lakes Area and the Spencer Mountain Area are heavily used by the communities of Whitefish and the greater Flathead Valley. Recreators utilize the trail systems that run throughout the project area year-round, with the heaviest use during the summer season.

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

- **AE 1:** Proposed harvest units are adjacent to, or visible from the Highway 93 corridor. Harvest units and associated operations would be visible while traveling in both directions.
- **AE 2:** Proposed harvest activities may increase local noise levels due to the use of heavy machinery and log truck traffic along the haul route.

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

- Design harvest units to limit visibility from the highway corridor and retain a visual timber screen between the bottom of harvest units and the edge of Spencer Lake. This screen would maintain visual pleasantries for the traveling and recreating public from the highway corridor as well as from the multiple trail corridors that run throughout the Spencer Mountain Trail Network located at the junction of Twin Bridges Road and Highway 93. Maintain canopy covers by retaining leave trees across harvest units to meet silvicultural standards and reduce impact to visual aesthetics.
- Restrict the operational period within 1,000 feet from private residences to any time after 7 am on weekdays and 8 am on weekends to reduce noise created by harvest operations.
- A viewshed analysis was conducted to determine where operations and visual conditions could be viewed by the public from open road systems within the Beaver Lake Area as well as Spencer Mountain from the Highway 93 corridor looking southbound onto the Project Area.

FOR SPENCER MOUNTAIN AND BEAVER LAKE VIEWSHED SEE ATTACHMENT C

Existing Conditions

Within the overall project area, there are existing operations and activities occurring that are currently contributing to the general amount of noise throughout the area. The Highway 93 corridor, west of Whitefish, MT, through the Twin Bridges junction, has significant road clearing and widening projects underway at the time of this Environmental Assessment and into the foreseeable future. This will be concurrent with future forest management operations as well as ongoing private landowner construction nearby. The United States Forest Service has proposed plans for an additional Forest Management Project nearby the Beaver Lakes Area that will contribute to the increase in noise produced by harvest operations as well as log-truck traffic concurrent with this project. The DNRC has also sold a nearby timber sale that is within the general geographic area of this EA that will be operating within the same timeline of this project.

Environmental Effects

The proposed silvicultural treatments, except for the precommercial thinning and overstory removal treatments, would maintain structural diversity throughout the project area as well as characteristics of multi-species coniferous stands, which is representative of current habitat type, desired future condition and fire regime. Structural diversity would maintain the natural variation of tree diameters and height.

-VISUAL QUALITY

No-Action Alternative:

No trees would be removed from the area under this proposed project. No slash would be produced from harvest operations and the proposed treatment areas would see a decline in density in the mature overstory over time. Current and future regeneration would continue to increase in size and density.

Action Alternative:

Direct, Secondary, and Cumulative Effects

Trees of approximately 8 to 25 inches in diameter would be removed from the project area which would create a visibly more open forest stand. Throughout the proposed sale area slash from the harvest would be noticeable yet temporary. Generally, slash disappears from the site within five years and is often covered by other vegetation within three years. Post-harvest areas may be lighter in color than current conditions, due to a transition in desired future condition and species composition, initial reduction in overall vegetation within post-harvest areas, and decomposition of logging slash. The proposed overstory removal treatments would result in a more drastic change from current conditions and would likely appear more open due to the removal of the majority of mature overstory. However, younger trees from previous management would remain on site and eventually replace the overstory removed with this prescription. Most viewshed impacts are expected to be temporary and post-harvest areas would begin revegetating approximately 3-5 years after harvest.

-NOISE

No-Action Alternative:

No additional machinery or personnel would be present within the project area. Noise levels would stay consistent with current conditions.

Action Alternative:

Direct, Secondary, and Cumulative Effects

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

Based on the anticipated operating periods and the short duration of the forest management project, direct, secondary, and cumulative effects of noise would be low.

HISTORICAL AND ARCHEOLOGICAL SITES:

Multiple historical sites have been observed within the project area by the DNRC's Archeologist. These sites occur within Sections 5, 7, and 9 of T30N R22W as well as Section 7 of T31N R22W. Sites identified within Sections 5, 7, and 9 of T30N R22W will not be directly affected by proposed harvest activities due to their location outside of the proposed treatment area. Sites within Section 7 of T31N R22W are within the proposed treatment area, however presence of these sites were not identified during the reconnaissance or layout of the area. If these sites were to be found during proposed harvest activities, the general area would be flagged off and avoided by equipment and operations. Further review by DNRC specialists would occur.

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

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

OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA:

- Beaver Swift Skyles: 2009
- Spencer Lake: 2010
- Noth Spencer Timber Sale: 2014
- Spencer Mountain Blowdown Salvage: 2017
- North Spencer Beetle Salvage: 2023

Impacts on the Human Population

HUMAN HEALTH AND SAFETY:

Air Quality

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

The project area is located within Montana Airshed **2**, which encompasses portions of Sanders, Flathead, Missoula, Lake and Powell Counties. The portions of the project area south of Murray Lake and Woods Lake are within the Kalispell Impact Zone.

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

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

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

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

-SLASH BURNING

No-Action Alternative:

No slash would be burned within the project area. Thus, there would be no project-related effects to air quality within the local vicinity and throughout Airshed **2**.

Action Alternative:

Direct and Secondary Effects

Slash consisting of tree limbs and tops and other vegetative debris would be piled throughout the project area during harvesting. Slash would ultimately be burned after harvesting operations have been completed. Burning would introduce particulate matter into the local airshed, temporarily affecting local air quality. Over 70% of emissions emitted from prescribed burning are less than 2.5 microns (National Ambient Air Quality PM 2.5). High, short-term levels of PM

2.5 may be hazardous. Within the typical column of biomass burning, the chemical toxics are: Formaldehyde, Acrolein, Acetaldehyde, 1,4 Butadiene, and Polycyclic Organic Matter. Burning within the project area would be short in duration and would be conducted when conditions favor good to excellent ventilation and smoke dispersion as determined by the Montana Department of Environmental Quality and the Montana/Idaho Airshed Group. The DNRC, as a member of the Montana/Idaho Airshed Group, would burn only on approved days.

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

Cumulative Effects

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

-DUST

No-Action Alternative:

No dust would be produced from the proposal. Current levels of dust would remain the same in the area.

Action Alternative:

Direct, Secondary, and Cumulative Effects

Dust may be created from project-related log hauling on portions of native surface roads during summer and fall months. Dust from log hauling would be temporary. Contract clauses would provide for the use of dust abatement or require trucks to reduce speed if necessary to reduce dust near any affected residences.

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

Log Hauling Traffic

Log hauling traffic is common during the work week within the proposed project area and local population centers as the area is surrounded by various land ownerships where other forest management projects are often occurring. Existing levels of log hauling traffic likely affect recreators and general traffic on Highway 93.

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

- The area would experience increased truck traffic, which would be especially concerning on weekends when recreational traffic is higher
- Logging trucks would present additional safety hazards.

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

- Log hauling will take place during the general “work week” from 7 am to 5 pm within 1,000 feet of a private residence unless otherwise authorized by the Forest Officer.
- Signs will be posted making the public aware of log hauling traffic in the area.
- Portions of the Beaver Lake Road system will participate in the Beaver Lake Neighborhood Dust Abatement Program with private landowners and Flathead County. Dust abatement may be necessary from the Purchaser to mitigate impacts from operations.
- If necessary, a slower speed limit may be imposed in the timber harvest contract to alleviate safety concerns.

No-Action Alternative:

No project-related increase in log truck traffic would occur. Existing levels of log hauling traffic would likely remain the same.

Action Alternative:

Direct, Secondary, and Cumulative Effects

Log truck traffic in the area would increase during the regular ‘work week’ for the duration of the timber sale. Truck traffic would affect recreators coming and going from local trailheads as well as utilizing road systems during operations. Truck traffic would also affect Highway 93 southbound and into the greater Whitefish and Kalispell areas, as well as the KM Ranch Road. However, signs will be posted within and near the project area indicating that log truck traffic is present in the area. If necessary, a slower speed limit may be imposed in the project area under the timber harvest contract.

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

RECREATION *(including access to and quality of recreational and wilderness activities):*

Issues and Concerns and Recommended Mitigation Measures for Recreation - The following table lists issues and concerns that were identified during scoping, existing mitigation measures as stated in the Spencer Mountain Land Use License (LUL) and the Beaver Lakes Area Deed of Public Recreation Use Easement (PRUE) agreements, and any additional mitigation measures that would be implemented. The analysis and levels of effects to recreation are based on the implementation of these mitigation measures.:

Issues/Concerns raised by Whitefish Legacy Partners for the Spencer & Beaver Portions of the proposed project:			
	Recreation issue	Existing mitigation measures or design details provided by LUL or PRUE	Additional mitigation measures or design details
1	Asks that the DNRC also help protect the community's significant interest and investment in the recreation infrastructure at Beaver Lakes and Spencer Mountain.	LUL#305-2400041 (Sec. 21E) "When land management activities may impact the licensed trail corridor, DNRC will take reasonable precautions during the management process to avoid unnecessary damage within the corridor." LUL#305-2400041 (Sec. 21E.1) "Licensor will make reasonable efforts to include the Licensee in planning land management activities, in order to mitigate damage to the trail corridor and TTF." Beaver Lakes Area PRUE Recreation Plan (Sec C.2) Easement Area "DNRC reserves the right to conduct forest management and improvement activities, including commercial timber harvest activities in the Easement Area except for within the Recreation System corridor. All timber sales will include an objective to maintain existing recreational uses and provide for any proposed future recreational use that has been identified in this Plan." LUL#305-2400041 (Sec. 22J.1) "Licensor and licensees with overlapping authorized uses in the Spencer Mountain area will meet to share information, coordinate necessary trail maintenance, address issues, and discuss current, near-term, and long-term activities in the Spencer Mountain area. This meeting will include a review of intended activities and projected timelines to aid in communication and coordination of recreation development and land management activities over the term of this license." Beaver Lakes Area PRUE Rec Plan (Sec.3B) State Forest Land Management Plan: The historic use of	

		the subject area has been to manage the land for timber production in accordance with the State Forest Land Management Plan (adopted May 30, 1996). The plan is based on the premise that, "the best way to produce long-term income for the trust is to manage intensively for healthy and biologically diverse forests." (State Forest Land Management Plan, 1996.) It provides for the development of "recreational opportunities as guided by the changing markets for new and traditional uses."	
2	Plan Sale as a winter logging only Sale to avoid impacts to trails and public access.		To mitigate recreational impacts to trail crossings, winter only logging restrictions may be required in certain harvest units.
3	Plan harvest unit boundaries and unit plans to avoid existing and future recreation infrastructure as possible.		Log hauling operations are typically Monday-Friday, but may occur on weekends. There is a possibility hoot-owl restrictions may limit hauling operations during the afternoon hours. Reasonable efforts will be made to keep recreational trails open. Harvest unit boundaries were determined through multiple factors including resource needs, topography, water features, soil condition i.e. rock or cliff outcroppings, access, etc. Unit boundaries followed these factors first, and not all trails could be avoided. Coordination and communication with stakeholders will be established and maintained prior/during active operations.
4	If Sale occurs between April and November, ensure public access is allowed on weekday evenings and weekends	Beaver Lakes Area PRUE Rec Plan (Sec.IX.E) "The City and DNRC will use reasonable efforts and cooperate to the best of their ability to avoid closures of the Recreation System	

		that unreasonably interfere with the public's right to access and use developed recreation improvements." LUL#305-2400041 (Sec. 21B) "Licensor reserves the right for temporary closures for land management activities, including forest management. This includes but is not limited to parking lots, trailheads, and/or trail corridors.	
5	Prohibit skidding on existing trails. When skid routes must cross a trail, concentrate skidding in established routes to reduce the number of trail crossings, ensure crossings are made perpendicular to the trail, utilize corduroy crossings with slash pile tree trunks, avoid trails traversing side slopes, and are limited to no closer than 200'.	LUL#305-2400041 (Sec. 21E) "When land management activities may impact the licensed trail corridor, DNRC will take reasonable precautions during the management process to avoid unnecessary damage within the corridor." (Sec. 21E.1) "Licensor will make reasonable efforts to include the Licensee in planning land management activities, in order to mitigate damage to the trail corridor and TTF." In the Beaver Lake Area logging would be excluded from the 16-foot trail corridor easement. Logging Ski trails would usually cross the trail system perpendicular to the trails. Reasonable effort will be taken to include stakeholders in the planning of skid trails and crossing of trail where necessary.	
6	Ensure all skid trails are no more than 15' wide and reclaimed after work is complete including use of brush and logs to discourage social trails.	LUL#305-2400041 (Sec. 21E) "When land management activities may impact the licensed trail corridor, DNRC will take reasonable precautions during the management process to avoid unnecessary damage within the corridor."	
7	Ensure all skid trails avoid built trail features such as bermed turns, freeride TTFs (with a 50' no work zone around any built wood features), and sign posts.	LUL#305-2400041 (Sec. 22A.10) "Any trail maintenance, reconstruction, relocation or decommission is the sole responsibility of the Licensee and will be completed to the Licensor's satisfaction. This includes maintenance, reconstruction, or relocation that is required by the Licensor due to DNRC land management activities." When possible timber operations will adhere to best practices in regard to skid trails, trails and TTF. Skid trails should cross perpendicularly to	

		existing trails, be limited to 15 feet in width, and limited to 60 foot spacing, whenever possible. Skid trails should be restored within 25 feet on either side of the trail in order to discourage cut-off trails, whenever possible.	
8	In areas of high trail and built feature density, conduct site visit with sale administrators and appropriate recreation partners (FAMB, WLP, City) to determine best possible skid routes and trail crossing locations.	LUL#305-2400041(Sec. 21E.1) "Licensor will make reasonable efforts to include the Licensee in planning land management activities, in order to mitigate damage to the trail corridor and TTF." DNRC will make an effort to include The City, FAMB, and WLP in meetings with timber sale administration for planning and execution of skid trails in relation to trails and trail features.	
9	Avoid road widening and expansion of licensed roads/trails when possible.	LUL#305-2400041 (Sec. 21E) "When land management activities may impact the licensed trail corridor, DNRC will take reasonable precautions during the management process to avoid unnecessary damage within the corridor." (Beaver Lakes Area PRUE Rec Plan Sec VII.B.1) "DNRC reserves the right to construct, use, maintain, improve, and repair roads as needed to facilitate management of Trust Lands."	
10	Design timber haul route through the WT Trailheads impacted by operations, including the Twin Bridges Trailhead, to avoid damaging trailhead infrastructure including vault toilet, kiosk, sign posts, trash can, landscaping boulders, and parking area/driveway surface.	Beaver Lakes Area PRUE Recreation Plan (Sec C.2) Easement Area – DNRC reserves the right to conduct forest management and improvement activities, including commercial timber harvest activities in the Easement Area except for within the Recreation System corridor. All timber sales will include an objective to maintain existing recreational uses and provide for any proposed future recreational use that has been identified in this Plan.	
11	Ensure that the trailheads are returned to existing conditions following the completion of the Sale.	DNRC will take reasonable measures to avoid unnecessary impacts to trailheads. Post harvest operations, all impacted trailheads will be returned to pre-operation state and full functionality. LUL#305-2400041 (Sec. 22A.10) Any trail maintenance, reconstruction, relocation or	

		decommission is the sole responsibility of the Licensee and will be completed to the Licensor's satisfaction. This includes maintenance, reconstruction, or relocation that is required by the Licensor due to DNRC land management activities.	
12	Treat impact areas near trails, roads, and trailheads for noxious weeds following Sale, and in upcoming years.	DNRC will conduct weed mitigation measures for three years post-harvest operations. These mitigations will only apply to roads and landings utilized in harvest operations. (Beaver Lakes Area PRUE Rec Plan Sec.VB.3) "...The Easement requires the City to help eradicate noxious weeds along the trail system." (Beaver Lakes Area PRUE Rec Plan Sec.VIIB.3a) "A certified applicator will complete minimum annual weed treatment each spring for the treatment of weeds during the rosette stage. Each spring the City will contact DNRC for its approval of the City's planned method of control for noxious weeds." (LUL#305-2400041 Sec. 12) "The Licensee shall be responsible for controlling any noxious weeds introduced by Licensee's activity on the License Premises or adjacent state-owned land. The Department of Natural Resources & Conservation Unit Office that has jurisdiction for that locale must review the Licensee's methods of control. Please contact the Kalispell Unit Office license manager for review. The Licensee shall comply with the Montana County Noxious Weed Management Act. (LUL#305-2400041 Sec 22H.2) "Licensee is responsible for controlling noxious weeds at trailheads and parking areas. Trailheads and Parking Areas: "Control noxious weeds in and around parking areas. Control methods shall be performed in accordance with the Operations Plan."	
13	Utilize different colors of flagging along trail corridors to clearly denote areas where contractors should avoid, helping to protect recreation infrastructure and		All proposed harvest unit boundaries, SMZ/RMZ boundaries, and trail corridor under easement will be identified with either blue or orange

	minimize unintended impacts.		flagging, and/or painted to denote boundaries. Reasonable measures will be taken to mitigate unintended impacts.
14	The DNRC consider recreation and public access in planning the timing and associated sale closures	LUL#305-2400041 (Sec. 21D) "Licensor reserves the right to close, require mitigation on, and/or relocate trails that are poorly located, contribute to potential resource damage or impacts, or to minimize conflict with land management activities." LUL#305-2400041 (Sec. 21B) "Licensor reserves the right for temporary closures for land management activities, including forest management. This includes but is not limited to parking lots, trailheads, and/or trail corridors." Beaver Lakes Area PRUE Recreation Plan (Sec C.2) "DNRC reserves the right to conduct forest management and improvement activities, including commercial timber harvest activities in the Easement Area except for within the Recreation System corridor. All timber sales will include an objective to maintain existing recreational uses and provide for any proposed future recreational use that has been identified in this Plan."	
15	Ask that the DNRC work with the sale contractor to plan the phasing of the sale to reduce all closures as much as possible and focus on conducting the salvage work in the Fall or Winter.		Proposed harvest operations currently do not have any seasonal closures based solely on recreational use. Closures will be dependent upon the Purchaser's schedule and operational timeline.
16	Request that the DNRC provides clear, easy-to-find closure and Sale information postings to help the public successfully navigate the salvage operations.		All closures and up to date harvest operation information will be posted by the Purchaser onsite as well as in surrounding areas. For safety precautions, signs will be posted in critical locations to warn of logging traffic and logging operations. DNRC will inform and update Licensee in a

			timely fashion for clear communication and information regarding the project.
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Issues/Concerns raised by Whitefish Legacy Partners for the Spencer Portion of the proposed project:			
	Recreation issue	Existing mitigation measures or design details provided by LUL or PRUE	Additional mitigation measures or design details
17	The 2024 10-year LUL, secures public recreation and mandates the DNRC to mitigate trail impacts and coordinate with stakeholders during land management activities. In order to fulfill the mandates of the LUL, we request that the Spencer to Beaver Timber Sale environmental assessment clearly identifies all recreation mitigations to be included in the timber contract, and that the DNRC's sale administrator will actively ensure the conditions are met.	LUL#305-2400041 does not mandate the DNRC to mitigate trail impacts. LUL#305-2400041 (Sec. 21E) "When land management activities may impact the licensed trail corridor, DNRC will take reasonable precautions during the management process to avoid unnecessary damage within the corridor." LUL#305-2400041 (Sec. 21E.1) "Licensor will make reasonable efforts to include the Licensee in planning land management activities, in order to mitigate damage to the trail corridor and TTF."	
18	In order to fulfill the mandates of the LUL, we request that the Spencer to Beaver Timber Sale environmental assessment clearly identifies all recreation mitigations to be included in the timber contract, and that the DNRC's sale administrator will actively ensure the conditions are met.	Per LUL#305-2400041 DNRC will take reasonable precautions to avoid unnecessary damage and make reasonable efforts to include the Licensee in planning land management activities. Some aspects of forest management activities and efforts to mitigate trail damage will not be known prior to operations. Unknown variables during the planning stage of the project, such as weather, timber-landing placement, and road crossings, play a large role in forest management operations. It has been communicated that the DNRC will inform the Licensee of operating procedures as these unknowns are known.	
19	We ask that the timber sale protect current recreation infrastructure and public	The DNRC has continually collaborated with stakeholders throughout the planning stages of the	Field meetings to discuss stated issues were held with Whitefish Legacy

	access and consider the Spencer Mountain recreation expansion proposal submitted to the DNRC as part of the signing of the 2024 LUL.	project. DNRC mitigation of impacts has been achieved with the current harvesting plans, the prescription treatment of units, protecting existing infrastructure, and avoiding intersection with trails as much as possible. DNRC has communicated that it will not assess expansion plans within this EA as it is outside the scope of the proposed project.	Partners, City of Whitefish, FAMB, and Bar W Guest Ranch on; November 21, 2024, December 16 th , 2024, and January 7 th , 2025. As well as continued communication with stakeholders at the monthly Operations meetings.
20	Following the completion of the Sale, restore roads licensed under LUL back to favorable recreation conditions with reseeded, hiker/biker compatible water bars, and compaction of loose materials.	All road systems utilized by the proposed timber operations will be maintained to DNRC internal standards "Best Management Practices". This should serve as an overall improvement of the road system from its current state. However, in reference to LUL#305-2400041 (Sec. 22 G.2) "Licensor reserves the right to require Licensee, along with other licensees, to share in the maintenance of one-quarter mile, up to the South Spencer Trail Network Parking Area, of "Rifle Range Road," based upon their respective usage, per an annual maintenance plan approved by Licensor."	
21	If needed, provide appropriate permissions for trails to be rehabilitated by the recreation partners (FAMB, WLP, City) after the Sale to ensure a high-quality recreation experience on the 39" Whitefish Trail and freeride Spencer Trails.	LUL#305-2400041 (Sec. 22A.10) "Any trail maintenance, reconstruction, relocation or decommission is the sole responsibility of the Licensee and will be completed to the Licensor's satisfaction. This includes maintenance, reconstruction, or relocation that is required by the Licensor due to DNRC land management activities."	
22	Within North Spencer harvest units along Spencer Lake, modify harvest treatment "Seed Tree" (6-10 leave trees/acre) to	Under this MEPA document, two action alternatives and a no action alternative have been identified for the proposed harvest units above the Twin Bridges trailhead. Analysis has been conducted for all preliminary	

	"Shelterwood" (10-25 leave trees/acre) in treatment areas.	alternatives. After preliminary assessment of the three alternatives, one was dropped from the analysis, leaving an action and no action alternative Decision for final silvicultural prescription will be made by the respective decision-maker.	
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Issues/Concerns raised by Whitefish Legacy Partners for the Beaver Portion of the proposed project:			
	Recreation issue	Existing mitigation measures or design details provided by LUL or PRUE	Additional mitigation measures or design details
23	At Beaver Lakes, the City purchased a \$7,297,500 PRUE to balance commercial timber management while protecting 1,520 acres for public access, recreation, and conservation. As per the Environmental Assessment completed in 2012, this investment generates approximately \$450,000 annually for the trusts with 5% of the interest each year being reinvested in the Permanent Fund. This annual source of revenue has clearly proven to be a reliable revenue source for the trusts and is an important value that should be upheld in the Proposed Project.	Beaver Lakes Area PRUE (Sec. A, 1.0) "Grantor and Grantee agree that the purpose of this Easement is to allow for the Grantor's continued management of the Easement Area for commercial timber or in any other way subsequently determined to be consistent with its legal obligations to the beneficiaries of the Trusts and the terms of the Easement, while simultaneously protecting the public access, public recreation, forestland, and trust values (hereinafter "Values") of the State Trust Lands described in this Easement."	

Issues/Concerns raised by Flathead Area Mountain Bike for the Spencer Portion of the proposed project:			
	Recreation issue	Existing mitigation measures or design details provided by LUL or PRUE	Additional mitigation measures or design details
24	MCA 77-1-203 requires that state lands be administered under the concept of multiple-use management.	Beaver Lakes Area PRUE Rec Plan (Sec. 3A) State Trust Land Goals: "The lands in the subject area are held in trust by the State of Montana, and it is the responsibility of the Land Board to administer the trust to "secure the largest measure of legitimate and reasonable advantage	

		to the state" (Montana Code Annotated (MCA) 77-1-202); MCA Section 77-1-202 states, "...that the people are entitled to general recreational use of state lands to the extent that the trusts are compensated for the value of the recreation." MCA Section 77- 1-203 provides for multiple uses of the land, including public recreation."	
25	The proposed action will potentially diminish and devalue recreation in the area, negatively impacting revenue generated from recreation and running contrary to the statutory multiple-use mandate	The proposed timber sale will not have a substantial effect on Trust Land revenue generated from recreational activities in the Beaver Lakes Area and Spencer Lakes Area. Multiple revenue streams acting concurrently during the proposed timeline is an example of multiple-use management. Recreation will be abundantly available in the region during and after timber operations. Beaver Lakes Area PRUE Recreation Plan (Sec C.2) Easement Area – "DNRC reserves the right to conduct forest management and improvement activities, including commercial timber harvest activities in the Easement Area except for within the Recreation System corridor. All timber sales will include an objective to maintain existing recreational uses and provide for any proposed future recreational use that has been identified in this Plan." LUL#305-2400041 (Sec. 21E) "When land management activities may impact the licensed trail corridor, DNRC will take reasonable precautions during the management process to avoid unnecessary damage within the corridor."	
26	DNRC should provide a cost-benefit analysis comparing the projected revenue from timber harvesting against the potential loss in recreational value to ensure the largest measure of legitimate and reasonable advantage is being obtained for the state. Recreation provides consistent, long-term revenue, whereas timber harvests are sporadic and require decades for forests	Revenue generated for the Trust from the proposed timber sale will far exceed the potential loss in SRUL and LUL revenue during the proposed three-year project. Most, if not all the SRUL and LUL revenue generated from recreation which utilizes the Beaver Lakes Area and Spencer Mountain can be relocated onto adjacent land and utilize different Trust Land trailheads. There is a chance that licensed recreation revenue could increase during the project period.	

	to regenerate. The net revenue of the timber harvest on an annualized basis should be compared to the annual net revenue generated from recreation.		
27	Analysis should include non-economic factors, such as the public benefit of having accessible recreation close to population centers—a point emphasized in the Montana Forest Action Plan. The plan calls for enhancing outdoor recreation opportunities and ensuring public lands continue to support outdoor access. The proposed project should be tailored to maximize benefits under the multiple-use framework, meaning that recreation development should be integrated with timber management in a way that is mutually beneficial	Recreational opportunities for hunting, fishing, hiking, biking, running, swimming, boating, cross-country skiing, snowshoeing, berry-picking, and wildlife viewing are abundant in the area. There will be no shortage of recreational opportunities within a reasonable distance of the proposed project for locals and visitors.	
28	Formally address the actions being taken to mitigate impacts on existing trails at Spencer Mountain	See Issue/Concerns #17-21 (above)	
29	Continue collaborating with FAMB and Whitefish Legacy Partners to develop a comprehensive post-harvest trail restoration and improvement plan.	The DNRC has continually collaborated with stakeholders throughout the planning stages of the project to achieve reasonable recreational goals during and post-harvest. Mitigation of impacts have been achieved with the current harvesting plans; the prescription treatment of units, protecting existing infrastructure, and avoiding intersection with trails as much as possible. WLP and FAMB will be consulted and expected to take a leading role in post-harvest trail restoration. LUL#305-2400041 (Sec. 22A.10) "Any trail maintenance, reconstruction, relocation or decommission is the sole responsibility of the Licensee and will be completed to the Licensor's satisfaction. This includes maintenance, reconstruction, or relocation that is required by the	

		Licensors due to DNRC land management activities.”	
30	Move forward with initiatives to expand and enhance recreational opportunities at Spencer Mountain, recognizing its unique trail system and significant contribution to the local outdoor economy.	If the action alternative is chosen for the proposed project, expansion proposals from City of Whitefish, WLP, and FAMB at Spencer Mountain will not be considered until the completion of the project.	

Existing Conditions

There are two separate areas that will be included in this assessment: Beaver Lake Area and Spencer Mountain Area.

Beaver Lake Area

Road Access and Condition

The Beaver Lakes Area includes open State-owned forest roads which allow motorized recreational access to lakes, homes, trails and trailheads, and fishing and boating access points. These forest roads also provide access for forest management and were constructed to minimum standards to facilitate Best Management Practices (BMPs) for log hauling. Since 1999, when the existing transportation plan was devised, timber sale monies have provided for road upgrades such as turnouts, drainage features, improved visibility, and safe driving surfaces. Road maintenance is generally conducted before and after log hauling is complete and was last done in 2020 on several roadways connected with the Beaver to Boyle Timber Sale. The roads were not designed for all-season use. Vehicle traffic over the years, especially in the wet or very dry periods, has led to deterioration of road surfaces. Roads with higher levels of public use, such as South Beaver and North Beaver roads, have deteriorated, making travel slow and difficult. Other than the sections of North Beaver Lake and North Woods Lake roads that connect to Spur 18A, these roads are not routinely plowed in winter months. Motorized access on the remainder of these roads in the winter is usually by snowmobile.

Beaver Lakes Area Public Recreation Use Easement (PRUE) with the City of Whitefish

In 2012, the State of Montana Board of Land Commissioners granted the City of Whitefish a Public Recreation Use Easement (PRUE) consisting of 1,520 public use acres in the Beaver and Skyles lakes area. In 2018, the Beaver Lakes Area Public Recreation Use Easement Recreation Plan, prepared by the City of Whitefish, Montana DNRC, and Whitefish Legacy Partners, provided guidance and management responsibilities to the PRUE. Within the analysis area, the Whitefish Trail system consists of six existing trailheads (North Beaver, Beaver Lake, Woods Lake, Dollar Lake, Lion Mountain, and Skyles Connection) and 24 miles of natural surface trail. The PRUE is composed of a “trail corridor”, which is an area sixteen feet in width that encompasses the recreation trails. This corridor is subject to management principles outlined in the PRUE. These trail systems include stacked loops, scenic overlooks, single-track trails, and gated logging roads. In the summer of 2019, a one-mile segment of trail was constructed to connect the existing trail system to the Beaver Lake boat launch. Additionally, boat launch improvements were completed in the fall of 2019 that include an informational kiosk, seasonal toilet facilities, a wood observation deck and graveled viewing areas. As

provided for in the PRUE, a State Conservation License is not required when recreating within the Whitefish Trail corridor.

Along with the authorization for the Whitefish Trail and associated amenities, the PRUE also allows for the City of Whitefish and Whitefish Legacy Partners (WLP) to host non-commercial, special events such as equipment demonstrations, outreach activities, fundraising events, educational activities, hikes, and bicycle events. The Whitefish Trail Learning Pavilion, located 0.5 miles from the Lion Mountain Trailhead (managed by DNRC's Kalispell Unit), offers a base or gathering point for environmental educational programs for the community and opportunities for people to engage with their natural surroundings.

General Recreation

The Beaver Lake area is open to hunting, fishing, biking, hiking, and a multitude of other recreational activities. General recreation outside of the Public Recreation Use Easement requires a Montana Fish, Wildlife, & Parks issued Conservation License. DNRC reports that the number of Conservation Licenses sold state-wide in 2024 was 604,000. DNRC's *Recreational Use Rules* (ARM 36.25.146 to 162) apply to these lands outside of the Recreation Use Easement and regulate and provide for the reasonable use of legally accessible state school trust lands. This popular recreation area is open to visitors and residents for hunting, fishing, camping and other recreational activities. Other than the Whitefish Trail system and the Montana Fish, Wildlife, and Parks (MFWP) boat ramp on Beaver Lake, there are currently no developed and maintained recreation sites such as picnic/day use or campsites in this area. Some undeveloped sites do exist along roads and near lakes throughout the project area. These sites usually consist of rock fire rings, parking spots for vehicles, dirt boat launches, and/or small openings for tents.

Licenses and Leases

Along with general dispersed recreational use, the DNRC also grants Special Recreational Use Licenses (SRULs) and Land Use Licenses (LULs). Both SRULs and LULs are non-exclusive licenses, which grant license holders a term of use on State Trust Lands while generating revenue for the Trust.

SRULs can be commercial or non-commercial in nature and issued for short-term concentrated use such as guiding, lessons, races, and special events. The DNRC mitigates the authorized use to prevent damage to existing developed trail-related improvements. LULs can be commercial or non-commercial in nature and typically issued to involve some change to the landscape. They may consist of some minor development such as trails or the placement of a yurt. There are currently four SRUL's and one LUL active in the Beaver Lakes Area.

Since the 1950s, there have been 20 developed residential cabin leases on the north and south shores of Beaver Lake. These cabin sites have been primarily used for recreational purposes and not as year-round residential homes. In 2015, the DNRC initiated the cabin site sale program where lessees could nominate their lease for sale. As of 2024, ten of the cabin sites remain as DNRC leased cabins.

Spencer Mountain Area

Road Use and Condition

The Spencer Mountain area has an extensive network of system roads throughout the sale area that have been previously pioneered and maintained through multiple forest management

projects. Most of these system roads are closed to public motorized use but are utilized by the public and Licensee's for multiple uses. Regarding this project, there are a total of 1.67 miles of open road near the southern end of the Spencer Mountain area that lead to the South Spencer Trailhead. Closed system roads for the project total to 10.21 miles, accessing most of the area. These restricted roads have multiple gates maintained and monitored by the DNRC. These gates are utilized under administrative use by multiple staff members within the agency for a multitude of reasons such as forest management, wildlife management and monitoring, weed spraying, wildfire prevention and initial attack, etc. These road systems were created with previous management and are maintained by the DNRC as part of timber sales and other forest management activities. Under this project, 0.25 miles of new road construction will occur within the Spencer Mountain Area. Currently there are two trailheads under the City of Whitefish's license that would be affected by this project: Twin Bridges Trailhead on the north end and the South Spencer Trailhead on the south end. These trailheads may be closed concurrently with operational use and will be maintained to the DNRC's standard once operations have concluded. Trailhead closures will be utilized for public safety and prior notification will be posted on site as well as to the public in coordination with local recreation groups.

Spencer Area Land Use Licenses

There are currently two Land Use Licenses (LULs) in the Spencer Area. There is one Lease Agreement in the Spencer Area. There is one Special Recreation Use Licenses (SRULs) currently active in the Spencer Area. The active LULs are recreational in nature and identified as secondary uses on classified forest land.

A LUL agreement was completed May, 2024 between the DNRC and City of Whitefish that expires February 28, 2034. Licensed activities include, but are not limited to: maintenance and use of existing parking lots; maintenance, construction, relocation, reconstruction, and decommission of approximately 15.69 miles of trails and associated Technical Trail Features. Anticipated use of the licensed trails and features includes but is not limited to mountain biking, freeride mountain biking, hiking, and horseback riding.

The 15.69 miles of trail known as the Spencer Mountain Trail Network is composed of 9.01 miles of the Whitefish Trail and 6.68 miles of Spencer Freeride Trail. The Whitefish Trail utilizes a 10-foot corridor. These trails are a combination of pre-existing logging roads and single-track trails. The Spencer Freeride Trail utilizes a 16-foot corridor and caters to downhill mountain biking with built-in technical features. Montana Conservation Licenses are required for all recreational use of the Spencer Mountain Trail Network.

A LUL agreement was completed March, 2024 between the DNRC and 16 Hands LLC, dba Bar W Ranch that expires February 28, 2034. Activities include but are not limited to: commercial use of existing trails; maintenance, construction, relocation, reconstruction, and decommission of approximately thirty-five miles of trails. Anticipated use of the licensed trails includes but is not limited to horseback riding, biking, hiking, and snowshoeing.

A Lease Agreement was renewed March, 2016 between the DNRC and the Whitefish Rifle and Pistol Club, INC. The Lease executed in March of 2016 has the option for renewal for two additional 10-year renewals at the discretion of the Director of the DNRC. Activities include but are not limited to: target practice with 30 pistol-firing points with 15 firing points for competition bullseye shooting, target practice with rifle consisting of 18 benches. Shot yardage ranges from 50 yards to 300 yards. Usage of exploding targets, skeet-shooting, .50 caliber BMG rifles, automatic rifles or rifles with bump stocks is not permitted

General Recreation

Located approximately 4 miles from Whitefish, the Spencer Mountain area has been a popular recreational area for decades. Logging operations from past years created a network of logging roads popular for hiking, biking, cross-country skiing, hunting, trapping, snowmobiling, and snowshoeing. Members of the general public created unauthorized trails for mountain biking and other recreational uses in the area. Historic and existing conditions led to the creation of the current licenses to manage and formalize use. All recreation requires a Montana Conservation License for users.

Special Recreation Licenses and Leases

The DNRC Kalispell Unit has issued SRUL's in the Spencer Mountain area in the past and may do so in the future. There is currently one active SRUL licenses at Spencer Mountain for guided mountain biking. There are no cabin site leases in the immediate Spencer Mountain area.

Environmental Effects

*Reference analysis provided in the following sections of the EA: soils, hydrology, wildlife, vegetation, and impact to human population.

No-Action Alternative:

The no-action alternative would result in no forest management and no changes to road systems or trails in the project area. Associated recreational revenue would see minimal change if any. No improvements to roads would be made at this time. Current cover types within the project area would not see management and would progress through natural forest succession and potential disturbance regimes. Over time, the project area could experience insect and disease, blowdown events, wildfire risk, and re-entry near and within high-use recreational areas.

Action Alternative:

Direct, secondary and cumulative effects

The proposed project would likely operate from Fall 2025 to Fall 2028 and would directly impact 20.37 miles of road maintenance in the Beaver Lakes and Spencer Mountain areas with an additional 0.25 miles of new road construction in the Spencer Mountain Area. Approximately 6.96 miles of established trail would be impacted in the Beaver Lakes Area and 6.49 miles of established trail would be impacted in the Spencer Mountain Area. Under the Action Alternative, timber would be harvested within the project area creating more open, forest conditions. Approximately, 15-40 trees would remain per acre post-harvest with 30 to 50 foot spacing between trees. Recreation-based revenue would see minimal change as the trusts are still receiving revenue from agreements and Conservation License sales to legally utilize state trust lands.

Road Use and Condition

The proposed project would directly affect 20.37 miles of open roads that are currently accessible to the public. Designated roads associated with the proposed timber sale would be reconditioned and upgraded to meet BMP's (Best Management Practices). This would come in the form of initial road maintenance, intermediate blading/maintenance, and final blading/road maintenance. This would maintain all drainage features, road grade, and road surface. All roads that are closed to public access would be grass-seeded post maintenance. Reshaping and grading the roads would enhance motorized access into the project area. Dust abatement could be used on haul roads to control dust and stabilize road surfaces to prevent the loss of fine-grained soil particles from the road surface fines during dry conditions. This could lead to higher numbers of recreational users accessing areas in the Beaver Lake area due to road

maintenance and improvements. Haul routes would be utilized in the Beaver Lake area over a three-year period. Log truck traffic could temporarily limit public access on open road systems in the short term with delays and temporary road closures. All closures and up-to-date harvest operation information would be posted by the Purchaser onsite as well as in surrounding areas. For safety precautions, signs would be posted in critical locations along roadways to warn public of logging traffic and logging operations. DNRC would inform and update community partners (WLP, FAMB, City of Whitefish) in a timely fashion with clear communication and information regarding the project. Community partners would use social media and communication mediums to inform users of closures and delays to reduce traffic and confusion. Temporary traffic delays would be expected on haul routes where logging activities are active. Winter logging may positively impact recreational access during the winter months when haul roads are being plowed.

This project, as designed, would preserve the existing and future recreational value of the area. DNRC staff met with the City of Whitefish, Whitefish Legacy Partners, and Flathead Area Mountain Bikers on several occasions to discuss project layout and design of the proposed timber sale. The intent of these meetings was to implement the timber sale in coordination with the recreational use of the area and develop solutions to minimize conflicts with these uses.

Even with mitigations developed and implemented, there would be some short-term impacts to the user experience in the Spencer Mountain and Beaver Lakes Area. Noise disturbance from active machinery would be audible to recreationists and nearby residents. For user safety, segments of the trail which go through proposed harvest units would be temporarily closed during active logging of those units. Due to these disturbances, recreational use of the trail system would likely decrease in the area in the short term. DNRC anticipates the decrease in use would be low to moderate. The decrease in use would depend on the availability of areas providing similar access nearby and harvest activity schedules. There would be unavoidable short-term conflicts with the proposed timber sale. Recreational users would be forced to recreate in other locations in the area, which in turn would result in an increase in use in those places. Staggering of timber project operations to make certain trailheads and trails accessible while other trailheads are closed could alleviate some of the potential for over-crowding.

General Recreation

The proposed project would have direct negative impacts to traditional recreational pursuits such as hiking, biking, running, fishing, picnicking, hunting, and berry picking. As stated above, there would be noise disturbance, temporary road delays, and road closures, especially during the weekdays on specific haul routes during active logging. There would also be direct impacts to those users wishing to utilize the Whitefish Trails and Spencer Freeride Trails. This would be a short-term impact as trails will be closed only when necessary to ensure the safety of users and reopen when operations allow. Hunters may not be able to utilize hunting areas with the project area over the short-term during project operations. Overall, a reduction in general recreational use would likely occur in the short term.

Special Recreation Use Licenses, Land Use Licenses, and Leases

The proposed project would have direct impacts to Land Use Licenses (LULs) and Special Recreational Use Licenses (SRULs). In the short term, Licensees would be negatively affected as the proposed project would limit areas of the trail system that they are authorized to use. Their existing licenses, however, also cover areas of the Whitefish Trail that are outside the project area where they could continue to operate without conflict with the proposed project. In the case of the City of Whitefish, and their LUL for Spencer Mountain, it is unlikely the Spencer Mountain Trails would be closed in it's entirety, thus recreationalists will have areas of Spencer

Mountain to recreate at any given time. As the LUL for the City of Whitefish is non-commercial in nature, the City of Whitefish will not be losing an income stream. Members of the community and tourists will be able to use other sections of the Whitefish Trails or nearby trail systems to recreate.

The Beaver Lake residential leases and lots would be negatively affected mostly by road delays and noise disturbance. The level of affects to local residents would vary with harvest activity schedules. For example, if logging is active in the winter months when the cabins are not inhabited, the effect on lessees would be negligible or minor.

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														
Industrial, Commercial, and Agricultural Activities and Production	x														
Quantity and Distribution of Employment	x														
Local Tax Base and Tax Revenues	x														
Demand for Government Services	x														
Density and Distribution of Population and Housing	x														
Social Structures and Mores	x														
Cultural Uniqueness and Diversity	x														
Action															
Health and Human Safety		x				x				x				Y	H-1
Industrial, Commercial, and Agricultural Activities and Production	x														H-2
Quantity and Distribution of Employment	x														H-3
Local Tax Base and Tax Revenues	x														
Demand for Government Services	x														
Density and Distribution of Population and Housing	x														
Social Structures and Mores	x														
Cultural Uniqueness and Diversity	x														

Comments:

H-1: Log truck traffic would be active within the project area and along the Beaver Lake County Road, U.S. Highway 93, and Twin Bridges Road increasing the potential of traffic hazards.

There will be increased traffic from operations and administrative vehicles when the contract is active. Several mitigations would be applied to help communicate to the public and residents using these roads that logging and hauling operations are active. The following partial list of mitigations would be implemented to facilitate safe interactions between recreational users and project contractors:

- Signage and social media outlets would be in place to inform recreationists of the project status and closures when they exist,
- Log hauling will typically take place during the general “work week” from 7 am to 5 pm.
- Signs will be posted making the public aware of log hauling traffic in the area.
- Portions of the Beaver Lake Road system will participate in the Beaver Lake Neighborhood Dust Abatement Program with private landowners and Flathead County. Dust abatement may be necessary from the Purchaser to mitigate impacts from operations.
- If necessary, a slower speed limit may be imposed in the timber harvest contract to alleviate safety concerns.

H-2: A consistent flow of timber contributes towards meeting the current and future demand for raw material resources to operate value-added timber products manufacturing facilities.

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

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

- Whitefish Neighborhood Plan (2004)
- Beaver Lakes Area Deed of Public Recreation Use Easement (2015)
- Beaver Lakes Area Public Recreation Use Easement Recreation Plan (2018)
- 2024-25 - Whitefish Trail and Spencer Trails, Department of Natural Resources and Conservation Management and Operations Plan

OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:

Economic Effects

Direct economic effects include changes to income and employment in the timber related industries including forestry, logging, transportation, and wood-product manufacturing. Indirect economic effects include changes to other industries and sectors within the analysis area. Cumulative economic effects include any effect of the proposed action that may contribute to long-term changes in any part of the economy.

All economic effects are methodologically related to the scale and type of timber harvested and sold.

No Action Alternative: Direct, Indirect, and Cumulative Effects

Information organized in TABLE E1– ESTIMATED DIRECT AND INDIRECT ECONOMIC EFFECTS shows that under No-Action Alternative A, income effects from the project area would not be realized at this time. However, if timber from this project is not sold, equivalent volumes would need to come from sales on other trust forestlands in the State, lending to income and employment effects of an unknown scale to occur elsewhere. Local mills may not be able to substitute the potential loss of delivered logs from their regional resource supply chain. Negative economic effects can also occur from a no-action alternative concerning salvage condition trees where a particular forest stand is left unmanaged in a dead or dying state. Unmanaged dead stands can produce negative externalities and extend economic losses by promoting unwanted silvicultural conditions and slowing down the rate at which a replacement stand matures. These effects are not quantified in this analysis but do represent an increase in the total economic opportunity costs for a no-action alternative decision concerning salvage or overgrown stands.

Action Alternative: Direct, Indirect, and Cumulative Effects

Direct and indirect employment and income are estimated below.

TABLE E1– ESTIMATED DIRECT AND INDIRECT ECONOMIC EFFECTS shows an estimated total direct state revenue of \$679,627 with a total delivered value of \$1,898,400 would be created in the harvest and delivery of logs from the Action Alternative. A portion of this value represents the margin for operators to harvest, load, and haul the logs to mill locations. The other portion includes revenue for state trust beneficiaries, infrastructure development, and other forest improvements on state forest. The estimated net revenue generated and distributed to trust beneficiaries is \$137,285 for the Action Alternative. Management expenses are estimated using an average program revenue/cost ratio from annual accounting records highlighted and footnoted in TABLE E1 – ESTIMATED DIRECT AND INDIRECT ECONOMIC EFFECTS.

State income effects reported are based on a preliminary appraised timber sale contract value which references sawlog prices reported from the University of Montana Bureau of Business and Economic 2025 Second Quarter Report. The estimated value in this table is preliminary and does not reflect the actual appraised sale values associated with any sale contract package. At the time of an actual sale, appraised values are expected to change with reported sawlog prices and other data refreshed in the timber sale contract package.

Direct labor income from harvesting and processing timber in the proposed action is estimated at \$1,322,851 for the Action Alternative.

Estimated direct and indirect employment effects include the contribution to 41 full-time jobs for one year for the Action Alternative. The level of employment sustained by this alternative is estimated using industry research by the *Bureau of Business and Economic Research*.

TABLE E1 – ESTIMATED DIRECT AND INDIRECT ECONOMIC EFFECTS

Measurable Effect	Formula	Alternative	
		A - No Action	Action B
Total harvest volume Mbf	[a]	0	4,746
Delivered log price[1]/Mbf	[b]	0	\$400.00
Total delivered log value	[a] x [b]	0	\$1,898,400
Timber sale revenue/Mbf	[c]	0	\$116.60
FI revenue/Mbf	[d]	0	\$26.60
Direct state revenue	[a] x ([c] + [d])	0	\$679,627
Direct trust revenue[2]	[a] x ([c] + [d]) x (.305)	0	\$137,285
Estimated direct harvesting and processing employment[3]	[e]	0	27
Estimated direct harvesting and processing labor income[4]	[e]*49,809	0	\$1,322,851
Estimated indirect employment	[e]*(0.54)	0	14

Indirect and induced income effects are not quantified in this analysis, but they represent additional benefits to the economy as income earned in timber industries from the proposed action is recycled within the analysis area buying other goods and services.

Finally, cumulative effects have been considered and though they cannot be quantified in respect to the Action Alternative, collectively include the minor role the proposed action has in supporting and making whole, long-term capital investments made by forest product manufacturers and other timber companies in the analysis area. The infrastructure in these industries guarantees not only jobs and income in the analysis area but also helps guarantee resources and land value for owners, public and private, of forested lands in Western Montana.

Other cumulative effects of the proposed action may include limited effects to regional and national timber and lumber markets, including the potential offsetting, or substitution, of imported timber or wood products. Currently the sustained yield from Trust Lands is 60.0

MMBF, which represents approximately 16.4% of timber harvested in the state of Montana. This project would provide approximately 5.2 MMBF or 8.7% the annual sustained yield target thus helping sustain the current mill capacity.

[\[1\] Estimated using species mix and current Bureau of Business and Economic Research market price for delivered sawlogs in the Western Montana regions.](#)

[\[2\] State management expenses estimated with the revenue and cost summary in the 2017 Return on Asset Report. The 0.41 proportion is the 10-year average operating profit margin of the statewide timber management program.](#)

[\[3\] Sorenson, et al. 2015. Employment and Wage Impacts of Timber Harvesting and Processing in the United States. 2015. BBER University of Montana.](#)

[\[4\] U.S. Department of Labor. 2017. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, Washington, D.C.](#)

Environmental Assessment Checklist Prepared By:

Name: Alexander Golden
Title: Management Forester
Date: November 24, 2025

Finding

Alternative Selected

Upon Review of the Long form EA, and attachments, we find the Action Alternative, as proposed, meets the intent of the project objectives as stated in the Type and Purpose of Action section of this document. This project received 74 public comments during the 30-day scoping period and were addressed in **Project Development**.

The lands involved in this project are held by the State of Montana in trust for the support of specific beneficiary institutions and DNRC is required by law to administer these trust lands to produce the largest measure of reasonable and legitimate return over the long run (Enabling Act of February 22, 1889; 1972 Montana Constitution, Article X Section 11; and 77-1-212 MCA). Approximately \$679,627 of revenue will be generated to benefit Common Schools based on the economic analysis in this document.

The Action Alternative complies with all pertinent environmental laws, the DNRC SFLMP and HCP, and is based upon a consensus of professional opinion on limits of acceptable environmental impact. For these reasons and on behalf of DNRC we have selected the Action Alternative to be implemented on this project.

Significance of Potential Impacts

After a review of the scoping documents and comments, project file, Forest Management Rules, SFLMP and HCP checklists, and Department policies, standards, and guidelines, we find that all the identified resource management concerns have been fully addressed in this Environmental Assessment and its attachments. Specific project design features and various recommendations by the resource management specialists will be implemented to ensure that this project will fall within the limits of environmental change. Assessed individually and cumulatively, the proposed activities are common practices, and no project activities are being conducted on important, unique or fragile sites.

We find there will be no significant impacts to the human environment because of implementing the Action Alternative. In summary, we find that the identified impacts will be controlled, mitigated, or avoided by the design of the project to the extent that the impacts are not significant.

☐

EIS

☐

More Detailed EA

☒

No Further Analysis

Environmental Assessment Checklist Approved By:

Name: David M. Poukish

Title: Kalispell Unit Manager

Date: November 24, 2025

Signature: /s/ David M. Poukish

Name: Dave Ring

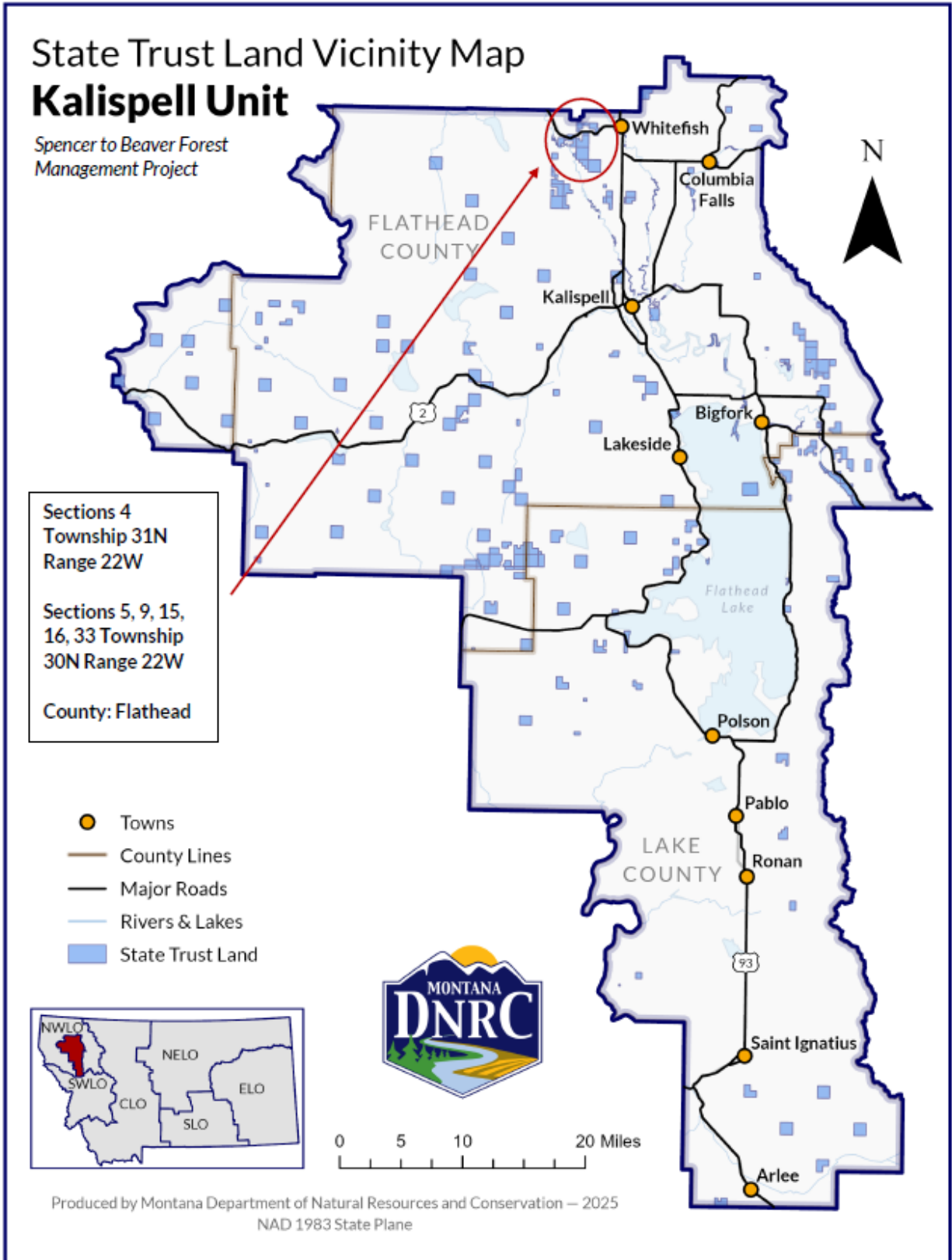
Title: Stillwater Unit Manager

Date: November 24, 2025

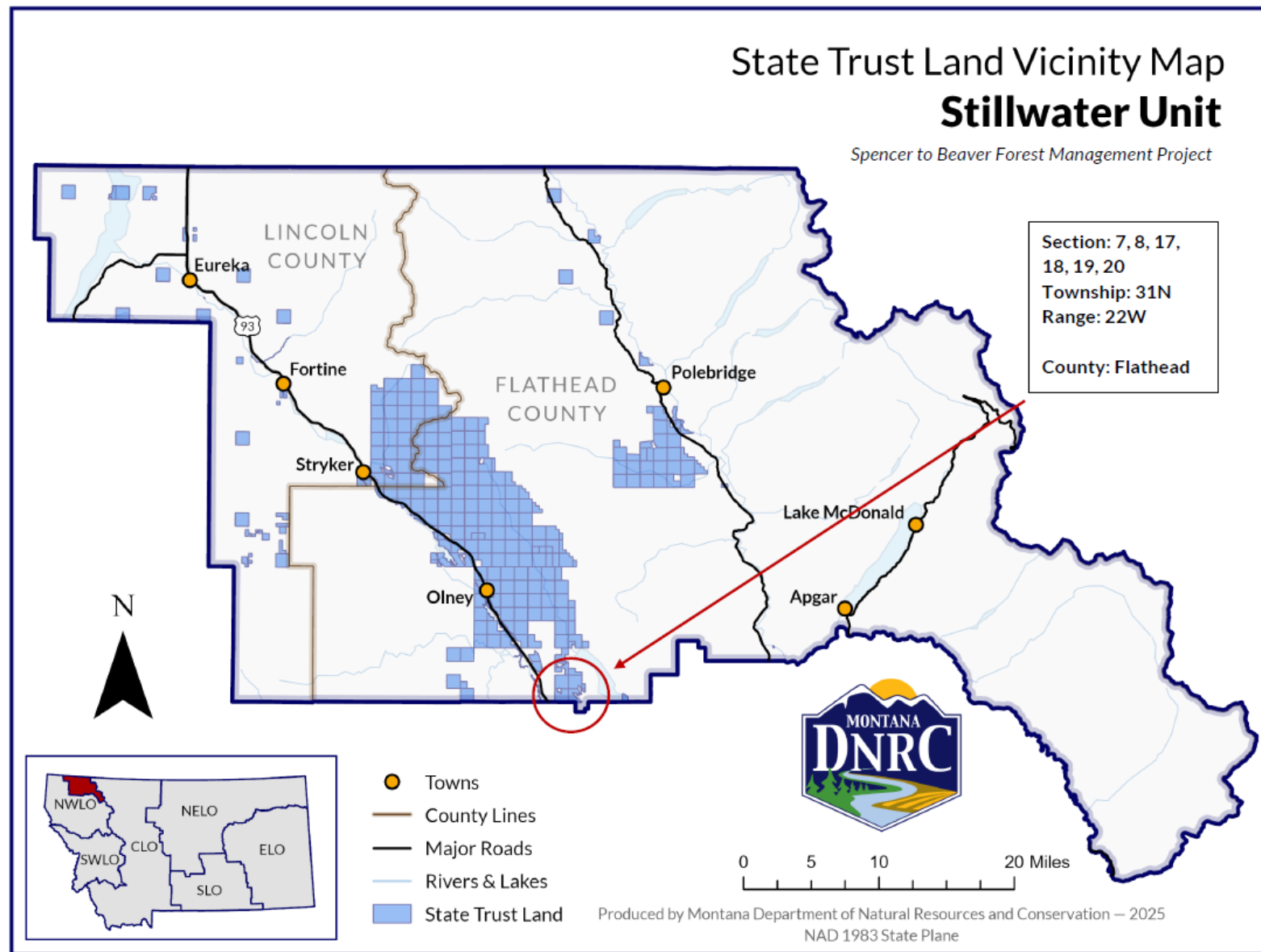
Signature: /s/ David A. Ring

Attachment A - Maps

A-1: Spencer to Beaver Forest Management Project Vicinity Map

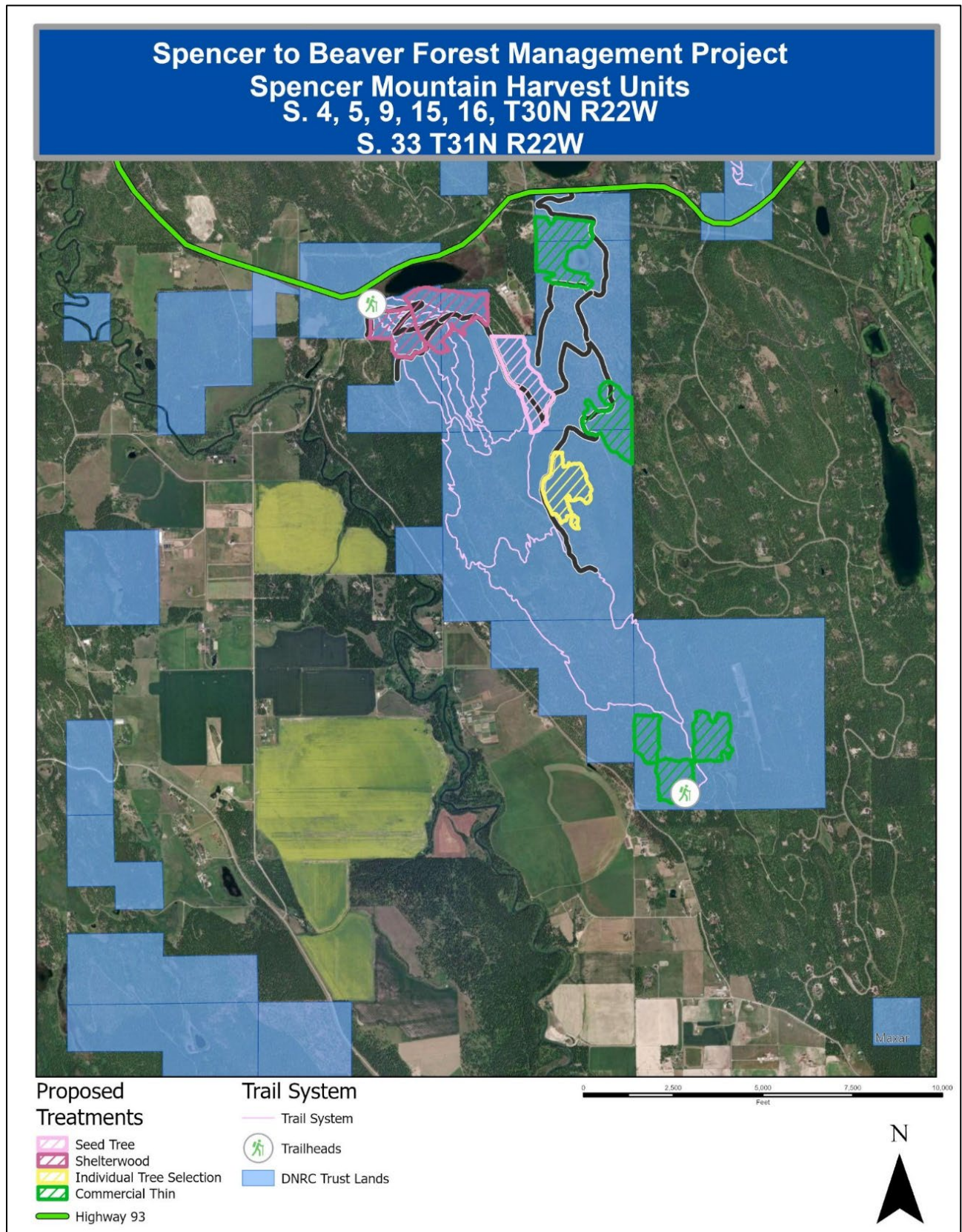


A-2: Spencer to Beaver Forest Management Project Vicinity Map.

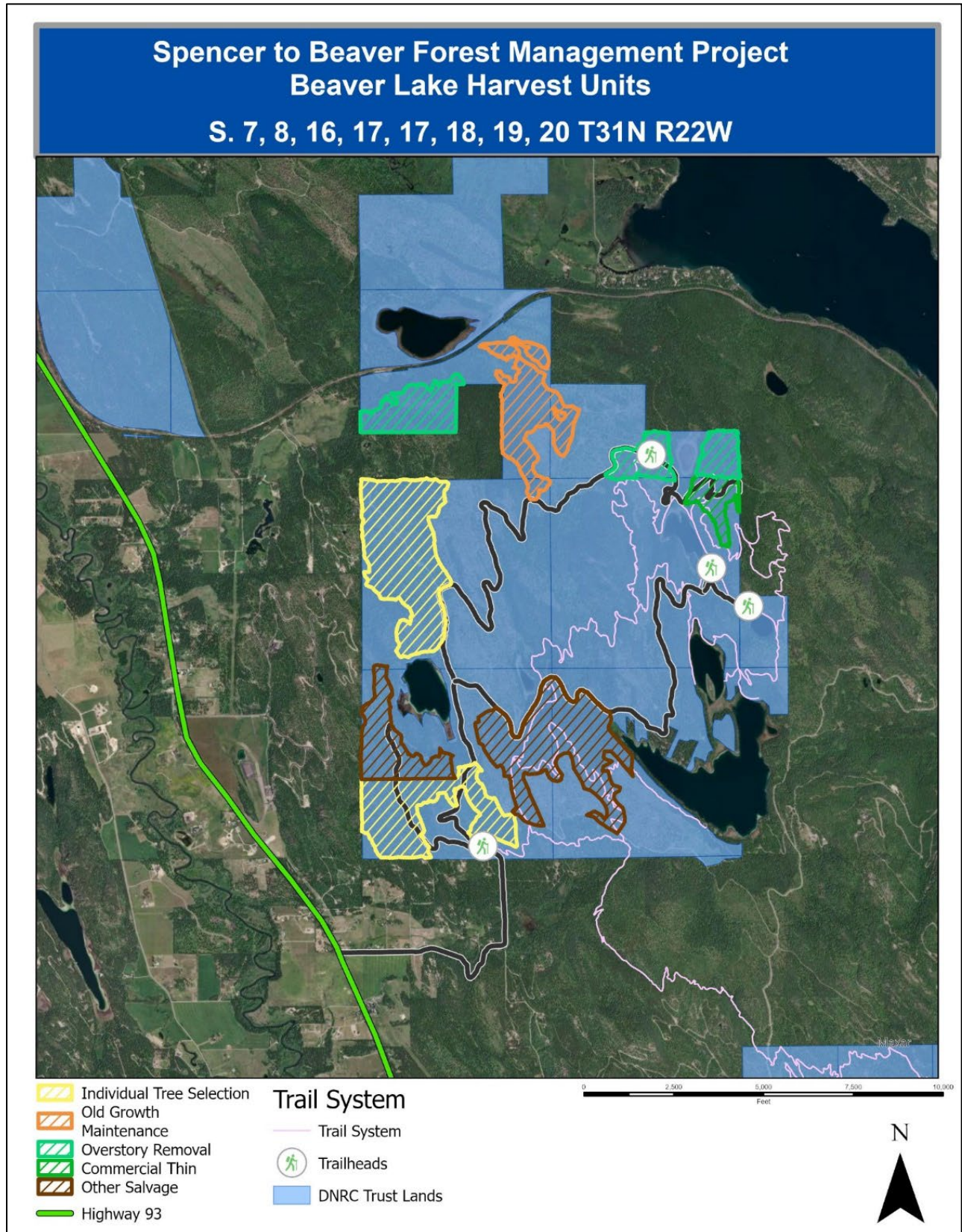


Attachment B – Harvest Maps

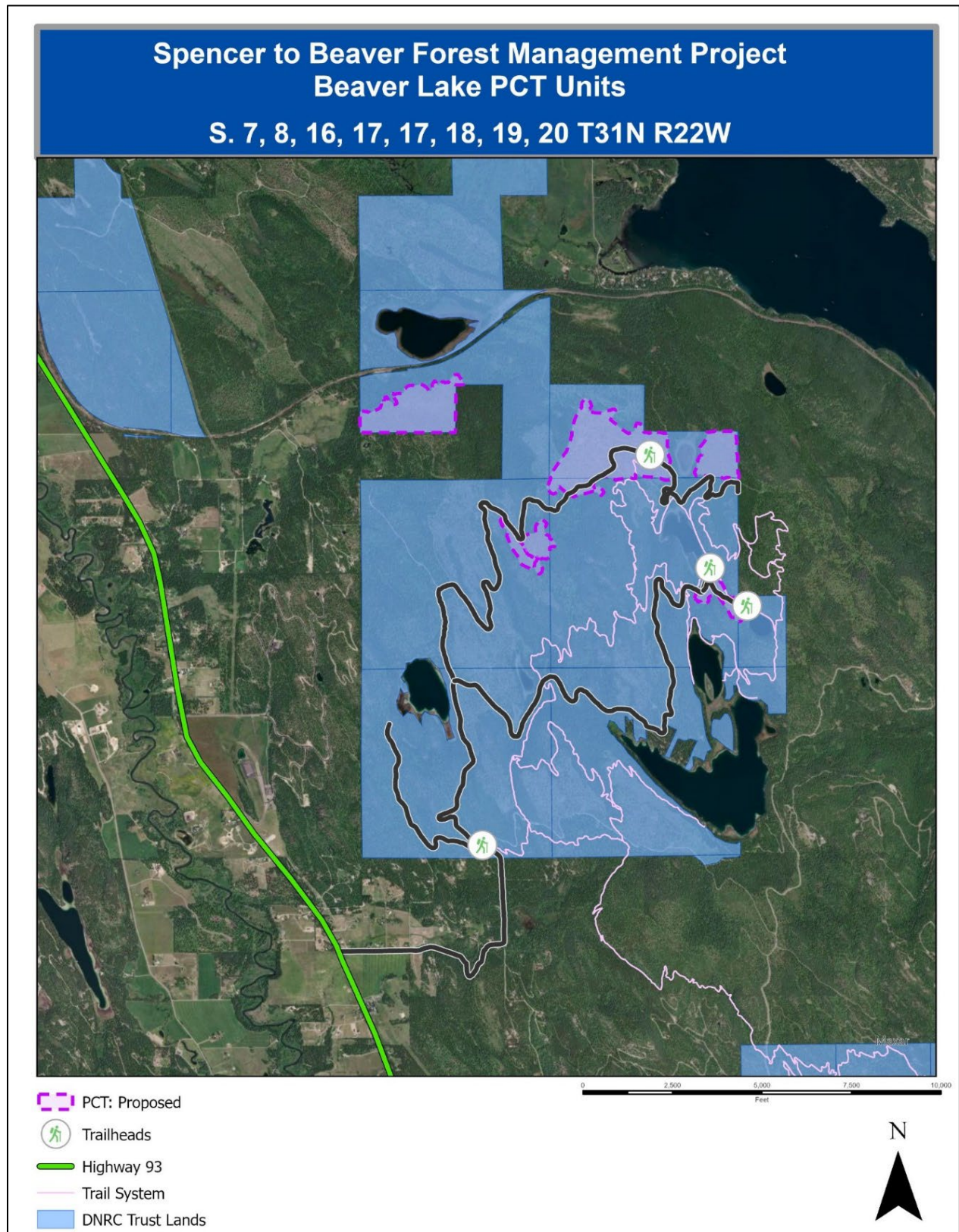
B-1: Spencer to Beaver Harvest Unit Map (Spencer Mountain Area).



B-2: Spencer to Beaver Harvest Unit Map (Beaver Lake Area).

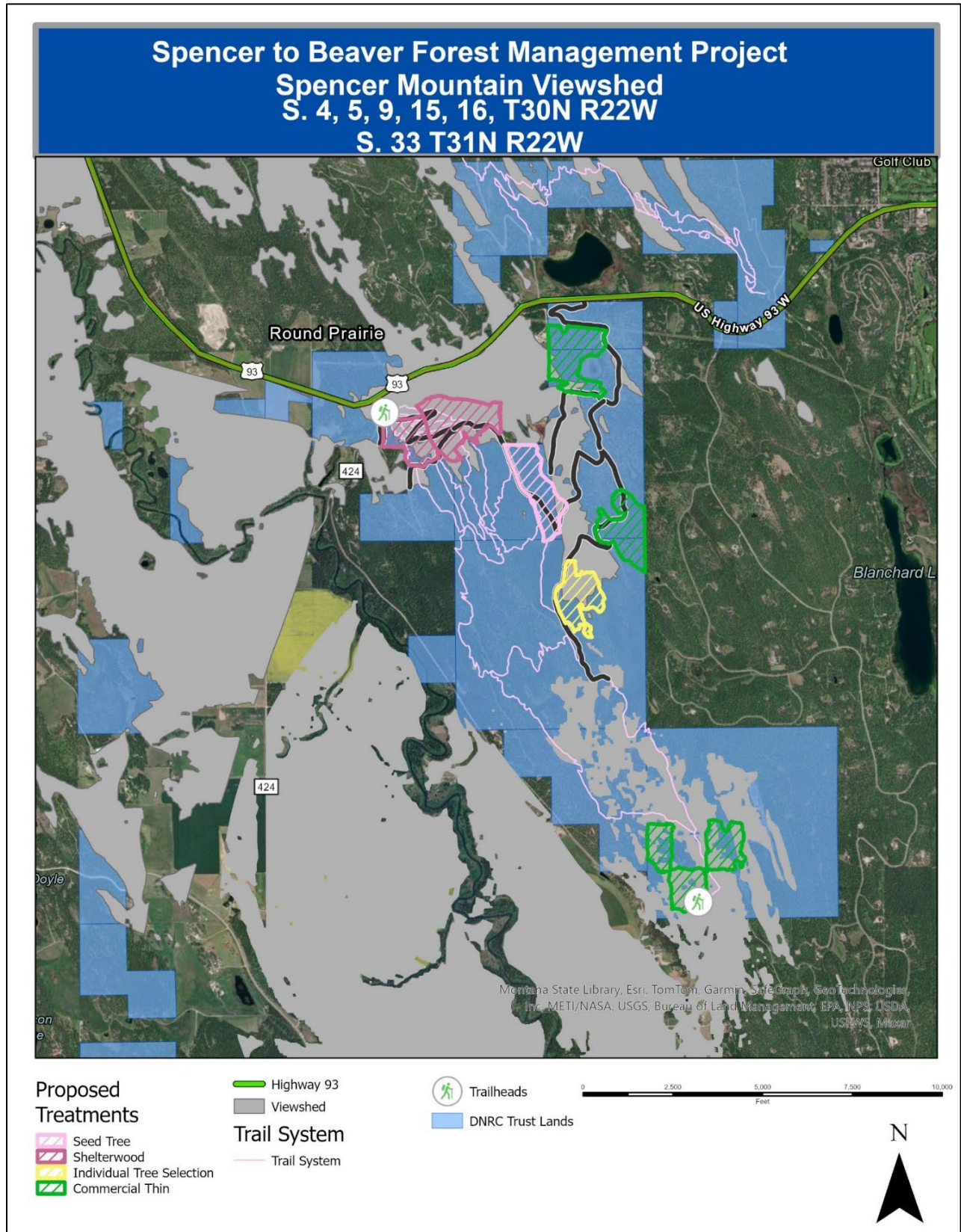


B-3: Spencer to Beaver Pre-Commercial Thinning Unit Map (Beaver Lake Area).



Attachment C – Viewshed Maps

C-1: Spencer to Beaver Viewshed Map (Spencer Mountain Area).



C-2: Spencer to Beaver Viewshed Map (Beaver Lake Area).

