Lion Point Forest Management Project

Environmental Assessment

Missoula Unit
Southwestern Land Office
Montana Department of Natural Resources and Conservation
March 2026

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Environmental Assessment

Project Name: Lion Point Forest Management Project
Proposed Implementation Date: March 2026
Proponent: Missoula Unit, Southwestern Land Office, Montana DNRC
County: Mineral

Type and Purpose of Action

Description of Proposed Action:

The Missoula Unit of the Montana Department of Natural Resources and Conservation (DNRC) is proposing the Lion Point Forest Management Project. The project is located approximately 50 miles west of Missoula, Montana. (refer to Attachments vicinity map A-**1** and project map A-**2**) and includes the following sections:

Beneficiary	Legal Description	Total Acres	Treated Acres
Common Schools	**Section 16 T14N R24W Section 36 T14N R25W Section 16 T13N R24W**	**1,843**	**978**
Capitol Buildings	**Sections 10,14,24,26 T14N R25W Sections 20,30 T14N R24W Sections 12,14 T13N R25W Sections 18,20,30 T13N R24W**	**4,327**	**2,442**
	Total	**6,170**	**3,420**
MSU 2nd Grant			
MSU Morrill			
Eastern College-MSU/Western College-U of M			
Montana Tech			
University of Montana			
School for the Deaf and Blind			
Pine Hills School			
Veterans Home			

Public Land Trust			
Acquired Land			

Objectives of the project include:

- Generate revenue for the Common Schools and Public Buildings Trust.
- Improve stand health and vigor by reducing basal area and preferring early seral species for retention (ponderosa pine and western larch).
- Prefer unhealthy, suppressed Douglas-fir for removal before economic value is lost to insect and disease damage.
- Reduce fuel loading and the likelihood of a stand replacing fire.

Proposed activities include:

Action	Quantity
Proposed Harvest Activities	# Acres
Clearcut	
Seed Tree	85.2
Shelterwood	
Selection	3,144.1
Commercial Thinning	
Salvage	
Overstory Removal	119.0
Old Growth Maintenance	*68.3 (70.9)
Total Treatment Acres	3,420.0
Proposed Forest Improvement Treatment	# Acres
Pre-commercial Thinning	585.0
Planting	725.0
Site preparation (burning)	193.0
Proposed Road Activities	# Miles
New permanent road construction	12.9
New temporary road construction	1.1
Road maintenance	55.0
Road reconstruction	9.0
Road abandoned	
Road reclaimed	
Other Activities	

Duration of Activities:	15 years
Implementation Period:	2026 - 2041

*The Lion Point Forest Management Project Area includes 70.9 harvest unit acres of proposed Old Growth Maintenance, however; of the total harvest unit acreage, 68.3 were identified as Old Growth, the remainder will be managed under the same prescription, but do not meet Old Growth criteria.

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 land 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:
  - May 7, 2024
- PUBLIC SCOPED:
  - The scoping notice was posted on the DNRC Website: https://dnrc.mt.gov/News/scoping-notices
  - The scoping notice was sent to 31 landowners, including FWP, Stimson Lumber Company, and Montana Rail Link (within a one-mile radius). Three scoping notices were returned to sender; mailing addresses listed were verified for accuracy using Montana Cadastral. DNRC additionally sent scoping notices to interested parties enrolled on the Statewide and Missoula Unit timber scoping lists.
- AGENCIES SCOPED:
  - Montana Fish, Wildlife and Parks (FWP)
  - United States Forest Service (USFS)
  - Internal DNRC staff
  - All Montana Tribal Nations
- COMMENTS RECEIVED:
  - The DNRC received three comments during the scoping period
  - Concerns:
    - A cabin lessee within the proposed project area called with questions regarding the proposed harvest prescriptions around the cabin lease and when the proposed activities would occur. The caller was in support of the proposed project.
    - A private landowner (within the 1-mile scoping radius) commented via email expressing concerns: "*new and existing road improvement creates hardship on the wildlife that resides here and invites increased human traffic into areas that have up to this point required that people walk to these areas".* See Attachment G Scoping for details on the context of the comment.
    - FWP commented via email with suggestions related to wildlife and fisheries mitigations, including following the commitments of DNRC's Habitat Conservation Plan, Montana Administrative Rules and Best Management Practice commitments. FWP had concerns related to new

road densities and having diverse stand structure post-harvest for ungulates and nongame wildlife. *See Attachment G Scoping*

- Results:
  The DNRC would like to thank all parties for their comments. All comments were taken into consideration during planning and development.
  - Cabin lessee was called, and questions were answered about the project.
  - Private landowner was emailed a scoping response, *See Attachment G Scoping;* Their concerns were taken into consideration during project development and addressed in this EA.
  - Project lead and ID team members facilitated multiple site visits with FWP staff during project planning.

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

INTERDISCIPLINARY TEAM (ID):

- Project Leader: Sam Whitney
- Archeologist: Patrick Rennie
- Wildlife Biologist: Garrett Schairer
- Fisheries, Hydrology and Soils: Mike Anderson
- Resource Management/Planning Supervisor: Jeff Schmalenberg

Special thanks to Kent Bevington/Forester

OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:

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

- **Montana Department of Fish, Wildlife and Parks (DFWP)-** A Stream Protection Act Permit (124 Permit) is required from DFWP for activities that may affect the natural shape and form of a stream's channel, banks, or tributaries. Such activities include:
    - Installing culverts in streams during new construction roads.

ALTERNATIVES CONSIDERED:

No-Action Alternative:

- No commercial harvest, road construction, road maintenance/improvement, noxious weed management, pre-commercial thinning, tree planting, or road maintenance/improvement would occur at this time.
- Overall stand growth and vigor would continue to be suppressed due to overstocked stands. Stands would trend away from DNRC future desired conditions based on historic fire regimes.
- Unhealthy, suppressed Douglas-fir would likely succumb to insect and disease diminishing the economic value of trees.
- Increased fuel loading would increase the likelihood of a crown fire and mortality across all species and age classes.

Action Alternative:

- A commercial timber harvest would take place to remove approximately 14 million board feet (MMBF) of timber. Timber would be harvested using a combination of ground-based, skyline, and tethered harvest methods. Silvicultural prescriptions would be developed to meet DNRC Desired Future Conditions (DFC).
- Approximately 12.9 miles of permanent road construction, 9 miles of road reconstruction and 1.1 mile of temporary road construction would take place (newly constructed roads would be open for administrative use only).
- Road maintenance and improvements would take place on roads used during implementation (approximately 55 miles) for log hauling and timber harvest.
- Precommercial thinning of approximately 585 acres would be conducted to improve the growth and vigor of advanced regeneration.
- Tree planting of approximately 725 acres may occur in several units following harvest.
- Herbicide applications would occur as needed during project implementation.
- Slash pile burning as well as prescribed broadcast burning may occur to meet site preparation objectives prior to planting of early serial species such as western larch (WL) and ponderosa pine (PP).

Impacts on the Physical Environment

VEGETATION:

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

- Forest management activities could alter the diversity of timber stand composition, structure, and /or age class.

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

- Implement harvest prescriptions that emulate natural disturbance and move stands within the project area toward (or retain) DNRC desired future conditions.
- Implement harvest prescriptions that trend stands toward uneven-aged management, representing multiple age classes.
- Pile and burn excessive slash generated from harvest activities.
- Select leave trees based on health and vigor. Favor trees exhibiting evidence of mistletoe infection, beetle infestation, root-rot, or other insect and disease infestation, regardless of size, for harvest.
- Monitor Project Area for noxious weeds after implementation; and apply herbicide using an Integrated Weed Management (IWM) approach as needed. Wash and inspect equipment prior to harvest operations.
- Design harvest unit prescriptions following HCP and ARM commitments.

FOR COMPLETE VEGETATION ANALYSIS SEE ATTACHMENT B.

SOILS:

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

- Forest management activities may result in increased erosion due to soil disturbance from compaction or displacement
- Forest management activities may result in reduced soil productivity due to loss of nutrient input

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

- Implement all applicable Forestry BMPs, Montana Administrative Rules for Forest Management, Streamside Management Zone Law, and DNRCs Habitat Conservation Plan.
- Limit harvest equipment and timber hauling to periods when soils are dry (less than 20 percent soil moisture), frozen, or snow covered to minimize soil compaction and rutting.
- Establish a skidding plan with identified landings prior to operations
- Use existing skid trails where feasible
- Limit skid trails to 15 percent or less of individual harvest units.
- Treat skid trails with slash, water bars, and/or grass seed to minimize erosion potential and establishment of noxious weeds
- Limit ground-based equipment to slopes less than 45 percent, unless excessive disturbance can be avoided through alternative harvesting systems (Chase et al., 2019)
- Maintain 5-15 tons/acres of coarse woody debris, favoring large diameter material
- Maintain fine woody debris on-site to the extent practicable by topping and limbing.
- Apply grass seed mix as soon as possible following road construction to facilitate rapid recovery and minimize surface erosion and establishment of noxious weeds.
- Apply grass seed to burn piles, landings, and other areas of exposed soils to minimize erosion potential
- Complete new road construction during periods where soils are not frozen
- Limit scarification on steep slopes to achieve regeneration goals

FOR COMPLETE SOILS ANALYSIS SEE ATTACHMENT C

WATER RESOURCES: *(including unique, federally listed as threatened or endangered, sensitive, and/or species of special concern):*

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

- Forest management activities may result in increased sedimentation or turbidity in perennial and intermittent streams in the project area
- Forest management activities may result in changes to the magnitude, timing, and duration of peak flow events in the watershed

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

- Implement all applicable Forestry BMPs, Montana Administrative Rules for Forest Management, Streamside Management Zone Law, and DNRCs Habitat Conservation Plan
- Locate and mark all SMZ, RMZ, and CMZ in the project area to establish riparian buffers
- No harvest in Class 1 SMZ, RMZ, and CMZ in the project area

FOR COMPLETE WATER RESOURCES ANALYSIS SEE ATTACHMENT C

FISHERIES RESOURCES

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

- Forest management activities may result in increased sedimentation or turbidity which may impact fisheries habitat
- Forest management activities may result in changes to the magnitude, timing, or duration of peak flow events in the watershed which may impact fisheries habitat
- Forest management activities may result in decreased standing timber in riparian stands which may result in decreased recruitment of large woody debris and decreased stream shade which may lead to increased stream temperature
- Forest management activities may result in decreased fisheries connectivity
- Forest management activities may result in impacts to fisheries populations, including changes in community structure, relative abundance, and genetic exchange

Recommended Mitigation Measures for Fisheries Resources- The analysis and levels of effects to fisheries resources are based on implementation of the following mitigation measures
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- Implement all applicable Forestry BMPs (including the SMZ Law and Rules) and Montana Administrative Rules for Forest Management fisheries, soils, and wetland riparian management zones (ARMs 36.11.425 and 36.11.426)
- Apply timing restrictions for replacement and removal of perennial stream crossings on fish-bearing waters to minimize potential impacts during spawning and early rearing.
    - July 15 – August 31 in Bull Trout occupied habitat
    - April 1 – May 15 and July 15 – October 15 in Westslope Cutthroat Trout occupied habitat
    - Or as stipulated in 124 permits from MFWP
- No harvest in Class 1 SMZ, RMZ, and CMZ in the project area

FOR COMPLETE FISHERIES RESOURCE ANALYSIS SEE ATTACHMENT C

WILDLIFE *(terrestrial & avian including unique, federally listed as threatened or endangered, sensitive, and/or species of special concern):*

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

- Proposed timber management activities could alter mature forested habitats and/or landscape connectivity, which could affect species that rely on these mature forested habitats, and/or alter connectivity and the ability of wildlife requiring corridors to move through the landscape.

- Proposed timber management activities could alter hiding cover, reduce security cover, increase human access, and increase presence of unnatural attractants and bear foods, which could adversely affect grizzly bears by displacing them from important habitats and/or increasing risk to bears of human-caused mortality.
- Proposed timber management and associated activities could negatively affect Canada lynx by altering lynx winter foraging habitats, summer foraging habitats, and other suitable habitats, rendering these habitats temporarily unsuitable for supporting lynx.
- Proposed timber management and associated activities could negatively affect bald eagles by reducing nesting and perching structures and/or disturbing nesting bald eagles.
- Proposed timber management and associated activities could reduce the amount and/or quality of fisher habitats, which could alter fisher use of the area.
- Proposed timber management and associated activities could alter flammulated owl habitat by reducing canopy closure and increasing tree spacing, while potentially removing snags needed by flammulated owls for nesting.
- Proposed timber management and associated activities could alter fringed myotis habitat by altering the amount and structure of mature forested stands, the availability of riparian foraging habitats, and potentially removing snags needed by fringed myotis.
- Proposed timber management and associated activities could alter Northern hoary bat habitat by altering the amount and structure of mature forested stands, the availability of riparian foraging habitats, and potentially removing snags needed by Northern hoary bats.
- Proposed timber management and associated activities could reduce suitable nesting and foraging habitat for pileated woodpeckers, which could alter pileated woodpecker use of the area.
- Proposed timber management and associated activities could reduce security habitat and seasonal cover for big game, which could affect big game numbers and/or hunter opportunity and quality of local recreational hunting.
- Proposed timber management and associated activities could reduce winter thermal cover for moose, elk, white-tailed deer, and mule deer, resulting in reduced numbers and/or their displacement from the area.

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

- A DNRC biologist will be consulted if a threatened or endangered species is encountered to determine if additional mitigations that are consistent with the administrative rules for managing threatened and endangered species (ARM 36.11.428 through 36.11.435) are needed.
- Motorized public access will be restricted at all times on restricted roads that are opened for harvesting activities; signs will be used during active periods and a physical closure (gate, barriers, equipment, etc.) will be used during inactive periods (nights, weekends, etc.). These roads and skid trails would be reclosed to reduce the potential for unauthorized motor vehicle use.
- Snags, snag recruits, and coarse woody debris will be managed according to *ARM 36.11.411* through *36.11.414*, particularly favoring western larch and ponderosa pine. Retain at least 2 large snags and 2 large recruitment trees per acre (both >21 inches dbh, or largest available). Given operability and human safety constraints, retain all existing non-merchantable snags where possible. Clumps of existing snags could be maintained where they exist to offset areas without sufficient snags. Retain large woody debris within ranges recommended by Graham et al. (1994). For this project the appropriate range is approximately 5-15 tons per acre. Coarse woody debris retention

would emphasize retention of downed logs of 15-inch diameter or larger.

- Where opportunities exist, retain leave trees, sub-merchantable trees, and retention areas in a clumped fashion to emulate natural disturbance patterns and reduce sight distances for wildlife.
- Contractors and purchasers conducting contract operations will be prohibited from carrying firearms while on duty.
- Food, garbage, and other attractants will be stored in a bear-resistant manner.
- Should a raptor nest be identified in or near project activities, activities will cease and a DNRC biologist will be contacted. Site-specific measures will be developed and implemented to protect the nest and birds prior to re-starting activities.
- Retention of patches of advanced regeneration of shade-tolerant trees in Canada lynx types would break-up sight distances, provide horizontal cover, and provide forest structural attributes preferred by snowshoe hares and lynx.
- In pre-commercial thinning units in Canada lynx types, retain small shade tolerant trees (such as sub-alpine fire and spruce to provide potential habitat structure for snowshoe hares by increasing the levels of horizontal cover and accelerating the development of multi-storied stands.
- Provide connectivity for fisher, Canada lynx, and a host of other species by maintaining corridors of unharvested and/or lighter harvested areas along riparian areas, ridge tops, and saddles.

FOR COMPLETE WILDLIFE ANALYSIS SEE ATTACHMENT F

AESTHETICS

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

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

- No issues and concerns found during the scoping process.

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

- Silvicultural treatments will attempt to emulate natural disturbances. Early seral, fire-resistant species will be preferred for leave trees (PP and WL). Leave trees will be selected based on species, form, and vigor to maintain a natural appearance, thereby decreasing the contrast in form, line, color, and texture between current management activities and surrounding areas.
- Regeneration will be monitored post-harvest, and the Project Area will be planted as needed. As regeneration increases in height and volume, it is expected to fill visual openings and soften the harvest boundaries
- If prescribed fire is utilized to promote natural regeneration, fire intensity will be monitored to maintain a scorch height below the overstory canopy.
- Newly constructed roads will be grass-seeded within the first growing season following construction. Grass establishment is expected to moderate the visual impacts of the construction, particularly on cut and fill slopes.

No-Action Alternative:
No immediate changes to aesthetics would occur. However, it would be expected that the mortality of mature Douglas-fir would continue or increase, leading to noticeable patches of dead and dying trees within the Project Area. This would also increase the risk of a stand-replacing fire, which would result in a dramatic visual change to the landscape.

Action Alternative:

Direct, Secondary, and Cumulative Effects
The Lion Point Forest Management Project Area is visible from the I-90 corridor west of Alberton as well as the Fish Creek corridor.

The most significant visual changes associated with the Action Alternative would occur on steeper slopes and areas adjacent to road corridors. New road construction would be most visible during the first 3 years of construction, when excavated material would contrast in color and texture of the surrounding forest. Across all proposed harvest units, a noticeable change in the stand density would be apparent post-harvest. Visual change would be most prominent during the first dying season as residual slash within skid trails and corridors change from greens to reds and brown and immediately following any prescribed fire activities. The Project Area is characterized by scattered timber management, high-intensity burn scars from the 2003 wildfires, and past timber management. Implementation of the Action Alternative would result in a visible harvest entry, characterized primarily by new road construction and changes in canopy cover.

NOISE

Existing Conditions
Noise levels vary in the landscape and result from industrial and recreational uses in the area.

No-Action Alternative:
Noise would not be produced by the proposed project. Other activities within the area (Interstate 90) produce noise currently.

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 over the duration of the harvest activities during the general “work week”.

Based on the anticipated operating periods and the short duration of the timber sale direct, indirect, and cumulative effects of noise are expected to be low.

HISTORICAL AND ARCHEOLOGICAL SITES:

Scoping letters were sent to those Tribes that requested to be notified of DNRC timber sales. No response was returned that identified a specific cultural resource issue. A Class I (literature review) level review was conducted by the DNRC staff archaeologist for the area of potential effect (APE). This entailed inspection of project maps, DNRC's sites/site leads database, land use records, General Land Office Survey Plats, and control cards. The Class I search results revealed that no cultural or paleontological resources have been identified in the APE, but it should be noted that Class III level inventory work has not been conducted for most of the project area.

Because the topographic setting and geology suggest a low to moderate likelihood of the presence of cultural or paleontologic resources, proposed timber harvest activities are expected to have *No Effect* to *Antiquities*. No additional archaeological investigative work will be conducted in response to this proposed development. However, if previously unknown cultural or paleontological materials are identified during project related activities, all work will cease until a professional assessment of such resources can be made.

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 size of the project.

OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA:

- State Forest Land Management Plan EIS, DNRC 1996, sets the strategy that guides DNRC management decisions statewide.
- Montana Department of Natural Resources and Conservation 'Forested Trust Lands Habitat Conservation Plan, Final Environmental Impact Statement, Volumes I and II. U.S. Department of Interior, Fish and Wildlife Service, Region 6, Denver, Colorado, and Montana Department of Natural Resources and Conservation, Missoula, MT. September 2010

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 3A, which encompasses portions of Mineral County.

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

- No issues and concerns found during the scoping process.

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

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

-SLASH BURNING and BROADCAST BURNS (RX)

No-Action Alternative:
No slash would be burned within the project areas. Thus, there would be no effects to air quality within the local vicinity.

Action Alternative:

Direct and Secondary Effects
Slash consisting of tree limbs and tops and other vegetative debris would be piled throughout the project area during harvesting. Slash would ultimately be burned after harvesting operations have been completed. Burning would introduce particulate matter into the local airshed, temporarily affecting local air quality. Over 70% of emissions emitted from prescribed burning are less than 2.5 microns (National Ambient Air Quality PM 2.5). High, short-term levels of PM 2.5 may be hazardous. Within the typical column of biomass burning, the chemical toxics are Formaldehyde, Acrolein, Acetaldehyde, 1,4 Butadiene, and Polycyclic Organic Matter. Burning within the project area would be short in duration and would be conducted when conditions favor good to excellent ventilation and smoke dispersion as determined by the Montana Department of Environmental Quality and the Montana/Idaho Airshed Group. The DNRC, as a member of the Montana/Idaho Airshed Group, would burn only on approved days.

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

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

air quality due to slash burning associated with the proposed action would also be expected to be minimal.

-DUST

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

Action Alternative:

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

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

Log Hauling Traffic

Log hauling traffic is common around the project area.

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

- No issues and concerns found during the scoping process.

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

- Log hauling will take place typically during the general “work week”.
- Signs will be posted making the public aware of log hauling traffic in the area.
- If necessary, a slower speed limit may be imposed in the timber harvest contract.

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

Action Alternative:

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

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

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

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

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

- No issues and concerns found during the scoping process.

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

- Signs would be posted at the anticipated public entry points to inform the public of the prescribed burn. No public use restrictions would be imposed during the proposed Action Alternative activities outside of the proposed prescribed fire.
- Signs would be posted indicating that log truck traffic and logging operations are present within the Project Area during the proposed new road construction and harvest activities.

No-Action and Action Alternatives:

Direct, Secondary, and Cumulative Effects
There would be no change from existing conditions. Therefore, there would be no measurable direct, indirect, or cumulative impacts on recreation from this proposed action.

Will Alternative result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Health and Human Safety	**X**				**X**				**X**				**N/A**	
Industrial, Commercial, and Agricultural Activities and Production	**X**				**X**				**X**				**N/A**	
Quantity and Distribution of Employment	**X**				**X**				**X**				**N/A**	
Local Tax Base and Tax Revenues	**X**				**X**				**X**				**N/A**	
Demand for Government Services	**X**				**X**				**X**				**N/A**	
Density and Distribution of Population and Housing	**X**				**X**				**X**				**N/A**	
Social Structures and Mores	**X**				**X**				**X**				**N/A**	
Cultural Uniqueness and Diversity	**X**				**X**				**X**				**N/A**	
Action														
Health and Human Safety		**X**				**X**				**X**			**Y**	**See HHS Mitigations**

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		
Industrial, Commercial, and Agricultural Activities and Production	**X**				**X**				**X**				**N/A**	
Quantity and Distribution of Employment	**X**				**X**				**X**				**N/A**	
Local Tax Base and Tax Revenues	**X**				**X**				**X**				**N/A**	
Demand for Government Services	**X**				**X**				**X**				**N/A**	
Density and Distribution of Population and Housing	**X**				**X**				**X**				**N/A**	
Social Structures and Mores	**X**				**X**				**X**				**N/A**	
Cultural Uniqueness and Diversity	**X**				**X**				**X**				**N/A**	

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

None

OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:

Costs, revenues and estimates of return are estimates intended for relative comparison of alternatives. They are not intended to be used as absolute estimates of return. The estimated stumpage is based on comparable sales analysis. This method compares recent sales to find a market value for stumpage. These sales have similar species, quality, average diameter, product mix, terrain, date of sale, distance from mills, road building and logging systems, terms of sale, or anything that could affect a buyer's willingness to pay.

No-Action Alternative:
The No-Action alternative would not generate any return to the Common School and Public Buildings Trust at this time.

Action Alternative:
The timber harvest would generate additional revenue for the Common School and Public Buildings Trust. The estimated return to the trust for the proposed harvest is $450,000 based on an estimated harvest of 14 million board feet (90,000 tons) and an overall stumpage value of $5.00 per ton. Additional Forest Improvement fees of $3.20/ton would be collected for all sawlog loads. Costs, revenues, and estimates of return are estimates intended for relative comparison of alternatives, they are not intended to be used as absolute estimates of return. The proposed pre-commercial thinning and planting would initially generate cost to the Trust; however, this would be an investment in increased productivity for the stand. It would be expected this increased productivity would result in increased merchantable volume, available later. Direct costs associated with pre-commercial thinning (PCT) are estimated to be $175,500. This figure was estimated by multiplying the estimated number of PCT 585 acres by the estimated cost of $300/acre. This estimate is assumed from recent PCT projects contracted at SWLO (Southwestern Land Office).

Environmental Assessment Checklist Prepared By:

Name: Sam Whitney
Title: Forest Management Coordinator
Date: December 18, 2025

Finding

Alternative Selected

An interdisciplinary team (ID Team) has completed the Environmental Assessment (EA) for the proposed Lion Point Forest Management Project. After a review of the EA, project file, public correspondence, Department Administrative Rules, policies, and the State Forest Land Management Plan (SFLMP), I have made the following decision:

Two alternatives were presented and the effects of each alternative were fully analyzed in the EA. The No Action Alternative does not include the harvest of any timber. The Action Alternative proposes harvest of approximately 14,000,000 board feet. The alternatives, as presented, constituted a reasonable range of potential activities.

For the following reasons, I have selected the Action Alternative without additional modifications:

The Action Alternative meets the Project Need and the specific project objectives as described in the EA. The Action Alternative would produce an estimated $450,000 in stumpage to the Common School and Public Building Trusts, while providing a mechanism whereby the existing timber stands would be moved towards conditions more like those which existed historically.

The analysis of identified issues did not disclose any reason compelling the DNRC to not implement the timber sale.

The Action Alternative includes mitigation activities to address environmental concerns identified during both the Public Scoping phase and the project analysis.

For the following reasons, I find that the implementation of the Action Alternative will not have significant impacts on the human environment:

Soils-Leaving 5-15 tons of large, woody debris on site will provide for long-term soil productivity. Harvest mitigation measures such as skid trail planning and season of use limitations will limit the potential for severe soil impacts.

Water Quality- Water Quality Best Management Practices for Montana Forests (BMPs) and the Streamside Management Zone (SMZ) law will be strictly adhered to during all operations involved with the implementation of the Action Alternative.

Fisheries- Due to planning and the mitigations listed below, it is unlikely that the proposed timber sale will affect large woody debris recruitment, shade or in-stream temperature in any fish-bearing streams within the project area.

- Apply timing restrictions for replacement and removal of perennial stream crossings on fish-bearing waters to minimize potential impacts during spawning and early rearing.
    - July 15 – August 31 in Bull Trout occupied habitat
    - April 1 – May 15 and July 15 – October 15 in Westslope Cutthroat Trout occupied habitat
    - Or as stipulated in 124 permits from MFWP
- No harvest in Class 1 SMZ, RMZ, and CMZ in the project area

Air Quality-Any slash burning or prescribed conducted as part of the Lion Point Forest Management Project will be conducted in coordination with the Montana/Idaho Airshed group in order to ensure that ideal smoke dispersion conditions exist prior to ignition and throughout the duration of any burning operations. As a result, impacts to air quality should be minor and short in duration.

Noxious Weeds-Equipment will be cleaned prior to entering the project area, which will reduce the likelihood of weed seeds being introduced onto treated areas.

Forest Conditions and Forest Health-The proposed harvest will begin the process of returning the timber stands within the project area to those conditions that most likely existed on the site(s) prior to organized fire suppression.

An Old Growth Maintenance prescription would be implemented within identified Old Growth stands in the Project Area. If left untreated, insect and disease infested stands that currently are classified as Old Growth may no longer meet Old Growth classification because of ongoing mortality. Post-treatment all stands would retain their Old Growth attributes at the time of harvest.

Wildlife- Potential impacts that could occur based on activities within the Action Alternative have been mitigated to levels within acceptable thresholds with the following mitigations:

- Where opportunities exist, retain leave trees, sub-merchantable trees, and retention areas in a clumped fashion to emulate natural disturbance patterns and reduce sight distances for wildlife.
- Retention of patches of advanced regeneration of shade-tolerant trees in Canada lynx types would break-up sight distances, provide horizontal cover, and provide forest structural attributes preferred by snowshoe hares and lynx.
- In pre-commercial thinning units in Canada lynx types, retain small shade tolerant trees (such as sub-alpine fire and spruce to provide potential habitat structure for snowshoe hares by increasing the levels of horizontal cover and accelerating the development of multi-storied stands.
- Provide connectivity for fisher, Canada lynx, and a host of other species by maintaining corridors of unharvested and/or lighter harvested areas along riparian areas, ridge tops, and saddles.

Economics-The Action Alternative would provide approximately $450,000 in stumpage revenue and does not limit the DNRC's options for generating revenue from these sites in the future.

PRECEDENT SETTING AND CUMULATIVE IMPACTS

The project area is located on State-owned lands, which are "principally valuable for the timber that is on them or for growing timber or for watershed" (**MCA 77-1-402**). The proposed action is similar to past projects that have occurred in the area. Since the EA does not identify future actions that are new or unusual, the proposed timber harvest is not setting precedence for a future action with significant impacts.

Taken individually and cumulatively, the identified impacts of the proposed timber sale are within established threshold limits. Proposed timber sale activities are common practices and none of the project activities are being conducted on fragile or unique sites.

The proposed timber sale conforms to the management philosophy adopted by DNRC in the SFLMP and is in compliance with existing laws, Administrative Rules, and standards applicable to this type of action.

The EA adequately addressed the issues identified during project development, and displayed the information needed to make the pertinent decisions.

Evaluation of the potential impacts of the proposed timber sale indicates that significant impacts to the human environment will not occur as a result of the implementation of the Action Alternative.

The ID Team provided sufficient opportunities for public participation and comment during project development.

In summary, I find that the identified adverse impacts will be avoided, controlled, or mitigated by the design of the project to the extent that the impacts are not significant.

Need for Further Environmental Analysis

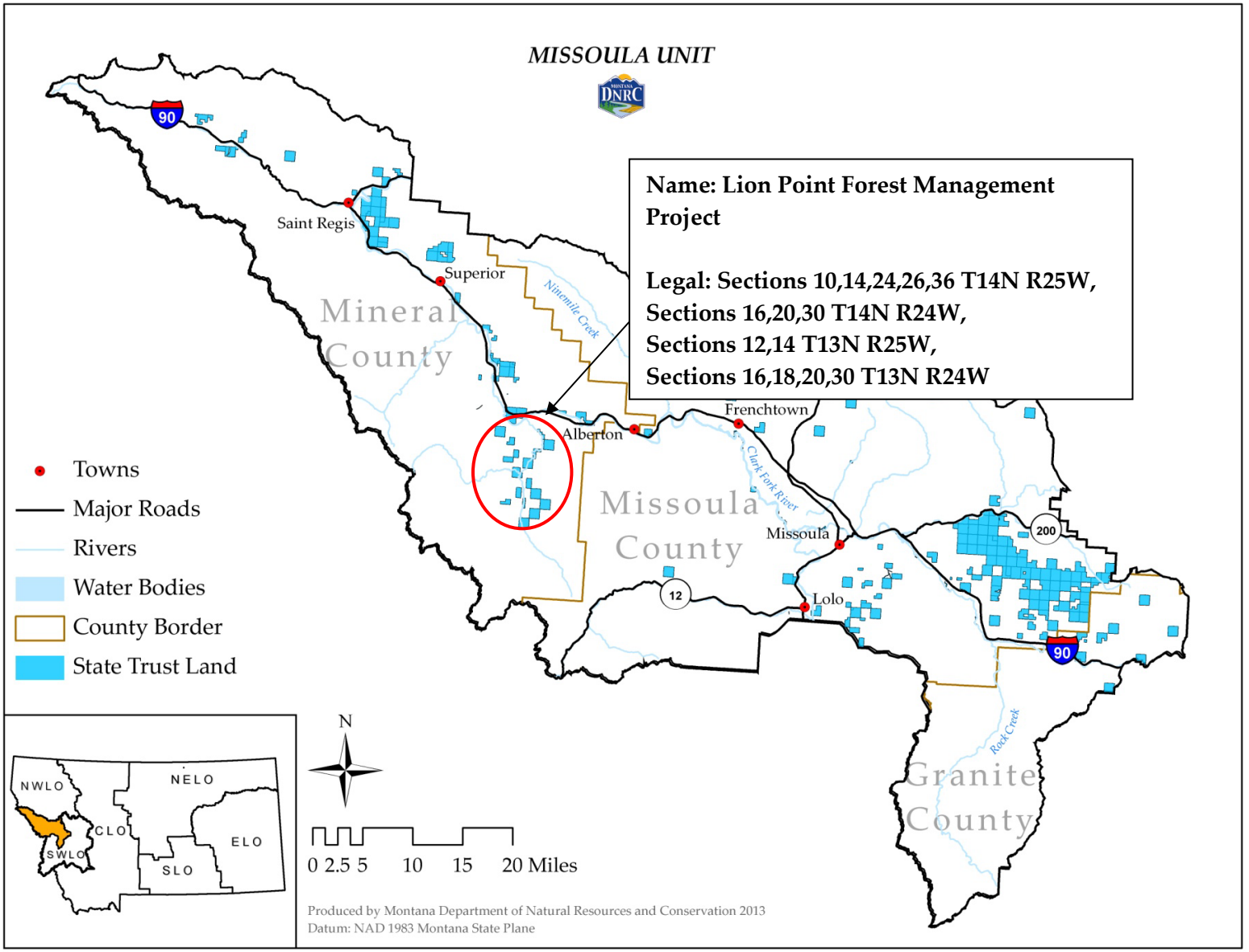
☐	EIS	☐	More Detailed EA	☒	No Further Analysis

Environmental Assessment Checklist Approved By:

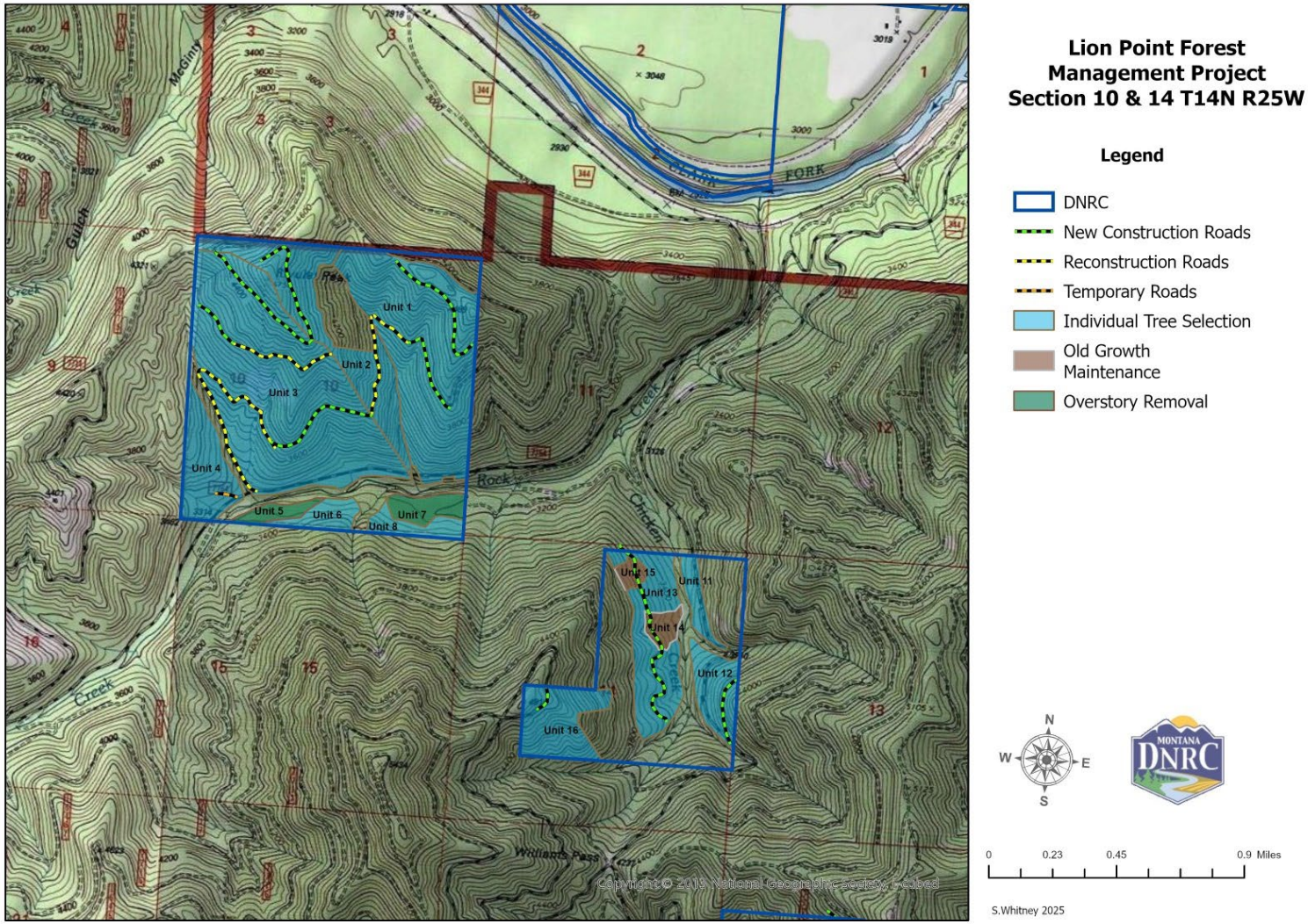
Name: Amy Helena
Title: Missoula Unit Manager
Date: 3/24/2026
Signature:

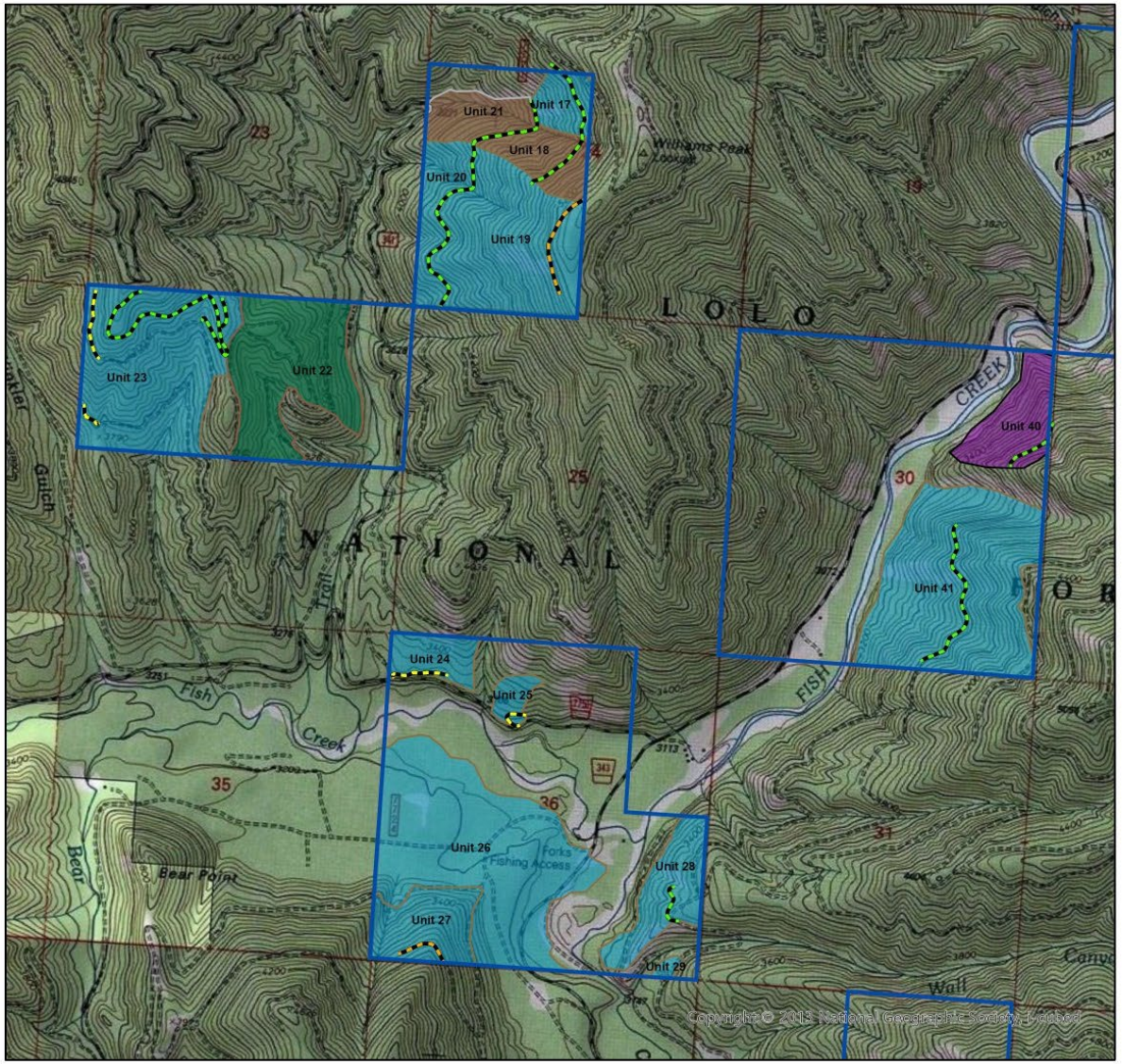
Attachment A - Maps

A-1: Vicinity Map



A-2: Harvest Units





Lion Point Forest Management Project
Section 24,26,36 T14N R25W
Section 30 T14N R24W

Legend

- DNRC
- New Construction Roads
- Reconstruction Roads
- Temporary Roads
- Seed Tree
- Individual Tree Selection
- Old Growth Maintenance
- Overstory Removal

N
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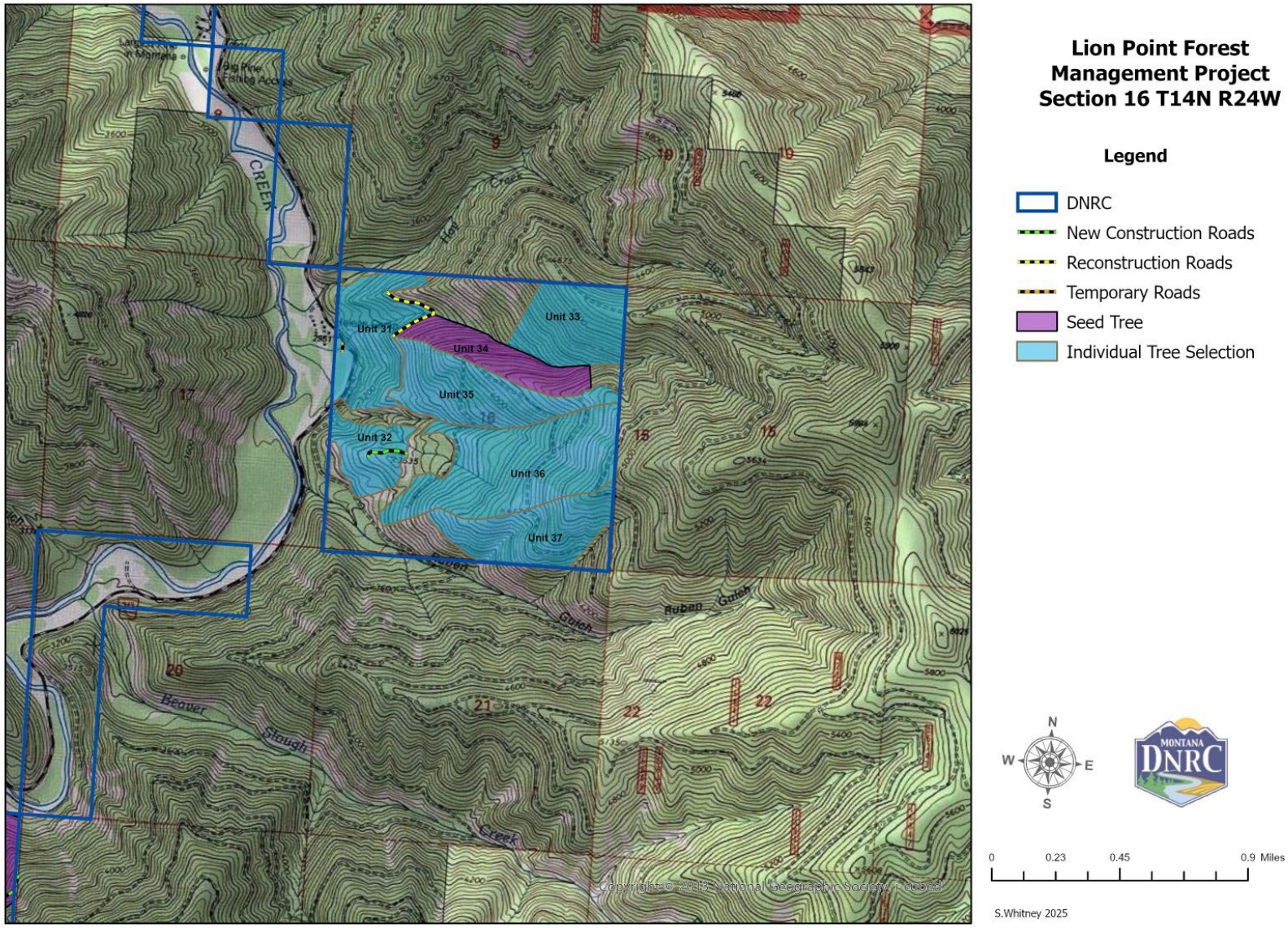
S

0 0.23 0.45 0.9 Miles

S.Whitney 2025


Unit 31
Unit 33
Unit 34
Unit 35
Unit 32
Unit 36
Unit 37
Ruben Gulch
Beaver Slough
Creek
Lion Point Forest Management Project
Section 16 T14N R24W
Legend
DNRC
New Construction Roads
Reconstruction Roads
Temporary Roads
Seed Tree
Individual Tree Selection
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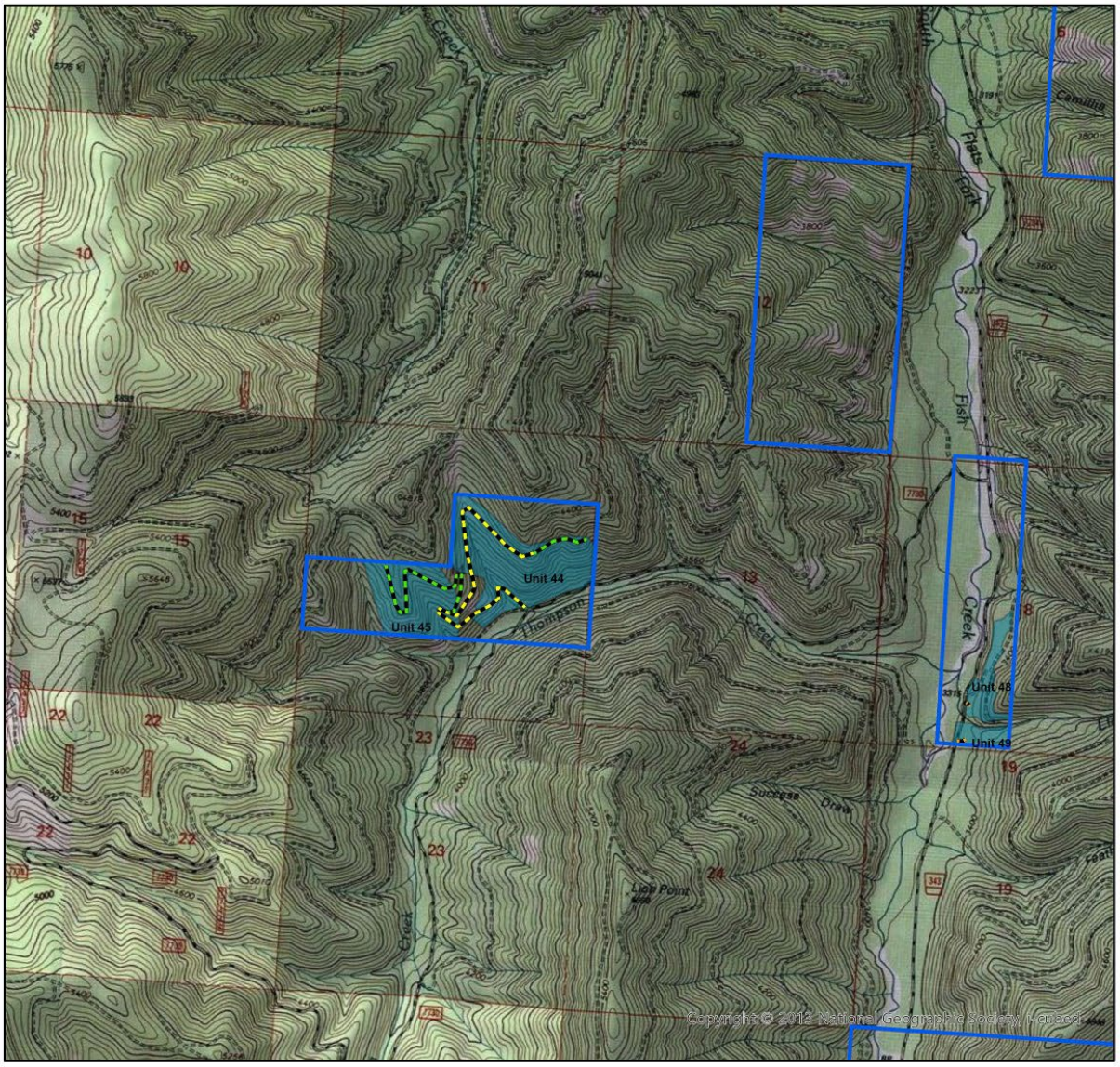
0.9 Miles
S.Whitney 2025



Lion Point Forest Management Project
Section 14 T13N R25W
Section 18 T13N R24W

Legend

- DNRC
- New Construction Roads
- Reconstruction Roads
- Temporary Roads
- Individual Tree Selection

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W E
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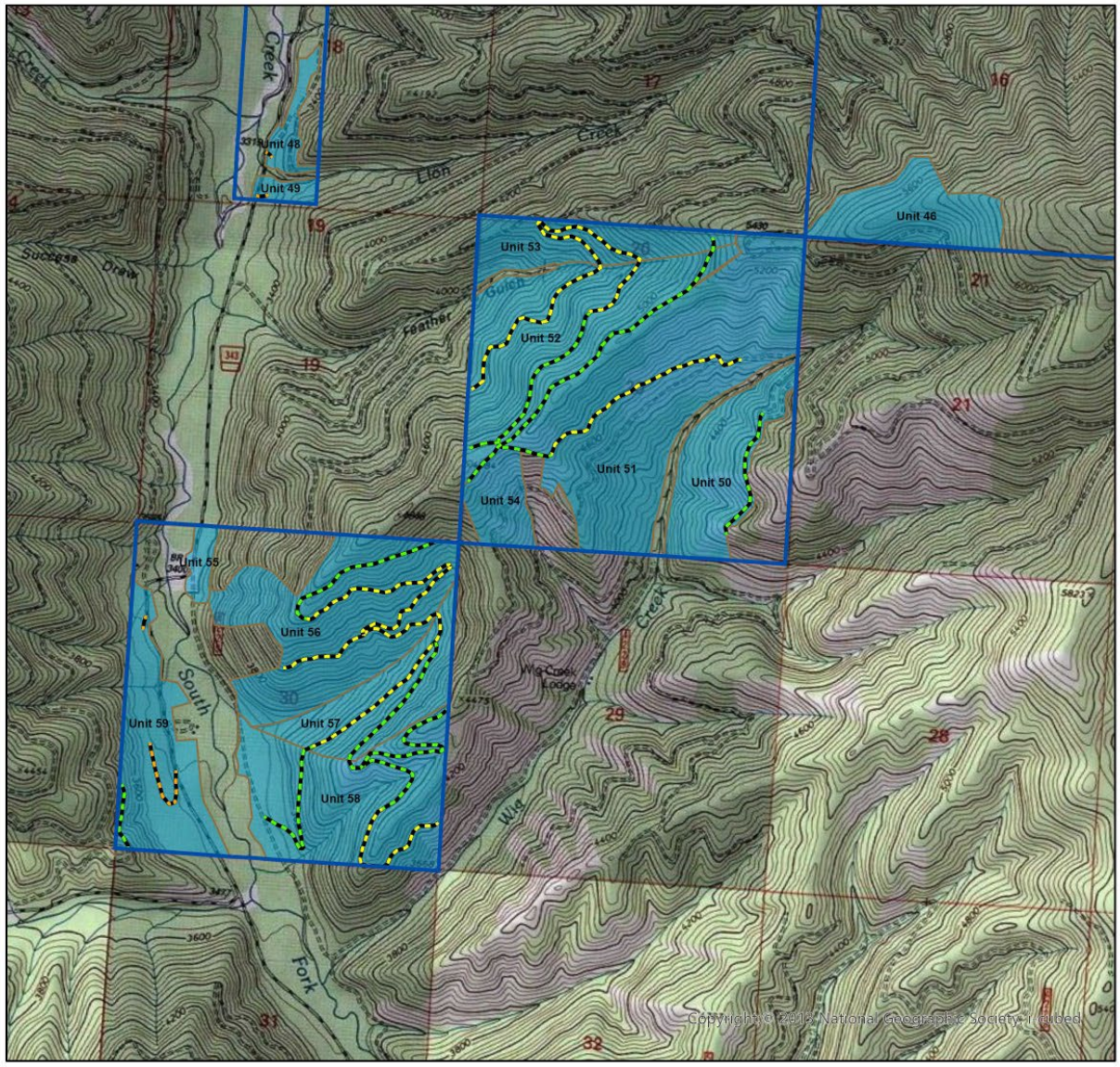
0 0.28 0.55 1.1 Miles

S.Whitney 2025



Lion Point Forest Management Project
Section 16,18,20,30 T13N R24W

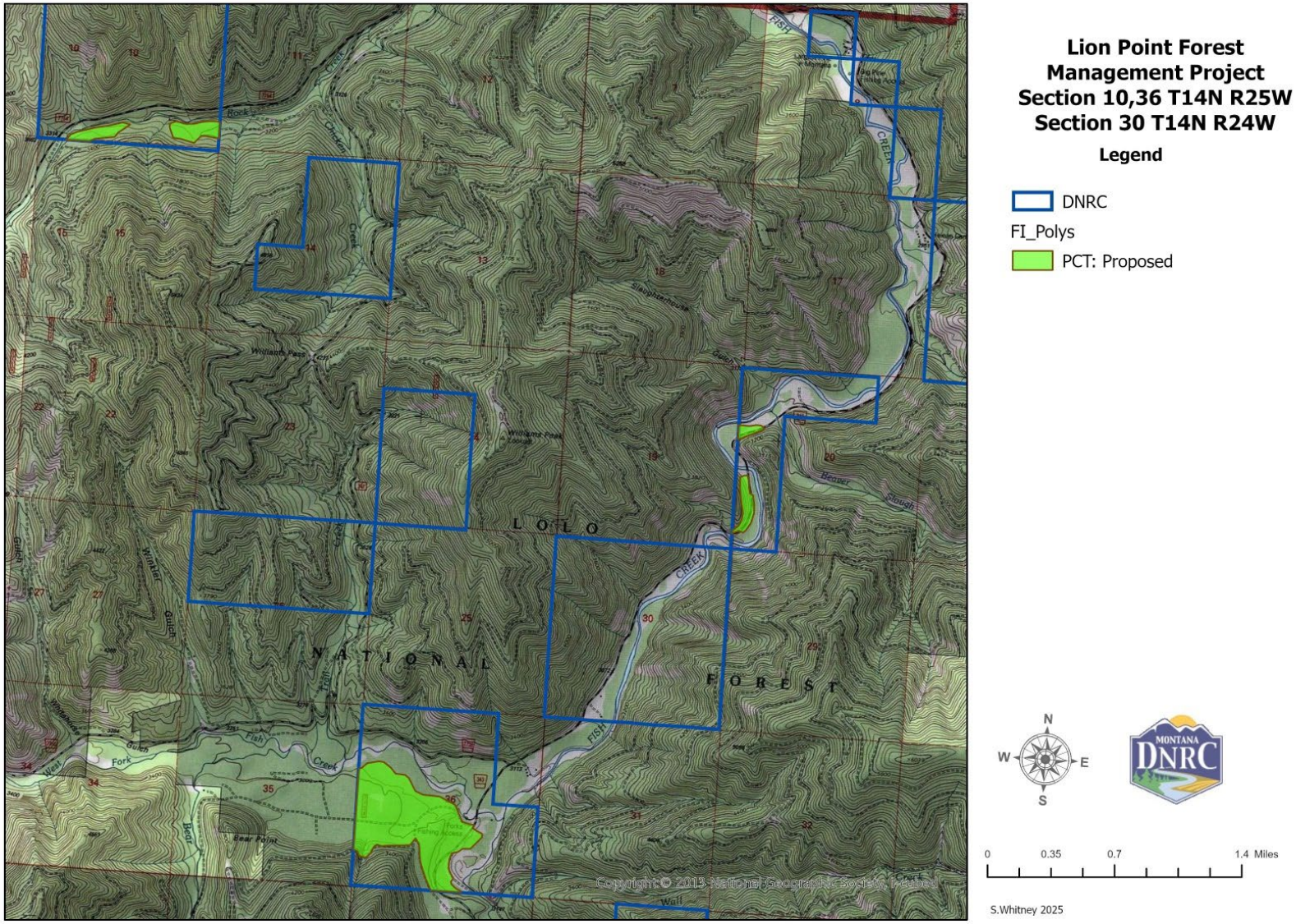
Legend

- DNRC
- New Construction Roads
- Reconstruction Roads
- Temporary Roads
- Individual Tree Selection

N
W E
S

0 0.23 0.45 0.9 Miles

S.Whitney 2025


Lion Point Forest
Management Project
Section 10,36 T14N R25W
Section 30 T14N R24W
Legend
DNRC
FI_Polys
PCT: Proposed
N
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MONTANA
DNRC
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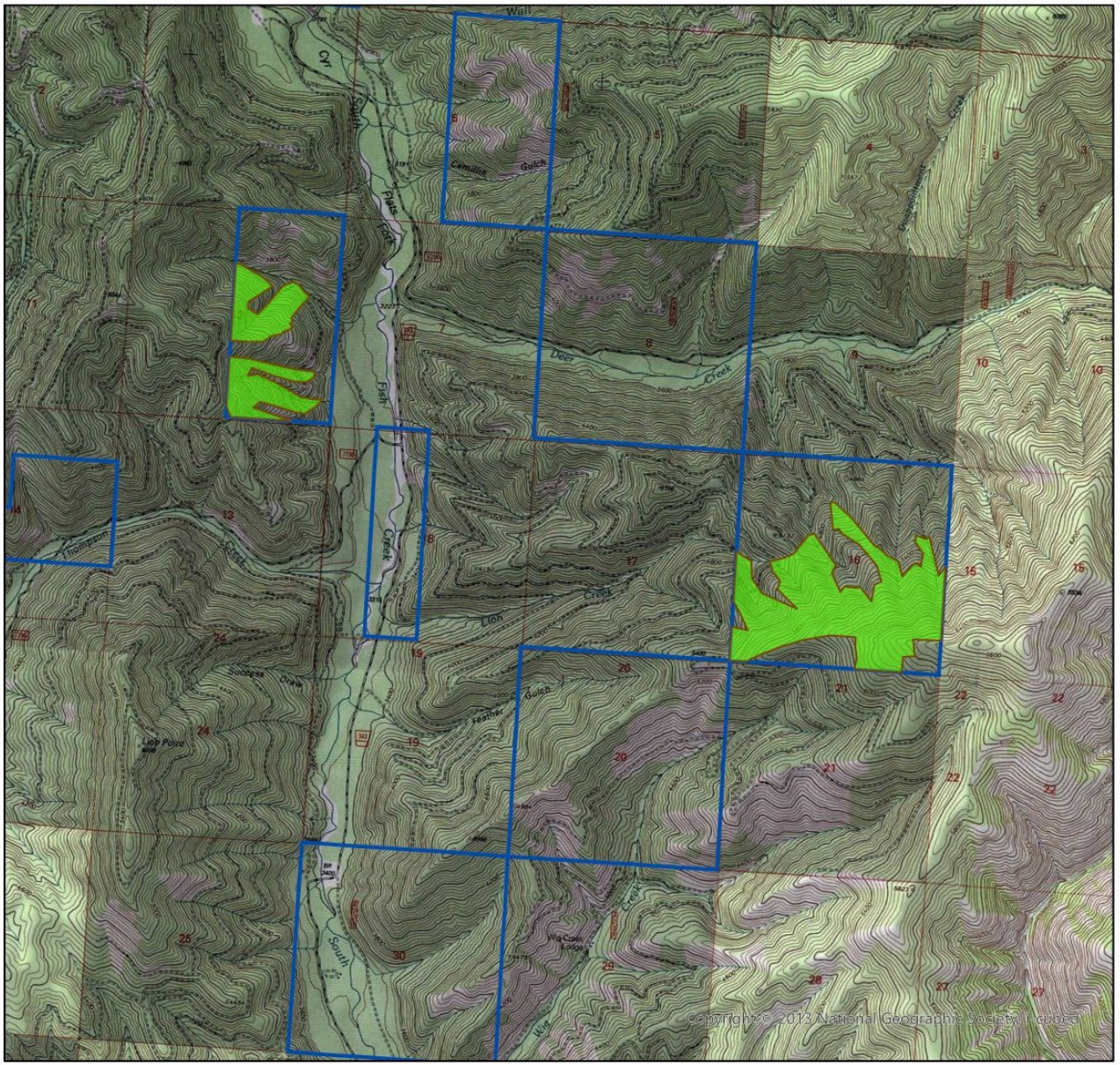
0.35
0.7
1.4 Miles
S.Whitney 2025
LOLO
NATIONAL
FOREST
Copyright © 2013 National Geographic Society, i-cubed



Lion Point Forest Management Project
Section 12 T13N R25W
Section 16 T13N R24W

Legend

DNRC

FI_Polys

PCT: Proposed

N
W
E
S

0 0.35 0.7 1.4 Miles

S.Whitney 2025

Attachment B – Vegetation

Lion Point Forest Management Project– Vegetation Analysis

Analysis Prepared By:
Name: Sam Whitney
Title: Forest Management Coordinator, Missoula Unit, Montana DNRC

Introduction

The vegetation section describes present conditions and components of the forest as well as the anticipated effects of both the No-Action and the Action Alternatives.

Issues and Concerns

The following issue statements were developed during scoping regarding the effects of the proposed action on vegetation:

- Forest management activities could alter the diversity of timber stand composition, structure, and /or age class.

Regulatory Framework

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

State Forest Land Management Plan

DNRC developed the SFLMP to "provide field personnel with consistent policy, direction, and guidance for the management of state forested lands" (DNRC 1996: Executive Summary). The SFLMP provides the philosophical basis, technical rationale, and direction for DNRC's forest management program. The SFLMP is premised on the philosophy that the best way to produce long-term income for the trust beneficiaries is to manage intensively for healthy and biologically diverse forests. In the foreseeable future, timber management will continue to be the primary source of revenue and primary tool for achieving biodiversity objectives on DNRC forested state trust lands.

DNRC Forest Management Rules

DNRC Forest Management Rules (*ARM 36.11.401 through 456*) are the specific legal resource management standards and measures under which DNRC implements the SFLMP and subsequently its forest management program. The Forest Management Rules were adopted in March 2003 and provide the legal framework for DNRC project-level decisions and provide field personnel with consistent policy and direction for managing forested state trust lands. Project design considerations and mitigations developed for this project must comply with applicable Forest Management Rules.

Montana Best Management Practices (BMP's) for Forestry

Montana BMPs consists of forest stewardship practices that reduce forest management impacts to water quality and forest soils. The implementation of BMP's by DNRC is required under *ARM 36.11.422*. Key forestry BMP elements include streamside management; road design and planning; timber harvesting and site preparation; stream crossing design and installation; winter logging; and hazardous substances storage, handling, and application.

Montana DNRC Forested Trust Lands Habitat Conservation Plan (HCP)

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

Analysis Areas

Direct and Secondary Effects Analysis Area
The analysis area used to assess direct and indirect effects includes the state-owned parcels in Sections 10,14,24,26,36 T14N R25W, Sections 16,20,30 T14N R24W, Sections12,14 T13N R25W, Sections 16,18,20,30 T13N R24W. The total project area is 6,170 acres. The stands proposed for harvest vary widely in age, structure and species composition (*see proposed harvest unit descriptions).*

Proposed treatment areas – 3,420 acres
Project Area – 6,170 acres

Cumulative Effects Analysis Area
The analysis area used to assess cumulative effects to forest vegetation includes all forested trust land parcels, administered by the Missoula Unit DNRC. These approximately 88,542 acres consist of both blocked and scattered parcels administered by the Missoula Unit Office (Figure V-2). The cumulative effects area falls within two climatic sections as defined by B. John Losensky in Historical Vegetation of Montana (1997) --Lower Flathead Valley Climatic Section (M333B) and Bitterroot-Blackfoot Climatic Section (M332B) and includes school trust lands in Mineral County, MT, all but the northeastern portion of Missoula County, MT, and the northwestern portion of Granite County, MT. The project area falls within the Bitterroot-Blackfoot Climatic Section (M332B).

Existing Conditions

Noxious Weeds
Noxious weeds infestations are primarily a combination of spotted knapweed (Centaurea maculosa), houndstongue (Cynoglossum officinale), St. John's wort (Hypericumper foratum), Ventenata (Ventenata dubia), hawkweed (Hieracium), mullein (Verbascum thapsus), thistle (Cirsium arvense) and orange hawkweed (Hieracium aurantiacum) which occur along portions of the existing road systems and open forest sites. Weed management treatments on adjacent ownerships in the area varies from no-action to a combination of revegetation and intense herbicide treatments *(Noxious weed distribution can also be referenced in **Proposed Harvest Unit Descriptions** below).*

Rare Plants
The Montana Natural Heritage Program (MTNHP) was used to identify the presence of Species of Concern, including threatened, endangered, or sensitive plant species. No rare plants were identified within the Project Area. One occurrence of Kelloggia *(Kelloggia Galioides)* was shown present in 1971 in Section 6 T13N R24W *(non-trust lands parcel outside of Project Area along south fork of Fish Creek,),* according to the Montana Natural Heritage Program database (MTNHP).

Standard Vegetative Community
The Project Area falls within climatic section M333D, which was historically 98% forested (Losensky, 1997). This Project Area ranges in elevation from 3,000'-6,400'.

- **Known past harvests**

Sec. 10, T14N, R25W		**Sec. 14, T14N, R25W**		**Sec. 36, T14N, R25W**	
1950-52	3.500 MMBF	1947-50	1.2 m MMBF	1952-54	5.38 MMBF
1961	0.648 MMBF	1964	0.143 MMBF	1968	0.001 MMBF
1993	0.010 MMBF	1978	0.317 MMBF	1969	0.009 MMBF
2014	0.550 MMBF	2014	0.550 MMBF	1973	0.005 MMBF
Sec. 8 T14N, R24W		**Sec. 20, T14N, R24W**		**Sec. 8, T13N, R24W**	
1951-52	0.565 MMBF	1952-54	0.803 MMBF	2003	2.00 MMBF
Sec. 30, T14N, R24W		**Sec. 6, T13N, R24W**		**Sec. 16, T13N, R24W**	
1952-54	.003 MMBF	1952-54	1.625 MMBF	1962	0.010 MMBF
1961	0.017 MMBF	1962	0.008 MMBF	1984	0.060 MMBF
2003	0.100 MMBF			2004	3.100 MMBF
Sec. 24, T14N, R25W		**Sec 26, T14N, R25W**		**Sec. 30, T13N, R24W**	
1951-52	1.2 MMBF	1952-54	3.4 MMBF	1952-54	3.839 MMBF
Sec 18, T13N, R24W		**Sec. 20, T13N, R24W**		**Sec.14, T13N, R25W**	
1952-54	1.136 MMBF	1952-54	4.146 MMBF	1952-54	1.634 MMBF
		1978	0.005 MMBF	1960	0.004 MMBF
1962	0.003 MMBF	1983	0.013 MMBF	1964	0.007 MMBF
2003	0.500 MMBF	1988	0.007 MMBF	2003	0.500 MMBF
Sec. 12, T13N, R25W					
1952-54	2.039 MMBF				
2003	1.000 MMBF				

- **Current stand conditions (species composition, size, density, insects and disease, forest age class and distribution, etc.)**

Proposed Harvest Unit Descriptions
For descriptive purposes, SLI (stand level inventory) delineated stands within the project area have been grouped within their respective proposed harvest units. Each section, township and range are listed and followed by unit numbers. Descriptions of the current stand conditions coincide with the proposed Action Alternative harvest units (A-2: Harvest Units).

Section 10 T14N R25W
Units 1, 2 and 3: The stands within the proposed harvest unit primarily consist of a well-stocked, multistoried forest type. The dominant canopy layer is ponderosa pine (PP), greater than 18-inch DBH, Douglas-fir (DF), and western larch (WL) are represented; 60%, 30%, and 10%. The mid-level canopy is a multi-age mix of 45%

DF, 45% PP, 5% WL and 5% lodgepole pine (LP). Advanced regeneration is DF and PP regeneration represented within natural openings. Knapweed and St. John's Wort are present.

Units 4, 6 and 8: The stands within the proposed harvest unit primarily consist of a well-stocked, multistoried forest type. The dominant canopy layer is DF greater than 18-inch DBH, WL, and PP are represented; 60%, 20%, and 20%. The mid-level canopy is a multi-age mix of 50% DF, 20% LP, 20% grand fir (GF) and 10% WL. Advanced regeneration is DF, GF and LP regeneration represented within natural openings. WL mistletoe and DF root rot are present.

Units 5 and 7: The stands within the proposed harvest unit primarily consist of a well-stocked, multistoried forest type. The dominant canopy layer is WL greater than 18-inch DBH, PP, and DF are represented; 80%, 10%, and 10%. The mid-level canopy is a multi-age mix of 70% WL and 30% DF. Advanced regeneration is DF, WL, PP, GF and LP regeneration represented within openings from a 2014 seed tree harvest. WL mistletoe is present. Knapweed and St. John's Wort are present.

Units 9 and 10: Prescribed as a PCT unit following the harvest of Unit 5 and 7. The lower-level canopy is advanced regeneration comprised of DF, WL, PP, LP and GF. Knapweed and St. John's Wort are present.

Section 14 T14N R25W

Units 11 and 12: The stands within the proposed harvest unit primarily consist of a well-stocked, multistoried forest type. The dominant canopy layer is PP greater than 20-inch DBH, DF, and WL are represented; 50%, 45%, and 5%. The mid-level canopy is a multi-age mix of 70% DF, 20 % PP, and 10% GF. Advanced regeneration is DF, PP, and GF regeneration represented within natural openings. Root rot is present. Knapweed is present.

Unit 13: The stands within the proposed harvest unit primarily consist of a well-stocked, multistoried forest type. The dominant canopy layer is DF greater than 20-inch DBH, WL, GF and PP are represented; 40%, 25%, 25% and 10%. The mid-level canopy is a multi-age mix of 43% DF, 42 % GF,10% WL and 5% PP. Advanced regeneration is GF, DF WL and PP regeneration represented within natural openings. Bark beetles and root rot are present.

Units 14 and 15: The Old Growth stands within the proposed harvest unit (18.6 acres) primarily consists of a well-stocked, multistoried forest type. The dominant canopy layer is DF greater than 20-inch DBH, WL, GF and PP are represented; 40%, 25%, 25% and 10%. The mid-level canopy is a multi-age mix of 43% DF, 42 % GF,10% WL and 5% PP. Advanced regeneration is GF, DF WL and PP regeneration represented within natural openings. Bark beetles and root rot are present.

Unit 16: The stands within the proposed harvest unit primarily consist of a well-stocked, multistoried forest type. The dominant canopy layer is PP greater than 18-inch DBH and DF are represented; 60%, and 40%. The mid-level canopy is a multi-age mix of 60% DF, and 40% PP. Advanced regeneration is DF and PP regeneration represented within natural openings. Knapweed and St. John's Wort are present.

Section 24 T14N R25W

Units 17, 19 and 20: The stands within the proposed harvest unit primarily consist of a medium stocked, multistoried forest type. The dominant canopy layer is PP greater than 16-inch DBH, DF are represented; 60 and 40%. The mid-level canopy is a multi-age mix of 60% DF and 40% PP. Advanced regeneration is DF and PP regeneration represented within natural openings. Knapweed is present.

Units 18 and 21: The Old Growth stands within the proposed harvest unit (50.7 acres) primarily consists of a well-stocked, multistoried forest type. The dominant canopy layer is DF greater than 20-inch DBH, WL and PP are represented; 60%, 30%, and 10%. The mid-level canopy is a multi-age mix of 80% DF, 10 % WL and 10%

PP. Advanced regeneration is DF, GF and PP regeneration represented within natural openings. DF root rot is present.

Section 26 T14N R25W

Unit 22: The stands within the proposed harvest unit primarily consist of a well-stocked, multistoried forest type. The dominant canopy layer is PP greater than 18-inch DBH, DF, WL and grand fir (GF) are represented; 34%, 33%, and 33%. The mid-level canopy is a multi-age mix of 40% DF, 40 % GF,15% PP and 5% WL. Advanced regeneration is GF, DF, PP and WL represented within natural openings. Root rot is present. Knapweed and St. John's Wort are present.

Unit 23: The stands within the proposed harvest unit primarily consist of a well-stocked, multistoried forest type. The dominant canopy layer is PP greater than 18-inch DBH, DF and WL are represented; 80%, 15%, and 5%. The mid-level canopy is a multi-age mix of 80% PP, 15% DF and 5% WL. Advanced regeneration is PP, DF and WL regeneration represented within natural openings. Knapweed and St. John's Wort are present.

Section 36 T14N R25W

Units 24, 25, 26, 28 and 29: The stands within the proposed harvest unit primarily consist of a well-stocked, multistoried forest type. The dominant canopy layer is PP greater than 18-inch DBH, DF, WL and Engelmann spruce (ES) are represented; 34, 33, and 33%. The mid-level canopy is a multi-age mix of 60% DF, 20% and 20% PP. Advanced regeneration is DF, GF, LP and WL regeneration represented within natural openings. DF root rot and mistletoe are present. Knapweed is present.

Unit 27: The stands within the proposed harvest unit primarily consist of a well-stocked, multistoried forest type. The dominant canopy layer is DF greater than 16-inch DBH, WL and PP are represented; 60, 25, 10 and 5%. The mid-level canopy is a multi-age mix of 25% PP, 25% DF, 25% LP and 25% WL. Advanced regeneration is DF, PP, WL, LP and GF regeneration represented within natural openings. DF root rot is present. Knapweed and St. John's Wort are present.

Unit 30: Prescribed as a PCT unit following the harvest of Unit 26. Advanced regeneration is DF, PP, WL, LP and GF regeneration represented within natural openings. Knapweed is present.

Section 16 T14N R24W

Units 31 and 32: The stands within the proposed harvest unit primarily consists of a medium stocked, multistoried forest type. The dominant canopy layer is PP greater than 18-inch DBH, DF and WL are represented; 40%, 40%, and 20%. The mid-level canopy is a multi-age mix of 70% DF, 20% PP and 10% WL. Advanced regeneration is DF, PP and WL regeneration represented within natural openings. Spruce budworm, bark beetles and root rot have impacted the vigor of the DF. Knapweed and St. John's Wort are present in the unit.

Units 33, 35 and 37: The stands within the proposed harvest unit primarily consist of a medium stocked, multistoried forest type. The dominant canopy layer is PP greater than 18-inch DBH and DF are represented; 80%, and 20%. The mid-level canopy is a multi-age mix of 70% PP and 30% DF. Advanced regeneration is PP and DF regeneration is very scattered. Knapweed and St. John's Wort are present.

Unit 34: The stands within the proposed harvest unit primarily consist of a well-stocked, multistoried forest type. The dominant canopy layer is DF greater than 16-inch DBH, WL, PP are represented; 60%, 30% and 10%. The mid-level canopy is a multi-age mix of 70% DF, 20 % WL, and 10% PP. Advanced regeneration is DF, WL, and PP regeneration represented in small pockets. Spruce budworm, bark beetles and root rot have impacted the vigor of the DF.

Unit 36: The stands within the proposed harvest unit primarily consist of a well-stocked, two storied forest type. The dominant canopy layer is DF greater than 14-inch DBH, PP and WL are represented; 60%, 30%, and

10%. Advanced regeneration is DF, PP and WL regeneration represented within natural openings. Spruce budworm is present. Knapweed and St. John's Wort are present.

Section 20 T14N R24W
Units 38 and 39: Prescribed as a PCT unit. Advanced DF and PP regeneration. Knapweed is present.

Section 30 T14N R24W
Units 40 and 41: The stands within the proposed harvest unit primarily consist of a well- stocked, multistoried forest type. The dominant canopy layer is PP greater than 18-inch DBH, DF and WL are represented; 34%, 33%, and 33%. The mid-level canopy is a multi-age mix of 60% DF, 20% WL and 20% PP. Advanced regeneration is DF, PP and WL regeneration represented within natural openings. DF root rot has impacted the vigor of the DF. Knapweed is present.

Section 12 T13N R25W
Units 42 and 43: Prescribed as PCT units. Advanced regeneration is LP, WL, alpine fir (AF), DF and PP regeneration represented within natural openings.

Section 14 T13N R25W
Units 44 and 45: The stands within the proposed harvest unit primarily consist of a medium stocked, multistoried forest type. The dominant canopy layer is PP greater than 18-inch DBH, DF and WL are represented; 50%, 40%, and 10%. The mid-level canopy is a multi-age mix of 40% PP, 40% DF, 10% WL and 10% GF. Advanced regeneration is PP, DF, WL and GF regeneration represented within natural openings. Knapweed is present.

Section 16 T13N R24W
Unit 46: The stands within the proposed harvest unit primarily consist of a well-stocked, multistoried forest type. The dominant canopy layer is DF greater than 20-inch DBH, PP and WL are represented; 40%, 40%, and 20%. The mid-level canopy is a multi-age mix of 70% DF, 15% PP and 15% WL. Advanced regeneration is DF, PP and WL regeneration represented within natural openings. Spruce budworm, bark beetles, mistletoes and root rot have impacted the vigor of the DF.

Unit 47: Prescribed as a PCT unit. Advanced regeneration is LP, WL, AF, DF and PP regeneration represented within natural openings. Knapweed is present.

Section 18 T13N R24W
Units 48 and 49: The stands within the proposed harvest unit primarily consists of a well-stocked, multistoried forest type. The dominant canopy layer is DF greater than 18-inch DBH, WL, PP and LP are represented; 60%, 20%, 10% and 10%. The mid-level canopy is a multi-age mix of 70% DF, 10% WL, 10% PP and 10% LP. Advanced regeneration is DF and PP regeneration represented within natural openings. DF bark beetles are present. Knapweed is present.

Section 20 T13N R24W and Section 30 T13N R24W
Units 50, 51, 53, 54, 56 and 58: The stands within the proposed harvest unit primarily consist of a well-stocked, multistoried forest type. The dominant canopy layer is PP greater than 20-inch DBH, DF are represented; 60% and 40%. The mid-level canopy is a multi-age mix of 60% DF and 40% PP. Advanced regeneration is DF and PP regeneration represented within natural openings. Spruce budworm is present. Knapweed and cheatgrass are present.

Units 52 and 57: The stands within the proposed harvest unit primarily consist of a well-stocked, multistoried forest type. The dominant canopy layer is DF greater than 20-inch DBH, WL, PP and LP are represented; 50%, 20%, 15% and 15%. The mid-level canopy is a multi-age mix of 40% DF, 40 % GF,10% PP, 5% WL and

5% LP. Advanced regeneration is DF, GF, and LP regeneration represented within natural openings. Spruce budworm, root rot and mistletoe have impacted the vigor of the DF.

Units 55 and 59: The stands within the proposed harvest unit primarily consists of a well-stocked, multistoried forest type. The dominant canopy layer is DF greater than 18-inch DBH, PP, LP, ES and WL are represented; 60% 10%, 10%, 10%, and 10%. The mid-level canopy is a multi-age mix of 50% DF 10% PP, 10% LP, 10% ES, 10% WL and 10% PP. Advanced regeneration is DF, GF, WL and PP regeneration represented within natural openings. Knapweed is present.

Old Growth
During project development, three stands within sections 14 and 24 of T14N R25W (68.3 acres) were identified as meeting Green et al. (1992) Old Growth classification using Stand Level Inventories, followed by site visits (SLI): Stand ID 14_N25_W1400007, 14_N25_W1400008, and 14_25_W2400004 *(see proposed harvest unit descriptions).*

The sections of the Project Area where the Old Growth was identified currently exhibit signs of mortality in scattered pockets throughout all stands, including those identified as Old Growth. The identified Old Growth stands are currently trending toward a loss of Green et al. (1992) attributes due to mortality from: root rot, spruce budworm and bark beetle infestations.

Environmental Effects

No-Action Alternative:

Direct, Secondary, and Cumulative
Under the No-Action Alternative, natural processes would continue to have a direct influence on forest conditions.

- Overall stand growth and vigor would continue to be suppressed due to overstocked stands. Stands would trend away from DNRC future desired conditions based on historic fire regimes.
- Unhealthy, suppressed Douglas-fir would likely succumb to insect and disease diminishing the economic value of trees.
- Increased fuel loading would increase the likelihood of a crown fire and mortality across all species and age classes.
- Existing Old Growth will continue to trend out of Old Growth status based on current mortality rates in stands.

Action Alternative:

Noxious Weeds
Direct, Secondary, and Cumulative
Implementation of the Action Alternative would involve ground-disturbing activities that have the potential to introduce or spread noxious weeds in susceptible habitat types, principally on drier vegetation types. For the Action Alternative, an Integrated Weed Management (IWM) approach was considered for treatment of existing and prevention of potential noxious weeds. For this project: prevention, revegetation of new roads and weed control measures on existing roads are considered the most effective weed management treatments. Prevention measures would require cleaning of off-road equipment. Roadsides would be sprayed post-operations. Noxious weeds control efforts would promote rapid revegetation and emphasize treatment of any new noxious weeds found. Newly disturbed roadsides would be reseeded to promote revegetation that would slow noxious weed spread and reduce weed density and occurrence compared to No-Action, yet noxious

weeds are expected to spread along roadways. There would be a similar increase in weed infestation within portions of harvest units due to soil disturbance and reduction of tree canopy. The silvicultural prescriptions are designed to control disturbance and scarification to goals needed for sustained forest growth.

Herbicide application would be completed on segments of DNRC roads along the haul routes, to reduce weed spread along roads and promote desired vegetation for weed competition and to reduce sedimentation. Herbicide would be applied according to label directions, laws and rules, and would be applied with adequate buffers to prevent herbicide runoff to surface water resources. Implementation of IWM measures listed are expected to reduce existing weeds, limit the possible spread of weeds, and improve current conditions to promote existing native vegetation. More weed control would occur compared to the No-Action alternative and grass and competitive vegetation would increase along roads.

Rare Plants
Direct, Secondary, and Cumulative

Standard Vegetative Community
Direct, Secondary, and Cumulative
Most of the stands within the project area show an increase in Douglas-fir. The management goal for numerous stands is to shift the stands toward DNRC Desired Future Conditions. In ponderosa pine stands this will be accomplished by leaving dominant ponderosa pine, harvesting primarily Douglas-fir therefore increasing the level of the ponderosa pine cover type. Stands will be maintained with a harvest that will attempt to mimic historical fire conditions. Table V-1 displays the proposed harvest units current cover type, the DNRC Desired Future Conditions (DFC), and the proposed harvest prescriptions selected to move stands towards DFC.

Table V-1 – Current and Desired Future Cover Type information from Stand Level Inventories (SLI)

Harvest Unit	Habitat Group	Fire Regime	Current Cover Type (Lozensky)	Age Class (years)	DFC (PFVT)	RX	Acres
1,2,3	Moderately warm and dry (westside)	Mixed	Ponderosa Pine	100-149	Ponderosa Pine	Individual/Select Tree Harvest	465.53
4,6,8	Warm and moist (westside)	Mixed	Western Larch/Douglas Fir	100-149	Western Larch/Douglas Fir	Individual/Select Tree Harvest	67.87
5,7	Warm and moist (westside)	Mixed	Douglas Fir	100-149	Western Larch/Douglas Fir	Overstory Removal	24.34
9,10	Warm and moist (westside)	Mixed	Douglas Fir	100-149	Western Larch/Douglas Fir	Precommercial Thinning	26.60
11,12	Moderately warm and dry (westside)	Low	Ponderosa Pine	100-149	Ponderosa Pine	Individual/Select Tree Harvest	39.73

13	Moderately cool and moist (westside)	Mixed	Western Larch/Douglas Fir	100-149	Western Larch/Douglas Fir	Individual/Select Tree Harvest	56.16
14	Warm and moist (westside)	Mixed	Ponderosa Pine	Old Growth	Western Larch/Douglas Fir	Old Growth Management	8.74
15	Warm and moist (westside)	Mixed	Ponderosa Pine	Old Growth	Ponderosa Pine	Old Growth Management	5.60
16	Moderately warm and dry (westside)	Mixed	Ponderosa Pine	100-149	Ponderosa Pine	Individual/Select Tree Harvest	40.63
17,19,20	Moderately warm and dry (westside)	Low	Ponderosa Pine	100-149	Ponderosa Pine	Individual/Select Tree Harvest	162.89
18,21	Moderately cool and moist (westside)	Mixed	Western Larch/Douglas Fir	Old Growth	Ponderosa Pine	Old Growth Management	56.52
22	Moderately warm and dry (westside)	Mixed	Ponderosa Pine	100-149	Ponderosa Pine	Overstory Removal	94.68
23	Moderately warm and dry (westside)	Low	Ponderosa Pine	40-99	Ponderosa Pine	Individual/Select Tree Harvest	134.66
24,25,26,29	Moderately warm and dry (westside)	Low	Ponderosa Pine	100-149	Ponderosa Pine	Individual/Select Tree Harvest	213.62
27	Moderately warm and dry (westside)	Mixed	Western Larch/Douglas Fir	100-149	Western Larch/Douglas Fir	Individual/Select Tree Harvest	42.20
28	Moderately warm and dry (westside)	Mixed	Douglas Fir	100-149	Ponderosa Pine	Individual/Select Tree Harvest	42.08
30	Moderately warm and dry (westside)	Mixed	Ponderosa Pine	100-149	Ponderosa Pine	Precommercial Thinning	165.50
31,32	Moderately warm and dry (westside)	Low	Ponderosa Pine	100-149	Ponderosa Pine	Individual/Select Tree Harvest	110.50
33,35,37	Moderately warm and dry (westside)	Low	Ponderosa Pine	100-149	Ponderosa Pine	Individual/Select Tree Harvest	211.52

34	Moderately warm and dry (westside)	Mixed	Ponderosa Pine	100-149	Ponderosa Pine	Seed Tree	45.54
36	Moderately warm and dry (westside)	Low	Ponderosa Pine	40-99	Ponderosa Pine	Individual/Select Tree Harvest	131.90
38,39	Moderately warm and dry (westside)	Low	Ponderosa Pine	100-149	Ponderosa Pine	Precommercial Thinning	16.10
40	Moderately warm and dry (westside)	Mixed	Ponderosa Pine	150-199	Ponderosa Pine	Seed Tree	39.70
41	Moderately warm and dry (westside)	Low	Ponderosa Pine	100-149	Ponderosa Pine	Individual/Select Tree Harvest	163.90
42,43	Moderately warm and dry (westside)	Low	Lodgepole Pine	0-39	Western Larch/Douglas Fir	Precommercial Thinning	105.00
44,45	Warm and Dry (westside)	Low	Ponderosa Pine	100-149	Ponderosa Pine	Individual/Select Tree Harvest	122.01
46	Cold and moderately dry (westside)	Low	Ponderosa Pine	100-149	Ponderosa Pine	Individual/Select Tree Harvest	65.36
47	Cool and moist (westside)	Mixed	Subalpine Fir	0-39	Ponderosa Pine	Precommercial Thinning	271.20
48,49	Moderately cool and moist (westside)	Mixed	Western Larch/Douglas Fir	100-149	Ponderosa Pine	Individual/Select Tree Harvest	24.63
50	Moderately warm and dry (westside)	Low	Western Larch/Douglas Fir	100-149	Ponderosa Pine	Individual/Select Tree Harvest	76.98
51,53,54,55,56,58	Moderately warm and dry (westside)	Low	Ponderosa Pine	100-149	Ponderosa Pine	Individual/Select Tree Harvest	661.99
52	Moderately cool and moist (westside)	Low-to-mixed	Western Larch/Douglas Fir	100-149	Ponderosa Pine	Individual/Select Tree Harvest	146.98
57	Moderately cool and moist (westside)	Low-to-mixed	Western Larch/Douglas Fir	100-149	Douglas Fir	Individual/Select Tree Harvest	69.37

59	Moderately warm and dry (westside)	Low-to-mixed	Ponderosa Pine	100-149	Western Larch/Douglas Fir	Individual/Select Tree Harvest	104.89

Old Growth
Direct, Secondary & Cumulative Effects

An Old Growth Maintenance prescription would be implemented within identified Old Growth stands in the Project Area. Old growth maintenance treatments are intended to be used on sites that have historically been affected by mixed-severity fire regimes. This treatment would be designed to retain Old Growth attributes (as defined by Green et. al.); including the number of large live trees and snags per acre.

Given the following factors:

- If left untreated, insect and disease infested stands that currently are classified as Old Growth may no longer meet Old Growth classification because of ongoing mortality.
- Post-treatment all stands would retain their Old Growth attributes at the time of harvest.
- Shade tolerant species would be removed, favoring seral species historically present on the site.

The proposed action would be expected to result in low to moderate direct, indirect, and cumulative impacts on Old Growth beyond those projected for the No-Action Alternative.

Vegetation Mitigations

- Implement harvest prescriptions that emulate natural disturbance and move stands within the project area toward (or retain) DNRC desired future conditions.
- Apply harvest prescriptions that promote multi-aged stands and support uneven-aged forest structure across multiple age classes.
- Pile and burn excessive slash generated from harvest activities.
- Select leave trees based on health and vigor. Favor trees exhibiting evidence of mistletoe infection, beetle infestation, root-rot, or other insect and disease infestation, regardless of size, for harvest.
- Monitor Project Area for noxious weeds after implementation; and apply herbicide using an Integrated Weed Management (IWM) approach as needed. Wash and inspect equipment prior to harvest operations.
- Design harvest unit prescriptions following HCP and ARM commitments.

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Attachment C – Soil, Watershed and Fisheries

Lion Point Forest Management Projects

Soils, Watershed, and Fisheries Analysis

Analysis Prepared By: Mike Anderson
Title: Fisheries Biologist, Montana DNRC

Introduction

The following analysis will disclose the existing conditions and anticipated effects to soil, water, and fisheries resources inside the Lion Point Forest Management Projects assessment area. The project proposes implementation of forest management activities over 15 years in four subwatersheds within the larger Fish Creek and Rock Creek drainages in Mineral County, Montana, 50 miles west of Missoula, Montana (Figure A-1; Vicinity Map). Both Fish Creek and Rock Creek are tributaries to the Clark Fork River in the Middle Clark Fork watershed (HUC8: 17010204; Figure S-1). Proposed forest management activities are described in detail in Type and Purpose of Action and Attachment B – Vegetation. Broadly, the proposed activities include upland timber harvest on up to 3,420 acres, 585 acres of pre-commercial thinning, 55 miles of road maintenance, 9 miles of road reconstruction, 12.9 miles of new permanent and 1.1 miles of new temporary road construction, and replacement or removal of one intermittent and two perennial stream crossings. No new perennial or intermittent stream crossings would be installed on the new permanent or temporary road construction. One segment of road adjacent to South Fork Fish Creek would need to be widened to facilitate logging traffic, including installation of armoring in the floodplain and streambank. Direct, secondary, and cumulative effects to soil, watershed, and fisheries resources of both the No-Action and Action alternatives will be analyzed using qualitative and quantitative methods described below for each resource.

Table S-1: Analysis areas for Soil, Watershed, and Fisheries Resources assessments.

		Analysis Area			
		Upper Fish Creek	Lower Fish Creek	Lower South Fork Fish Creek	Rock Creek-Clark Fork
Watershed Area (ac)		14,001	14,351	33,120	14,380
Percent Forested		88.9	77.1	83.3	87
Precipitation (in)		29	27	33	28
Elevation (ft)	Mean	4,339	4,324	4,687	4,118
	Min	3,093	2,790	3,093	2,785
	Max	5,936	6,307	7,012	6,922
Landownership (%)	DNRC	6.6	11.7	11.4	15.3
	State	39.2	59.6	37.3	24.6
	Federal	53.4	24.7	49.1	52.3
	Private	0.8	4	2.2	7.8

Issues

The following issues were raised during public and internal scoping for this forest management project. Public scoping is described in Project Development.

Public issues considered during project development

- Apply Aquatic conservation strategies of DNRCs Habitat Conservation Plan
- Apply Forestry BMPs during project to protect soil and water quality
- Mitigate public recreation impacts adjacent to perennial waters and in riparian areas

Internal comments

- Soils
    - Forest management activities may result in increased erosion due to soil disturbance from compaction or displacement
    - Forest management activities may result in reduced soil productivity due to loss of nutrient input
- Watershed
    - Forest management activities may result in increased sedimentation or turbidity in perennial and intermittent streams in the project area
    - Forest management activities may result in changes to the magnitude, timing, and duration of peak flow events in the watershed
- Fisheries
    - Forest management activities may result in increased sedimentation or turbidity which may impact fisheries habitat
    - Forest management activities may result in changes to the magnitude, timing, or duration of peak flow events in the watershed which may impact fisheries habitat
    - Forest management activities may result in decreased standing timber in riparian stands which may result in decreased recruitment of large woody debris and decreased stream shade which may lead to increased stream temperature
    - Forest management activities may result in decreased fisheries connectivity
    - Forest management activities may result in impacts to fisheries populations, including changes in community structure, relative abundance, and genetic exchange

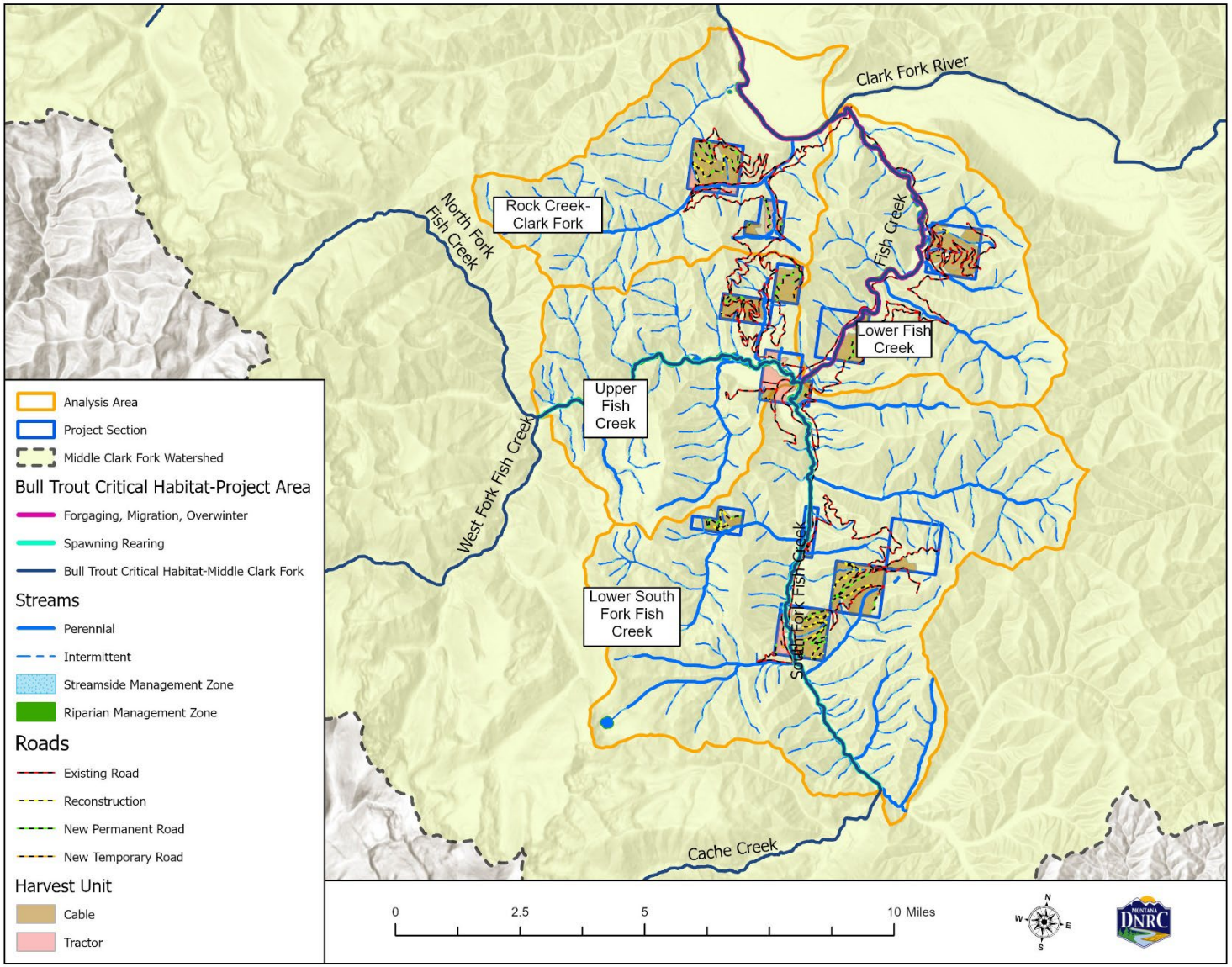


Figure S-1: Analysis areas for Soil, Watershed, and Fisheries Resources assessments.

Regulatory Framework

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

- Montana Forestry Best Management Practices (DNRC 2015)
- Montana Streamside Management Zone Law (MCA 77-5-301)
- State Forest Land Management Plan (DNRC 1996)
- Applicable Administrative Rules for Forest Management (ARM 36.11.401 – 470)
- DNRC Habitat Conservation Plan for Forested State Trust Lands (DNRC 2010)
- Montana Surface Water Quality Standards (ARM 17.30.608[b][i])
- Montana Water Quality Act (MCA 75-5-701 – 705)
- Endangered Species Act (USFWS 1973)
- Bull Trout Recovery Plan (USFWS 2015)
- Bull Trout Critical Habitat Designation (USFWS 2010)
- Memorandum of Understanding and Conservation Agreement for Westslope Cutthroat Trout in Montana (2007).

Analysis Methods and Analysis Areas

Analysis areas for the Lion Point Forest Management Project were based on subwatershed tributaries to the Clark Fork River (Rock Creek-Clark Fork; RCCF) and Fish Creek drainages (Lower Fish Creek; LFC, Upper Fish Creek; UFC, and Lower South Fork Fish Creek; LSFFC) where proposed project activities have potential to effect soil, water or fisheries resources (Table S-1, Figure S-1). Data sources for the analysis include; Lolo National Forest Soil Surveys (USDA 2025), Digital Elevation Models (USGS 2025), NAIP aerial imagery (USDA 2019, 2021, 2023), geologic maps (MBMG 2004), updated and field verified National Hydrography Datasets (USGS 2014), fisheries surveys completed by MFWP (see Knotek et al. 2025 for summary), and DNRC managed internal layers (see Project File, 2025).

Potential impacts of the Action Alternative on Soils will be evaluated largely through qualitative evaluation of soil characteristics within proposed harvest unit boundaries, and road prisms where road reconstruction or new construction of permanent or temporary road would occur. For the purpose of this analysis, road reconstruction or new construction impacts would be limited to a 40-foot wide corridor (20-feet from proposed centerline). Timber harvest method will be considered as differential impacts between ground-based and cable harvest operations have been noted following previous DNRC timber sales (DNRC 2006, 2011).

Potential impacts of the proposed Action Alternative on Water Resources will be evaluated through a quantitative evaluation of the proposed activities within the broader watershed. Stream classification in the project area followed definitions established in the Streamside Management Zone Law (SMZ; MCA 77-5-301). Water quality in project area streams may be affected by the proximity of existing roads, construction of new roads including installation of stream crossings, stabilization of existing road prisms, and upland and riparian timber harvest. Road use, reconstruction, and new construction within 300 feet of perennial and intermittent streams will be evaluated to estimate the potential for and magnitude of impacts on sedimentation and turbidity (Rashin et al. 1999, DNRC 2010). Following timber harvest, watershed hydrology may be affected as a reduction in standing timber volume may result in changes to the magnitude, timing, and duration of snowmelt runoff (Stednick 1996, Burton 1997) and alterations to base discharge

(Keppeler and Ziemer 1990, Stednick 1996, Burton 1997, Moore et al. 2020). These alterations are generally avoided in watersheds where less than 20 percent of the vegetation in the watershed is harvested (Bosch and Hewitt 1982, Stednick 1996, Moore and Wondzell 2005).

Potential impacts of the proposed Action Alternative on Fisheries Resources will be evaluated through a qualitative evaluation of current BMP status of existing road surfaces and crossings, known sediment delivery locations, fish passage barriers, and location of proposed road construction activities including reconstruction and new construction. Moderate and high impact sediment points are defined as delivery to either the floodplain or channel of classified streams (DNRC 2010). Fish passage barriers are defined as any artificial structure with a vertical drop of greater than 3 feet, or a CMP with insufficient depth or excessive velocity which prevents fish from moving upstream through the crossing structure (Bell 1986). Quantitative evaluations of riparian stands were based on SMZ and Riparian Management Zone (RMZ) buffers established along classified streams in the project area (DNRC 2010). Large woody debris (LWD) were measured in fish occupied stream reaches based on methods described in Overton et al. (1997).

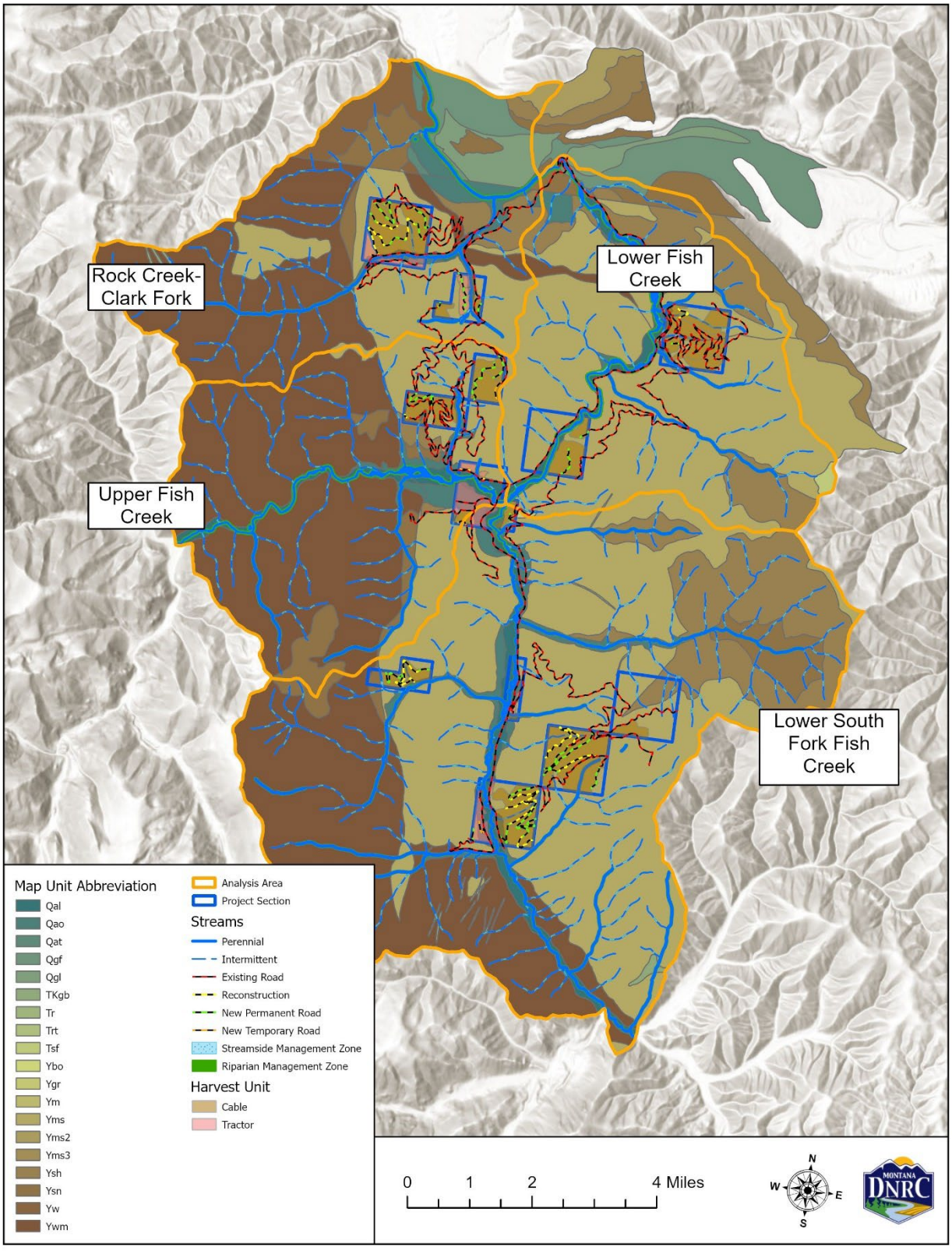


Figure S-2: Geologic map of the Lion Point Forest Management Projects assessment area

Table S-2: Soil types in the Lion Point Forest Management Projects assessment area

Map Unit	Description	Landtype Description	Acres			Compaction Hazard	Erosion Hazard	Displacement Hazard
			Watershed	Project Area				
				Harvest Unit	Road Construction			
10UA	Beehive-Moosehead-Kawuneeche families, complex, stream bottoms	Alluvium-Metasedimentary rock	1,713	44	0.5	H	M	L
10UB	Kawuneeche family, stream bottoms	Alluvium	39	3	-	H	M	H
10UC	Elvick family-Fluvaquentic Cryaquepts, complex, stream bottoms	Alluvium	184	0	-	M	M	L
13JA	Stryker and Wickware families, high stream terraces and escarpments	Alluvium/Slope Alluvium-Metasedimentary rock	52	-	-	H	M	H
13UA	Combest and Kadygulch families, high stream terraces and escarpments	Volcanic ash over Metasedimentary Alluvium	1,954	289	5.1	H	M	L
13UB	Mitten-Holloway families, association, high stream terraces and escarpments	Volcanic ash over Metasedimentary Alluvium	769	101	<0.1	H	M	H
14JA	Stryker family, dissected hills and alluvial fans	Alluvium or Lacustrine deposit	106	-	-	H	M	M
14XA	McCaffery family and Typic Haplustepts, dissected hills and alluvial fans	Alluvium	81	-	-	H	M	H
16UA	Wellie-Wakepish families, association, hills and alluvial fans	Undifferentiated Alluvium	733	53	0.6	M	M	L
22UA	Wakepish-Wilde-Sixteenmile, very stony families, complex, flood scoured footslopes	Colluvium-Metasedimentary rock	47	-	-	M	M	H
24JB	Brequito family, dissected colluvial aprons and mountain slopes	Volcanic ash over Metasedimentary Alluvium	273	-	-	H	M	H
26UA	Rock outcrop-Specie, extremely stony-Wilde, extremely stony, families, complex, stream breaklands		1,600	<0.1	-	NR	NR	H
30MA	Argora-St. Marys families, association, moderately steep mountain slopes	Colluvium-Metasedimentary rock	195	-	-	H	M	H
30MB	Broadmoor-Abreu families, complex, moderately steep mountain slopes	Colluvium-Metasedimentary rock	979	3	-	H	M	H
30MC	Beeskove-Bendahl-Foyslake families, complex, moderately steep mountain slopes	Colluvium-Metasedimentary rock	2,033	27	0.3	H	M	H
30MD	Mitten family, moderately steep mountain slopes	Volcanic ash over Metasedimentary Colluvium	3,638	1	-	H	M	H
30ME	Venson family, moderately steep mountain slopes	Volcanic ash over Metasedimentary Colluvium	1,282	-	-	H	M	H
30MG	Tevis-Mitten families, complex, moderately steep mountain slopes	Colluvium-Metasedimentary rock	913	-	-	H	M	H
30PA	Eaglecreek family, moderately steep mountain slopes	Colluvium-Volcanic rock	66	-	-	H	M	H
30QA	Lostbasin-Bergquist families, complex, moderately steep mountain slopes	Colluvium-Metasedimentary rock	762	130	3.7	M	M	H
30QB	Broadmoor family, moderately steep mountain slopes	Colluvium-Metasedimentary rock	772	160	9.2	H	M	H
30QC	Mitten and Tevis families, moderately steep mountain slopes	Volcanic ash over Metasedimentary Colluvium	1,468	49	0.8	H	L	H
30QD	Mitten family, moderately steep mountain slopes, weakly weathered metasedimentary rock	Volcanic ash over Metasedimentary Colluvium	883	-	-	H	M	H
30QE	McCay family, moderately steep mountain slopes, weakly weathered metasedimentary rock	Volcanic ash over Metasedimentary Colluvium	2,438	37	-	H	M	H
30QG	Mitten-Tevis families, complex, moderately steep mountain slopes	Volcanic ash over Metasedimentary Colluvium	1,735	-	-	H	L	H
32MA	Venson family, broadly convex ridges	Volcanic ash over Metasedimentary Colluvium	536	-	-	H	M	H
32QA	McCay family, broadly convex ridges, weakly weathered metamorphic bedrock	Volcanic ash over Metasedimentary Colluvium	1,925	-	-	H	M	M
32QC	Mitten family, broadly convex ridges	Volcanic ash over Metasedimentary Colluvium	179	<0.1	-	H	H	H
32QD	Afley-Tevis families, complex, broadly convex ridges	Colluvium-Metasedimentary rock	124	-	-	L	M	H
33UA	McCay, cold-McCay families, complex, broadly convex ridges	Volcanic ash over Metasedimentary Colluvium	703	-	-	L	M	H
40QA	Typic Haplocryands-Rock outcrop complex, cirque headwalls	Volcanic ash over Metasedimentary Colluvium	156	-	-	M	M	H
41QA	Typic Haplocryands-Constance family-Rock outcrop complex, steep subalpine mountain slopes	Volcanic ash over Metasedimentary Colluvium	338	-	-	M	M	M
42QA	McCay, Vaywood and Muddycreek families, cirque basins	Volcanic ash over Metasedimentary till	178	-	-	H	M	H
43QA	Vaywood family, nivation hollows	Volcanic ash over Metasedimentary till	433	-	-	H	H	M
46OA	Vaywood family, glacial-valley floors, extremely bouldery	Volcanic ash over Metasedimentary till	167	-	-	H	M	H
48QA	Divers-Oakes families-Rock outcrop complex, glaciated-valley walls	Volcanic ash over Metasedimentary till	472	-	-	L	M	H
60MA	Argora-Farva families-Rock outcrop complex, stream breaklands	Volcanic ash over Metasedimentary Colluvium	505	-	-	H	M	H
60MB	Specie-Mowbray families-Rock outcrop complex, stream breaklands	Volcanic ash over Metasedimentary Colluvium	418	-	-	H	L	H
60MC	Bendahl-Foyslake families-Rock outcrop, stream breaklands	Volcanic ash over Metasedimentary Colluvium	450	-	-	H	M	H
60MD	Stevie-Bendahl families-Rock outcrop complex, stream breaklands	Volcanic ash over Metasedimentary Colluvium	195	-	-	H	M	M
60QA	Lostbasin family, extremely stony-Rock outcrop complex, stream breaklands	Colluvium-Quartzsite	6,424	986	30.6	M	L	H
60QB	Broadmoor family, extemely stony-Rock outcrop complex, stream breaklands	Colluvium-Quartzsite	2,198	252	12.8	M	M	H
60QC	Mitten family, extremely stony-Rock outcrop-Tevis family, extremely stony complex, stream breaklands	Volcanic ash over Quartzsite Colluvium	3,962	309	13.8	H	M	H
60QD	Dewberry family, very stony-Rock outcrop-Mitten family, extremely stony complex, stream breaklands	Volcanic ash over Quartzsite Colluvium	1,037	-	-	H	M	H
61MC	Beeskove-Argora families-Rock outcrop complex, dissected stream breaklands	Colluvium-Metasedimentary rock	87	-	-	H	M	M
61MD	Stevie family-Rock outcrop complex, dissected stream breaklands, calcareous substratum	Volcanic ash over Metasedimentary Colluvium	475	-	-	H	M	M
61QC	Mitten family, extremely stony-Rock outcrop-Tevis family, dissected stream breaklands	Colluvium-Quartzsite	3,163	217	4.0	H	M	H
61QD	Vaywood family, very stony-Rock outcrop-Mitten family, dissected stream breaklands	volcanic ash over colluvium derived from quartzite	1,555		-	H	M	H
64MA	Argora-St. Marys families, complex, steep mountain slopes, extremely stony	Colluvium-Metasedimentary rock	522		-	H	M	H
64MB	Broadmoor-Abreu families, complex, steep mountain slopes	Colluvium-Metasedimentary rock	438		-	H	M	H
64MC	Beeskove, Bendahl and Foyslake families, steep mountain slopes	Colluvium-Metasedimentary rock	1,026	13	0.6	H	M	H
64MD	Bendahl and Foyslake families, steep mountain slopes	Colluvium-Metasedimentary rock	2,911	1	-	H	M	H
64MG	Bendahl family, steep mountain slopes	Volcanic ash over Metasedimentary Colluvium	563		-	H	H	H
64QA	Lostbasin-Bergquist families, complex, steep mountain slopes, very stony	Colluvium-Metasedimentary rock	4,728	332	14.6	M	M	H
64QB	Broadmoor family, steep mountain slopes, very stony	Colluvium-Metasedimentary rock	3,157	261	12.4	M	M	H
64QC	Mitten and Tevis families, steep mountain slopes, very stony	Volcanic ash over Quartzsite colluvium	5,358	87	1.3	H	M	H
64QD	Mitten family, steep mountain slopes, very stony	Volcanic ash over Quartzsite colluvium	2,478	2	0.1	H	M	H
64QE	McCay family, steep mountain slopes	Volcanic ash over Quartzsite colluvium	571	4	-	H	M	H
64QG	Mitten-Tevis families complex, steep mountain slopes, very stony	Volcanic ash over Quartzsite colluvium	809	75	-	H	H	H

Existing Conditions

Geology and Soils

The Lion Point Forest Management Project is located in the northern Bitterroot Mountains in the Fish Creek and Rock Creek watersheds south of the Clark Fork River. Elevations range from 2,800 feet at the confluence of Fish Creek and the Clark Fork River to over 7,000 feet on the Montana-Idaho divide. Underlying bedrock geology is primarily Precambrian age Belt Supergroup layers of the Mount Shields and Wallace formations which are comprised of siltite, argillite, and quartzite on the hill slopes and younger alluvial layers in the valley bottoms. Local outcroppings of igneous rock are present at the surface on north facing slopes in southern portions of the project area. Glacial lake and glacial flood depositions are present on old terraces of the Clark Fork River in the northern portions of the project area (Figure S-2).

The project area is located in Mineral County, MT (see Type and Purpose of Action for specific project sections). Project area soils were mapped under the Lolo National Forest soil surveys (USDA 2025). Soil map units and descriptions of soil properties are found in Table S-2. Based on the existing soil types there is a moderate risk of erosion in the project area. Soil types in the project area have high to moderate potential for compaction, and high to moderate potential for rutting (USDA 2025). Mountain slopes in the project area are moderately steep, with 78 percent of the project area having slopes between 20 and 40 percent. Less than one percent of the project area includes slopes steeper than 50 percent (Table S-3).

Table S-3: Slopes in the Lion Point Forest Management Projects assessment area

		Analysis Area											
		Upper Fish Creek			Lower Fish Creek			Lower South Fork Fish Creek			Rock Creek-Clark Fork		
		Watershed	Harvest Unit	Road Construction	Watershed	Harvest Unit	Road Construction	Watershed	Harvest Unit	Road Construction	Watershed	Harvest Unit	Road Construction
	Area (ac)	14,001	627	16.9	14,351	713	6.0	33,120	1,228	60.8	14,380	709	26.4
Slope	0 - 10	1,305	100	0.2	1,220	18	0.1	2,250	16	2.5	2,094	47	0.5
	10 - 20	2,049	62	1.4	1,380	55	0.5	3,753	107	4.6	1,639	69	2.5
	20 - 30	5,368	254	7.0	5,295	275	1.6	14,086	563	28.2	5,904	263	10.6
	30 - 40	4,955	211	8.3	6,295	356	3.8	12,894	542	25.5	4,651	328	12.8
	40 - 50	310	0	0.0	158	8	0.0	134	1	0.0	87	1	0.0
	50 - 60	14	0	0.0	3	0	0.0	3	0	0.0	5	0	0.0
	>60	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0

Nutrient Cycling

Soil nutrient cycling and availability is primarily driven by weathering of underlying geology, and decomposition of organic material. Coarse (CWD) and fine (FWD) woody debris maintain soil productivity locally through soil moisture retention (Harmon et al. 1986), soil temperature modification (Swanson et al. 2023), and nutrient cycling (Laiho and Prescott 1999). Current levels of CWD are representative of Graham et al. (1994) based on the predominant Douglas-fir habitat types in the project area.

Water Quality

All streams in the analysis area are classified as B-1 by Montana DEQ (ARM 17.30.607). Criteria for B-1 waters include no increases above naturally occurring levels of sediment, and minimal increases in natural turbidity. Reasonable practices should be adopted, including methods, measures, or practices that protect present and reasonably anticipated beneficial uses. Guidance for road construction, maintenance, and use included in the Best Management Practices (BMPs) for Forestry in Montana are considered reasonable practices. Designated beneficial water uses in the project area include cold-water fisheries, recreational use of streams and lakes, domestic water use, and livestock watering.

Fish Creek is included in the 2024 Montana 303(d) list as impaired from the confluence of West Fork and South Fork Fish Creek to the mouth at the Clark Fork River. The primary cause of listing was physical substrate habitat alterations, with the source of impairment being highways, roads, bridges, and infrastructure. Due to the listing category being 4C, no TMDL has been developed, as the source is not a pollutant (DEQ 2025). The listing impacts the lower 9.0 miles of stream, which does not fully support aquatic life, agricultural use, and recreational use are fully supported at this time (DEQ 2025). No other streams in the project area have been listed for departures in water quality.

Upper Fish Creek

In the UFC analysis area, 90.9 miles of open or restricted access roads are present (Table S-4). Approximately 33 percent of the existing roads (30.0 miles) are within 300 feet of a classified waterbody, and 4.3 miles (4.7 percent) are within 300 feet of Bull Trout Critical Habitat. Road inventory has been completed on 27.8 miles of road in the analysis area, including haul route roads and non-haul route roads on DNRC ownership. Approximately 85 percent of the total watershed Open and Restricted Access roads meet BMPs, while 97 percent of the roads within 300 feet of classified streams currently meet Forestry BMPs (Table S-5). There are eight total stream crossings on perennial or intermittent habitat, of which three perennial crossings do not meet Forestry BMPs, all of which are undersized and have scour at the outlet of the structure. One high risk sediment delivery point is present on USFS managed road system in the headwaters of Trail Creek. Skid trails and relict forest roads are prevalent in the SMZ and RMZ throughout the analysis area, largely from timber harvest activities in the 1950s. Skid trails have largely recovered from a vegetation standpoint, and no current delivery sites were noted during site visits. Given the location of the skid trails and SMZ road prisms, there is potential for lateral migration of the stream channel to erode existing roadbeds or skid trails. No significant DNRC timber harvest has occurred in the analysis area after the 1950's, however, large portions of the watershed were harvested on other landownership during the last 50 years. Additionally, large scale wildfires have impacted significant portions of the upper portion of the watershed in the last 30 years (59 percent of the analysis area). Based on the current conditions of watershed roads and previous watershed disturbance levels, there is an existing moderate impact on Water Quality in the analysis area.

Lower Fish Creek

In the LFC analysis area, 130.5 miles of open or restricted access roads are present (Table S-4). Approximately 23 percent of the existing roads (30.1 miles) are within 300 feet of a classified waterbody, and 4.5 miles (3.4 percent) are within 300 feet of Bull Trout Critical Habitat. Road inventory has been completed on 62.5 miles of road in the analysis area, including haul route roads and non-haul route roads on DNRC ownership. Approximately 96 percent of the Open and Restricted Access roads meet BMPs and 93 percent of the roads within 300 feet of classified streams currently meet Forestry BMPs (Table S-5). There are nine total stream crossings on

Table S-4: Road infrastructure in the Lion Point Forest Management Projects assessment area.

		Assessment Area			
		Upper Fish Creek	Lower Fish Creek	Lower South Fork Fish Creek	Rock Creek-Clark Fork
Watershed Roads	Open	31.1	46.5	73.8	44.5
	Restricted	59.8	84.0	285.6	88.3
	Open Within 300 feet Classified Stream	12.8	16.2	20.1	12.5
	Restricted Within 300 feet Classified Stream	17.2	13.9	70.5	15.4
	Open Within 300 feet Bull trout CH	4.2	4.4	3.3	0.2
	Restricted Within 300 feet Bull trout CH	0.1	0.1	2.2	0.4
	Perennial crossings	5	7	9	7
	Intermittent crossings	3	2	1	4
	Crossings on Bull trout CH	1	2	2	0
	Fish passage barriers	2	0	1	0
Haul Route Roads	Existing Open	7.2	15.5	10.4	7.2
	Existing Restricted	12.6	11.4	14.6	10.4
	Existing Reconstruction	0.6	0.4	6.0	1.9
	New Permanent Road Construction	2.4	0.9	6.1	3.5
	New Temporary Road Construction	0.5	0.0	0.5	0.1
	Open Within 300 feet Classified Stream	2.5	7.5	4.4	3.8
	Restricted Within 300 feet Classified Stream	2.2	2.9	2.4	1.2
	Reconstruct/New Construct w/in 300 ft Classified Stream	0.1	0.3	1.5	0.9
	Open Within 300 feet Bull trout CH	0.5	4.0	2.2	-
	Restricted Within 300 feet Bull trout CH	0.0	0.0	0.0	-
	Reconstruct/New Construct w/in 300 ft Bull trout CH	0.0	0.0	0.05	-
	New/Replace Perennial crossings	0	0	1	0
	New/Replace Intermittent crossings	0	0	0	0
	Fish passage barriers removed	1	-	1	-

Table S-5: Best Management Practice status and road construction activities in the Lion Point Forest Management Projects assessment area.

	Upper Fish Creek	Lower Fish Creek	Lower South Fork Fish Creek	Rock Creek-Clark Fork
Watershed Area	14,001	14,351	33,120	14,380
Watershed Road Miles (Open)	16.0	18.8	12.7	8.4
BMP Yes	12.7	17.6	10.9	8.1
BMP No	3.4	1.2	1.8	0.3
Watershed Road Miles (Restricted)	11.7	43.8	17.0	15.5
BMP Yes	11.0	42.2	16.9	15.5
BMP No	0.7	1.6	0.1	0.0
Haul Route Road Miles (Open)	6.6	13.7	7.4	6.2
BMP Yes	6.3	10.9	6.4	4.4
BMP No	0.3	2.8	1.0	1.8
Haul Route Road Miles (Restricted)	10.0	11.4	14.3	9.3
BMP Yes	10.0	10.7	13.5	9.3
BMP No	0.0	0.7	0.8	0.0
Haul Route Road Miles within 300 ft Classified Stream	3.9	9.1	5.9	4.4
BMP Yes	3.8	8.5	4.8	3.5
BMP No	0.1	0.6	1.1	0.9
Perennial Stream Crossing	5	7	9	3
BMP Yes	2	3	5	1
BMP No	3	4	4	2
Intermittent Stream Crossing	3	2	1	4
BMP Yes	3	1	0	2
BMP No	0	1	1	2
Road Reconstruction	0.6	0.4	6.0	1.9
Open	0.0	0.0	0.0	0.0
Restricted	0.6	0.4	6	1.9
New Permanent Road Construction	2.4	0.9	6.1	3.5
Open	0.0	0.0	0.0	0.0
Restricted	2.4	0.9	6.1	3.5
New Temporary Road Construction	0.5	0.0	0.5	0.1

perennial or intermittent habitat, of which five perennial crossings do not meet Forestry BMPs, all of which are undersized and have scour at the outlet of the structure. Several sediment delivery points are present on the main Fish Creek Road, and are due to undersized CMPs with scour at the outlet. Trails have largely recovered from a vegetation standpoint, and no current delivery sites were noted during site visits. Given the location of the prism, within the SMZ and generally directly adjacent to perennial and intermittent streams, there is potential for lateral migration of the stream channel to erode existing road prisms and skid trails. Approximately 17 acres of timber harvest has occurred on DNRC ownership in the analysis area after the 1950's, all of which was in upland areas greater than 500 feet from a classified stream. Large portions of the watershed were harvested on other landownership during the last 70 years. Additionally, large scale wildfires have impacted significant portions of the upper portion of the watershed in the last 30 years (34 percent of the analysis area). Based on the current conditions of watershed roads and previous watershed disturbance levels, there is an existing moderate impact on Water Quality in the analysis area.

Lower South Fork Fish Creek

In the LSFFC analysis area, 359.4 miles of open or restricted access roads are present (Table S-4). Approximately 25 percent of the existing roads (90.6 miles) are within 300 feet of a classified waterbody, and 5.5 miles (1.5 percent) are within 300 feet of Bull Trout Critical Habitat. Road inventory has been completed on 29.7 miles of road in the analysis area, including haul route roads and non-haul route roads on DNRC ownership. Approximately 94 percent of the Open and Restricted Access roads meet BMPs and 81 percent of the roads within 300 feet of classified streams currently meet Forestry BMPs (Table S-5). Ten total stream crossings on perennial or intermittent habitat, of which five crossings do not meet Forestry BMPs. Multiple sediment delivery points are present in the analysis area, including CMPs with outlet drops and beaver impacted crossing structures. Skid trails have largely recovered from a vegetation standpoint, with no current delivery sites noted. Given the location of many of the old skid trails and road prisms within the SMZ, generally directly adjacent to perennial and intermittent streams, there is potential for lateral migration of the stream channel to erode existing prisms. Approximately 1,635 acres of timber harvest have occurred on DNRC ownership in the analysis area since 1999, largely during salvage harvest between 2003 and 2006, and portions of the watershed were harvested on other landownership during the last 70 years. Additionally, large scale wildfires have impacted significant portions of the upper portion of the watershed in the last 30 years (57 percent of the analysis area). Based on the current conditions of watershed roads and previous watershed disturbance levels, there is an existing moderate impact on Water Quality in the analysis area.

Rock Creek-Clark Fork

In the RCCF analysis area, 132.8 miles of open or restricted access roads are present (Table S-4). Approximately 21 percent of the existing roads (27.9 miles) are within 300 feet of a classified waterbody, and 0.6 miles (1.5 percent) are within 300 feet of Bull Trout Critical Habitat, all of which is along the Clark Fork River and would be outside the scope of this project. Road inventory has been completed on 23.9 miles of road in the analysis area, including haul route roads and non-haul route roads on DNRC ownership. Approximately 99 percent of the Open and Restricted Access roads meet BMPs and 79 percent of the roads within 300 feet of classified streams currently meet Forestry BMPs (Table S-5). There are seven total stream crossings on perennial or intermittent habitat, of which four crossings do not meet Forestry BMPs. One known sediment delivery point is present in the analysis area, which is an undersized CMP on USFS road ownership. Skid trails are present adjacent to Chicken Creek in multiple locations, however no sediment delivery sites were noted. Approximately 151 acres of timber harvest has occurred on DNRC ownership in the analysis area after the 1950's, all of which was in upland areas greater than 300 feet from a classified stream. Large portions of the watershed were harvested on other landownership during the last 50 years. Wildfires have impacted small portions of the upper portion of the watershed in the last 30 years (6.3 percent of the analysis area). Based on the current conditions of watershed roads and

previous watershed disturbance levels, there is an existing low impact on Water Quality in the analysis area.

Hydrology
Multiple large wildfires have occurred in the project area since 1994 (USDA 2025). In the UFC analysis area, two fires in 2006 and 2015 impacted approximately 58 percent of the watershed, 34 percent of the LFC analysis area, fires in 1994 and 2006 impacted 34 percent of the watershed. Several fires in 2000, 2001, 2006, 2015, 2016, and 2017 impacted 57 percent of the LSFFC analysis area, including 18,600 acres (56 percent of the watershed) in the Thompson Fire in 2006. Prior to 2010, private industrial forestry companies owned a large portion of the Fish Creek and Rock Creek watersheds. MFWP acquired a large portion of the lower Fish Creek and Rock Creek watersheds in 2010. Significant timber harvest and road building occurred on all ownerships in the Fish Creek watershed between 1950 and 2017. DNRC managed timber sales and salvage harvest are found in Table S-6. When considering the combination of large wildfires and historic timber harvest since 1950, significant portions of the standing timber in all analysis areas has been removed, either through fire or timber harvest, with 58 percent of the UFC, 34 percent of the LFC, 61 percent of LSFFC, and 14 percent of RCCF being impacted by either timber harvest, wildfire, or both. Post-fire recovery of hydrological characteristics can recover quickly especially through recovery of understory vegetative growth occurring soon after disturbance (Adams et al. 1991). Recovery of stands in the analysis areas post-fire varies widely based on fire recency, slope, aspect, and elevation. Based on the scale of fire and previous harvest, the timing, magnitude, and duration of flow events in the project area are elevated over an unimpacted condition.

Upper Fish Creek
Approximately 59 percent of the watershed was within the fire perimeters of the Thompson Fire in 2006 and West Fork Fish Creek fire in 2015. Based on aerial imagery, large portions of the upper West Fork Fish and Bear creek watersheds burned intensely, likely losing the majority of pole- and saw-timber size classes. Loss of this proportion of watershed vegetation has likely elevated water quantity over naturally-occurring conditions (Wine et al. 2018). No DNRC managed timber harvest has occurred in the previous 70 years, with stands in the analysis area reflecting climax condition in riparian areas and a mosaic of burned and unburned stands throughout the remainder of the watershed. The timing, magnitude, and duration of flow events in the UFC analysis area is likely altered over unimpacted conditions due to recent wildfire history within the watershed. Based on the historic and current disturbances, there is an existing moderate impact to Water Quantity in the analysis area due to recent (<20 year old) wildfire, in which timber stands have not reached hydrologic maturity (Niemeyer et al. 2020).

Table S-6: Watershed disturbances in the Lion Point Forest Management Projects assessment area.

	DNRC Managed Timber Sales 1950-present	Acres within Fire Perimeter	Percent Watershed in Fire Perimeter or Previous Timber Harvest	Percent Watershed Riparian Acres Burned or Harvested	Riparian Salvage Harvest Acres
Upper Fish Creek	10.0 MMBF	448.6	58	43.4	0
Lower Fish Creek	<1.0 MMBF	211.7	34	20.3	0
Lower South Fork Fish Creek	9.7 MMBF	1,020.5	61.0	48.1	52.7
Rock Creek-Clark Fork	5.8 MMBF	10.9	14	1.3	0

Lower Fish Creek

Approximately 34 percent of the watershed was within the fire perimeters of the Beaver Slough and Fish Creek fires in 2006. Based on aerial imagery, large portions of the watershed burned intensely, likely losing the majority of pole- and saw-timber size classes. Loss of this proportion of watershed vegetation has likely elevated water quantity over naturally-occurring conditions (Wine et al. 2018). Seventeen acres of DNRC managed timber harvest has occurred in the previous 70 years, with stands in the analysis area reflecting climax condition in riparian areas and a mosaic of burned and unburned stands throughout the remainder of the watershed. The timing, magnitude, and duration of flow events in the LFC analysis area is likely altered over unimpacted conditions due to recent wildfire history within the watershed. Based on the historic and current disturbances, there is an existing moderate impact to Hydrology in the analysis area due to recent (<20 year old) wildfire, in which timber stands have not reached hydrologic maturity (Niemeyer et al. 2020).

Lower South Fork Fish Creek

Approximately 57 percent of the watershed was within the fire perimeters of the Owl Creek (2000), Fish Creek (2001), Thompson Fire (2006), West Fork Fish Creek (2015), Deer Creek (2016), and Burdette Creek (2017). Based on aerial imagery, large portions of the watershed burned intensely, likely losing the majority of pole- and saw-timber size classes. Loss of this proportion of watershed vegetation has likely altered the timing, magnitude, and duration of flow events in the watershed in comparison to fully forested conditions (Wine et al. 2018). DNRC managed timber harvest has occurred on approximately 1,635 acres of the watershed (5 percent of the watershed area). Stands in the analysis area reflecting climax condition in riparian areas and a mosaic of burned and unburned stands throughout the remainder of the watershed. In total 20,603 acres of within the analysis area have been impacted by fire or harvest. The timing, magnitude, and duration of flow events in the UFC analysis area is likely altered over unimpacted conditions due to recent wildfire history within the watershed. Based on the historic and current disturbances, there is an existing moderate impact to Hydrology in the analysis area due to recent (<20 year old) wildfire, in which timber stands have not reached hydrologic maturity (Niemeyer et al. 2020).

Rock Creek-Clark Fork

Water quantity in the RCCF analysis area is likely slightly elevated over unimpacted conditions due to recent wildfire history within the watershed. Approximately 6 percent of the watershed was within the fire perimeters of the Tarkioli (1996) Tarkio (2006), Fish Creek (2006), and West Fork Fish Creek (2006) fires. Both the Tarkioli (13 acres) and Tarkio (460 acres) burned on the north side of the Clark Fork River which would not influence water yield in the Rock Creek watershed proper. When considering wildfire in the analysis area that would influence the timing, magnitude or duration of streamflow in Rock or Chicken creeks, approximately 426 acres of fire have impacted the watershed (3.0 percent) Based on aerial imagery, the portions of the watershed that were impacted did not burned intensely, likely resulting in negligible changes in hydrology. DNRC managed timber harvest has occurred on 1,140 acres in the analysis area between 1999 and 2017, of which 151 acres were on the south side of the Clark Fork River in the Rock Creek watershed, and the remainder were on the Tarkio flats north of the Clark Fork River. Based on the historic and current disturbances, there is no existing impact to Hydrology in the analysis area.

Fisheries

Fisheries resources are broadly described for habitat conditions observed on DNRC ownership, habitat metrics may vary on other private and federal ownerships. For a description of fish community distribution, thermal habitat conditions, and factors influencing fisheries resources see Knotek et al. (2025).

Upper Fish Creek

The primary fisheries resources in the Upper Fish Creek analysis area include West Fork Fish Creek, from the confluence with South Fork Fish Creek upstream to the confluence of West Fork and North Fork Fish Creek, and Bear and Trail creeks, perennial tributaries to West Fork Fish Creek at river miles (RM) 1.9 and 1.2 respectively (Figure S-3). West Fork Fish Creek is a large, complex stream system with well-developed floodplain connectivity, multiple braided channels resulting from large logjams, and a large cobble to large boulder substrate. Bankfull widths range from 40-60 feet in the western portion of the watershed, to well over 100 feet in valley upstream from the forks area. From approximately RM 3.1 downstream to the mouth, West Fork Fish Creek has a Type-I Channel Migration Zone (CMZ; DNRC 2010) on the northern side of the stream. Riparian communities in this reach are primarily deciduous with some Ponderosa Pine interspersed, and lightly stocked due to channel migration and wildfire impacts. Large wood aggregations are prevalent and provide the primary in-stream cover for salmonids. Bear Creek is an 8-to-10 foot bankfull width B-type to C-type stream, depending on position in the watershed (Rosgen 1996). Riparian communities are well stocked in the lower portion of the watershed, with significant impacts from wildfire in the upper watershed. Trail Creek is a low gradient, B-type channel with 2-to-4-foot bankfull width stream with small gravel to small cobble substrate (Rosgen 1996). Riparian communities along Trail Creek are comprised of climax Western redcedar stands, generally indicative of near-surface groundwater or upwelling areas, understory vegetation is sparse due to shade.

Table S-7: Fisheries populations present in the Lion Point Forest Management Projects assessment area

	Stream Miles				Stream Miles Occupied	
Assessment Area	Perennial	Intermittent	Origin	Species	Watershed	BT Crit. Habitat
Upper Fish Creek 170102040506	16.1	39.2	Native	Bull Trout	9.1	7.1
				Westslope Cutthroat Trout	12.8	-
				Mountain Whitefish	7.1	-
				Catostomus spp.	7.1	-
				Sculpin	7.1	-
			Introduced	Rainbow Trout	7.1	-
				Eastern Brook Trout	7.9	-
				Westslope x Rainbow Trout	4.0	-
Lower Fish Creek 170102040508	16.9	33.9	Native	Bull Trout	9.0	9.0
				Westslope Cutthroat Trout	9.6	-
				Mountain Whitefish	9.0	-
				Catostomus spp.	9.0	-
				Sculpin	8.8	-
				Longnose Dace	1.8	-
			Introduced	Rainbow Trout	9.0	-
				Eastern Brook Trout	9.0	-
				Brown Trout	9.0	-
Lower South Fork Fish Cre 170102040507	40.2	79.0		Bull Trout	14.4	9.6
				Westslope Cutthroat Trout	35.5	-
				Mountain Whitefish	10.2	-
				Sculpin	10.3	-
				Rainbow Trout	11.5	-
				Eastern Brook Trout	23.7	-
				Brown Trout	3.7	-
				Bull x Brook Trout	0.7	-
Rock Creek-Clark Fork 170102040603	12.6	33.9	Native	Westslope Cutthroat Trout	6.3	-

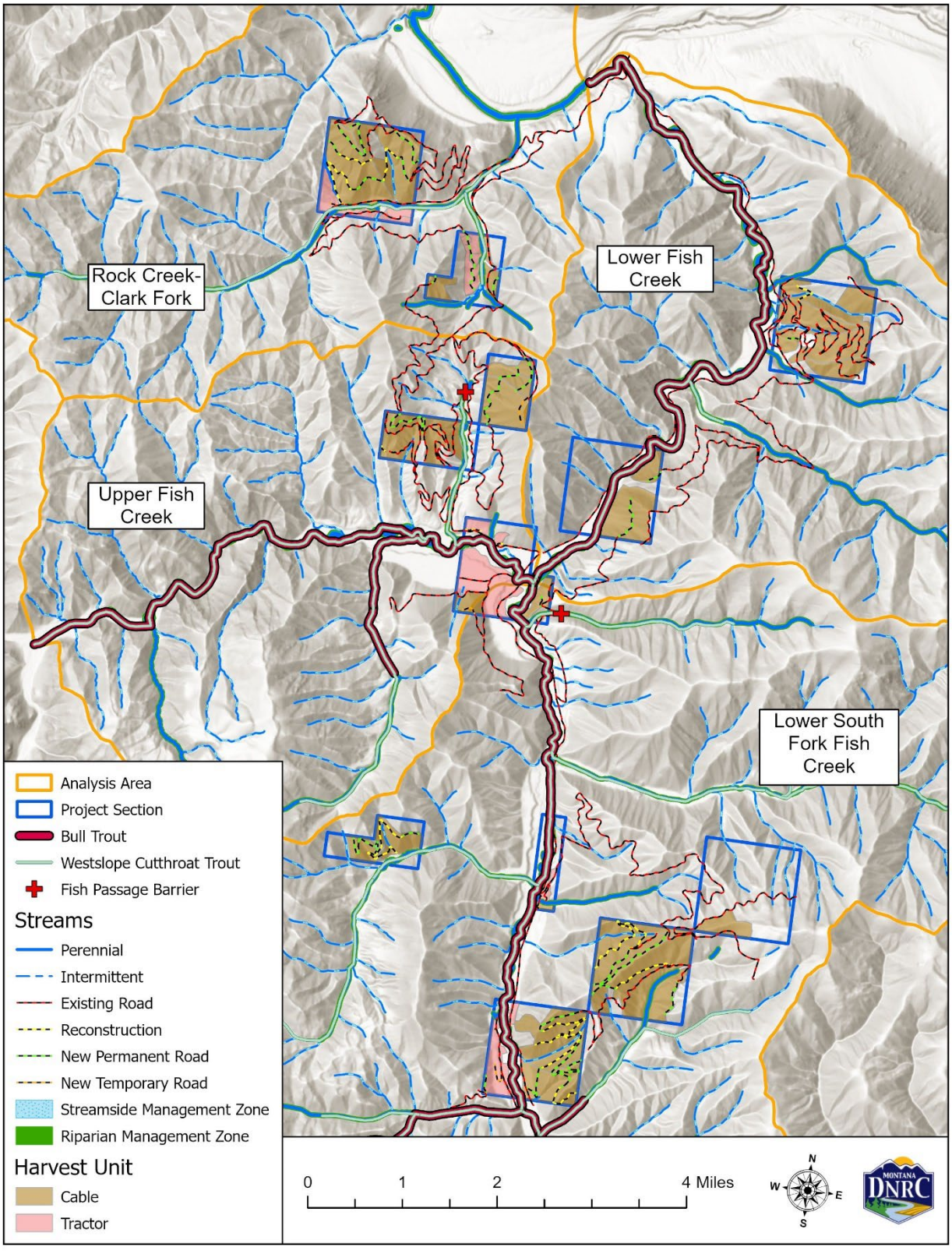


Figure S-3: Fisheries resources in the Lion Point Forest Management Projects assessment area

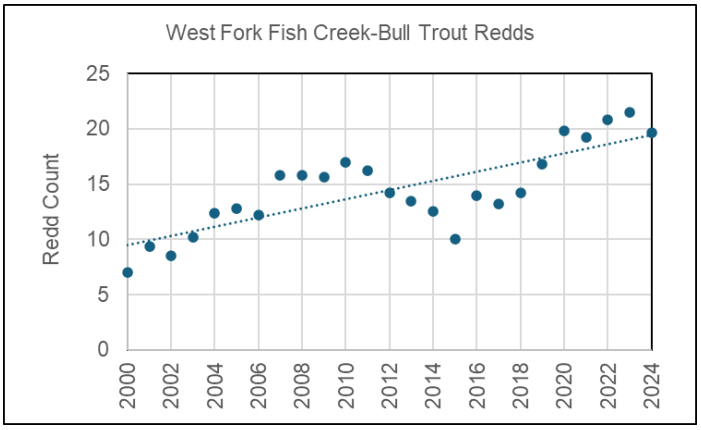
Fisheries assemblages in the UFC analysis area are found in Table S-7, Bull Trout (BT; *Salvelinus confluentus*) and Westslope Cutthroat Trout (WCT; *Oncorhynchus lewisi*) are present in West Fork Fish Creek (Table S-7, FISHMT 2025). Spawning and rearing Bull Trout critical habitat is present in West Fork Fish Creek, all of which is occupied. Reaches of critical habitat adjacent to project activities are primarily juvenile rearing habitat, with the primary spawning reaches upstream (Knotek et al. 2025). WCT also occupy approximately 4.0 miles of Bear Creek, and 1.8 miles of Trail Creek. Introduced Rainbow Trout (*O. mykiss*), Eastern Brook Trout (*Salvelinus fontinalis*) and hybrid Westslope Cutthroat x Rainbow Trout have been documented in the analysis area (Table S-7). Bull Trout redd counts in West Fork Fish Creek have remained stable over the previous 25 years, with a slight increase in the most recent 10-year period (21.5 redds/yr; 2016–2024) compared with the previous 10-years (13.5 redds/yr; 2005–2014) (Figure S-4). Based on the current distribution of native and introduced species in the analysis area, there is an existing high impact to fisheries populations due to overlap between native and introduced species and existing hybridization.

Lower Fish Creek

The primary fisheries resources in the Lower Fish Creek analysis area include the reach of Fish Creek between the confluence of West Fork and South Fork Fish Creek and Clark Fork River, and Beaver Slough Creek. Lower Fish Creek is a large C-type channel, with bankfull widths ranging from 60 feet in the upper watershed to over 100 feet in places throughout the lower watershed. Riparian communities were impacted significantly during the Fish Creek fire in 2006, with deciduous recovery prevalent, and some conifer regeneration noted. Unimpacted stands are primarily composed of Douglas-fir, Ponderosa Pine, and Black Cottonwood. Beaver Slough Creek is a perennial tributary to Fish Creek near RM 5.7, riparian stand in the lower watershed are similar to those observed along Fish Creek, and transition to Western redcedar near the headwaters of the stream. Fish Creek in the analysis area is well connected to the floodplain with active side channel habitat created by beaver activity, as well as natural fluvial processes.

Fisheries assemblages in the LFC analysis area are found in Table S-7. Bull Trout foraging, migration, and overwintering critical habitat are present in the lower 9.0 miles of Fish Creek from the confluence of the Clark Fork River upstream to the confluence of West Fork and South Fork Fish Creek, all of which is currently occupied. Westslope Cutthroat Trout are present in both Fish Creek and Beaver Slough Creek. Introduced species including Rainbow, Eastern Brook, and Brown Trout are all present in Fish Creek. Due to the overlapping distribution and presence of hybridization in the watershed, there is a moderate existing impact to fisheries populations in the analysis area.

Figure S-4: Bull Trout redd counts, West Fork Fish Creek , 2000 – 2024



Lower South Fork Fish Creek

The primary fisheries resources in the Lower South Fork Fish Creek analysis area are South Fork Fish Creek, Wall Canyon Creek, Deer Creek, Thompson Creek, Wig Creek, Surveyor Creek, and Owl Creek. For the purposes of this analysis, Surveyor and Owl creeks will not be discussed in detail as both streams are upstream from any project activity and therefore have not potential impacts. South Fork Fish Creek is a third order, C-type stream (Rosgen,1996), with a well-connected floodplain and well-developed riparian community comprised of conifer and interspersed deciduous trees with established deciduous shrubs on streambanks. Wall Canyon Creek is a first-order tributary to South Fork Fish Creek, with 2-to-4 foot bankfull widths in the project area. The riparian community is comprised of largely conifer overstory, with red-osier dogwood and thin-leaf alder understory. Streambanks are largely stable, and substrate ranged from small gravel to silt. Thompson Creek is a first-order tributary to South Fork Fish Creek, with 6-8 foot bankfull width, small cobble to small gravel substrate, and stable streambanks. The riparian community is comprised of red-osier dogwood and thin-leaf alder, much of the riparian overstory burned during the Thompson Fire in 2006. Beaver activity was noted, and has influenced streambank stability where relict dams have failed and channel migration has occurred. Wig Creek is a first-order tributary to South Fork Fish Creek, with 3-to-5 foot bankfull widths and small gravel to sand substrate. Reaches of Wig Creek in S20 13N 24W are intermittent, with the source of the stream in the SE corner The riparian community is mixed conifer, with scattered deciduous trees in the overstory and thin-leaf alder the primary understory vegetation. Deer Creek is a second-order tributary to South Fork Fish Creek, bankfull widths range from 6-8 feet. The forested riparian community was largely lost during the Thompson Fire in 2006. Current riparian communities are largely deciduous shrubs and trees, with prevalent beaver activity.

Fisheries assemblages in the LSFFC analysis area are found in Table S-7. South Fork Fish Creek is designated as Bull Trout spawning and rearing critical habitat from the confluence with West Fork Fish Creek, upstream to the mouth of Cache Creek. Bull Trout occupy all critical habitat as well as the lower portion of Wig Creek, likely for juvenile or sub-adult rearing due to cold temperatures, and Surveyor Creek. Westslope Cutthroat Trout occupy nearly all available perennial water in the analysis area, with some evidence of hybridization in most streams (Knotek et al. 2025). Due to the overlapping distribution, and genetic hybridization between native and introduced fish species in the watershed, there is an existing high impact on fisheries populations.

Rock Creek-Clark Fork

Fisheries resources in the Rock Creek-Clark Fork (RCCF) analysis area include the Clark Fork River, Rock Creek and Chicken Creek. One reach of the Clark Fork River is present in the analysis area, and is foraging, migration and overwintering habitat for Bull Trout. Given that Rock Creek does not regularly connect with the Clark Fork River, this analysis will focus on Rock and Chicken creeks. Rock Creek is a second-order tributary to the Clark Fork River near RM 162. Seasonally intermittent within DNRC ownership, Rock Creek has bankfull width of 6-to-8 feet, with stable streambanks and well-developed riparian understory that is primarily comprised of red osier dogwood and thin-leaf alder. The riparian overstory is primarily Western redcedar and Grand fir. During multiple site visits, perennial streamflow ceased at the bridge crossing in S15 T14N 25W. Disconnected flowing reaches were noted downstream from the bridge crossing, with no water flowing out of S10 T14N 25W during any site visit. Chicken Creek is a first-order tributary to Rock Creek, near RM 1.1. Bankfull width ranged from 3 to 5 feet, streambanks are stable, and substrate ranged from large gravel to sand. Riparian overstory was primarily Western redcedar and Grand Fir, with minimal riparian understory due to heavy overstory shading.

Fisheries assemblage data for the RCCF analysis area are found in Table S-7. Westslope Cutthroat Trout are the only species present in both Rock Creek and Chicken Creek, and occupy approximately 6.3 miles of stream in the analysis area. Both streams are genetically pure (MFWP,

personal communication). Based on the current distribution and lack of hybridization, there is no existing impact on fisheries populations in the analysis area.

Connectivity

Upper Fish Creek

Two fish passage barriers are present in the analysis area, both on Trail Creek (Figure S-3). The lower passage barrier is a 36" diameter CMP on the main West Fork Fish Creek Road near RM 0.6. The CMP is perched 24" at the outlet and does not have sufficient depth to pass adult fish, precluding passage of all life stages of Westslope Cutthroat Trout. The upper structure is an 18" CMP on a Restricted Access road near RM 1.7 that does not have sufficient water depth in the structure to allow fish to pass. The upper structure is near the upstream distribution of WCT in Trail Creek. No other structures were found to prevent or inhibit fish movement in this analysis area. Based on the two structures not allowing passage in Trail Creek, there is a moderate impact to fisheries connectivity in the analysis area.

Lower Fish Creek

No artificial fish barriers were noted during field surveys. There is no impact to fisheries connectivity in the analysis area.

Lower South Fork Fish Creek

One fish passage barrier is present in the analysis area, on Wall Canyon Creek near RM 0.4 (Figure S-3). The current structure is a 24-inch CMP, installed slightly above stream grade. The structure does not provide sufficient depth for adult fish to pass the structure, and has a outlet drop that likely precludes both juvenile and larger adults from accessing the CMP. Based on the single structure on Wall Canyon Creek that limits fish movement, there is a moderate existing impact to fisheries connectivity.

Rock Creek-Clark Fork

No artificial fish barriers were noted during field surveys. There is no impact to fisheries connectivity in the analysis area.

Woody Debris, Stream Shading, Stream Temperature

Large scale wildfires have impacted significant portions of riparian areas throughout the Fish Creek watershed since 1994, with 34 to 59 percent of the analysis area burning in the last 30 years. Riparian areas were impacted on a similar scope and are exhibiting wide ranges of post-fire states from fully-stocked conifer stands to non-stocked stands with minimal shrubby riparian regeneration. Lower South Fork Fish Creek and Upper Fish Creek were the analysis areas with the broadest scope of impact, with 48 and 43 percent of the riparian areas occurring inside a fire perimeter. In LSFFC, riparian buffers along both Thompson and Deer creeks were entirely within the fire perimeter, portions of the upper Wig Creek drainage burned in 2006 and 2017, impacting one small reach of SMZ. In UFC, both the upper portions of Bear Creek (2006) and West Fork Fish Creek (2015) burned, including the majority of Bear Creek upstream from RM 1.9, and nearly the entire upper watershed in West Fork Fish Creek from RM 3.3 to 7.1. In the Lower Fish Creek analysis area, mainstem Fish Creek, between RM 8.9 and 2.1, and Beaver Slough Creek, between RM 1.4 and 0.1, burned extensively on the west and north sides respectively. Small portions of the upper RCCF burned in 2015, none of the fire was within 500 feet of a Class-1 stream.

Table S-8: Riparian stand stocking rates in the Lion Point Forest Management Projects assessment area.

		Upper Fish Creek	Lower Fish Creek	Lower South Fork Fish Creek	Rock Creek-Clark Fork
		14,001	14,351	33,120	14,380
SMZ Acres	Watershed Total	776	775	1,470	640
	Watershed % NS/SS	0.0	0.9	4.2	0.7
	Project Area	54.8	74.8	128.9	44.2
	Project Area % NS/SS	0.0	1.3	28.2	0.0
	Proposed Harvest	0.0	0.0	0.0	0.0
	Converted to NS/SS	0.0	0.0	0.0	0.0
RMZ Acres	Watershed Total	259	266	652	209
	Watershed % NS/SS	0.0	1.5	4.5	0.0
	Project Area	30.8	29.3	80.9	31.3
	Project Area % NS/SS	0.0	0.0	15.1	0.0
	Proposed Harvest	0.0	0.0	0.0	0.0
	Converted to NS/SS	0.0	0.0	0.0	0.0

Approximately 1,035 acres of SMZ and RMZ buffers are present in the UFC analysis area, of which 8.3 percent are on DNRC ownership. RMZ buffers are primarily found along West Fork Fish Creek, Bear Creek, and Trail Creek, and are comprised of mixed conifer stands with interspersed deciduous trees and shrubs along West Fork Fish Creek and lower Bear Creek, and Western redcedar and Grand Fir stands with little understory deciduous component along Trail Creek. Based on stand level inventory (SLI), none of the analysis area acres on DNRC are in non-stock (NS) or seedling-sapling (SS) size classes (Table S-8).

Approximately 1,042 acres of SMZ and RMZ buffer are present in the LFC analysis area, of which 10 percent are on DNRC ownership. RMZ buffers in the analysis area are primarily found along mainstem Fish Creek and Beaver Slough Creek, and are primarily composed of Ponderosa Pine, Black Cottonwood, and alder, with western red cedar prevalent in upwelling areas along upper Beaver Slough Creek. Non-stock or seedling-sapling size classes make up 10.9 acres of the total riparian buffers in the watershed, with 1.0 acres of SMZ in the project area in NS/SS size classes, 1 percent of the total acreage on DNRC ownership (Table S-8).

Approximately 2,122 acres of SMZ and RMZ are present in the LSFFC analysis area, of which 9.9 percent (210 acres) are on DNRC ownership. Riparian stands along South Fork Fish Creek are mixed conifer and Black Cottonwood, with mixed deciduous riparian shrubs. Thompson Creek, impacted by fire in the DNRC section, had remnant Western redcedar, Black Cottonwood, and Grand Fir with a heavy understory of red-osier dogwood and thin-leaf alder. In the analysis area, 91 acres of the riparian stands on DNRC are in NS/SS size classes (43 percent), largely along Deer Creek, Thompson Creek, and South Fork Fish Creek. On project area sections, 48.5 acres of riparian buffer are in NS/SS size classes (23.1 percent), on Thompson Creek and South Fork Fish Creek (Table S-8).

Approximately 849 acres of SMZ and RMZ are present in the RCCF analysis area, of which 8.9 percent (75 acres) are on DNRC ownership. Riparian stands are primarily Western redcedar and Grand Fir, with poorly developed understory vegetation due to high levels of canopy closure. In the analysis area, all riparian stands are in pole- or saw-timber size classes (Table S-8).

Large woody debris was measured in Trail Creek and found to be 50.8 ± 12.4 (95% C.I.) pieces/1,000 feet of stream (Overton et al. 1997). Assessment of large wood on West Fork Fish Creek was not completed, however based on aerial imagery, many large logjam aggregations are present in the reach between the confluence of Trail Creek and West Fork Fish Creek, and the confluence of West Fork and South Fork Fish Creeks. Stream shading in the analysis area varied based on stream type, with the more confined valley type of Trail Creek observing stream shading approaching 80%, with a well-developed riparian forest community. In the Type 1 Channel Migration Zone along lower West Fork Fish Creek, riparian communities provide lower levels of stream shade, resulting in increased summer temperatures as well as lower, more variable temperatures observed in winter, including formation of anchor ice and seasonal maximum temperatures exceeded 16°C (Knotek et al. 2025). Between the confluence of the West Fork and North Fork Fish Creek and the confluence of West Fork and South Fork Fish Creek, temperatures regularly exceed 19–20°C.

Large woody debris was not assessed in LFC analysis area, as the majority of the RMZ habitat is along Lower Fish Creek, which has poor stocking rates following wildfire and fluvial processes largely controlled by the larger Fish Creek watershed. Stream temperatures reported by Knotek et al. (2025) found elevated temperatures in mainstem Fish Creek, approaching and sometimes exceeding 18°C.

In LSFFC, LWD was measured in Wig Creek (42.5 pieces/1,000 ft) and Lion Creek (17.6 pieces/1,000 feet). Multiple temperature monitoring sites found stream temperature exceeding 18°C in South Fork Fish Creek (Knotek et al. 2025).

In RCCF, LWD was measured in Rock Creek (57.5 pieces/1,000 feet) and Chicken Creek (63.5 pieces/1,000 feet). No temperature monitoring data on Rock Creek or Chicken Creek were available, however, based on the state of riparian stands, stream temperatures are likely within the expected range of natural variability in Chicken Creek, and given the intermittency and upwelling areas on Rock Creek, temperatures are largely controlled by ground-surface water exchange rather than stream shading processes.

Based on the existing condition of riparian stands, including current stocking rates, previous riparian disturbance, and current LWD loading rates, there are moderate direct, indirect, and cumulative existing impacts to large wood recruitment, moderate direct, indirect and cumulative effects on stream shading, and moderate indirect and cumulative effects on stream temperature.

Environmental Effects

Issues Dismissed From Further Analysis and Rationale

- Forest management activities may result in decreased standing timber in riparian stands which may result in decreased recruitment of large woody debris and decreased stream shade which may lead to increased stream temperature
    - The primary mechanism for potential impacts to large wood recruitment, stream shade, and stream temperature is riparian timber harvest. Under both the No-Action and Action Alternative, no riparian timber harvest is proposed in the SMZ (MCA 77-5-301), RMZ, or CMZ (DNRC 2010), as such, due to the design of the project and proposed activities, there is no potential for impact.

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

Implementation of the No-Action Alternative would have no direct, indirect, and cumulative impact on Soil, Watershed, or Fisheries Resources. Conditions described in the Existing Conditions would continue. Timber stands would continue to mature as climatic and biotic conditions allow, resulting in baseline levels of nutrient input to soil nutrient cycles and water cycling through uptake and evapotranspiration. Soil erosion, compaction, and displacement would not occur, as no further road construction or timber harvest would take place. Erosion of road surfaces and drainage features would continue where BMPs are currently not being met, which would contribute to water quality issues related to sediment input and turbidity. Fish connectivity would remain limited if known passage barriers are not replaced or removed.

Action Alternative: Direct, Secondary, and Cumulative Effects

Soils

Physical Disturbance (Compaction and Displacement)

Direct and Secondary

Selection of the proposed Action Alternative would result in physical soil disturbance in all analysis areas (Table S-9). Previous timber sale monitoring (DNRC 2006, 2011) noted increased rates of disturbance following timber harvest, and that impacts varied by ground or cable based harvesting system. Soil disturbance rates would be assumed to be similar if the Action Alternative were selected. In the UFC analysis area, 65.4 acres of the watershed may have detrimental impacts, which accounts for approximately 0.5 percent of the watershed area, and 10.4 percent of the harvested stands in the analysis area. In LFC, 48.7 acres of the watershed may have detrimental impacts, which is 0.4 percent of the watershed area, and 6.8 percent of the harvested stands in the analysis area. In LSFFC, 156.1 acres of the watershed may have detrimental impacts, 0.5 percent watershed area and 11.4 percent of the harvested area. In RCCF, 80.6 acres of the watershed may have detrimental impacts, 0.6 percent watershed area and is 11.4 percent of the harvested area. Based on the proposed activities in the Action Alternative, there is a low risk of low impact on Soil Disturbance in all analysis areas (DNRC 1996).

Erosion

Direct and Secondary

Erosion risk in all analysis areas is moderate based on existing soil types found in Table S-2. Under the proposed Action Alternative, timber harvest and road construction would occur on slopes up to 50 percent, with the majority of timber harvest occurring on slope classes ranging from 20 to 40 percent. Road construction would follow Forestry BMPs to mitigate erosion, including identifying locations for end haul of any portions of new road requiring full bench construction. Implementation of Forestry BMPs and incorporation of mitigations identified in this assessment, including retention of FWD and CWD, would be expected to mitigate the majority of impacted areas. There is a moderate risk of low impacts to soil productivity due to erosion associated with the proposed activities in the Action Alternative.

Slope Stability

Direct and Secondary

The majority of project activities would occur on slopes between 20 and 40 percent (Table S-3). Proposed activities that may influence slope stability include detrimental impacts from displacement or compaction, leading to concentration of water from precipitation events in areas with exposed soils including road cut- and fill-slopes, log landings, and harvest units. Based on field review of existing road surfaces and previous harvest units, there were few noted instances of unstable slopes that would negatively impact soil productivity. Following new permanent or temporary road construction or road reconstruction, cut- and fill-slopes would have an elevated risk

of instability until revegetated. Selection of the proposed Action Alternative would have a low risk of low additional direct, indirect, or cumulative impacts to slope stability in all analysis areas.

Table S-9: Detrimental soil disturbances in each analysis area within the Lion Point Forest Management Projects assessment area.

Analysis Area	Harvest System	Total Acres	Soil Impact Rate	Impacted Area
			Avg	Acres
Upper Fish Creek	Tractor	151.4	13.2%	20.0
	Cable	474.7	6.0%	28.5
	Road Construction	16.9	100%	16.9
Lower Fish Creek	Tractor	0.0	13.2%	0.0
	Cable	712.0	6.0%	42.7
	Road Construction	6.0	100%	6.0
Lower South Fork Fish Creek	Tractor	182.5	13.2%	24.1
	Cable	1,186.8	6.0%	71.2
	Road Construction	60.8	100%	60.8
Rock Creek-Clark Fork	Tractor	162.5	13.2%	21.5
	Cable	545.2	6.0%	32.7
	Road Construction	26.4	100%	26.4

Nutrient Cycling and Soil Productivity

Direct and Secondary

Coarse woody debris (CWD) would be maintained on-site in volumes recommended to sustain soil productivity and soil moisture rates based on habitat type (Graham et al. 1994). Based on the dominant habitat types in the analysis areas, recommended rates of CWD retention would range from 5 to 15 ton/acre. Limbs and tops would be left on site in timber harvest units to retain finer organic material. Based on the proposed Action Alternative, there would be a low risk of low additional impacts to nutrient cycling and soil productivity in all analysis areas.

Cumulative Impacts on Soil Resources

Cumulative impacts on soil resources are those that overlap spatially and occurred previously (reentry to a timber stand) or would occur in the future. Based on the proposed Action Alternative, the proposed activities that may result in cumulative effects would be Overstory Removal in S10 14N 25W. Reentry to harvest seed trees in this unit may result in approximately 4 acres of detrimental impacts on soils in the analysis area. Based on site reviews of the previous timber harvest units, skid trails, landings, and roads would again be utilized to harvest timber from these units. Anticipated total impacts are expected to remain below 20 percent of the total harvest area as recommended in the SFLMP (DNRC 1996). Assuming Forestry BMPs and soil mitigations outlined in this assessment are applied, long-term productivity is expected to be maintained at current levels. Implementation of the Action Alternative would have low risk of low cumulative effects to soil disturbance.

Watershed

Upper Fish Creek Analysis Area

Water Quality

Direct and Secondary

The primary factors influencing direct and indirect impacts to water quality include road use, maintenance, and construction within 300 feet of a classified waterbody, road crossing installation or improvement of road prisms, and upland timber harvest. Within the analysis area, 16.6 miles of existing forest road would be utilized as part of the timber haul route, including both open and restricted access roads (Table S-4). Ninety-seven percent of haul route roads within 300 feet of classified streams meet BMPs, with surface drainage departures on a short reach adjacent to Trail Creek. Short reaches of West Fork Fish Creek Road and main Fish Creek Road are within 300 feet of Bull Trout Critical Habitat, all of which meets BMPs (Table S-5). Of the 3.0 miles of proposed road construction or reconstruction in the assessment area, less than 0.1 mile is within 300 feet of a classified stream. Eight stream crossings are present on the haul route in the analysis area, three of the perennial stream crossings currently do not meet BMPs. No new stream crossings would be installed as a part of the proposed Action Alternative. Following timber harvest, one perennial and one intermittent crossing would be removed from Trail Creek and an unnamed tributary to Trail Creek (Figure S-3). This would result in short-term increases in sediment and turbidity during removal and rehabilitation of each site. Increased turbidity would likely only occur for a period of hours during removal of the structure, sedimentation at the site would likely persist through one high flow event, after which substrate in the crossing would likely reflect reference condition. Implementation of the Action Alternative would incorporate all Forestry BMPs, which would address surface drainage issues and include corrective actions at crossing structures not meeting BMPs.

Upland timber harvest is proposed on 626 acres in the analysis area (4.5 percent total watershed area) while road construction or reconstruction would result in 17 acres of additional vegetation removal (Table S-9). All harvest is proposed to occur outside riparian management buffers (MCA 77.5.301, DNRC 2010), as such existing buffers would be expected to provide adequate filtration from any upland timber harvest units that would minimize potential impacts of timber harvest on water quality in the analysis area. Implementation of the proposed Action Alternative would result in a low risk of low additional impacts to water quality in the Upper Fish Creek analysis area. Implementation of BMPs and removal of the two crossings is anticipated to have a long-term positive effect on water quality.

Hydrology

Direct and Secondary

The primary factors influencing alterations to the timing, magnitude, or duration of watershed hydrology include timber harvest and road construction through harvest of clearing limits during construction of new permanent or temporary roads, or road reconstruction. As a part of the proposed Action Alternative, 626 acres of upland harvest, no SMZ or RMZ harvest, and 16.9 acres of road construction would occur in the UFC analysis area (Table S-8). Upland timber harvest prescriptions in order of intensity include; Individual Tree Selection, Overstory Removal, and Old Growth Maintenance. For the purpose of this analysis, all harvest is assumed to be 100 percent, leaving no standing volume in either pole- or saw-timber size classes. Implementation of the Action Alternative would be expected to impact approximately 4.6 percent of the analysis area. This would not be expected to significantly alter the timing, magnitude, or duration of watershed hydrology outside of Existing Conditions, and poses a low risk of low additional impact on hydrology, unlikely to be detectable or measurable.

Cumulative

Implementation of BMPs on existing road surfaces and stream crossings would be expected to minimize any existing sediment sources in the analysis area. No new stream crossings would be constructed, and two existing stream crossings would be remediated to decrease sediment delivery and improve fish passage. No harvest would occur in riparian buffers. Based on the proposed Action Alternative, there would be very low additional cumulative effects to Water Quality

in the analysis area, largely positive in the form of improved BMPs on existing roads and stream crossings.

Approximately 5.0 percent of the watershed would be affected through timber harvest. Considering this additional harvest with the history of extensive fire in the watershed, there would be low risk additional cumulative impacts to watershed hydrology, which would be unlikely to result in a measurable or detectable difference in the timing, magnitude or duration of stream discharge in the analysis area.

Lower Fish Creek Analysis Area
Water Quality
Direct and Secondary
The primary factors influencing direct and indirect impacts to water quality include road use, maintenance, and construction within 300 feet of a classified waterbody, road crossing installation or improvement of road prisms, and upland timber harvest. Within the analysis area, 25.1 miles of existing forest road would be utilized as part of the timber haul route, including both open and restricted access roads (Table S-4). Ninety-three percent of haul route roads within 300 feet of classified streams meet BMPs, with surface drainage departures on a short reach adjacent to an intermittent tributary to Fish Creek. The main Fish Creek Road is within 300 feet of Bull Trout Critical Habitat through the majority of the analysis area, all road surfaces along this reach currently meet BMPs. Of the 1.3 miles of proposed road construction or reconstruction in the assessment area, less than 0.3 miles are within 300 feet of a classified stream all of which is road reconstruction adjacent to an intermittent tributary to Fish Creek. Nine stream crossings are present on the haul route in the analysis area, five of the stream crossings currently do not meet BMPs (Table S-5). No new crossings would be construction on classified streams. Implementation of the Action Alternative would incorporate all Forestry BMPs, which would address surface drainage issues and include corrective actions at crossing structures not currently meeting BMPs.

Upland timber harvest is proposed on 713 acres in the analysis area (5.0 percent total watershed area) while road construction or reconstruction would result in 6.0 acres of additional vegetation removal (Table S-9). All harvest is proposed to occur outside riparian management buffers (MCA 77.5.301, DNRC 2010), as such existing buffers would be expected to provide adequate filtration from any upland timber harvest units that would minimize potential impacts of timber harvest on water quality in the analysis area (Bosch and Hewitt 1982, Stednick 1996). Implementation of the proposed Action Alternative would result in a low risk of low additional impacts to water quality in the Lower Fish Creek analysis area.

Hydrology
Direct and Secondary
The primary factors influencing alterations to the timing, magnitude, or duration of watershed hydrology include timber harvest and road construction through harvest of clearing limits during construction of new permanent or temporary roads, or road reconstruction. As a part of the proposed Action Alternative, 713 acres of upland harvest, 0.0 acres of SMZ or RMZ harvest, and 6.0 acres of road construction would occur in the LFC analysis area. Upland timber harvest prescriptions in order of intensity include; Seed Tree harvest on 85.1 acres and 626 acres of individual Tree Selection. For the purpose of this analysis, all harvest is assumed to be 100 percent, leaving no standing volume in either pole- or saw-timber size classes. Implementation of the Action Alternative would be expected to impact approximately 5.0 percent of the analysis area. This would not be expected to significantly alter the timing, magnitude, or duration of watershed hydrology outside of Existing Conditions, and poses a low risk of low additional impact on hydrology, unlikely to be detectable or measurable (Bosch and Hewitt 1982, Stednick 1996).

Cumulative

Implementation of BMPs on existing road surfaces and stream crossings would be expected to minimize any existing sediment sources in the analysis area. No new stream crossings would be constructed. No harvest would occur in riparian buffers. Based on the proposed Action Alternative, there would be very low additional cumulative effects to Water Quality in the analysis area, largely positive in the form of improved BMPs on existing roads and stream crossings.

Approximately 5.0 percent of the watershed would be affected through timber harvest. Considering this additional harvest with the history of extensive fire in the watershed, there would be low risk of additional cumulative impacts to watershed hydrology, which are unlikely to result in a measurable or detectable difference in the timing, magnitude or duration of stream discharge in the analysis area (Bosch and Hewitt 1982, Stednick 1996).

Lower South Fork Fish Creek Analysis Area

Water Quality

Direct and Secondary

The primary factors influencing direct and indirect impacts to water quality include road use, maintenance, and construction within 300 feet of a classified waterbody, road crossing installation or improvement of road prisms, and upland timber harvest. Within the analysis area, 21.7 miles of existing forest road would be utilized as part of the timber haul route, including both open and restricted access roads (Table S-4). Ninety-two percent of haul route roads within 300 feet of classified streams meet BMPs, with surface drainage departures on a road segment adjacent to South Fork Fish Creek. The Fish Creek Road is within 300 feet of Bull Trout Critical Habitat through the majority of the analysis area (2.2 miles), 0.3 miles currently do not meet BMPs due to surface drainage issues. Of the 12.6 miles of proposed road construction or reconstruction in the assessment area, 1.5 miles would occur within 300 feet of a classified stream and includes new permanent road, new temporary road, and road reconstruction. Ten stream crossings are present on the haul route in the analysis area, five of the stream crossings currently do not meet BMPs (Table S-5). No new crossings would be constructed on classified streams. One crossing on Wall Canyon Creek would be replaced with a fish passage structure, either a streambed simulation CMP or a full span bridge structure (Figure S-3). During replacement of the structure, increased sedimentation and turbidity are likely to occur. Increased turbidity during construction activities would not be expected to last longer than several hours. Sedimentation would likely persist at the site until the next high flow event which would mobilize sediment downstream. Heavy reconstruction of the road prism adjacent to South Fork Fish Creek in S30 13N 24W would be required to widen the prism by 4-6 feet. Portions of the existing cut-slope would be excavated to stable angles approaching 1.5:1, and the toe of the fill slope would be armored with large boulders and large wood to limit lateral migration of the channel into the road prism. Direct effects to sedimentation and turbidity would likely occur during road construction at this site, likely for the duration of work, which is anticipated to take 3 to 4 days to complete. Implementation of the Action Alternative would incorporate all Forestry BMPs, which would address surface drainage issues and include corrective actions at crossing structures not currently meeting BMPs.

Upland timber harvest is proposed on 1,369 acres in the analysis area (4.3 percent total watershed area) while road construction or reconstruction would result in 60.8 acres of additional vegetation removal (Table S-9). All harvest is proposed to occur outside riparian management buffers (MCA 77.5.301, DNRC 2010), as such existing buffers would be expected to provide adequate filtration from any upland timber harvest units that would minimize potential impacts of timber harvest on water quality in the analysis area. Implementation of the proposed Action Alternative would result in a moderate risk of low additional impacts to water quality in the Lower South Fork Fish Creek analysis area.

Hydrology

Direct and Secondary

The primary factors influencing alterations to the timing, magnitude, or duration of watershed hydrology include timber harvest and road construction through harvest of clearing limits during construction of new permanent or temporary roads, or road reconstruction. As a part of the proposed Action Alternative, 1,369 acres of upland harvest, 0.0 acres of SMZ or RMZ harvest, and 60.8 acres of road construction would occur in the LSFFC analysis area. Individual Tree Selection harvest prescriptions are proposed for all acreage in the analysis area. For the purpose of this analysis, all harvest is assumed to be 100 percent, leaving no standing volume in either pole- or saw-timber size classes. Implementation of the Action Alternative would be expected to impact approximately 4.3 percent of the analysis area. This would not be expected to significantly alter the timing, magnitude, or duration of watershed hydrology outside of Existing Conditions, and poses a very low risk of low additional impact on hydrology, unlikely to be detectable or measurable (Bosch and Hewitt 1982, Stednick 1996).

Cumulative

Implementation of BMPs on existing road surfaces and stream crossings would be expected to minimize any existing sediment sources in the analysis area. No new stream crossings would be constructed, and two existing stream crossings would be remediated to decrease sediment delivery and improve fish passage. No harvest would occur in riparian buffers. Based on the proposed Action Alternative, there would be very low additional cumulative effects to Water Quality in the analysis area, largely positive in the form of improved BMPs on existing roads and stream crossings.

Approximately 5.0 percent of the watershed would be affected through timber harvest. Considering this additional harvest with the history of extensive fire in the watershed, there would be low additional cumulative impacts to watershed hydrology, which are unlikely to result in a measurable or detectable difference in the timing, magnitude or duration of stream discharge in the analysis area (Bosch and Hewitt 1982, Stednick 1996).

Rock Creek-Clark Fork Analysis Area

Water Quality

Direct and Secondary

The primary factors influencing direct and indirect impacts to water quality include road use, maintenance, and construction within 300 feet of a classified waterbody, road crossing installation or improvement of road prisms, and upland timber harvest. Within the analysis area, 15.5 miles of existing forest road would be utilized as part of the timber haul route, including both open and restricted access roads (Table S-4). Eighty-eight percent of haul route roads within 300 feet of classified streams meet BMPs, with surface drainage issues being the primary cause of BMP departure (Table S-5). Of the 5.5 miles of proposed road construction or reconstruction in the assessment area, 0.9 miles would occur within 300 feet of a classified stream and include new permanent road, new temporary road, and road reconstruction. Seven stream crossings are present on the haul route in the analysis area, four of the stream crossings currently do not meet BMPs. No new crossings would be constructed on classified streams. Implementation of the Action Alternative would incorporate all Forestry BMPs, which would address surface drainage issues and include corrective actions at crossing structures not currently meeting BMPs.

Upland timber harvest is proposed on 1,369 acres in the analysis area (4.3 percent total watershed area) while road construction or reconstruction would result in 6.0 acres of additional vegetation removal (Table S-9). All harvest is proposed to occur outside riparian management buffers (MCA 77.5.301, DNRC 2010), as such existing buffers would be expected to provide adequate filtration from any upland timber harvest units that would minimize potential impacts of timber harvest on water quality in the analysis area. Implementation of the proposed Action Alternative would result

in a low risk of low additional impacts to water quality in the Lower South Fork Fish Creek analysis area.

Hydrology

Direct and Secondary

The primary factors influencing alterations to the timing, magnitude, or duration of watershed hydrology include timber harvest and road construction through harvest of clearing limits during construction of new permanent or temporary roads, or road reconstruction. As a part of the proposed Action Alternative, 708 acres of upland harvest, 0.0 acres of SMZ or RMZ harvest, and 26.4 acres of road construction would occur in the UFC analysis area. Upland timber harvest prescriptions in order of intensity include; Individual Tree Selection harvest on 670 acres, 24.3 acres of Overstory Removal, and 14.3 acres of Old Growth Maintenance. For the purpose of this analysis, all harvest is assumed to be 100 percent, leaving no standing volume in either pole- or saw-timber size classes. Implementation of the Action Alternative would be expected to impact approximately 5.1 percent of the analysis area. This would not be expected to significantly alter the timing, magnitude, or duration of watershed hydrology outside of Existing Conditions, and poses a very low risk of low additional impact on hydrology, unlikely to be detectable or measurable (Bosch and Hewitt 1982, Stednick 1986).

Cumulative

Implementation of BMPs on existing road surfaces and stream crossings would be expected to minimize any existing sediment sources in the analysis area. No new stream crossings would be constructed, and two existing stream crossings would be remediated to decrease sediment delivery and improve fish passage. No harvest would occur in riparian buffers. Based on the proposed Action Alternative, there would be very low additional cumulative effects to Water Quality in the analysis area, largely positive in the form of improved BMPs on existing roads and stream crossings.

Approximately 5.0 percent of the watershed would be affected through timber harvest. Considering this additional harvest with the history of extensive fire in the watershed, there would be low additional cumulative impacts to watershed hydrology, which are unlikely to result in a measurable or detectable difference in the timing, magnitude or duration of stream discharge in the analysis area (Bosch and Hewitt 1982, Stednick 1986).

Fisheries

Effects of the Action Alternative Common to All Analysis Areas

Populations

Direct, Secondary and Cumulative

The proposed Action Alternative does not propose any activities that would directly impact fisheries populations. No introduction, removal, or suppression of native or introduced species is proposed as a part of the project. As described in the Existing Conditions, fisheries assemblages, distribution, and abundance are largely a result of inter-specific competition for food and space (Rieman et al. 2006, Shepard 2010, Guy et al. 2011, Bell et al. 2021), predation (Peterson et al. 2004), and hybridization (Leary et al. 1993, Kanda et al. 2002, Rieman et al. 2006) and would continue regardless of selection of the Action or No-Action Alternative. Indirect effects to populations through habitat modification are likely to be similar in all analysis areas based on the proposed activities included in the Action Alternative. Indirect impacts to in-stream habitat may occur due to project related activities including upland timber harvest, road construction, or timber hauling, however those impacts are directly related to habitat, and are discussed in sediment and flow regime portions of this analysis. Based on the proposed magnitude, location, and timing of activities proposed, there is low risk of low additional indirect impacts to populations through alteration to fisheries habitat in any of the analysis areas.

Activities presented in the proposed Action Alternative are unlikely to elevate Cumulative Effects to Fisheries Populations outside of those described in the Existing Conditions. Cumulative effects to populations would remain moderate in the Upper Fish Creek, Lower Fish Creek, and Lower South Fork Fish Creek analysis areas. Due to the isolated presence of native species, there is no existing Cumulative Effect to Fisheries Populations in the Rock Creek-Clark Fork analysis area.

Fisheries Connectivity

Direct and Secondary

Under the proposed Action Alternative, the upper crossing structure on Trail Creek in S23 on the timber haul route would be removed following timber hauling and restored to reference condition based on stream characteristics in reference reaches upstream and downstream from the crossing structure. The existing 18" CMP would be removed, with stream channel restoration occurring for approximately 75 feet. Instream habitat features, including large wood and large boulders, would be installed as a part of these projects to restore channel complexity and improve local habitat conditions at the site.

One existing 24" CMP would be replaced in Wall Canyon Creek with a streambed simulation fish passage structure. The existing structure precludes fish movement into the upper 0.7 miles of occupied stream in Wall Canyon Creek. Replacement would result in improved WCT passage and increased access to spawning, rearing, and overwintering habitat.

Implementation of the Action Alternative would have positive, high direct, indirect, and cumulative effects on the population of WCT in the UFC and LSFFC analysis areas through increased connectivity.

No existing connectivity barriers are present in the LFC or RCCF analysis areas, thereby no direct or indirect impacts are present in either subwatershed.

Cumulative

The lower fish passage barrier on the main Fish Creek Road north of the confluence of Trail Creek and West Fork Fish Creek would remain in place. This would preclude WCT movement into Trail Creek from West Fork Fish Creek, resulting in continued impacts to the local population in Trail Creek. The impacts on the Trail Creek population of WCT is both positive and negative, as the barrier prevents introduced species and hybrid individuals from accessing upper Trail Creek, which minimizes potential deleterious interactions between native and introduced species but also prevents fluvial WCT from moving into Trail Creek from the broader Fish Creek watershed. When considering both passage barriers, implementation of the Action Alternative would result in a slight improvement in habitat conditions locally in Trail Creek, which would be a low, positive improvement over existing conditions. Replacement of the existing structure at RM 0.4 would have a high impact positive effect on fisheries connectivity through reconnection of 0.7 miles of isolated habitat to the lower 0.4 miles of Wall Canyon Creek and South Fork Fish Creek.

Mitigations

Soils

- Implement all applicable Forestry BMPs, Montana Administrative Rules for Forest Management, Streamside Management Zone Law, and DNRCs Habitat Conservation Plan.
- Limit harvest equipment and timber hauling to periods when soils are dry (less than 20 percent soil moisture), frozen, or snow covered to minimize soil compaction and rutting.
- Establish a skidding plan with identified landings prior to operations
- Use existing skid trails where feasible
- Limit skid trails to 15 percent or less of individual harvest units.
- Treat skid trails with slash, water bars, and/or grass seed to minimize erosion potential and establishment of noxious weeds
- Limit ground-based equipment to slopes less than 45 percent, unless excessive disturbance can be avoided through alternative harvesting systems (Chase et al., 2019)
- Maintain 5-15 tons/acres of coarse woody debris, favoring large diameter material
- Maintain fine woody debris on-site to the extent practicable by topping and limbing.
- Apply grass seed as soon as possible following road construction to facilitate rapid recovery and minimize surface erosion and establishment of noxious weeds.
- Apply grass seed to burn piles, landings, and other areas of exposed soils to minimize erosion potential
- Complete new road construction during periods where soils are not frozen
- Limit scarification on steep slopes to achieve regeneration goals

Watershed

- Implement all applicable Forestry BMPs, Montana Administrative Rules for Forest Management, Streamside Management Zone Law, and DNRCs Habitat Conservation Plan
- Locate and mark all SMZ, RMZ, and CMZ in the project area to establish riparian buffers
- No harvest in Class 1 SMZ, RMZ, and CMZ in the project area

Fisheries

- Implement all applicable Forestry BMPs (including the SMZ Law and Rules) and Montana Administrative Rules for Forest Management fisheries, soils, and wetland riparian management zones (ARMs 36.11.425 and 36.11.426)
- Apply timing restrictions for replacement and removal of perennial stream crossings on fish-bearing waters to minimize potential impacts during spawning and early rearing.
    - July 15 – August 31 in Bull Trout occupied habitat
    - April 1 – May15 and July 15 – October 15 in Westslope Cutthroat Trout occupied habitat
    - Or as stipulated in 124 permits from MFWP
- No harvest in Class 1 SMZ, RMZ, and CMZ in the project area

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Attachment F – Wildlife

Lion Point Forest Management Project – Wildlife Analysis

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Introduction

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

Issues

- Proposed timber management activities could alter mature forested habitats and/or landscape connectivity, which could affect species that rely on these mature forested habitats, and/or alter connectivity and the ability of wildlife requiring corridors to move through the landscape.
- Proposed timber management activities could alter hiding cover, reduce security cover, increase human access, and increase presence of unnatural attractants and bear foods, which could adversely affect grizzly bears by displacing them from important habitats and/or increasing risk to bears of human-caused mortality.
- Proposed timber management and associated activities could negatively affect Canada lynx by altering lynx winter foraging habitats, summer foraging habitats, and other suitable habitats, rendering these habitats temporarily unsuitable for supporting lynx.
- Proposed timber management and associated activities could negatively affect bald eagles by reducing nesting and perching structures and/or disturbing nesting bald eagles.
- Proposed timber management and associated activities could reduce the amount and/or quality of fisher habitats, which could alter fisher use of the area.
- Proposed timber management and associated activities could alter flammulated owl habitat by reducing canopy closure and increasing tree spacing, while potentially removing snags needed by flammulated owls for nesting.
- Proposed timber management and associated activities could alter fringed myotis habitat by altering the amount and structure of mature forested stands, the availability of riparian foraging habitats, and potentially removing snags needed by fringed myotis.
- Proposed timber management and associated activities could alter Northern hoary bat habitat by altering the amount and structure of mature forested stands, the availability of riparian foraging habitats, and potentially removing snags needed by Northern hoary bats.
- Proposed timber management and associated activities could reduce suitable nesting and foraging habitat for pileated woodpeckers, which could alter pileated woodpecker use of the area.
- Proposed timber management and associated activities could reduce security habitat and seasonal cover for big game, which could affect big game numbers and/or hunter opportunity and quality of local recreational hunting.
- Proposed timber management and associated activities could reduce winter thermal cover for moose, elk, white-tailed deer, and mule deer, resulting in reduced numbers and/or their displacement from the area.

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, DNRC Habitat Conservation Plan, the Endangered Species Act, the Migratory Bird Treaty Act, and the Bald and Golden Eagle Protection Act.

Analysis Areas

The discussions of existing conditions and environmental effects within each subsection pertain to land areas of 2 different scales. The first scale of analysis is the project area (6,641 acres), which includes the portions of sections 16, 20, 30, in T.14 N., R.24 W.; sections 10, 14, 24, 26, 36 in T.14 N., R.25 W.; sections 16, 18, 20, 30 in T.13 N., R.24 W.; and sections 12 and 14 in T.13 N., R.25 W., managed by DNRC where activities are being proposed. The second scale is the cumulative effects analysis area, which refers to a broader surrounding landscape useful for assessing cumulative effects to wildlife and habitat. The cumulative effects analysis area is approximately 75,853 acres and includes the sub-watershed tributaries to the Clark Fork River (Rock Creek-Clark Fork) and Fish Creek drainages (Lower Fish Creek, Upper Fish Creek, and Lower South Fork Fish Creek). This area was identified as an appropriate land area of similar vegetation and topography where potential cumulative impacts would be most likely to be realized and detectable in relation to proposed activities and most of the issues raised pertaining to wildlife and habitat. This area also approximates the home range size of species such as grizzly bears and Canada lynx. This cumulative-effects analysis area contains sizeable areas managed by US Forest Service (34,810 acres, 46%) and Montana Dept. Fish, Wildlife, and Parks (29,624 acres, 39%); other smaller owners in the cumulative effects analysis area include DNRC (8.555 acres, 11%) and other small private ownership (2,865 acres, 4%).

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 (MNHP data accessed 10/16/2025), DNRC Stand Level Inventory (SLI) data analysis, aerial photograph analysis, USFS VMAP (v16), and consultation with professionals. Past and ongoing activities on all ownerships, as well as planned future agency actions, have been considered in the cumulative-effects analysis for each resource topic.

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).

Coarse Filter Wildlife Analysis

DNRC's principal means of managing for biodiversity is by taking a 'coarse-filter approach', which favors an appropriate mix of stand structures and compositions on state lands (ARM 36.11.404). Appropriate stand structures are based on ecological characteristics (e.g., land type, habitat type, disturbance regime, unique characteristics). A coarse-filter approach assumes that if landscape patterns and processes are maintained like those endemic species

evolved with, the full complement of species will persist, and biodiversity will be maintained. This coarse-filter approach supports diverse wildlife populations by managing for a variety of forest structures and compositions that approximate historic conditions across the landscape. DNRC cannot assure that the coarse-filter approach will adequately address the full range of biodiversity; therefore, DNRC also employs a 'fine-filter' approach for threatened, endangered, and sensitive species (ARM 36.11.406). The fine-filter approach focuses on a single species' habitat requirements and helps ensure that special habitat needs of these rare or sensitive species are not overlooked.

MATURE FORESTED HABITATS AND LANDSCAPE CONNECTIVITY

Issue

Proposed timber management activities could alter mature forested habitats and/or landscape connectivity, which could affect species that rely on these mature forested habitats, and/or alter connectivity and the ability of wildlife requiring corridors to move through the landscape.

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 (*Accipter 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 broad 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 closed canopy, forest cover between adjacent patches is important for promoting movements of species that are hesitant to cross non-forested expanses (Hilty et al. 2006). Effective corridors tend to be relatively wide, unfragmented, diverse, and associated with riparian areas or ridges (Fischer and Fischenich 2000). 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). Forest management considerations to mitigate adverse effects to habitat connectivity include limiting the creation of small habitat islands that may cause localized extinctions of small subpopulations, treating and retaining fewer larger patches rather than many small patches, and reducing edge (boundary between habitats perceived by an organism to be different from one another) to reduce potential for nest parasitism and predation associated with edge habitat.

Analysis Area

Direct and indirect effects were analyzed for activities conducted in the 6,641-acre project area. Cumulative effects were analyzed on the 75,853-acre cumulative effects analysis area described above in the Analysis Areas portion. This area would be large enough to support a

diversity of species that use mature forested habitats and/or require connected forested habitats.

Analysis Methods

Direct and indirect effects, as well as cumulative effects, were analyzed using a variety of information obtained from field evaluations, aerial photograph interpretation, USDA remotely sensed data, and a GIS analysis of available habitats. Connective forest was defined as pole and sawtimber stands with moderate to closed canopies (40- to 100- percent canopy cover) greater than 300 feet wide (ARM 36.11.403(20)(b)). Stands meeting these requirements were assumed to provide conditions that would facilitate movement of wildlife species in the area. Factors considered within the cumulative effects analysis area included the amounts of mature forest cover with >40% canopy closure, amount of connective forested habitats, amount of riparian habitats, open road density in the area, and levels of potential human disturbance.

Affected Environment

The project area is situated in the lower portions of the Fish Creek drainage and is dominated by moderately warm and dry forest types interspersed with warm and dry, moderately cool and moist, warm and dry, and warm and moist forest types. Elevations range from roughly 2,920 to 6,480 feet. Slopes generally range from 30 to 65% with up to 85% on steeper portions of the project area. The project area provides forested habitats used by many terrestrial wildlife species, and it could be used to varying degrees by moose, elk, mule deer, white-tailed deer, grizzly bears, black bears, mountain lions, marten, bobcats, great gray owls, brown creepers, and a host of forest-birds.

Currently, forested areas cover most of the project area. The project area currently contains approximately 3,838 acres (60% of project area) of mature stands (100-plus years in age) of Douglas-fir, ponderosa pine, Douglas-fir/western larch, western larch, and mixed conifer stands with a reasonably closed canopy. Roughly 71 acres of old growth stands exist in the project area (see Vegetation section for more detail). Roughly 1,830 acres of connective forest patches are present in the project area that are in pole or sawtimber stands with a moderate to closed canopy and connect past the boundary of DNRC-managed lands. Past disturbances have likely reduced the quality of these connective forest patches for those species relying on the densest stands of mature timber. Conversely, approximately 1,851 acres (29%) of the project area are non-stocked, seedling/sapling stands, and poorly stocked pole timber and sawtimber stands that may serve as habitat for the suite of species that rely on these open or younger conditions, but do not currently provide habitats for species needing densely stocked mature stands or that need broader landscape connectivity of forested habitats. Historically, most of the project area likely saw frequent fires that reduced understory vegetation but were not lethal, stand replacing fires; as such, park-like stands of ponderosa pine and Douglas-fir were likely found in the lower portions of the Fish Creek drainage. While modern fire suppression may have altered this historical regime; the recent wildfires (Fish Creek Complex, 2003) were generally a mosaic burn, with the exception of the Deer Creek and Thompson Creek drainages that experienced moderate to high vegetative burn severity (low severity 22%, moderate severity 47%, and high severity 32%; DNRC 2003).

In the cumulative effects analysis area, another 418 acres of mature stands of ponderosa pine exist on DNRC-managed lands and 959 acres of non-stocked, seedling/sapling stands, and poorly stocked pole timber and sawtimber stands that may serve as habitat for the suite of species that rely on these conditions, but do not currently provide habitats for species needing densely stocked mature stands or contribute to landscape connectivity for species that are dependent on connected patches of mature timber. A portion of the 15,762 acres (23% non-DNRC lands) of forested habitats and some of the 6,043 acres (9% non-DNRC lands) of moderately stocked forested stands on other ownerships in the cumulative effects analysis area

are likely also providing habitat for those species requiring mature, forested habitats and/or forested connectivity. Conversely, much of the 45,468 acres (68% of non-DNRC lands) of shrubs, herbaceous areas, poorly stocked forested stands, recently burned, and recently harvested stands on other ownerships in the cumulative effects analysis area is likely too open to be useful for these species requiring forested habitats. Approximately 25,343 acres (33%) of the cumulative effects analysis area appear to possess greater than 40% overstory canopy cover in mature forest patches. Past timber management, human developments, recent wildfires, roads, and the natural openness of certain habitats in the cumulative effects analysis area has influenced landscape-level connectivity in the cumulative effects analysis area. Collectively, connectivity across the cumulative effects analysis area is partially intact and could provide a suitable network of cover capable of facilitating movements of many terrestrial species across the local landscape.

There are approximately 23.3 miles of open roads in the project area (2.2 mi./sq. mi., simple linear calculation) that facilitates motorized access to the project area. Extensive non-motorized access to the project area exists given the presence of the open roads and the 42.4 miles of low standard, restricted roads used for administrative uses (4.1 mi./sq. mi, simple linear calculation) in the project area. Open road densities are relatively high in the cumulative effects analysis area (199.0 miles; 1.7 mi./sq. mi., simple linear calculation), with highest concentrations of open roads in the northern portion of the cumulative effects analysis area and along Fish Creek through the middle of the cumulative effects analysis area, and the least along the east and west edges of the cumulative effects analysis area. Extensive non-motorized access exists given the presence of open roads and the 554.7 miles of restricted roads (4.7 mi./sq. mi.) in the cumulative effects analysis area. A minor amount of the ongoing Alberton Gorge Recreational Corridor Forest Improvement Project on Montana Department of Fish, Wildlife, and Parks land is occurring in the cumulative effects analysis area that is removing forest attributes but would not appreciably affect mature forested habitats and landscape connectivity.

Environmental Effects of Mature Forested Habitats and Landscape Connectivity

Direct and Indirect Effects of the No-Action Alternative

- No appreciable changes to existing stands would be anticipated. Stands providing forested cover that may be functioning as corridors, including riparian areas, saddles, and ridgelines, would not be altered. Continued tree mortality would further alter existing forested cover, forested-interior habitats, and landscape connectivity. Over time and in the absence of natural disturbance events, the abundance of dense mature forest would be expected to increase. No changes in human developments, motorized access, or visual screening would occur. No changes in wildlife use would be expected. Thus, negligible direct or indirect effects to mature forested habitats and landscape connectivity would be expected since: 1) no further changes to existing stands would occur; 2) no changes to human developments, motorized access, or visual screening would occur, and 3) no alterations to existing corridors would be anticipated.

Direct and Indirect Effects of the Action Alternative

Approximately 2,395 acres (62%) of existing mature Douglas-fir, ponderosa pine, Douglas-fir/western larch, and western larch stands with a reasonably closed canopy would be harvested, including proposed Old Growth maintenance treatments on 70.86 acres (*68.3 acres) that would reduce tree density but would retain Old-Growth characteristics. In general, habitats for those species adapted to more-open forest conditions would increase in the project area, meanwhile habitats for wildlife species that prefer dense, mature forest conditions would be reduced in the project area. Although proposed harvesting on 3,419 acres (51% of the

project area) would create more open stands that may be less suitable for wildlife species that use mature stands to move through the landscape, corridors, particularly along riparian features, would be retained. Furthermore, proposed treatments would alter stand densities on 1,460 acres (80%) of areas that are in pole or sawtimber stands with a moderate to closed canopy and potentially providing connectivity through the DNRC-managed parcels. Minor changes to connectivity associated with existing riparian habitats would occur since no riparian timber management would occur in the SMZ, RMZ, or CMZ areas associated with class 1 streams and relatively minor amounts of SMZ harvest would occur in some class 2 streams (see Soil, Watershed, and Fisheries section for additional details). Following proposed treatments, despite some reductions in mature forested habitat, a variety of stand structures and age classes would persist in the project area which would provide diversity for the suite of habitat generalists.

No changes in legal, motorized public access would occur in the project area. The only permanent human development that would persist following proposed treatments would be an additional 12.9 miles of new, restricted roads that could increase non-motorized human activity in the project area beyond the proposed timber management activities. Contract stipulations would minimize the presence of human-related attractants for the duration of the proposed activities. Changes in visual screening would be anticipated on 3,774 acres (57%) with proposed tree harvesting or thinning within individual units, but the combination of irregular-shaped units, topography, un-harvested patches throughout the project area, and distance from open roads would minimize the effects of the reductions in visual screening. Overall, proposed timber management would reduce tree densities, which would improve habitat conditions for species that prefer open forest conditions, but would reduce habitat quality for species that benefit from larger expanses of mature forest cover. Thus, a minor risk of adverse direct and indirect effects to mature forested habitats and landscape connectivity would be expected since: 1) proposed activities could reduce stand densities and forested cover in a portion of the project area (57%), including a sizable amount of the mature stands with a reasonably closed canopy (62%) and a sizable portion (80%) of connective forested habitats but some corridors would persist, including along riparian features; 2) increased human developments in the form of 12.9 miles of restricted roads, could concentrate human activity, but no changes in human-related attractants would occur; 3) no changes to legal motorized public access would occur, but increases in non-motorized access could facilitate increased human use of the project area; and 4) visual screening in portions of the project area would be reduced, but some visual screening would be retained across the project area.

Cumulative Effects of the No-Action Alternative

- No appreciable changes to existing stands would be anticipated. Stands providing forested cover that may be functioning as corridors, including riparian areas, saddles, and ridgelines, would not be altered. Continuing tree mortality within the cumulative effects analysis area could further alter existing forested cover, forested-interior habitats, and landscape connectivity. Past harvesting and recent wildfires have reduced the amount of mature, forested habitats in a portion of the cumulative effects analysis area; however, continued successional advances across the cumulative effects analysis area would move stands toward mature forests in the absence of other forms of disturbance. This alternative would not alter the amount of mature forested stands in the cumulative-effects analysis area. No changes in human developments, motorized access, or visual screening would occur. No changes in wildlife use would be expected. Thus, no cumulative effects to mature forested habitats and landscape connectivity would be expected since: 1) no further changes to existing stands would occur; 2) no changes to human developments, motorized access, or visual screening would occur; and 3) no alterations to existing corridors would be anticipated.

Cumulative Effects of the Action Alternative

Stand densities would be reduced on 3,774 acres (5%) in a portion of the cumulative effects analysis area. This includes areas of mature forested stands (2,395 acres) and areas that could serve as connective forested habitats (1,460 acres). Roughly 17,623 acres (23%) would remain in mature forest patches with >40% canopy closure following proposed activities; similarly, connective forested patches would persist on approximately 23,883 acres (31%) of the cumulative effects analysis area following proposed treatments. Modifications to mature, forested habitats and/or connective forested habitats would be additive to losses associated with past harvesting activities and recent wildfires in the cumulative effects analysis area. Overall connectivity associated with riparian features in the cumulative effects analysis area would largely remain unchanged and no appreciable change in the ability of these features to facilitate wildlife movements would be anticipated. Across the cumulative effects analysis area, a variety of stands are providing for wildlife movements.

Within the cumulative effects analysis area, no changes to open roads or open road density would be anticipated. Proposed construction of 12.9 miles of restricted roads would slightly increase total road density (0.1 mi./sq. mi. increase to 4.8 mi./sq. mi.) in the cumulative effects analysis area. No changes in the presence of human-related attractants would occur. Minor reductions in visual screening in a small portion of the cumulative effects analysis area would be anticipated. Thus, a minor risk of adverse cumulative effects to mature forested habitats and landscape connectivity would be expected since: 1) proposed activities could reduce forested cover in a small portion of the cumulative effects analysis area, but up to 23% of the cumulative effects analysis area would be in mature forested patches with >40% canopy closure and approximately 31% of the cumulative effects analysis are would be in connective forested habitats which should provide for wildlife movements; 2) minor increases in human developments that could concentrate human activities would occur, but no changes in human-related attractants would occur; 3) no changes to motorized public access would occur; and 4) visual screening in a small portion of the cumulative effects analysis area would be reduced, but considerable visual screening would persist across the cumulative effects analysis area.

Fine Filter Wildlife Analysis

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, species of concern identified through public scoping, and species managed as big game by DFWP. In western Montana, 4 terrestrial species that could be affected by forest management activities are federally classified as threatened: Canada lynx, grizzly bear, yellow-billed cuckoo, and wolverine. Additionally, DNRC considers numerous sensitive species that may have specific habitat requirements, could potentially be affected by timber management activities, and wildlife managed as big game by DFWP (Table WI-1).

Table WI-1 –Anticipated Effects of the Lion Point Forest Management Project on wildlife species

Species/Habitat	Potential for Impacts and Rationale [Y/N] Potential Impacts and Mitigation Measures N = Not Present or No Impact is Likely to Occur

	Y = Impacts May Occur (Explain Below)
Threatened and Endangered Species	
Grizzly bear *(Ursus arctos)* Habitat: Recovery areas, security from human activity	[Y] Detailed analysis provided below.
Canada lynx (*Felix lynx)* Habitat: Subalpine fir habitat types, dense sapling, old forest, deep snow zone	[Y] Detailed analysis provided below.
Yellow-billed cuckoo (*Coccyzus americanus)* Habitat: Deciduous forest stands of 25 acres or more with dense understories and in Montana these areas are generally found in large river bottoms	[N] Some potentially suitable open cottonwood riparian habitats occur along the Clark Fork River, Fish Creek, and the West Fork of Fish Creek. Recent or historical observations of yellow-billed cuckoos in the vicinity of the Project Area are lacking (MNHP 2025). Additionally, no harvesting of riparian cottonwood galleries would occur with either alternative proposed. Thus, negligible direct, indirect, or cumulative effects to yellow-billed cuckoo would be expected to occur.
Wolverine *(Gulo gulo)* Habitat: Alpine tundra and high-elevation boreal and coniferous forests that maintain deep persistent snow into late spring	[N] Generally wolverines are found in sparsely inhabited remote areas near treeline characterized by cool to cold temperatures year-round and rather deep and persistent snow well into the spring (Copeland et al. 2010). The availability and distribution of food is likely the primary factor in the large home range sizes of wolverines (Banci 1994). Much of the project area is below the elevations where wolverines tend to be located, but the upper portions of the project area, especially in the Wig Creek drainage, may start approaching the elevations where wolverines may find suitable habitats. Similarly, much of the project area does not contain potentially deep persistent spring snow, but areas in the upper Wig Creek drainage may contain this potentially deep, persistent spring snow. Across the cumulative effects analysis area, Montana Natural Heritage Program's predicted wolverine habitat suitability model (MNHP 2023) shows much of the area to be in potentially low suitability category with some relatively small areas of the moderately suitable habitat category in the upper elevations of Beaver Slough, Ruben, Deer, Wig, Surveyor, and Rock creek drainages. Collectively some use of the project area and cumulative effects analysis area could occur, but extensive use seems unlikely. Proposed activities associated with the Action Alternative in areas that appear to retain persistent spring snowpack could commercially alter roughly 22 acres of sawtimber stands and precommercial thin roughly 201 acres of dense, younger stands originated after the recent wildfires. No effects to potential denning habitat would be anticipated. During the non-denning season, minor short-term displacement associated with timber management could occur if wolverines

	are in the area. Given their large home range sizes (~150 sq. mi. -- Hornocker and Hash 1981), the manner they use a broad range of forested and non-forested habitats, the long distances wolverines typically travel during their movements, lack of denning habitats, the lower quality generally drier habitats across much of the area, along with the anticipated seasons of operations, the proposed activities are not expected to measurably alter use of the area by wolverines. Overall, negligible adverse direct, indirect, or cumulative effects to wolverines would be expected to occur as a result of either alternative.
Sensitive Species	
Bald eagle *(Haliaeetus leucocephalus)* Habitat: Late-successional forest less than 1 mile from open water	[Y] Detailed analysis provided below.
Black-backed woodpecker *(Picoides arcticus)* Habitat: Mature to old burned or beetle-infested forest	[N] No preferred, recently (less than 5 years) burned areas are in the project area or within 1 mile 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.
Fisher *(Pekania pennanti)* Habitat: Dense mature to old forest less than 6,000 feet in elevation and riparian	[Y] Detailed analysis provided below.
Flammulated owl *(Otus flammeolus)* Habitat: Late-successional ponderosa pine and Douglas-fir forest	[Y] Detailed analysis provided below.
Fringed myotis (*Myotis thysanodes*) Habitat: low elevation ponderosa pine, Douglas-fir and riparian forest with diverse roost sites including outcrops, caves, mines	[Y] Detailed analysis provided below.
Northern Hoary bat (*Lasiurus cinereus*) Habitat: coniferous and deciduous forests and roost on foliage in trees, under bark, in snags, bridges	[Y] Detailed analysis provided below.

Peregrine falcon *(Falco peregrinus)* Habitat: Cliff features near open foraging areas and/or wetlands	[N] No preferred cliffs or suitable rock outcrops suitable for use by peregrine falcons occur on, or within 1 mile of the proposed project area. While peregrine falcons have been documented along the Clark Fork River in the Northern portion of the cumulative effects analysis area, no evidence of breeding has been documented. Furthermore, proposed activities associated with the action alternative would be more than 0.7 miles from the Clark Fork River. Thus, no direct, indirect, or cumulative effects to peregrine falcons would be anticipated as a result of either alternative.
Pileated woodpecker *(Dryocopus pileatus)* Habitat: Late-successional ponderosa pine and larch-fir forest	[Y] Detailed analysis provided below.
Townsend's big-eared bat *(Plecotus townsendii)* Habitat: Caves, caverns, old mines	[N] No suitable caves or mine tunnels are known to occur in the project area or vicinity. Thus, no direct, indirect, or cumulative effects to Townsend's big-eared bats would be anticipated as a result of either alternative.
Big Game Species	
Elk	[Y] Big game winter range exists in the project area. Potential big game security habitat exists in the project area - Detailed analysis provided below.
Moose	
Mule Deer	
White-tailed Deer	

Threatened and Endangered Species

GRIZZLY BEAR

Issue

Proposed timber management activities could alter hiding cover, reduce security cover, increase human access, and increase presence of unnatural attractants and bear foods, which could adversely affect grizzly bears by displacing them from important habitats and/or increasing risk to bears of human-caused mortality.

Introduction

Grizzly bears are native generalist omnivores that use a diversity of habitats in western Montana. Preferred grizzly bear habitats are meadows, riparian zones, avalanche chutes, subalpine forests, and big game winter ranges, all of which provide seasonal food sources. The search for food drives grizzly bear movements, with bears moving from low elevations in spring to higher elevations through the summer and early fall, as fruits ripen throughout the year. Primary threats to grizzly bears are related to human-bear conflicts, habituation to unnatural foods near high-risk areas, and long-term habitat loss associated with human development (Mace and Waller 1997a). Forest-management activities may affect grizzly bears by altering cover and/or by increasing human access and disturbance into secure areas by creating roads (Mace et al. 1997). Forest management operations can reduce the ability of vegetation and cover to conceal grizzly bears, which can lower effective bear use of habitat and render bears more vulnerable to human- caused mortality (Servheen et al. 1999). These actions could lead to the displacement of grizzly bears from preferred areas and/or result in an increased risk of

human-caused mortality by bringing humans and bears closer together and/or making bears more detectable, which can increase the risk of bears being illegally shot. Displacing bears from preferred areas may increase their energetic costs, particularly during the spring period, which may lower their ability to survive and/or reproduce successfully.

Analysis Area
Direct and indirect effects were analyzed for activities conducted in the 6,641-acre project area. Cumulative effects were analyzed on the 75,853-acre cumulative effects analysis area described above in the Analysis Areas portion. This area approximates the home range size of a female grizzly bear.

Analysis Methods
Direct, indirect, and cumulative effects, were analyzed using a variety of information obtained from field evaluations, SLI data, aerial photograph interpretation, USDA remotely sensed data, and a GIS analysis of available habitats. Factors considered within the cumulative effects analysis area included the level of disturbance, degree of harvesting, the amount of continuous forested habitats, the percentage of the area with an open-road density greater than 1 mile per square mile, the amount of security habitats present, and the levels of potentially unnatural foods or attractants.

Existing Environment
The project area is 31 miles southwest of the Northern Continental Divide Ecosystem grizzly bear recovery area and 17 miles southwest of the `occupied' grizzly bear habitat as mapped by grizzly bear researchers and managers to address increased sightings and encounters of grizzly bears in habitats outside of recovery zones (Wittinger et al. 2002). One parcel (T13N, R25W, section 14) in the southwest portion of the project area is in the unoccupied Bitterroot Ecosystem grizzly bear recovery area. Grizzly bears have been infrequently documented in the Bitterroot River drainage to the east of the project area and in the Clark Fork River drainage to the north of the project area. Individual animals could use the project area throughout the non-denning period as the population continues to expand south of the NCDE recovery area. Grizzly bears generally use different habitats relative to season, but the combination of habitat attributes (including forested habitats, riparian areas, and big game winter range) in the project area could facilitate the use by grizzly bears during the non-denning period.

Managing human access is a major factor in management for grizzly bear habitat. There are approximately 23.3 miles of open roads in the project area (2.2 mi./sq. mi.) that facilitates motorized access to the project area. Extensive non-motorized access to the project area exists given the presence of the open roads and the 42.4 miles of restricted roads (4.1 mi./sq. mi) in the project area. Approximately 3,776 acres (59%) of the project area appear to have adequate cover to potentially serve as hiding cover for grizzly bears. Connectivity of existing habitats in the project area is moderately intact; past harvesting and wildfire activity in the project area likely reduced some hiding cover attributes. Connectivity of habitats along riparian areas in the project area is reasonably good and is likely suitable for movements of grizzly bears. Although the project area is relatively rugged and at moderate elevations, little potential grizzly bear denning habitats (above 6,300 feet and on slopes >45%; Mace and Waller 1997b) were identified in the project area due to the elevations. Only trace amounts of potential denning habitats were identified in the cumulative effects analysis area, primarily along the very ridge tops delineating the cumulative effects analysis area; considerably more potential denning habitats were identified in the drainages to the west of the cumulative effects analysis area. No grizzly bear security habitats (≥ 0.3 miles from roads receiving motorized use and ≥2,500 acres in size) exist solely within the project area due to parcel size and ownership patterns, but habitats in the project area contribute 4 different patches of potential security cover that extends beyond the project area.

Open road densities are relatively high in the cumulative effects analysis area (199.0 miles; 1.7 mi./sq. mi., simple linear calculation), with highest concentrations of open roads in the northern portion of the cumulative effects analysis area and along Fish Creek through the middle of the cumulative effects analysis area, with the least along the east and west edges of the cumulative effects analysis area. Some potential for disturbance to grizzly bears in the cumulative effects analysis area is likely given this level of access, but several areas exist that are distant from open roads. Extensive non-motorized access exists given the presence of open roads and the 554.7 miles of restricted roads (4.7 mi./sq. mi.) in the cumulative effects analysis area. Roughly 599 acres on DNRC-managed lands in the cumulative effects analysis area appear to be providing adequate hiding cover for grizzly bears; at least another least 17,571 acres (26%) of moderate to dense mature forest stands or densely stocked sapling/pole stands in the cumulative effects analysis area appear to be providing grizzly bear hiding cover and approximately 29,015 acres (43%) of shrubs, herbaceous areas, poorly stocked forested stands, burned areas, and recently harvested stands do not meet cover requirements; much of the remaining portions of the cumulative effects analysis area (20,686 acres; 31%) of less dense stands are likely providing lower quality hiding cover. Generally, uplands in the vicinity are reasonably connected given the moderate levels of hiding cover coupled with considerable topographical relief that could facilitate movements of grizzly bears. Additionally, should bears continue to expand out of the NCDE and move towards the Bitterroot Ecosystem grizzly bear recovery area, there is potential that the Fish Creek drainage could provide a conduit for grizzly bear movements. Roughly 2,370 acres (36%) of the project area contributes to 4 different patches of potential grizzly bear security habitats in the cumulative effects analysis area. Collectively, there are 5 blocks of potential grizzly bear security habitats in the cumulative effects analysis area that total 36,110 acres (48%); 4 of these patches look to extend beyond the cumulative effects analysis area to provide even more security habitats on the landscape. Furthermore, there is 2,011-acre patch in the Northern portion of the cumulative effects analysis area that doesn't meet the size requirement but also looks to extend beyond the cumulative effects analysis area, which may also function as grizzly bear security habitats on the landscape. Timber management, recent wildfires, and human developments that have occurred in the cumulative effects analysis area likely altered grizzly bear habitats and/or human disturbance levels. A minor amount of the ongoing Alberton Gorge Recreational Corridor Forest Improvement Project on Montana Department of Fish, Wildlife, and Parks land is occurring in the cumulative effects analysis area that is removing forest attributes but would not appreciably affect grizzly bears or grizzly bear habitats.

Environmental Effects on Grizzly Bears

Direct and Indirect Effects of the No-Action Alternative

No further direct or indirect effects to grizzly bears would be anticipated since: 1) no further disturbance or displacement would be expected, 2) no further changes in hiding cover would occur, 3) security habitat would not be altered, 4) no changes in long-term open-road density would be anticipated, and 5) no changes in availability of unnatural bear foods or attractants would occur.

Direct and Indirect Effects of the Action Alternative

This alternative could affect grizzly bears directly through increased road traffic, noise, and human activity, and secondarily by altering the amount of hiding cover and forage resources in the project area. Activities in grizzly bear habitats could also reduce grizzly bear security, possibly resulting in increased stress and/or energy expenditure to endure the disturbance or to move from the area. These potential disturbances would only be present during proposed operations; therefore, the season of disturbance is important in addressing effects to grizzly bears. Proposed activities could occur during the denning period or the non-denning period. Any

proposed activities conducted in the denning period would not be expected to disturb grizzly bears; some disturbance to grizzly bears would be possible with proposed activities that may occur during the non-denning period. Overall, the proposed activities would occur in areas where low levels of grizzly bear use would be anticipated, thus a minor potential for disturbance and displacement of grizzly bears would be anticipated. Collectively, the short-term risk of disturbance and displacement of grizzly bears could have minor adverse effects to grizzly bears.

About 12.9 miles of new, restricted roads and 1.0 miles of temporary, restricted roads would be constructed with the proposed activities; no new open roads would be constructed. Temporary roads would be reclaimed by making them impassable to off road vehicles and motorized passenger vehicles through various means including semi-permanent barrier types, slashing, debris scattering, and road surface obliteration. Since all newly constructed roads would be behind existing closures, no changes in open road density or motorized public access would be anticipated. Collectively, total road density would be 5.3 mi./sq. mi. (up from 4.1 mi./sq. mi.) in the project area. Some increases in non-motorized public access could occur on the newly constructed roads, which could facilitate minor increased contact between humans and grizzly bears. Minimal long-term measurable effects to grizzly bears would be attributable to the overall increase in restricted road density of 1.2 miles/sq. mi. that would occur following project completion.

Hiding cover, defined as vegetation that will hide 90 percent of a grizzly bear at 200 feet, would be reduced on most of the 2,594 acres (69%) of hiding cover proposed to receive treatment. Some hiding cover in the form of brush, shrubs, and sub-merchantable trees would persist in several of the units, albeit at a reduced level from the existing condition; hiding cover would increase through time as young trees and shrub regeneration proceeds over the next 10 to 30 years. Reductions in hiding cover could make any grizzly bears using the project area more detectable by humans, which would result in minor added risk for bear mortality. Within the project area, connectivity of suitable habitats would be reduced, but some connectivity would persist along riparian features and in unharvested areas. Minor changes to existing riparian habitats would occur since no riparian timber management would occur in the SMZ, RMZ, or CMZ areas associated with class 1 streams and relatively minor amounts of SMZ harvest would occur in some class 2 streams (see Soil, Watershed, and Fisheries section for additional details); overall connectivity afforded by these habitats would not be appreciably altered. Proposed reductions in hiding cover on 1,492 acres in areas that could contribute to potential blocks of security cover in the vicinity would reduce quality of those security habitats for 10-30 years and no appreciable changes to security habitats would occur in the long-term given that no changes in open roads would occur.

Any unnatural bear foods or attractants (such as garbage) would be kept in a bear resistant manner. Compliance with contract terms would frequently be evaluated and would be enforced by a DNRC contract administrator. Any added risk to grizzly bears associated with unnatural bear foods or attractants would be minimal. Thus, a low risk of adverse direct or indirect effects to grizzly bears would be anticipated since: 1) disturbance and displacement would be possible, should bears be present; 2) existing hiding cover would be reduced by 69% but would remain in portions of the project area and would be expected to recover in the next 10-30 years; 3) habitats in potential security habitat would be modified, but no changes in the long-term availability of security habitats would occur; 4) no changes to long-term open road density would be anticipated; and 5) negligible increases in the availability of unnatural bear foods or attractants would be anticipated.

Cumulative Effects of the No-Action Alternative

No appreciable changes to existing habitats would be anticipated; advances in succession within those recently harvested stands could improve hiding cover and potentially foraging habitats for grizzly bears. Thus, no further adverse cumulative effects to grizzly bears would be anticipated since: 1) no further changes in human disturbance levels would be expected; 2) no changes to open road density would occur; 3) no further modifications to hiding cover would occur; 4) no changes to security habitat would be expected; and 5) no changes in availability of unnatural bear foods or attractants would occur.

Cumulative Effects of the Action Alternative

Continued use of the cumulative effects analysis area by grizzly bears would be anticipated at levels similar to present levels. Proposed activities could temporarily increase human disturbance and the potential for disturbance/displacement to grizzly bears for the short term (up to 15 years) within a relatively small portion of the cumulative effects analysis area. ~~A~~any potential increases associated with this alternative would be additive to existing high levels of motorized and non-motorized public recreational use in the vicinity, human developments, and ongoing timber management in the cumulative effects analysis area. Such disturbance could increase the potential for temporary displacement of grizzly bears sensitive to the increased presence of humans and motorized activities. Should bears be present in the area, they could be displaced into places with lower quality habitat, and/or be pressed into nearby areas possessing greater inherent risk of conflict with humans (e.g., areas with high hunter density, subdivisions, home sites, and agricultural lands).

Proposed activities would reduce stand densities on 3,774 acres in the project area, including 2,594 acres that are likely providing hiding cover, causing bears that may wander into such areas to be more detectable by humans, which would result in minor added risk for bears, particularly in fall during the big game general hunting season. The reductions in hiding cover would be temporary and treated stands would likely take 15 to 30 years to regenerate into a suitable hiding cover comprised of ponderosa pine, Douglas-fir, western larch, and lodgepole pine saplings. Reductions in hiding cover would be additive to the reductions from past timber management, recent wildfires, ongoing harvesting, as well as more permanent land-cover changes in the cumulative effects analysis area. Collectively, it appears that approximately 19,352 acres (26%) of the cumulative effects analysis area would have adequate cover to function as hiding cover for grizzly bears following proposed activities. Early successional stages of vegetation occurring in proposed units could provide additional foraging opportunities for grizzly bears.

The proposed treatments would construct 1.0 miles of temporary roads that would be decommissioned following use and 12.9 miles of new, restricted roads in a small portion of the cumulative effects analysis area. Overall, no changes in open road densities would be anticipated, but total road densities would increase by 0.1 mi./ sq. mi. to 4.8 mi./sq. mi. in the cumulative effects analysis area. Minimal additional risk of long-term displacement and/or habitat avoidance by grizzly bears would be anticipated with this additional amount of new, restricted roads. Following proposed activities, continued use of habitats within the cumulative effects analysis area during the non-denning season would be expected at similar levels of use. Proposed activities would be expected to contribute to increases in temporary motorized activities along with reductions in hiding cover on 1,492 acres in areas that could contribute to 4 of the potential blocks of security cover in the cumulative effects analysis area; these proposed changes could reduce overall quality of those security habitats for 10-30 years but no appreciable changes to security habitats would occur in the long-term given that no changes in open roads would occur and anticipated regeneration following proposed activities.

Any unnatural bear foods or attractants (such as garbage) would be kept in a bear resistant manner. Compliance with contract terms would frequently be evaluated and would be enforced by a DNRC contract administrator. Any added risk to grizzly bears associated with unnatural bear foods or attractants would be minimal. Thus, a low risk of adverse cumulative effects to grizzly bears would be anticipated since: 1) increases in human disturbance levels in the short-term could occur in a small portion of the cumulative effects analysis area; 2) hiding cover would be reduced in the next 10-30 years on roughly 2,594 acres in the cumulative effects analysis area; 3) no changes in long-term open road density would occur, 4) quality of security habitats would be reduced, but no changes in the long-term availability of security habitats would occur; and 5) negligible increases in the availability of unnatural bear foods or attractants would be anticipated.

CANADA LYNX

Issue

Proposed timber management and associated activities could negatively affect Canada lynx by altering lynx winter foraging habitats, summer foraging habitats, and other suitable habitats, rendering these habitats temporarily unsuitable for supporting lynx.

Introduction

Canada lynx are medium-size felines that are federally listed as a threatened species. Lynx foraging habitat in western Montana consists of a mosaic of young and mature forested stands of lodgepole pine, Engelmann spruce, and subalpine fir with high levels of canopy cover (Squires et al. 2010, Squires et al. 2013, Holbrook et al. 2017). Canada lynx habitats in western Montana are generally found between 4,000 to 7,000 feet in elevation and lynx home range sizes vary from approximately 16,000 to 25,000 acres (Ruediger et al. 2000). Lynx primarily prey on snowshoe hares, but also consume red squirrels, ruffed grouse, blue grouse, spruce grouse, flying squirrels, weasels, and carrion. Lynx in western Montana preferred mature, multi-storied stands with dense horizontal cover year-round; during the summer lynx also selected earlier successional stands with a high horizontal cover (Squires et al. 2010). For denning sites, the primary component appears to be abundant large woody debris, particularly in the form of downed logs, root wads, slash piles, and live trees (Squires et al. 2008). These conditions are found in a variety of climax vegetation habitat types, particularly within the subalpine fir series (Pfister et al. 1977). Historically, high intensity, stand-replacing fires of long fire intervals (150 to 300 years) occurred in continuous dense forests of lodgepole pine, subalpine fir, and Engelmann spruce. These fires created extensive even-aged patches of regenerating forest intermixed with old stands that maintained a mosaic of snowshoe hare and lynx habitat.

Analysis Area

Direct and indirect effects were analyzed for activities conducted in the 6,641-acre project area. Cumulative effects were analyzed on the 75,853-acre cumulative effects analysis area described above in the Analysis Areas portion. This area approximates the home range size of a lynx (Ruediger et al. 2000).

Analysis Methods

To assess potential Canada lynx habitat on the project area, SLI data were used to identify stands in potential lynx habitats (ARM 36.11.403(44)). Potential lynx habitats were subdivided into the following lynx habitat classes: 1) winter foraging, 2) summer foraging, 3) forested travel/other suitable, and 4) temporary non-habitat (USFWS and DNRC 2010). Additionally, habitats on other ownerships in the cumulative effects analysis areas were evaluated using aerial photographs and USDA remotely sensed data. Direct and indirect effects, as well as cumulative effects, were analyzed using a variety of information obtained from field evaluations, aerial photograph interpretation, USDA remotely sensed data, and a GIS analysis of available

habitats. Factors considered in the analysis include: the level of harvesting, the availability of suitable lynx habitat classes, potential risk of displacement, and landscape connectivity.

Existing Environment

The project area ranges from approximately 2,920 to 6,480 feet in elevation and is dominated by ponderosa pine, Douglas-fir, Douglas-fir/western larch, western larch, non-stocked stands, and other hardwoods. Generally, the project area, like much of western Montana, is dominated by drier types on the southern and western aspects and/or the lower elevation areas and only starts picking up somewhat moister types on northerly and easterly aspects and/or on those higher elevation areas. Roughly 5,164 acres (80%) of the project area is in unsuitable lynx types, while 1,273 acres (20% of the project area) of potential lynx habitat occur in the project area (Table WI-2). Much of this habitat is in winter foraging habitats (705 acres; 55% of the lynx habitats), with smaller amounts of other suitable (226 acres; 18%) habitats, temporary unsuitable habitats (292 acres; 23%), and summer foraging habitats (50 acres, 4%). Many of the temporary non-suitable habitats (246 acres; 84%) stem from recent wildfires and subsequent salvage harvesting. Similarly, roughly 25% of the other suitable habitats in the project area were harvested in the last decade and another 23% were in the recent wildfire areas and collectively do not contain high horizontal cover that would facilitate extensive use by snowshoe hares and lynx (Squires et al. 2010). Existing habitats are largely located on the cooler and moister areas of the project area at the upper elevations on northerly and easterly aspects and occasionally along some of the riparian features in the project area; while some of the existing habitats are associated with ridgelines and upper elevation saddles, generally these habitats are intermixed with non-suitable lynx habitats and are not likely providing quality connectivity and travel habitats for lynx. Existing habitats are largely disconnected from other suitable lynx habitats and exist in a matrix of unsuitable habitats of dry Douglas-fir and ponderosa pine. Connectivity of forested habitats in the project area is fairly high, but many of those forested habitats are generally unsuitable, drier ponderosa pine and Douglas-fir types. Overall, despite some potentially suitable lynx habitats existing in the project area, appreciable use by Canada lynx would not be anticipated.

No other potential Canada lynx habitats exist on other DNRC-managed lands in the cumulative effects analysis area. On other ownerships in the cumulative effects analysis area, there are roughly 23,803 acres (35% of non-DNRC lands) of forested stands with a reasonably closed canopy that are dominated by Douglas-fir, subalpine fir, lodgepole pine, Engelman spruce, western larch, and mixed conifer stands that likely include some winter foraging habitats and other suitable habitats, although some of the Douglas-fir types likely include types that Canada lynx don't typically use. Additionally, there are roughly 107 acres (<1% of non-DNRC lands) of young seedling and sapling stands dominated by Douglas-fir, subalpine fir, lodgepole pine, Engelman spruce, western larch, and mixed conifer on other ownerships, which likely includes some summer foraging habitats in addition to some other suitable habitats. Additionally there are 8,208 acres (12%) of poorly stocked seedling and sapling, pole timber, and saw timber stands dominated by Douglas-fir, subalpine fir, lodgepole pine, Engelman spruce, western larch, and mixed conifer that may be considered other suitable habitats or temporary non-suitable habitats; no lynx habitats likely exist on the 35,154 acres (52% of non-DNRC lands) of burned habitats, shrubs, herbaceous, non-forested types, and forested stands dominated by ponderosa pine on other ownerships in the cumulative effects analysis area. Timber management, recent wildfires, and human developments that have occurred in the cumulative effects analysis area likely altered Canada lynx habitats and/or human disturbance levels. Connectivity of lynx habitats within the cumulative effects analysis area is somewhat limited due to ownership, past timber management, human developments, recent wildfires, and the interspersed nature in a matrix of unsuitable, drier ponderosa pine and Douglas-fir types in the cumulative effects analysis area. A minor amount of the ongoing Alberton Gorge Recreational Corridor Forest

Improvement Project on Montana Department of Fish, Wildlife, and Parks land is occurring in the cumulative effects analysis area that is removing forest attributes but would not affect Canada lynx or their habitats. Roughly 81.5% of habitats on DNRC-managed lands administered by the Southwestern Land Office under the HCP and outside of the Lynx Management Areas are in suitable lynx habitat categories.

Environmental Effects on Canada Lynx

Direct and Indirect Effects of the No-Action Alternative

Under this alternative, no forest management activities would occur and no alterations of forest vegetation or lynx habitats would occur. Continued regeneration in existing temporary non-suitable and other suitable habitats that are the result of past timber management and/or recent wildfire activity could improve habitat quality by adding forested cover and/or horizontal cover near the forest floor. Existing landscape connectivity would not be altered. Thus, a negligible risk of adverse direct and indirect effects to Canada lynx would be expected since: 1) habitats found in the project area are marginally suitable for lynx use as travel or matrix habitats; 2) winter foraging habitats would persist; 3) summer foraging habitats would continue to be a minor component in the project area; 4) the amount of temporary non-suitable habitats in the project area would not change; 5) no further risk of displacement due to motorized activities would be anticipated; and 6) no further to alterations in landscape connectivity would occur.

Direct and Indirect Effects of the Action Alternative

Roughly 3,004 acres (80%) of the proposed activities associated with this alternative would not occur in mapped lynx habitats and would not be expected to appreciably affect lynx; approximately 769 acres of lynx habitats (60% of lynx habitats in the project area) would be altered with this alternative (Table WI-2). Proposed individual tree selection and overstory removal treatments in winter foraging habitats and other suitable habitats would likely move most of those areas into the temporary non-suitable habitat category, but some may be converted to and/or stay in the other suitable habitat category if adequate tree density were to exist following proposed treatments. Proposed treatments in summer foraging habitats would reduce overall quality but would be expected to remain in summer foraging habitats following proposed treatments; similarly, proposed treatments in temporary non-suitable habitats would reduce tree density in those areas and likely lengthen the duration before those stands again become suitable for Canada lynx. Thus, approximately 65% of the lynx habitats in the project area would be temporarily unsuitable for lynx following proposed treatments. These treated acres would have fewer sawtimber-sized trees, fewer pre-commercial-sized trees where pre-commercial thinning would occur and where logging activities damage sub-merchantable materials, and overall would be more sparsely vegetated. Generally, it would likely take 10 to 30 years to regenerate into a suitable habitat condition comprised of Douglas-fir, Douglas-fir/western larch, western larch, and lodgepole pine sapling stands that could be usable by Canada lynx. Generally, lynx have relatively low use of silvicultural-treated areas for 10-40 years depending on the intensity of the treatments (Holbrook et al 2018). The retention of patches of advanced regeneration of shade-tolerant trees, such as sub-alpine fir, grand-fir, and Engelmann spruce in foraging habitats, could break-up sight distances, provide horizontal cover, and provide some forest structural attributes preferred by snowshoe hares and lynx. Coarse woody debris would be retained (emphasizing retention of some logs 15 inches dbh and larger) to provide some horizontal cover and security structure for lynx. Proposed activities would reduce forested connectivity in the project area. In the short-term, any use of the project area by lynx would be expected to decline due to the openness in the resultant stands in the project area. Should individual lynx be present in the project area at the time of proposed management, there would be increased risk of their displacement due to the increased level of noise and disturbance for the duration of the project (potentially up to 15 years); proposed

activities would occur across the large project area at differing times during that span and ample areas away from disturbance would be available. Risk of any displacement attributable to motorized project activities beyond that time would not be expected. Thus, a minor risk of adverse direct and indirect effects to Canada lynx would be expected since: 1) habitats found in the project area are marginally suitable for lynx, disconnected from other suitable lynx habitats, and exist in a matrix of unsuitable habitats of dry Douglas-fir and ponderosa pine; 2) winter foraging habitats would be reduced in the project area; 3) summer foraging habitats could develop in the future in the project area; 4) a relatively large amount of the project area would be in temporary non-suitable habitats that would be temporary and may take 10 to 30 years for conifer stands to regenerate; 5) risk of displacement due to motorized activities would be temporary and short-term up to 15 years; and 6) minor alterations in landscape connectivity would reduce connectivity of lynx habitats that may alter lynx movements in the project area, but would not prevent lynx movements.

Table WI-2 –Acres of Canada lynx habitats in the project area and anticipated changes to existing lynx habitats under each alternative of the Lion Point Forest Management Project.

Lynx Habitat Element	Existing Condition	No-Action Alternative	Action Alternative
Winter Foraging	705 (55%)	705 (55%)	256 (20%)
Summer Foraging	50 (4%)	50 (4%)	50 (4%)
Other Suitable	226 (18%)	226 (18%)	144 (11%)
Temporary Non-Suitable	292 (23%)	292 (23%)	823 (65%)
Total Lynx Habitats	1,273	1,273	1,273
Non-Lynx Habitats	5,164	5,164	5,164

Cumulative Effects of the No-Action Alternative

No appreciable change in lynx habitats in the cumulative effects analysis area would occur. No appreciable changes to landscape connectivity would be anticipated. Roughly 81.5% of habitats on DNRC-managed lands administered by the Southwestern Land Office under the HCP and outside of the Lynx Management Areas would be in suitable lynx habitat categories with this alternative. Thus, a negligible risk of adverse cumulative effects to lynx would be expected since: 1) habitats found in the project area and portions of the cumulative effects analysis area are marginally suitable for lynx use; 2) winter foraging habitats would persist in the cumulative effects analysis area; 3) summer foraging habitats would persist in the near-term across the cumulative-effects analysis area, but longer-term availability of summer foraging habitats would likely decline without further disturbance; 4) no further changes in the amount of the cumulative-effects analysis area that is in the temporary non-suitable habitat class would occur; 5) no further risk of displacement due to motorized activities would be anticipated; and 6) no further alterations in landscape connectivity would occur.

Cumulative Effects of the Action Alternative

Should any individual lynx be present in the cumulative effects analysis area at the time of proposed timber management activities in the project area, there would be increased risk of their displacement due to the increased level of noise and disturbance for the duration of the project (periodically for up to 15 years). Such disturbance could render some habitats temporarily unavailable for denning or foraging in the local areas where project activities would take place. Risk of any displacement attributable to motorized project activities beyond

proposed project duration would not be expected. Disturbance associated with motorized and non- motorized human activities would be in additive to existing levels of human disturbance.

Approximately 769 acres of Canada lynx habitats would be altered with proposed activities. Most of these habitats would end up in the temporary non-suitable category (531 acres added and 131 acres altered but expected to continue to be temporary unsuitable) following proposed activities since they would likely be too open to be considered suitable lynx habitats. These habitats would likely take 15 to 30 years to regenerate into suitable habitat conditions of Douglas-fir, Douglas-fir/western larch, western larch, and lodgepole pine sapling stands. Anticipated reductions in lynx habitats would be additive to past losses from timber management and recent wildfires as well as any ongoing modifications in the cumulative-effects analysis area. Following proposed treatments, up to 32% (24,059 acres; 1% reduction) of the cumulative effects analysis area would be in forested stands with a reasonably closed canopy that are dominated by Douglas-fir, subalpine fir, lodgepole pine, Engelman spruce, western larch, and mixed conifer, which likely include some winter foraging habitats and some other suitable habitats. Similarly, up to 6,082 acres (8%) of reasonably poorly stocked (largely 25-40% canopy closure) stands that are dominated by Douglas-fir, subalpine fir, lodgepole pine, Engelman spruce, western larch, and mixed conifers would persist that would likely include some other suitable habitats useful for travel and connectivity of suitable habitats. Potential summer foraging habitats look to be underrepresented (157 acres; <1%) in the cumulative effects analysis area, but some habitats may exist in the temporary non-suitable category where ample stocking following past disturbances may not exist yet; in the near term, no appreciable changes to available summer foraging habitats in the cumulative effects analysis area would be anticipated, however through time, as stands develop, existing summer foraging habitats would no longer be suitable.

Given the intermixed nature of habitats in the cumulative effects analysis area, the past changes associated with timber management and wildfires, and the scale of proposed treatment types in lynx habitats, habitat connectivity would not be appreciably altered. Although forest connectivity would be altered in the project area, only some of the potential Canada lynx habitats would be altered and overall reductions in connectivity (see Mature Forested Habitats and Landscape Connectivity section) would not appreciably affect wildlife movements in the cumulative effects analysis area. Some connectivity of suitable lynx habitats along SMZs/RMZs exists and would not be appreciably altered. Roughly 80.1% of habitats on DNRC-managed lands administered by the Southwestern Land Office under the HCP and outside of the Lynx Management Areas would be in suitable lynx habitat categories following proposed treatments. Thus, a minor risk of adverse cumulative effects to Canada lynx would be expected since: 1) habitats found in the project area and portions of the cumulative effects analysis area are marginally suitable for lynx use, disconnected from other suitable lynx habitats, and exist in a matrix of unsuitable habitats of dry Douglas-fir and ponderosa pine; 2) winter foraging habitats would be reduced by 1% in the cumulative effects analysis area; 3) summer foraging habitats across the cumulative effects analysis area could continue developing for the next 15 to 35 years; 4) the amount of temporary non-suitable habitats would increase by roughly 3% in a portion of the cumulative effects analysis area that would be temporary and may take 15 to 30 years for conifer stands to regenerate; 5) risk of displacement would be temporary and short-term for up to 15 years; and 6) minor alterations in landscape connectivity would not prevent lynx movements.

Sensitive Species

BALD EAGLE

Issue

Proposed timber management and associated activities could negatively affect bald eagles by reducing nesting and perching structures and/or disturbing nesting bald eagles.

Introduction
Bald eagles are diurnal raptors associated with significant bodies of water, such as rivers, lakes, and coastal zones. The bald eagle diet consists primarily of fish and waterfowl, but also includes carrion, mammals, and items taken from other birds of prey. In Montana, bald eagles begin the breeding process with courtship behavior and nest building in early February; the young fledge by approximately mid-August, ending the breeding process. Preferred nest-stand characteristics include large emergent trees that are within sight distances of lakes and rivers and typically screened from human disturbance by vegetation.

Analysis Area
Direct and indirect effects were analyzed for activities conducted in the project area within 2.5 miles of the nest associated with the Fish Creek bald eagle territory. Cumulative effects were analyzed on the Fish Creek bald eagle territory home range. This cumulative effects analysis area includes the likely nesting home range area used by the pair of eagles, considering the size of such areas typically used by eagles breeding in western Montana.

Analysis Methods
Direct and indirect effects, as well as cumulative effects, were analyzed using a variety of information obtained from field evaluations, aerial photograph interpretation, USDA remotely sensed data, and a GIS analysis of available habitats. Factors considered in this analysis include human disturbance levels, levels of human access, and availability of snags and large, emergent trees with stout horizontal limbs for nests and perches.

Existing Environment
A portion of the project area is within the home range associated with the Fish Creek bald eagle territory; additionally, a small portion of the project area (41 acres) that is in the Fish Creek home range is also in the home range associated with the Tarkio bald eagle territory. The Fish Creek territory has been fairly productive in the recent past. The aquatic habitat associated with the Fish Creek bald eagle territory includes Clark Fork River, Fish Creek, Chicken Creek, Rock Creek, and numerous smaller streams. Aquatic and terrestrial prey species are fairly common in the home range. The terrestrial habitats in the Fish Creek home range are a mixture of coniferous/deciduous forests along the riparian areas, with coniferous forests in the upland areas. Within the home range, black cottonwood is the deciduous tree of primary importance to bald eagles, while large emergent conifers also provide important nesting, roosting, and perching habitats. Across the project area (both in the home range and further south in the Fish Creek drainage), there are some areas of suitable aquatic habitats that could be used by bald eagles. Human disturbance, including timber harvesting, the Highway 90 corridor, numerous human residences, and various forms of recreation are potential sources of disturbance to the nesting territory. Numerous large emergent trees are available across portions of the home range, but timber management and other human developments in the last 100 years have likely reduced some of these attributes while others have experienced mortality and are declining in quality. A minor amount of the ongoing Alberton Gorge Recreational Corridor Forest Improvement Project on Montana Department of Fish, Wildlife, and Parks land is occurring in the area but is outside of the cumulative effects analysis area but may be disturbing foraging eagles and/or altering habitat attributes.

Environmental Effects on Bald Eagles
Direct and Indirect Effects of the No-Action Alternative

No direct or indirect effects to bald eagles would be anticipated since: 1) no changes to human disturbance levels would occur; 2) no changes in human access would occur; and 3) no changes in the availability of large, emergent trees suitable for perching or nesting would be expected.

Direct and Indirect Effects of the Action Alternative

No activities would occur in the nest area or primary use area associated with the Fish Creek bald eagle territory. Proposed activities on 710 acres (19% of proposed units) would occur in the home range area associated with the bald eagle territory. Proposed activities could occur when soils are dry, frozen, or covered in snow. Thus, the proposed activities could occur during the bald eagle nesting season (February 1- August 15), or the non-nesting (August 16-February 1) season. Given the proximity to Highway 90, numerous other roads, human residences, recreational use of the river, topography between the nest site and project area, and ongoing timber management in the vicinity, any potential disturbance from proposed activities would be expected to have negligible effects to the nesting pair should they occur during the nesting season. Conversely, no disturbance to bald eagles would be anticipated should those activities be conducted during the non-nesting period. Minor reductions in the availability of large snags or emergent trees that could be used as nest or perch trees could occur in the home range. No changes in human access to the home range would occur, thereby limiting potential for introducing additional human disturbance to the territory. Thus, a minor risk of direct and indirect effects to bald eagles would be anticipated since: 1) disturbance could be slightly elevated within the home range during operations, should they occur during the nesting period; 2) no appreciable change in human access within the project area would occur; and 3) minor reductions in the availability of large, emergent trees could occur in the home range.

Cumulative Effects of the No-Action Alternative

No cumulative effects to bald eagles would be anticipated since: 1) no changes to human disturbance levels would occur; 2) no changes in human access would occur; and 3) no changes in the availability of large, emergent trees would be expected.

Cumulative Effects of the Action Alternative

Nesting bald eagles in this territory would continue to experience varying levels of disturbance. Any potential disturbance and/or noise from the proposed activities would be negligible, and no changes in bald eagle behavior would be anticipated. Given the proximity to Highway 90, numerous smaller roads, several residences, recreational use of the river, topography between the nest site and project area, and ongoing timber management in the vicinity, any potential disturbance from proposed activities would be expected to have negligible effects to nesting eagles. Negligible reductions in emergent trees or snags could occur on a small portion of the home range, which would be additive to past and ongoing activities within the home range. Thus, a negligible risk of cumulative effects to bald eagles would be anticipated since: 1) disturbance would be slightly elevated within the territory during proposed activities; 2) no changes in human access within the territory would occur; and 3) negligible changes in the availability of large, emergent trees would be expected.

FISHER

Issue

Proposed timber management and associated activities could reduce the amount and/or quality of fisher habitats, which could alter fisher use of the area.

Introduction

Fishers are a mid-sized forest carnivore whose prey includes small mammals such as voles, squirrels, snowshoe hares, and porcupines, as well as birds (Powell and Zielinski 1994). They also take advantage of carrion and seasonally available fruits and berries (Foresman 2012). Fishers use a variety of successional stages but are disproportionately found in stands with dense canopies (Powell 1982, Johnson 1984, Jones 1991, Heinemeyer and Jones 1994) and avoid openings or young forested stands (Buskirk and Powell 1994, Weir and Corbould 2010).

However, some use of openings may occur for short hunting forays or if sufficient overhead cover (shrubs or saplings) is present. Fishers appear to be highly selective of stands that contain resting and denning sites and tend to use areas within 150 feet of water (Jones 1991). 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 fisher involve providing for resting and denning habitats near riparian areas while maintaining travel corridors.

Analysis Area

Direct and indirect effects were analyzed for activities conducted in the 6,641-acre project area. Cumulative effects were analyzed on the 75,853-acre cumulative effects analysis area described above in the Analysis Areas portion. This area includes enough area to approximate overlapping home ranges of male and female fishers (Heinemeyer and Jones 1994).

Analysis Methods

To assess potential fisher habitat on DNRC-managed lands in the cumulative effects analysis area, sawtimber stands in preferred fisher covertypes (ARM 36.11.403[66]) below 6,000 feet in elevation with 40-percent or greater canopy closure were considered potential fisher habitat. Fisher habitat was further divided into upland and riparian-associated areas, depending on the proximity to streams and stream classification. Direct, indirect, and cumulative effects were analyzed using a variety of information obtained from field evaluations, aerial photograph interpretation, USDA remotely sensed data, and a GIS analysis of available habitats. Factors considered include the amount of suitable fisher habitats, landscape connectivity, and human access.

Existing Environment

There are approximately 723 acres (9%) of potential upland fisher habitats and 110 acres (1%) of riparian habitats associated with class 1 and 2 streams in the project area. Additionally, there are 83 acres (<1%) of upland preferred covertypes and a trace amount of riparian preferred covertypes (<1 acre; <1%) in the project area that currently lack structural attributes necessary to be suitable for fisher. Generally, habitats in the project area are somewhat disconnected and interspersed with some drier and/or more open habitats than generally used by fisher, thus extensive use by fisher would not be anticipated, however some occasional use is possible. There are approximately 23.3 miles of open roads in the project area (2.2 mi./sq. mi.) that facilitates motorized access to the project area and could expose fisher to potential trapping pressure. Considerable non-motorized access to the project area exists given the presence of the open roads and the 42.4 miles of restricted roads (4.1 mi./sq. mi) in the project area.

Within the cumulative effects analysis area, there are roughly 68,621 acres (90%) below 6,000 feet that would be classified as upland (more than 100 ft from Class 1 and more than 50 feet from Class 2 streams) and 4,643 acres (6%) that would be classified as riparian that are associated with the 272 miles of Class 1 and 2 streams in the cumulative effects analysis area. On DNRC-managed lands, nearly all (99.6%) of the potential riparian fisher habitats in the cumulative effects analysis area are providing structural habitat attributes that could facilitate use by fisher. On other ownerships, some potential habitats likely exist along riparian features and in areas where elevation and aspect allow greater concentrations of western larch/Douglas-fir and mixed conifers to exist. Lower elevations in the cumulative effects analysis area and most of the southerly and westerly aspects are dominated by drier ponderosa pine and Douglas-fir types which are not highly suitable for fisher, and the upper portions of the cumulative effects analysis area are dominated by lodgepole pine and subalpine fir, which are also not highly suitable for fisher. Potential fisher habitats may exist on a portion of the 8,219 acres (12%) of reasonably closed canopied stands of Douglas-fir, western larch, and mixed conifers in the cumulative effects analysis area, including roughly 810 acres that are near

streams. Another 6,601 acres (10%) within the cumulative effects analysis area are in preferred covertypes (mixed conifers, Douglas-fir/western larch) but lack sufficient structure and cover to be used by fishers, including roughly 427 acres that are near streams. Also, fisher habitats are largely absent from the 59,054 acres (88%) of shrubs, herbaceous, recently burned, non-forested habitats, and non-suitable forested types dominated by ponderosa pine, sub-alpine fir, or lodgepole pine stands in the cumulative effects analysis area. In the past, extensive timber management along with recent wildfires have altered many of the stands that are in suitable covertypes and they lack structural attributes that would make them usable by fisher. Within the cumulative effects analysis area connectivity of mature forested habitats is partially intact, however the cumulative effects analysis area has seen extensive disturbance from timber management and recent wildfires in the past which has altered these landscape attributes (see Mature Forested Habitats and Landscape Connectivity section for additional details). Generally, habitats in the cumulative effects analysis area are somewhat disconnected and interspersed with some drier and/or more open habitats than generally used by fisher, thus extensive use of the cumulative effects analysis area would not be anticipated, however, some use by fisher could occur. Observations of fishers in or near the cumulative effects analysis area within the last 30 years are lacking and recent research suggests that fishers are largely absent east of the wet forests along the Montana-Idaho border (Montana Natural Heritage Program 2025, Krohner et al. 2022). Timber management, recent wildfires, and human developments that have occurred in the cumulative effects analysis area likely altered fisher habitats. A minor amount of the ongoing Alberton Gorge Recreational Corridor Forest Improvement Project on Montana Department of Fish, Wildlife, and Parks land is occurring in the cumulative effects analysis area that is removing forest attributes but would not affect fisher or their habitats.

Environmental Effects on Fisher

Direct and Indirect Effects of the No-Action Alternative

No direct and indirect effects to fishers would be anticipated since: 1) no changes to existing habitats would be anticipated; 2) landscape connectivity would not be further altered; 3) no appreciable changes to snags, snag recruits, or coarse woody debris levels would be anticipated; and 4) no changes to public access or the potential for trapping mortality would be anticipated.

Direct and Indirect Effects of the Action Alternative

Minor changes to existing riparian habitats would occur since no riparian timber management would occur in the SMZ, RMZ, or CMZ areas associated with class 1 streams and relatively minor amounts of SMZ harvest would occur in some class 2 streams (see Soil, Watershed, and Fisheries section for additional details). Since, minor changes in overall stand density and canopy closure would occur, these riparian habitats would be expected to continue to be largely suitable for fisher in the near term. Approximately 380 acres (53%) of upland fisher habitats and 24 acres (33%) of preferred covertypes lacking structural attributes necessary to be suitable for fisher in the project area would receive treatments that would reduce canopy closure, reduce snags and snag recruits, increase coarse woody debris, and the resultant stands would likely be too open to be used by fisher. Furthermore, proposed activities in preferred covertypes would be expected to delay the development of those habitat attributes that could facilitate some use by fisher. Collectively, treated fisher habitats and preferred covertypes would likely be unsuitable for fisher for 30-70 years following proposed treatments. No changes to open roads would be anticipated. Trapping pressure and the potential for fisher mortality could remain similar to present levels. Minor reductions in landscape connectivity could occur with the proposed activities, but activities would avoid riparian areas commonly used by fisher. Thus, a moderate risk of adverse direct and indirect effects to fisher would be anticipated since: 1) appreciable use of the project area by fishers is unlikely; 2) proposed timber management would

largely avoid riparian areas and would modify roughly half of the existing upland fisher habitats; 3) reductions in connectivity would occur, but those areas associated with riparian areas would largely remain unaffected; 4) proposed activities would reduce snags and snag-recruitment trees while increasing coarse woody debris levels; however, some of these resources would be retained; and 5) no changes in legal motorized human-access levels would be anticipated.

Cumulative Effects of the No-Action Alternative

No further cumulative effects to fishers would be anticipated since: 1) no further changes to existing habitats on DNRC-managed lands would occur; 2) any landscape connectivity afforded by the stands on DNRC-managed lands would not change appreciably; 3) no changes to snags, snag recruits, or coarse woody debris levels would be expected; and 4) no changes to public access or the potential for trapping mortality would be anticipated.

Cumulative Effects of the Action Alternative

No appreciable changes to riparian habitats in the project area would occur, thus no changes in the amount of the preferred riparian fisher cover types meeting structural requirements for fishers on DNRC-managed lands in the cumulative-effects analysis area would occur. Reductions in upland habitats on DNRC-managed lands (380 acres) would further reduce the amount of suitable upland fisher habitats in the cumulative effects analysis area; furthermore, the proposed activities on 24 acres of preferred covertypes would delay the development of those necessary attributes for another 30-70 years. These reductions in fisher habitats would be additive to the losses associated with past timber management and recent wildfires in the cumulative-effects analysis area. Activities would avoid riparian areas commonly used by fishers and minor changes to landscape connectivity would be anticipated. No changes in legal, motorized public access would occur. Overall, no appreciable changes in human disturbance and potential trapping mortality would be anticipated. Thus, a minor risk of adverse cumulative effects to fisher would be anticipated since: 1) proposed timber management would modify a small amount of upland fisher habitats, but upland habitats would persist in the cumulative effects analysis area; 2) minor changes in landscape connectivity would be anticipated and connectivity in riparian areas would not be altered; 3) proposed timber management in a relatively small portion of the cumulative-effects analysis area would partially reduce snags and snag recruits, while increasing the coarse woody debris levels, largely in the smaller-sized pieces; and 4) no changes to legal, motorized public access would occur.

FLAMMULATED OWLS

Issue

Proposed timber management and associated activities could alter flammulated owl habitat by reducing canopy closure and increasing tree spacing, while potentially removing snags needed by flammulated owls for nesting.

Introduction

Flammulated owls are tiny, migratory, insectivorous forest owls that inhabit old, open stands of warm-dry ponderosa pine and cool-dry Douglas-fir forests in the western United States. In Montana, flammulated owls appear to initiate nesting later than most of the other owl species; they generally initiate nesting in May, and nestlings usually fledge during August. In general, preferred habitats have open to moderate canopy closure (30-50 percent) with at least 2 canopy layers and are often near small clearings. They are indirect cavity nesters and usually nest in cavities excavated by pileated woodpeckers or Northern flickers in 12-25" dbh ponderosa pine, Douglas-fir, or aspen. Without disturbance, Douglas-fir encroach upon ponderosa pine stands resulting in increased stand density and decreased habitat quality for flammulated owls. Periodic, low intensity under burns can increase habitat suitability and sustainability by reducing

the density of understory seedlings and saplings, stimulating shrub growth, and by protecting large dominant trees from ladder fuels and competition with other mature trees.

Analysis Area

Direct and indirect effects were analyzed for activities conducted in the 6,641-acre project area. Cumulative effects were analyzed on the 75,853-acre cumulative effects analysis area described above in the Analysis Areas portion. This area includes enough area to support several pairs of flammulated owls (McCallum 1994).

Analysis Methods

To assess potential flammulated owl habitat on the project area, SLI data were used to identify stands in preferred habitat types (ARM 36.11.403(31)). Direct and indirect effects, as well as cumulative effects, were analyzed using a variety of information obtained from field evaluations, aerial photograph interpretation, USDA remotely sensed data, and a GIS analysis of available habitats. Factors considered within the cumulative effects analysis area included the degree of harvesting and the amount of continuous forest within the cumulative effects analysis area.

Existing Environment

There are approximately 4,727 acres (73% of the project area) of potential flammulated owl habitats in dry Douglas-fir, Douglas-fir/western larch, and ponderosa pine stands across the project area. There are an additional 1,258 acres (69%) of potential flammulated owl habitats on dry Douglas-fir, Douglas-fir/western larch, and ponderosa pine stands on DNRC-managed lands within the cumulative effects analysis area. Some suitable habitats likely exist on a portion of the 11,731 acres (17% of non-DNRC-managed lands) of open and closed forested habitats on other ownerships in the cumulative effects analysis area dominated by ponderosa pine and Douglas-fir. Elsewhere in the cumulative effects analysis area, some forested habitats have been harvested in the recent past, potentially improving flammulated owl habitat by creating foraging areas and reversing a portion of the Douglas-fir encroachment while opening stands of ponderosa pine; however, retention of large ponderosa pine and/or Douglas-fir was not necessarily a consideration in some of these harvest units, thereby minimizing the benefits to flammulated owls. Modern fire suppression has allowed Douglas-fir in-growth to create denser stands of ponderosa pine and Douglas-fir in portions of the cumulative effects analysis area, which has reduced habitat quality for flammulated owls. Timber management, recent wildfires, and human developments that have occurred in the cumulative effects analysis area likely altered flammulated owl habitats and/or human disturbance levels. A minor amount of the ongoing Alberton Gorge Recreational Corridor Forest Improvement Project on Montana Department of Fish, Wildlife, and Parks land is occurring in the cumulative effects analysis area that is removing forest attributes that could disturb flammulated owls and open up flammulated owl habitats.

Environmental Effects on Flammulated Owls

Direct and Indirect Effects of the No-Action Alternative

No changes to existing flammulated owl habitats in the project area would occur. Thus, a negligible risk of adverse direct and indirect effects to flammulated owls would be anticipated since: 1) no disturbance to flammulated owls would be anticipated; and 2) no changes to potential nesting or foraging habitats would be anticipated.

Direct and Indirect Effects of the Action Alternative

Flammulated owls can be tolerant of human disturbance (McCallum 1994), however the elevated disturbance levels associated with proposed activities could negatively affect flammulated owls should activities occur when flammulated owls are present. Proposed activities could overlap the nestling and fledgling periods. Since some snags and large trees

would be retained, loss of potential nest trees would be expected to be minimal. Proposed activities on 2,682 acres of potential flammulated owl habitats (57% of the habitats in the project area) would open the canopy while favoring ponderosa pine, Douglas-fir, and western larch. The proposed treatments would reduce canopy closure and allow more sunlight to reach the forest floor, which could stimulate grass and shrub growth, providing habitat for moths and other flying insects that provide food for flammulated owls. Elements of the forest structure important for nesting flammulated owls, including snags, coarse woody debris, numerous leave trees, and snag recruits would be retained in the proposed units. Negligible changes to flammulated owl foraging habitats would be anticipated with the proposed pre-commercial thinning. The more open stand conditions, the retention of fire adapted tree species, and the maintenance of some snags would move the project area toward historical conditions, which is suitable flammulated owl habitat. Thus, a minor risk of adverse direct and indirect effects would be expected to flammulated owls since: 1) the potential exists to disturb flammulated owls; and 2) proposed timber management would open denser stands up while retaining elements of forest structure used for foraging and nesting by flammulated owl, improving overall flammulated owl habitat conditions in the project area.

Cumulative Effects of the No-Action Alternative

No further changes to flammulated owl habitats or disturbance levels would occur. Thus, a negligible risk of adverse cumulative effects to flammulated owls would be anticipated since: 1) no disturbance to flammulated owls would be anticipated; and 2) no changes to potential nesting or foraging habitats would be anticipated.

Cumulative Effects of the Action Alternative

Disturbance in flammulated owl habitats could occur on a small portion (4%) of the cumulative effects analysis area if activities were to occur during the non-winter period and could be additive to ongoing activities in the area. Proposed activities would increase the amount of the cumulative effects analysis area that has been recently harvested, which would add to the amount of foraging habitats available, but possibly at the expense of losing snags and large trees important for nesting. Overall, no change in the amount of potential flammulated owl habitats would occur on DNRC-managed lands or any other ownerships; a slight improvement in habitat quality at the cumulative-effects analysis level could be realized with this alternative and the more historic conditions likely after proposed activities. Thus, a negligible risk of adverse cumulative effects to flammulated owls would be expected since: 1) proposed activities could disturb flammulated owls in a small portion of the cumulative effects analysis area should activities occur during the period when flammulated owls are in the vicinity; and 2) proposed activities would improve the quality and sustainability of flammulated owl habitat on a portion of the cumulative effects analysis area by making this area more representative of historic conditions.

FRINGED MYOTIS

Issue

Proposed timber management and associated activities could alter fringed myotis habitat by altering the amount and structure of mature forested stands, the availability of riparian foraging habitats, and potentially removing snags needed by fringed myotis.

Introduction

Fringed myotis are an insectivorous bat species that is found throughout much of western and southern Montana. Range-wide, fringed myotis are habitat generalists that will inhabit desert shrublands, sagebrush-grassland, and woodland habitats (including ponderosa pine and Douglas-fir forests). It appears that in Montana, fringed myotis are likely migratory but some may hibernate in caves or mines. During the summer, fringed myotis will day-roost in caves,

rock crevices, mines, cracks and hollows of larger diameter trees, buildings, and bridges. Fringed myotis appear to largely eat moths and beetles and have wings with high puncture strength, which is characteristic of bats that forage by gleaning from the ground or near thick vegetation. Riparian forested habitats were used at higher rates by numerous bat species, in Northern California including fringed myotis when compared to uplands (Seidman and Zabel 2001). Fringed myotis are considered uncommon to rare across much of Montana and are facing threats from the invasion of white-nosed syndrome (Bachen et al. 2020).

Analysis Area

Direct and indirect effects were analyzed for activities conducted in the 6,641-acre project area. Cumulative effects were analyzed on the 75,853-acre cumulative effects analysis area described above in the Analysis Areas portion. This area includes enough area to support numerous pairs of fringed myotis.

Analysis Methods

To assess potential fringed myotis habitat on the project area, SLI data were used to identify low elevation ponderosa pine and Douglas-fir sawtimber stands with ≥40% canopy cover. Riparian habitats that are within 100 feet of class 1 streams and 50 feet of class 2 streams that could function as suitable foraging habitats were also identified. Direct, indirect, and cumulative effects were analyzed using a variety of information obtained from field evaluations, aerial photograph interpretation, USDA remotely sensed data, and a GIS analysis of available habitats. Factors considered include the amounts of forested habitats that could serve as potential roosting and foraging habitats and the availability of potential riparian foraging habitats.

Existing Environment

Some use of the project area by fringed myotis would be possible given the ponderosa pine and Douglas-fir dominated stands across much of the project area and the proximity to the Clark Fork River, Fish Creek, and numerous other smaller streams and riparian areas. Fringed myotis have been documented north of the project area along the Clark Fork River, and since suitable habitat exists, some use by fringed myotis is possible (MNHP 2025). While no known caves, mines, crevices, or other structures used for roosting occur in the project area or immediate vicinity, there are areas of rock outcrops and associated cracks and crevices that may contain some suitable roosting areas. Potential roosting habitats may exist on the 4,535 acres (70%) of moderately to well stocked sawtimber stands in the project area that are dominated by ponderosa pine, Douglas-fir, Douglas-fir/western larch, and western larch. Meanwhile roughly 7,764 acres (93%) of potential upland and 498 acres (6%) of potential riparian foraging habitats exist in the project area that could support moths, beetles, and other insects that fringed myotis forage upon. Firewood gathering, which can result in a reduction of snags valuable as roosting sites, is possible in portions of the project area near the 23.3 miles of open roads but largely is unlikely across much of the project area due to distance from open roads.

Predicted habitat suitability models identify the cumulative effects analysis area as largely unsuitable or low suitability with some areas of moderate suitability largely along Fish Creek and West Fork Fish Creek (MNHP 2025). In the cumulative effects analysis area, an additional 856 acres (47%) of potential roosting habitats exist on DNRC-managed lands. Similarly, roughly 1,777 acres (97%) of potential upland foraging habitats and 50 acres (3%) of potential riparian foraging habitats exist on DNRC-managed lands in the cumulative effects analysis area outside of the project area. Suitable roosting habitats likely exist on a portion of the 15,762 acres (23% of non-DNRC lands) of forested habitats on other ownerships in the cumulative effects analysis area. Collectively, potential roosting habitats exist on roughly 21,153 acres (28%) of the cumulative effects analysis area. The remaining 51,511 acres (77%) of shrubs, herbaceous areas, poorly stocked forested stands, and recently harvested stands on other ownerships in the cumulative effects analysis area could be potential foraging habitats for fringed myotis. A portion

of these habitats (3,988 acres; 6%) occur close to the 272 miles of class 1 and 2 streams in the cumulative effects analysis area that may be suitable riparian foraging habitats. A minor amount of the ongoing Alberton Gorge Recreational Corridor Forest Improvement Project on Montana Department of Fish, Wildlife, and Parks land is occurring in the cumulative effects analysis area that is removing forest attributes that could disturb fringed myotis and/or alter roosting or foraging habitats.

Environmental Effects on Fringed Myotis

Direct and Indirect Effects of the No-Action Alternative

No changes to existing fringed myotis habitats in the project area would occur. Thus, a negligible risk of adverse direct and indirect effects to fringed myotis would be anticipated since: 1) no disturbance to fringed myotis would be anticipated; and 2) no changes to potential roosting or foraging habitats would be anticipated.

Direct and Indirect Effects of the Action Alternative

Proposed activities during the non-hibernating period could disturb fringed myotis over the next 15 years should they be in the area during proposed activities; disturbance during the hibernating period would not be expected to disturb fringed myotis. Proposed harvesting would occur on approximately 3,002 acres (66%) of potential roosting habitats in moderately to well stocked sawtimber stands dominated by ponderosa pine, Douglas-fir, Douglas-fir/western larch, and western larch stands. Since fringed myotis will roost in trees and snags, the proposed harvesting would reduce overall quality of these areas for roosting. Despite these reductions in potential roosting substrates, considerable amounts of trees would persist in the project area that could be suitable roosting sites and/or foraging habitats. Changes in vegetation structural attributes could change overall prey availability, but considerable foraging habitats would persist in the project area. At least 2 large snags and 2 large snag recruitment trees per acre (>21 inches dbh, or largest size class available) would be retained and could provide roosting sites (ARM 36.11.411). Continued use of the 3,774 acres of proposed commercial and pre-commercial units as foraging habitats would be possible following proposed treatments. Minor changes to existing riparian habitats would occur since no riparian timber management would occur in the SMZ, RMZ, or CMZ areas associated with class 1 streams and relatively minor amounts of SMZ harvest would occur in some class 2 streams (see Soil, Watershed, and Fisheries section for additional details). No changes to open roads or public access would occur, thus no additional risks to roosting habitats from public firewood gathering. Overall, negligible changes to fringed myotis use of the project area would be anticipated. Thus, minor adverse direct and indirect effects to fringed myotis would be anticipated since: 1) fringed myotis could be temporarily displaced for up to 15 years by forest management activities occurring outside of the hibernating period; 2) harvesting would reduce suitable roosting habitat availability by 3,002 acres (66%) but considerable roosting substrates would remain; 3) forest structural changes would occur, but mitigations would include retention of large diameter snags, large diameter snag recruits, and coarse woody debris (ARM 36.11.411 through ARM 36.11.414); 4) fringed myotis could use the 3,774 acres of treated stands and openings as foraging habitats; and 5) no appreciable changes to potential riparian foraging habitats would be anticipated.

Cumulative Effects of the No-Action Alternative

No further changes to fringed myotis habitats or disturbance levels would occur. Thus, a negligible risk of adverse cumulative effects to fringed myotis would be anticipated since: 1) no disturbance to fringed myotis would be anticipated; and 2) no changes to potential nesting or foraging habitats would be anticipated.

Cumulative Effects of the Action Alternative

Disturbance in fringed myotis habitats could occur on a small portion (4%) of the cumulative effects analysis area should activities occur during the non-hibernating period and could be additive to ongoing activities in the area. Proposed activities would reduce overall habitat quality on approximately 3,002 acres (14%) of potential roosting habitats for the next 30-50 years. Proposed activities would increase the amount of the cumulative effects analysis area that has been recently harvested, which would further reduce snags and large trees important for roosting. No further changes in potential roosting or foraging habitats in the cumulative effects analysis area would be anticipated. Through time, roosting habitats would be expected to develop on non-stocked or poorly stocked stands resulting from past timber management or recent wildfires. Minor changes to existing riparian habitats would occur since no riparian timber management would occur in the SMZ, RMZ, or CMZ areas associated with class 1 streams and relatively minor amounts of SMZ harvest would occur in some class 2 streams (see Soil, Watershed, and Fisheries section for additional details). No changes to open roads or public access would occur, thus no additional risks to roosting habitats from public firewood gathering. Overall, negligible changes to fringed myotis use of the cumulative effects analysis area would be anticipated. Thus, minor adverse direct and indirect effects to fringed myotis would be anticipated since: 1) fringed myotis could be temporarily displaced in a small portion of the cumulative effects analysis area for up to 15 years should activities occur outside of the hibernating season; 2) proposed harvesting would reduce available trees and snags that could be suitable roosting habitats in a small portion (14%) of the cumulative effects analysis area but considerable roosting substrates would remain; 3) changes to foraging habitats could occur but extensive foraging habitats would exist; 4) some snags and snag recruits would be removed in the proposed harvest areas, however, mitigation measures would retain at least 2 large snags and 2 large recruitment trees per acre; and 5) no appreciable changes to potential riparian foraging habitats would be anticipated.

NORTHERN HOARY BAT

Issue

Proposed timber management and associated activities could alter Northern hoary bat habitat by altering the amount and structure of mature forested stands, the availability of riparian foraging habitats, and potentially removing snags needed by Northern hoary bats.

Introduction

The Northern hoary bat is a large insectivorous bat species that is found throughout Montana. Solitary creatures, Northern hoary bats roost alone, primarily in foliage and under the thick bark of Douglas fir, ponderosa pine, and cottonwood trees, but will also use caves, other nests, and human structures. Northern hoary bats often feed in open spaces such as over water and riparian areas near forested areas, in forest clearings, and along forest edges. Northern hoary bats are summer residents (June-September) in Montana. Northern hoary bats are considered common and widespread throughout Montana, but wind energy and diseases such as white-nosed syndrome pose threats to their population (Bachen et al. 2020).

Analysis Area

Direct and indirect effects were analyzed for activities conducted in the 6,641-acre project area. Cumulative effects were analyzed on the 75,853-acre cumulative effects analysis area described above in the Analysis Areas portion. This area includes enough area to support several pairs of Northern hoary bats.

Analysis Methods

To assess potential Northern hoary bats habitat in the project area, SLI data were used to identify sawtimber stands with ≥40% canopy cover that could be potential roosting habitats.

Similarly, SLI data were used to identify non-stocked stands, and poorly stocked seedling, sapling, pole, and sawtimber stands as potential foraging habitats; additionally, riparian habitats that are within 100 feet of class 1 streams and 50 feet of class 2 streams were identified as potential foraging habitats. Direct, indirect, and cumulative effects were analyzed using a variety of information obtained from field evaluations, aerial photograph interpretation, USDA remotely sensed data, and a GIS analysis of available habitats. Factors considered within the cumulative effects analysis area included the availability of sawtimber stands that could function as roosting habitats, amount of potential foraging habitats, and changes to available riparian foraging habitats.

Existing Environment

Some use of the project area by Northern hoary bats would be possible given the varied habitats present and the proximity to the Clark Fork River, Fish Creek, and numerous other smaller streams and riparian areas. Northern hoary bats have been documented along Fish Creek on an adjacent parcel (MNHP 2025). Potential roosting habitats may exist on the 4,535 acres (70%) of moderately stocked sawtimber stands dominated by ponderosa pine, Douglas-fir, Douglas-fir/western larch, and western larch stands in the project area. Meanwhile potential foraging habitats likely exist on much of the 1,839 acres (29%) of seedling/sapling stands, non-stocked stands, and poorly stocked sawtimber stands in the project area. Additionally, numerous riparian features are located in the project area which could also contribute to potential foraging habitats. Snags and coarse woody debris within the project area are present and at appropriate levels for existing habitat types, especially in unmanaged stands. Firewood gathering, which can result in a reduction of snags valuable as roosting sites, is possible in portions of the project area near the 23.3 miles of open roads but largely is unlikely across much of the project area due to distance from open roads. While no known caves, mines, crevices, or other structures used for roosting occur in the project area or immediate vicinity, there are areas of rock outcrops and associated cracks and crevices that may contain some suitable roosting areas.

An additional 853 acres of potential roosting habitats and 959 acres of potential foraging habitats exist on DNRC-managed lands in the cumulative effects analysis area. Some suitable roosting habitats likely exist on a portion of the 15,762 acres (23% of non-DNRC lands) of forested habitats on other ownerships in the cumulative effects analysis area. Much of the 51,511 acres (77%) of shrubs, herbaceous areas, poorly stocked forested stands, and recently harvested stands on other ownerships in the cumulative effects analysis area could be potential foraging habitats for Northern hoary bats, although much of these potential habitats are distant from streams or other riparian features. Predicted habitat suitability models identify the cumulative effects analysis area as largely unsuitable with areas of low suitability along Fish Creek and West Fork Fish Creek (MNHP 2025). A minor amount of the ongoing Alberton Gorge Recreational Corridor Forest Improvement Project on Montana Department of Fish, Wildlife, and Parks land is occurring in the cumulative effects analysis area that is removing forest attributes that could disturb Northern hoary bats and/or alter roosting or foraging habitats.

Environmental Effects on Northern Hoary Bat

Direct and Indirect Effects of the No-Action Alternative

No changes to existing Northern hoary bat habitats in the project area would occur. Thus, a negligible risk of adverse direct and indirect effects to Northern hoary bats would be anticipated since: 1) no disturbance to Northern hoary bats would be anticipated; and 2) no changes to potential roosting or foraging habitats would be anticipated.

Direct and Indirect Effects of the Action Alternative

Proposed activities could disturb Northern hoary bats should they be in the area when proposed activities were occurring. Thus, any activities conducted outside of the summer period (June to September) would not be expected to disturb Northern hoary bats, but activities that would occur during the summer could disturb Northern hoary bats for up to 15 years. Proposed harvesting would occur on approximately 3,002 acres (66%) of potential roosting habitats in moderately to well stocked sawtimber stands dominated by ponderosa pine, Douglas-fir, Douglas-fir/western larch, and western larch stands. Since Northern hoary bats typically roost in trees and snags, the proposed harvesting would reduce overall quality of these areas for roosting. Despite these reductions in potential roosting substrates, considerable amounts of trees would persist in the project area that could be suitable roosting sites. At least 2 large snags and 2 large snag recruitment trees per acre (>21 inches dbh, or largest size class available) would be retained and could provide roosting sites (ARM 36.11.411). Continued use of the 3,774 acres of proposed commercial and pre-commercial units as foraging habitats would be possible following proposed treatments. Minor changes to existing riparian habitats would occur since no riparian timber management would occur in the SMZ, RMZ, or CMZ areas associated with class 1 streams and relatively minor amounts of SMZ harvest would occur in some class 2 streams (see Soil, Watershed, and Fisheries section for additional details). No changes to open roads or public access would occur, thus no additional risks to roosting habitats from public firewood gathering. Overall, negligible changes to Northern hoary bat use of the project area would be anticipated. Thus, minor adverse direct and indirect effects to Northern hoary bats would be anticipated since: 1) Northern hoary bats could be temporarily displaced for up to 15 years by forest management activities occurring during the summer season; 2) proposed harvesting would reduce suitable roosting habitat availability by 3,002 acres (66%) but considerable roosting substrates would remain; 3) forest structural changes would occur, but mitigations would include retention of large diameter snags, large diameter snag recruits, and coarse woody debris (ARM 36.11.411 through ARM 36.11.414); 4) Northern hoary bats could use the 3,774 acres of treated stands and openings as foraging habitats; and 5) no appreciable changes to potential riparian foraging habitats would be anticipated.

Cumulative Effects of the No-Action Alternative

No further changes to Northern hoary bat habitats or disturbance levels would occur. Thus, a negligible risk of adverse cumulative effects to Northern hoary bats would be anticipated since: 1) no disturbance to Northern hoary bats would be anticipated; and 2) no changes to potential nesting or foraging habitats would be anticipated.

Cumulative Effects of the Action Alternative

Disturbance in Northern hoary bat habitats could occur on a small portion (4%) of the cumulative effects analysis area should Northern hoary bats be present and could be additive to ongoing activities in the area. Proposed activities would reduce overall habitat quality on approximately 3,002 acres of potential roosting habitats for the next 30-50 years; proposed activities would alter stand densities on roughly 3,774 acres of potential foraging habitats. Proposed activities would increase the amount of the cumulative effects analysis area that has been recently harvested, which would add to the amounts of foraging habitats available, but possibly at the expense of losing snags and large trees important for roosting. No further changes in potential roosting or foraging habitats in the cumulative effects analysis area would be anticipated. Through time, roosting habitats would be expected to develop on non-stocked or poorly stocked stands resulting from past timber management or recent wildfires. Minor changes to existing riparian habitats would occur since no riparian timber management would occur in the SMZ, RMZ, or CMZ areas associated with class 1 streams and relatively minor amounts of SMZ harvest would occur in some class 2 streams (see Soil, Watershed, and Fisheries section for additional details). No changes to open roads or public access would

occur, thus no additional risks to roosting habitats from public firewood gathering. Overall, negligible changes to Northern hoary bat use of the cumulative effects analysis area would be anticipated. Thus, minor adverse direct and indirect effects to Northern hoary bats would be anticipated since: 1) Northern hoary bats could be temporarily displaced in a small portion of the cumulative effects analysis area for up to 15 years should activities occur during the summer season; 2) proposed harvesting would reduce available trees and snags that could be suitable roosting habitats in a small portion of the cumulative effects analysis area but considerable roosting substrates would remain; 3) changes to foraging habitats could occur but extensive foraging habitats would exist; 4) some snags and snag recruits would be removed in the proposed harvest areas, however, mitigation measures would retain at least 2 large snags and 2 large recruitment trees per acre in harvested areas; and 5) no appreciable changes to potential riparian foraging habitats would be anticipated.

PILEATED WOODPECKERS

Issue

Proposed timber management and associated activities could reduce suitable nesting and foraging habitat for pileated woodpeckers, which could alter pileated woodpecker use of the area.

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. The pileated woodpecker is one of the largest woodpeckers in North America and excavates the largest cavities of any woodpecker. Preferred nest trees are large diameter western larch, ponderosa pine, cottonwood, and quaking aspen trees and snags, 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.” The feeding and nesting habitat requirements, including large snags or decayed trees for nesting and downed wood for feeding, 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 stands (McClelland 1979).

Analysis Area

Direct and indirect effects were analyzed for activities conducted in the 6,641-acre project area. Cumulative effects were analyzed on the 5,780-acre cumulative effects analysis area described above in the Analysis Areas portion. This area includes enough area to support several pairs of pileated woodpeckers (Bull and Jackson 1995).

Analysis Methods

To assess potential pileated woodpecker nesting habitats on DNRC-managed lands in the cumulative effects analysis area, SLI data were used to identify sawtimber stands with more than 100 square feet of basal area per acre, were older than 100 years old, had greater than 40-percent canopy closure, and were occurring below 5,000 feet in elevation. Foraging habitats were defined as areas that did not meet the definition above but included the remaining sawtimber stands below 5,000 feet in elevation with greater than 40-percent canopy cover. To assess habitat on other ownerships in the cumulative effects analysis area, aerial photographs and USDA remotely sensed data were interpreted to assess forest stands. Where stands appeared to meet the minimum potential foraging habitat parameters, pileated woodpecker habitat was considered present. Potential foraging and nesting habitat were not differentiated on other ownerships for this analysis due to data limitations. Direct, indirect, and cumulative effects were analyzed using a variety of information obtained from field evaluations, aerial photograph

interpretation, USDA remotely sensed data, and these mapped potential habitats. Factors considered included the amount of potential habitat, degree of harvesting, and the amount of continuous forested habitat.

Existing Environment

In the project area, potential pileated woodpecker nesting habitat exists on approximately 1,778 acres (30% of the project area). These habitats are dominated by ponderosa pine, Douglas-fir, and Douglas-fir/western larch stands. Additionally, 2,573 acres (43% of the project area) of sawtimber stands, dominated by ponderosa pine, Douglas-fir, and Douglas-fir/western larch exist in the project area, which may be potentially suitable foraging habitats. In the cumulative effects analysis area, an additional 235 acres (13%) of pileated woodpecker nesting habitats exist on DNRC-managed lands dominated by ponderosa pine stands. Also, on DNRC managed lands within the cumulative effects analysis area, an additional 618 acres (34%) of sawtimber stands dominated by ponderosa pine, Douglas-fir, and Douglas-fir/western larch exist that may be potential foraging habitats. Some suitable habitats likely exist on a portion of the 15,762 acres (23% of non-DNRC lands) of forested habitats on other ownerships in the cumulative effects analysis area, although some of these stands are likely too high and contain unsuitable types for pileated woodpeckers to use. Much of the 51,511 acres (77%) of shrubs, herbaceous areas, poorly stocked forested stands, and recently harvested stands on other ownerships in the cumulative effects analysis area are likely too open to be useful to pileated woodpeckers. Collectively, total potential pileated woodpecker habitat within the cumulative effects analysis area is relatively low (<24%) due to the historical stand compositions and the extensive disturbance history in the drainage from commercial timber management, recent wildfires, roads, and other human developments. Across the cumulative effects analysis area, ongoing tree mortality is reducing forested cover while increasing the amount of dead wood resources available for pileated woodpeckers. Any ongoing timber management in the cumulative effects analysis area could continue altering pileated woodpecker habitats and/or disturbing pileated woodpeckers. A minor amount of the ongoing Alberton Gorge Recreational Corridor Forest Improvement Project on Montana Department of Fish, Wildlife, and Parks land is occurring in the cumulative effects analysis area that is removing forest attributes used by pileated woodpeckers.

Environmental Effects on Pileated Woodpeckers

Direct and Indirect Effects of the No-Action Alternative

A negligible risk of adverse direct and indirect effects to pileated woodpeckers would be expected since: 1) no timber management would occur; 2) no further changes in the amount of continuously forested habitats would be anticipated; 3) no appreciable changes to existing pileated woodpecker habitats would be anticipated; and 4) long-term, succession-related declines in the abundance of shade-intolerant tree species, which are valuable to pileated woodpeckers, would be anticipated.

Direct and Indirect Effects of the Action Alternative

Pileated woodpeckers can be tolerant of human activities (Bull and Jackson 1995) but might be temporarily displaced by any proposed activities that could occur during the nesting period. Proposed activities on 3,396 acres would reduce continuously forested habitats for pileated woodpeckers in the project area. Roughly 1,190 acres (67%) of potential nesting habitats along with 1,766 acres (69%) of potential foraging habitats would be treated. Most or all of the stands would be temporarily unsuitable for pileated woodpeckers due to the openness of the stands following proposed treatments. Quality of these potential pileated woodpecker habitats would be reduced for 30-100 years, depending on the density of trees retained. Elements of the forest structure important for nesting pileated woodpeckers, including snags (a minimum of 2 snags

greater than 21 inches dbh per acre), coarse woody debris (5-15 tons per acre), numerous leave trees, and snag recruits (a minimum of 2 trees per acre greater than 21 inches dbh) would be retained in the proposed units. Since pileated woodpecker density is positively correlated with the amount of dead and/or dying wood in a stand (McClelland 1979), pileated woodpecker densities in the project area would be expected to be reduced on 3,158 acres (48%). This could result in the temporary displacement of 5-10 breeding pileated woodpecker territories. These silvicultural prescriptions would retain healthy ponderosa pine, Douglas-fir, and western larch while promoting the growth and/or regeneration of many of these same species, which would benefit pileated woodpeckers in the future by providing nesting, roosting, and foraging habitats. Thus, a moderate risk of adverse direct and indirect effects to pileated woodpeckers would be anticipated since: 1) proposed activities would reduce the amount of continuously-forested habitats available; 2) potential nesting habitats (67%) and foraging habitats (69%) would be removed; 3) snags and snag recruits would be removed; however, mitigation measures to retain a minimum of 2 snags per acre and 2 snag recruits per acre would be included; and 4) proposed treatments would promote seral species in the project area.

Cumulative Effects of the No-Action Alternative

No further disturbance of pileated woodpeckers would occur. No appreciable changes to the relatively low-quality habitats resulting from past timber management, wildfires, and human developments would be anticipated in the cumulative effects analysis area. Continued use of the cumulative-effects analysis area by pileated woodpeckers would be expected at similar levels as presently occurring. Thus, a negligible risk of adverse cumulative effects to pileated woodpeckers would be expected since: 1) no further changes to existing habitats would occur; 2) no further changes to the amount of continuously forested habitats available for pileated woodpeckers would be anticipated; and 3) long-term, succession-related changes in the abundance of shade-intolerant tree species, which are valuable to pileated woodpeckers, would occur.

Cumulative Effects of the Action Alternative

Reductions in the amount of continuously forested habitats (3,396 acres) available for pileated woodpeckers would occur in a portion of the cumulative effects analysis area. Proposed timber management would occur on 1,190 acres of potential nesting habitats, which would further reduce available nesting habitats in the cumulative effects analysis area; in the cumulative effects analysis area, <22% could be suitable for pileated woodpeckers following proposed treatments. Similarly, potential pileated woodpecker foraging habitats would be reduced on 1,766 acres in the project area, which would further reduce available habitats in the cumulative effects analysis area. Up to 23% of the cumulative effects analysis area may be suitable pileated woodpecker foraging habitats following proposed treatments. Collectively, the proposed treatments would further reduce overall quality of the cumulative effects analysis area for pileated woodpeckers in a landscape that already has rather low suitability due to past timber management, wildfires, and human developments. Snags (a minimum of 2 snags greater than 21 inches dbh per acre), coarse woody debris (5-15 tons per acre), numerous leave trees, and snag recruits (a minimum of 2 trees per acre greater than 21 inches dbh) would be retained in the proposed units to provide foraging and nesting structure when the canopy closure recovers to the point of encouraging pileated woodpecker use; however, future recruitment of these attributes may be reduced in a portion of the area by the proposed activities. Many of these altered stands would be expected to fill in with a high proportion of Douglas-fir, ponderosa pine, and western larch, which could provide nesting and feeding structural components in 30 to 100 years, thereby potentially improving pileated woodpecker habitats. Modifications to pileated woodpecker habitats under this alternative would be additive to habitat losses associated with past harvesting, recent wildfire, and human development in the cumulative effects analysis area;

continued use of the cumulative effects analysis area would be anticipated, but likely at a reduced level. Thus, a minor risk of adverse cumulative effects to pileated woodpeckers would be anticipated since: 1) proposed activities would further reduce the amount of continuously forested habitats available in the cumulative-effects analysis area by 3,396 acres; 2) potential nesting and foraging habitats would be modified, but some habitats would persist in parts of the cumulative-effects analysis area; 3) snags and snag recruits in the cumulative effects analysis area would be reduced and coarse woody debris levels would increase, but much of this increase would be in the smaller size classes, which are of lower quality to pileated woodpeckers; however, mitigation measures to retain a minimum of 2 snags per acre and 2 snag recruits per acre would be included; and 4) proposed treatments would promote seral species in a portion of the cumulative effects analysis area.

BIG GAME

BIG GAME SECURITY HABITATS

Issue

Proposed timber management and associated activities could reduce security habitat and seasonal cover for big game, which could affect big game numbers and/or hunter opportunity and quality of local recreational hunting.

Introduction

Timber management can increase vulnerability of big game animals by changing the size, structure, juxtaposition, and accessibility of areas that provide security during the hunting season (Hillis et al. 1991). As visibility and accessibility increase within forested landscapes, moose, elk, and deer have a greater probability of being observed and, subsequently, harvested by hunters, or they may become displaced or reduced in numbers due to lowered effective carrying capacity of the local habitat. Reduced cover attributable to logging and roads can also influence the effective use of habitat for big game species; particularly highly social species such as elk (Lyon et al. 1985). Big game security habitats are nonlinear blocks of hiding cover that are more than 0.5 miles from open roads and are a minimum of 250 acres in size. For this analysis, cover was considered generically as big game cover for deer, elk, and moose. Since elk are highly social, wide-ranging species, providing for their cover needs helps ensure that habitat needs for other ungulates, such as deer and moose are met as well. Because of their smaller size and behavioral differences, mule deer and white-tailed deer can use smaller cover patches more effectively for escape and security. Moose are a solitary, wide-ranging species capable of effectively using relatively small cover patches, and the hunting season for moose is heavily regulated, greatly reducing risk of overharvest by humans. Therefore, for this analysis it is assumed that if available security cover would provide for the needs of elk, it would also generally be adequate to meet the needs of moose, mule deer, and white-tailed deer.

Analysis Area

Direct and indirect effects were analyzed for activities conducted in the project area. Cumulative effects were analyzed on the 75,853-acre cumulative effects analysis area described above in the Analysis Areas portion. The cumulative effects analysis area should provide enough area for an elk herd to avoid hunting pressure during the general hunting season and approximates the size of an elk herd’s fall home range.

Analysis Methods

Given that areas within 0.5 mile of an open road do not provide elk security habitat (Hillis et al. 1991), open roads were buffered 0.5 mile and identified as areas not meeting the criteria for elk security habitat. Areas that were extensively harvested or recently burned were not expected to provide security habitat and were removed from potential security cover. Additionally, elk security habitat patches need to be somewhat larger forested blocks (greater than 250 acres)

with adequate cover to afford elk security during the general big game hunting season, so areas failing to meet these criteria were also removed, leaving patches that were distant enough from open roads, were large enough to meet the minimum criteria, and had adequate cover to provide elk security habitat (Hillis et al. 1991). Cumulative effects were evaluated using a threshold value of 30% security cover within an analysis area the size of an elk herd home range (Hillis et al. 1991). Factors considered in the analysis include the open road density, non-motorized access levels, amount of hiding cover and security habitats present, potential human disturbance levels, and alterations to big game survival.

Existing Environment

The project area is in the central parts of DFWP hunting district 202. Deer, elk, and moose are common in the district. In the project area, hiding cover is moderately abundant (3,776 acres; 59%). There are approximately 23.3 miles of open roads in the project area (2.2 mi./sq. mi.) that facilitates motorized access to the project area. Considerable non-motorized access to the project area exists given the presence of the open roads and the 42.4 miles of restricted roads (4.1 mi./sq. mi) in the project area. Portions of the project area lack big game security habitat due to the proximity to open roads or lack adequate cover from past harvesting or recent wildfire activity. There are 2 pockets (1,186 acres; 18%) of big game security habitat completely in the project area; additionally portions of 6 sections of the project area (629 acres; 9%) contribute to big game security habitats in the cumulative effects analysis area, but the patch size solely on DNRC-managed lands is below the recommended minimum size. The project area and cumulative effects analysis area is generally rather rugged, steep, and more challenging to access thus some of these smaller pockets likely serve as big game security habitats solely without inclusion of patches of big game security habitats on neighboring lands, but likely also contribute to this landscape attribute as well. Even though portions of the project area (582 acres) burned in 2003 and only provides marginal cover for big game, the distance from the open roads and the topographical changes between that patch and the open roads (nearly 2,000 feet in elevation gain), likely facilitates use of this area as big game security habitats despite the somewhat limited cover values in the area. Thus, roughly 1,815 acres (27%) of the project area are providing big game security habitats given the rugged nature of the project area.

Hiding cover varies in the cumulative effects analysis area with the recent modifications from timber management, residential development, wildfires, and other human activities. Roughly 599 acres on DNRC-managed lands in the cumulative effects analysis area appear to be providing adequate hiding cover for big game; at least another least 17,571 acres (26%) of moderate to dense mature forest stands or densely stocked sapling/pole stands appear to be providing big game hiding cover in the cumulative effects analysis area and approximately 29,015 acres (43%) of shrubs, herbaceous areas, poorly stocked forested stands, burned areas, and recently harvested stands do not meet cover requirements; much of the remaining portions of the cumulative effects analysis area (20,686 acres; 31%) of less dense stands are likely providing lower quality hiding cover. In the cumulative effects analysis area, access for recreational hunting is relatively high, with many open roads (at least 199.0 miles, 1.7 miles/sq. mile) that facilitate access and many restricted roads (at least 554.7 miles; 4.7 miles/sq. mile) that could be used for non-motorized access. In the cumulative effects analysis area, a total of 27,663 acres in 9 patches meet the distance from open roads and size requirements of elk security habitats (Hillis et al. 1991); it appears that 15,334 of these acres also meet the cover requirements of elk security habitats while 12,329 of those acres are largely lacking adequate cover for elk due to the recent wildfire activity, but given the extremely rugged nature of the cumulative effects analysis area, much of these habitats likely provide marginal elk security cover despite the limited cover currently. Thus, at a minimum, 20.2% of the cumulative effects analysis area is providing elk security habitats and realistically, given the rugged topography, up

to 36.5% of the cumulative effects analysis area is providing elk security habitats which exceeds the 30-percent minimum threshold established by Hillis et al. (1991). Furthermore, seven of those patches look to connect with potential security habitats that extend beyond the cumulative effects analysis area and contribute to larger blocks of potential security habitats in the vicinity. Timber management, recent wildfires, and human developments that have occurred in the cumulative effects analysis area likely altered big game security habitats and/or human disturbance levels. A minor amount of the ongoing Alberton Gorge Recreational Corridor Forest Improvement Project on Montana Department of Fish, Wildlife, and Parks land is occurring in the cumulative effects analysis area that is removing forest attributes but likely will have no effect on big game security in the vicinity.

Environmental Effects on Big Game Security Habitat

Direct and Indirect Effects of the No-Action Alternative

No changes in big game security habitats would be expected. Existing hiding cover would continue to contribute to security habitats. No alterations in cover would occur that would increase big game vulnerability during the hunting season. No changes would be anticipated in disturbance, potential mortality due to hunting, or human access. Thus, no direct or indirect effects related to big game vulnerability or big game security habitat in the project area would be anticipated since: 1) no changes in open roads or motorized access would occur; 2) no changes in non-motorized human access would be anticipated; 3) no further reductions in hiding cover or security habitats would occur, but hiding cover across the project area would continue to improve; 4) no further disturbance to big game would occur, and 5) no appreciable changes to big game survival in the project area would occur.

Direct and Indirect Effects of the Action Alternative

During proposed activities, disturbance from motorized equipment could disturb or displace big game animals in the area for up to 15 years, and habitats in the vicinity may temporarily be unusable due to the level of noise and human activity. No changes in open roads or motorized public access would occur. During all phases of the proposed project, any roads opened with project activities would be restricted to the public and would be closed after the completion of activities. Proposed construction of 12.9 miles of new, restricted roads and improvements to permanent, restricted roads could facilitate slight increases in nonmotorized access using mountain bikes, horses, and/or foot travel. Additionally, contractors would be prohibited from carrying firearms while on duty, which would further reduce human access to some of these security habitats. Minimal long-term effects to big game would be attributable to the overall increase in restricted road density of 1.2 mi./sq. mi. and nonmotorized public use that could occur following proposed activities.

Proposed activities would reduce tree densities on 3,774 acres, which could alter big game visibility. Roughly 2,594 acres (69%) of big game hiding cover would be altered, which would reduce quality for 10 to 30 years while ponderosa pine, Douglas-fir, and western larch seedlings and shrubs fill in and provide adequate cover for big game; however, some cover (31%) for big game would persist in the project area that could benefit big game during the hunting season. These reductions in hiding cover would include alterations on 1,173 acres (65% of security habitat in project area) of hiding cover in blocks that may contribute to potential big game security habitats. A portion of these areas (240 acres; 13%) would only be pre-commercially thinned and would continue to meet cover requirements for big game security habitats; most of these treated areas (933 acres; 51%) would receive treatment types that would reduce the effectiveness of those areas for big game security habitats. Overall, increased sight distances and the reduction in hiding cover may increase big game mortality risk in the project area. Within harvested stands, individual trees, unharvested areas, and retention buffers along

riparian areas would remain, which would continue to provide some amount of escape cover and visual screening for big game animals. Following proposed treatments, despite some reductions in tree densities, a variety of stand structures and age classes would persist in the project area which would provide diversity for big game species; continued use of the project area by the suite of big game species currently found in the project area would be likely. Collectively, moderate adverse effects to big game security habitat would be anticipated that would affect big game vulnerability risk in the project area for 15 to 30 years since: 1) no changes in open roads or motorized access for the general public would be anticipated that would increase hunter access; 2) minor increases in nonmotorized access could increase human access on 12.9 miles of new, restricted roads; 3) much of the big game hiding cover (69%) and big game security habitat (51%) in the project area would be altered; 4) disturbance could occur on the project area for up to 15 years, and 5) slight decreases in big game survival could potentially occur with increased access and visibility.

Cumulative Effects of the No-Action Alternative

Approximately 36.5 percent of the cumulative effects analysis area would continue providing big game security habitat, which would exceed the 30-percent minimum threshold recommended by Hillis et al. (1991). Continued maturation in previously harvested or burned stands on all ownerships in the cumulative effects analysis area would improve hiding cover in those affected areas. No further changes in big game hiding cover or security cover would be anticipated. No changes in open roads would occur, thus no changes in the amount of the cumulative effects analysis area near open roads would be anticipated; no other changes in disturbance and potential mortality due to recreational hunting would be anticipated. Thus, negligible positive cumulative effects to big game security habitats would be anticipated that would benefit big game since: 1) no changes in open roads or motorized access would occur; 2) no changes in non-motorized human access would be anticipated; 3) no further reductions in hiding cover or security habitats would occur, but hiding cover across the cumulative effects analysis area would continue to improve; 4) no further disturbance to big game would occur, and 5) no appreciable changes to big game survival in the cumulative effects analysis area would be anticipated.

Cumulative Effects of the Action Alternative

Any short-term disturbance (up to 15 years of potential disturbance) associated with proposed forest management activities would be additive to disturbance from existing high levels of motorized and non-motorized public recreational use, as well as any other activities within the cumulative effects analysis area. Such disturbance could increase the potential for temporary displacement of big game animals sensitive to the increased presence of humans and motorized activities. If present in the area, some individuals could be displaced from normal home range areas into places with lower quality habitat, and/or be pressed into nearby areas potentially possessing greater inherent risk of human or predator-caused mortality. Overall, minor temporary effects associated with disturbance and displacement of big game would be possible.

Moderate levels of motorized access in the cumulative effects analysis area facilitate recreational hunting; no changes would be anticipated in open roads or motorized access for the public that would influence big game vulnerability. Nonmotorized access via closed roads in the cumulative effects analysis area is relatively high. Proposed construction of 12.9 miles of restricted roads would slightly increase total road density (0.1 mi./sq. mi. increase to 4.8 mi./sq. mi.) in the cumulative effects analysis area which could facilitate an increase in nonmotorized traffic to a portion of the cumulative effects analysis area.

Approximately 2,594 acres of hiding cover and 1,173 acres of potential big game security habitats in the project area would be altered with the proposed activities. These reductions in big game security habitats would be additive to losses associated with recent and ongoing harvesting, residential clearing and development, as well as recent wildfires in the cumulative effects analysis area. Portions of the units may provide suitable cover for big game following proposed treatments; however, existing topography and distance from open roads should allow most of these areas to continue to serve as big game security habitats despite the reductions in cover following proposed treatments and roughly 36.5% of the cumulative effects analysis area would be in big game security habitat following proposed treatment, which would exceed the 30-percent minimum threshold recommended by Hillis et al. (1991). Continued maturation in previously harvested and burned stands across the cumulative effects analysis area would improve hiding cover in those areas and may partially offset proposed losses; ample amounts of hiding cover and connected forest patches would remain in the cumulative effects analysis area, which would maintain suitable cover conditions for moose, elk, and deer. Reductions in tree densities on 3,774 acres (5%) in a relatively small part of the cumulative effects analysis area could make big game animals more detectable by humans in those areas altered, which would result in minor added risk of mortality, particularly in fall during the big game general hunting season. It could take 15-40 years for the treated stands to regenerate into stands that could serve as hiding cover for big game. Overall, measurable reductions in big game numbers would not be expected at the cumulative effects analysis area level or hunting district scale. In general, minor adverse cumulative effects to big game security habitats or survival would be anticipated that would affect big game using the cumulative effects analysis area since: 1) no changes in open roads or motorized access for the general public that would increase hunter access would be expected; 2) proposed construction of 12.9 miles of restricted roads would have minor changes (0.1 mi./sq. mi.) to nonmotorized access at the scale of the cumulative effects analysis area; 3) 2,594 acres (12%) of hiding cover in treated stands would likely take 15-40 years to regenerate into suitable hiding cover, 4) disturbance to big game could occur in the cumulative effects analysis area for up to 15 years, and 5) negligible changes in big game survival in the cumulative effects analysis are would be anticipated.

BIG GAME WINTER RANGE/THERMAL COVER

Issue

Proposed timber management and associated activities could reduce winter thermal cover for moose, elk, white-tailed deer, and mule deer, resulting in reduced numbers and/or their displacement from the area.

Introduction

Winter ranges enable big game survival by minimizing the effects of severe winter weather conditions. Areas where these species winter are typically found at low to mid elevations (~3,000 to 6,500 ft.) and possess moderate to steep slopes – particularly associated with southerly or westerly exposures. Winter ranges tend to be relatively small areas that support concentrated numbers of big game, which are widely distributed during the remainder of the year. These winter ranges are relatively disturbance-free and have adequate midstory and overstory to reduce wind velocity and intercept snow. Densely stocked thickets of conifer regeneration and densely forested mature stands provide thermal protection and hiding cover, which can reduce energy expenditures and stress associated with cold temperatures, wind, and human-caused disturbance. Areas with mature forest cover are also important for snow interception, which makes travel and foraging less stressful for big game during periods when snow is deep. Snow depths differentially affect big game; white-tailed deer are most affected, followed by mule deer, elk, and then moose. Thus, removing cover that is important for wintering big game through forest management activities can increase their energy

expenditures and stress in winter, but may increase forage production for use on summer range. Reductions in cover could ultimately result in a reduction in winter range carrying capacity and subsequent increases in winter mortality within local big game herds.

Analysis Area
Direct and indirect effects were analyzed for activities conducted in the 6,641-acre project area. Cumulative effects were analyzed on the combined deer and elk winter ranges in the 75,853-acre cumulative effects analysis area described above in the Analysis Areas portion of this analysis. This scale provides enough winter habitat to support several hundred wintering white-tailed deer, mule deer, and elk.

Analysis Methods
Direct, indirect and cumulative effects were analyzed using the DFWP winter range maps, field evaluations, aerial photograph interpretation, and a review of habitat components. Factors considered in the analysis include the amount of cover removal on the winter range, amount of mature forested habitat on the winter range, and levels of human disturbance.

Existing Environment
Montana Department of Fish, Wildlife, and Parks identified white-tailed deer (3,263 acres, 49%), mule deer (3,028 acres, 46%), elk (5,716 acres, 86%), and moose (1,419 acres; 21%) winter ranges in the project area. These winter ranges are part of larger winter ranges in the area. Mature Douglas-fir, Douglas-fir/western larch, and ponderosa pine stands in the project area are providing attributes facilitating use by wintering big game. Approximately 4,556 acres of the project area (71%) appear to have sufficient canopy closure (>40%) to be providing snow intercept and thermal cover attributes for big game. Evidence of winter and non-winter use by deer, elk, and moose was noted during field visits.

Roughly 21,203 acres (28%) of white-tailed deer, 18,690 acres (25%) of mule deer, 35,514 acres (47%) of elk, and 9,998 (13%) of moose winter ranges exist in the cumulative effects analysis area. An additional 853 acres dominated by ponderosa pine on DNRC-managed lands outside of the project area (47%) appear to have sufficient canopy closure (>40%) to be providing snow intercept and thermal cover attributes for big game. On other ownerships in the cumulative effects analysis area, approximately 25,343 acres (38%) appear to have sufficient canopy closure to provide thermal cover and snow intercept for big game species, including approximately 15,636 acres (23%) that currently appears to possess greater than 40% overstory canopy cover in mature forest patches. Collectively, across all ownerships, approximately 30,752 acres (41%) of the cumulative effects analysis area appear to have sufficient canopy closure to provide thermal cover and snow intercept for big game species. Portions of the cumulative effects analysis area (29,015 acres, 43%) in shrubs, herbaceous areas, poorly stocked forested stands, burned areas, and recently harvested stands would not be expected to provide thermal cover or snow intercept in the near future. Human disturbance within the winter range is associated with residential developments, commercial timber management, several roads including Highway 90, and the BNSF railroad. Past timber management, recent wildfires, and human developments that have occurred in the cumulative effects analysis area likely altered big game winter range and thermal cover habitats and/or human disturbance levels. Any ongoing timber management in the cumulative effects analysis area could continue altering big game thermal cover and winter range habitats and/or disturbing wintering big game. A minor amount of the ongoing Alberton Gorge Recreational Corridor Forest Improvement Project on Montana Department of Fish, Wildlife, and Parks land is occurring in the cumulative effects analysis area that is removing forest attributes but would not be expected to appreciably affect big game winter range attributes.

Environmental Effects on Big Game Winter Range/Thermal Cover

Direct and Indirect Effects of the No-Action Alternative

No further direct or indirect effects to big game winter range and thermal cover would be anticipated since: 1) no further changes in the amount of mature-forested habitats in the winter range would be anticipated; 2) no further changes in thermal cover and snow intercept would be anticipated; and 3) human disturbance levels would not change.

Direct and Indirect Effects of the Action Alternative

Proposed activities could occur in the winter or non-winter periods. Associated disturbance could temporarily displace wintering big game animals during periods of operation for up to 15 years; no disturbance or displacement of wintering big game on winter ranges would be anticipated with activities conducted during the non-winter period but those activities could temporarily displace big game animals during non-winter operations when considerable other suitable habitats exist in the vicinity, which would minimize the effects to big game species. No changes to public motorized access to the project area would occur, thus no further added risk of displacement would be expected. Minor positive, short-term benefits would be anticipated as big game may concentrate feeding activity on felled treetops, limbs, and slash piles during nighttime and quiet periods when logging operations would be shut down during the winter. Increasing short-term forage availability in this manner could partially offset some of the effects associated with temporary displacement caused by logging disturbance. There could be short-term added risk of disturbance and displacement of wintering animals that could result in moderate adverse effects associated with logging operations and road use in the project area. However, no long-term disturbance or displacement effects to winter range carrying capacity that would lead to reduced numbers of big game would be anticipated.

Proposed activities would occur on roughly 1,423 acres (44%) of white-tailed deer winter range, 2,196 acres (73%) of mule deer winter range, 3,329 acres (58%) of elk winter range, and 757 acres (53%) of moose winter range. Proposed activities would reduce canopy closure and potential winter use by big game on roughly 3,023 acres (66%) that likely have attributes facilitating considerable winter use by big game. Following proposed activities, canopy densities in these stands providing snow intercept and thermal cover would be removed, reducing habitat quality for wintering big game. In general, it could take 30 to 50 years for these stands to regenerate and attain a size capable of providing thermal cover for big game. Proposed activities would not prevent big game movement through the project area appreciably in winter and could stimulate browse production in the units. No long-term effects to winter range carrying capacity or factors that would create long-term habitat reduction or reduced numbers of big game would be anticipated. Thus, a moderate risk of adverse direct or indirect effects to big game winter range and thermal cover would be anticipated since: 1) the relatively short-term that proposed activities could create disturbance in this area and temporarily displace wintering big game; 2) proposed activities would remove 66% of the stands that are providing thermal cover and snow intercept habitats for big game species; and 3) portions of winter ranges for several species of big game would be altered.

Cumulative Effects of the No-Action Alternative

Continued big game use of the larger winter ranges would be expected. No further changes in thermal cover and snow intercept would be anticipated. Human disturbance levels would be anticipated to continue at current levels. No appreciable changes to big game distribution or habitat use would be anticipated. Thus, no cumulative effects to big game winter range or thermal cover would be expected since: 1) no further changes in the amount of mature-forested habitats in the winter range would be anticipated; 2) no further changes in thermal cover and snow intercept would occur; and 3) human disturbance levels would not change.

Cumulative Effects of the Action Alternative

Proposed activities could occur in the winter or non-winter periods. Disturbance created by mechanized logging equipment and trucks in a small part of the cumulative effects analysis area could temporarily displace wintering big game animals during periods of operation for up to 15 years; no disturbance or displacement of wintering big game on winter ranges would be anticipated with activities conducted during the non-winter period. Any potential disturbance and displacement could be additive to any displacement associated with ongoing activities in the cumulative effects analysis area and any other disturbances that may be affecting wintering big game. Similarly, any timber management activities that may be occurring in the cumulative effects analysis area could continue altering big game winter range and/or disturbing wintering big game. Proposed activities would occur on roughly 1,423 acres (7% of the winter range in the cumulative effects analysis area) of white-tailed deer winter range, 2,196 acres (12% of the winter range in the cumulative effects analysis area) of mule deer winter range, 3,329 acres (9% of the winter range in the cumulative effects analysis area) of elk winter range, and 757 acres (8% of the winter range in the cumulative effects analysis area) of moose winter range. Proposed activities would reduce canopy closure and potential winter use by big game on roughly 3,023 acres (10%) of thermal cover facilitating considerable winter use by big game; approximately 27,729 acres (37% of the cumulative effects analysis area) would remain in mature forest cover with >40% overstory canopy closure that could serve as big game thermal cover following proposed activities. Some localized reductions in the connectivity of these mature stands would occur, which could alter the way big game would be able to use these patches of thermal cover in a small portion of the cumulative effects analysis area in the vicinity of the project area. Continued use of the larger winter range would be expected and no appreciable long-term cumulative effects to winter range carrying capacity or factors that would create long-term displacement or reduced numbers of big game detectable at the scale of an elk herd unit would be anticipated. Thus, a minor risk of adverse cumulative effects to big game winter range or thermal cover would be anticipated since: 1) the relatively short-term that proposed harvesting activities would create disturbance in a small portion of the cumulative effects analysis area; 2) habitats providing big game snow intercept and thermal cover on roughly 10% of the larger winter range would be removed; 3) relatively small amounts of winter ranges for several species of big game would be altered.

Wildlife Mitigations

- A DNRC biologist will be consulted if a threatened or endangered species is encountered to determine if additional mitigations that are consistent with the administrative rules for managing threatened and endangered species (ARM 36.11.428 through 36.11.435) are needed.
- Motorized public access will be restricted at all times on restricted roads that are opened for harvesting activities; signs will be used during active periods and a physical closure (gate, barriers, equipment, etc.) will be used during inactive periods (nights, weekends, etc.). These roads and skid trails would be reclosed to reduce the potential for unauthorized motor vehicle use.
- Snags, snag recruits, and coarse woody debris will be managed according to *ARM 36.11.411* through *36.11.414*, particularly favoring western larch and ponderosa pine. Retain at least 2 large snags and 2 large recruitment trees per acre (both >21 inches dbh, or largest available). Given operability and human safety constraints, retain all existing non-merchantable snags where possible. Clumps of existing snags could be

maintained where they exist to offset areas without sufficient snags. Retain large woody debris within ranges recommended by Graham et al. (1994). For this project the appropriate range is approximately 5-15 tons per acre. Coarse woody debris retention would emphasize retention of downed logs of 15-inch diameter or larger.

- Where opportunities exist, retain leave trees, sub-merchantable trees, and retention areas in a clumped fashion to emulate natural disturbance patterns and reduce sight distances for wildlife.
- Contractors and purchasers conducting contract operations will be prohibited from carrying firearms while on duty.
- Food, garbage, and other attractants will be stored in a bear-resistant manner.
- Should a raptor nest be identified in or near project activities, activities will cease and a DNRC biologist will be contacted. Site-specific measures will be developed and implemented to protect the nest and birds prior to re-starting activities.
- Retention of patches of advanced regeneration of shade-tolerant trees in Canada lynx types would break-up sight distances, provide horizontal cover, and provide forest structural attributes preferred by snowshoe hares and lynx.
- In pre-commercial thinning units in Canada lynx types, retain small shade tolerant trees (such as sub-alpine fire and spruce to provide potential habitat structure for snowshoe hares by increasing the levels of horizontal cover and accelerating the development of multi-storied stands.
- Provide connectivity for fisher, Canada lynx, and a host of other species by maintaining corridors of unharvested and/or lighter harvested areas along riparian areas, ridge tops, and saddles.

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Attachment G - Scoping

Sam Whitney
Department of Natural Resources and Conservation
3206 Maverick Lane
Missoula, MT 59804
swhitney@mt.gov

Re: Lion Pint Forest Management Project
I am writing in opposition to the Lion Point Forest Management Project. The Rock Creek and Fish Creek drainages are sensitive areas for wildlife and a recovering Bull Trout Fishery. The proposed areas are also within the path of Grizzly movement routes as they move to the Bitterroots.

New and existing road improvement creates hardship on the wildlife that resides here and invites increased human traffic into areas that have up to this point required that people walk to these areas.

"Roads probably pose the most imminent threat to grizzly habitat today…The management of roads is the most powerful tool available to balance the needs of bears and all other wildlife with the activities of humans…Any un-roaded land represents important and unique opportunities…Management should seek to maintain these areas as un-roaded wherever possible." - *US Fish and Wildlife Service, Grizzly Bear Recovery Plan, 1993*

- Roads and vehicle use fragment and reduce big game habitat, disrupt natural migratory patterns and isolate populations.
- Vehicle use leads to competition for resources, and an increase in stress levels and potential for illness.
- Vehicle use impacts breeding habits, calf survival and the social order of herds.
- Vehicle use results in a disproportionate loss of bull elk by facilitating access.
-

There has been little in the way of agency evaluation of the intensifying human footprint on the health of these public lands. If the roads are built and the land is logged there will increased access to the habitat that supports the wildlife. We have witnessed this in both drainages. Where roads are not gated there are signs of human disruption to the natural environment. Garbage, off road ATV travel, decreased sign of wildlife. Human disturbance, in general, has consequences for wildlife, whether it be direct habitat, indirect habitat loss through displacement, or habituation Displacement of wildlife to less desirable and often ecologically inferior areas may be as detrimental to wildlife populations as harassment or habitat changes due to reduced foraging efficiency. Any new or improved roads will invite increased human use unless the roads are permanently gated

Sincerely,

Jane Whetzel
3389 Rivulet Road
Alberton, Montana 59820

Good morning,

Thank you for your interest in the Proposed Lion Point Forest Management Project and for taking the time to send us your concerns. Your comments will be reviewed by an Interdisciplinary Team, including a DNRC wildlife biologist during our MEPA (Montana Environmental Policy Act) analysis process. The Lion Point Forest Management Project is still in the development stage of the project, however at this stage we are not proposing any additional open public roads. The proposed new road construction or road reconstruction within the proposed project area would be for timber management purposes (behind locked gates) The Lion Point Forest Management Project Environmental Assessment (EA) is planned to be completed fall of 2025, however the completion date will depend on staff workloads and/or changing priorities. When completed the EA and decision will be posted on the DNRC website (https://dnrc.mt.gov/Environmental-Docs/). Call or email with any questions.

Sam Whitney
Forest Management Coordinator
Missoula Unit
3206 Maverick Lane
Missoula, MT 59804
Office 406-542-5810
Cell 406-207-1235

FWP.MT.GOV

THE **OUTSIDE** IS IN US ALL.

Montana Fish, Wildlife and Parks - Region 2
3201 Spurgin Road
Missoula, MT 59804
(406) 542-5500
05-08-2024

Sam Whitney
Department of Natural Resources and Conservation
Missoula Unit
3206 Maverick Lane
Missoula, MT 59804
406-542-5810
swhitney@mt.gov

Subject: *Lion Point Forest Management Project*

Dear Sam,

Thank you for the opportunity to comment on the developing DNRC *Lion Point Forest Management Project* located within the greater Fish Creek Wildlife Management Area and State Park footprints. The project area contains habitat for a diverse array of fish and wildlife species including important game animals like elk, mule deer, white-tailed deer, black bears, mountain lions, gray wolves, bobcats, ruffed grouse, and dusky grouse; federally protected species including grizzly bears and Canada lynx; conservation populations of westslope cutthroat trout (WCT) and bull trout, and numerous nongame species identified by the State Wildlife Action Plan (2015) as Species of Greatest Conservation Need.

Recognizing that DNRC Best Management Practices (BMPs) and Native Fish Habitat Conservation Plan (HCP) commitments will mitigate many concerns, Montana Fish, Wildlife, & Parks (FWP) encourages continued communication with project staff as units and prescriptions are developed. The proposed projects will likely provide opportunities to improve habitat conditions for several big-game species, and careful attention to key habitat patches and features (e.g., snag and downed wood retention) can greatly benefit nongame species without major impacts to timber harvest operations.

FWP suggests the following changes and/or mitigations to the chosen alternative that will help offset potential impacts to the fish and wildlife species and their habitats outlined above.

Fisheries
Given the high native fish conservation value of the properties included in the sale, FWP requests that Native Fish HCP riparian protection and fish passage guidelines are applied as minimum standards for all affected stream segments as the project is planned and implemented. Affected reaches include main stem segments, as well as tributaries that flow during high water periods and enter directly above and within WCT and bull trout spawning and rearing areas. DNRC's proposed inclusion of road maintenance and drainage improvements (BMPs), mitigation of recreation abuse, and other enhancements as part of the project will help in addressing resource issues and are much appreciated. We also appreciate the careful consideration being applied by DNRC staff regarding road densities and road location as these features directly and indirectly affect the quality of aquatic habitats.

Large Carnivores
Loggers and project personnel should be made aware that bears are attracted to oil products and machinery lubricants, hoses, and seats. Anyone camping in the area during logging operations should properly store attractants such as food, garbage, and pet food, and always have bear spray immediately accessible.

Game Wildlife
The project area is habitat for elk and white-tailed deer during all times of year. Project objectives related to ungulate species should consider year-round habitat needs including winter-range conditions, parturition areas, and security features. We encourage further communication with FWP biologists as project units and prescriptions are developed to increase the likelihood of treatment-specific habitat improvements, many of which will be species and season specific (e.g., elk versus deer winter range). This includes, but is not limited to, a diversity of stand types, ages, and densities ranging from open south-facing hillsides to denser patches of mature trees and connectivity across different treatment prescriptions.
The project area is habitat for both ruffed and dusky grouse species. Selective harvest that retains a heterogeneous distribution of stand structures, including dense patches (i.e., thickets) of younger trees would be beneficial to maintaining important habitat for both species. Protection of riparian zones associated with fisheries guidelines will benefit ruffed grouse.

Nongame Wildlife
There are many Species of Greatest Conservation Need that use these parcels, primarily those that are associated with riparian areas and those that rely on large diameter living trees and snags. There is also the potential for forest-associated raptors to be foraging and/or nesting within habitats on these parcels. Focal species for the area should include pileated woodpecker, brown creeper, great gray owl, golden eagle, western toad, and tree-roosting bats. Overall, thoughtful timber harvest in this area has the potential to be highly beneficial to nongame wildlife if habitat diversity and connectivity between important habitat patches are maintained.

Potential concerns and recommendations highlighted in the preceding sections will be beneficial to nongame wildlife that use these parcels. Particularly, focusing on riparian area protections and maintaining a diversity of stand structures and tree densities. Large-diameter (> 21" dbh) living, injured, dead, and dying trees should be prioritized for retention. Few to no snags should be removed from these parcels except as needed for the safety of logging operations. Clumps of mistletoe infected Douglas-fir should be retained when mitigation to prevent spread is possible. These trees are important for potential nest structures for raptors and thermal cover for a variety of birds and small mammals. Clumps of dense, young trees should be retained throughout the project area for additional thermal and hiding cover.

FWP looks forward to continued engagement with the DNRC as this project moves forward. We are planning to submit more detailed and specific comments related to timber management once we have had a chance to review the Environmental Assessment and associated maps of cut units. In the coming months, we will be exploring these parcels more fully to help identify key habitat patches and potential impacts with the goal of helping inform timber management practices that will meet DNRC's sustainable yield goals while also protecting the disproportionately important habitat types and habitat features that are found on these parcels.

The following members of FWP's Region 2 team will be the primary contacts for this project:

1) Ladd Knotek, Clearwater Fisheries Management Biologist, lknotek@mt.gov, 406-542-5506
2) Jamie Jonkel, Region 2 Conflict Specialist Manager, JaJonkel@mt.gov, 406-542-5508
3) Ryan Klimstra, Missoula Area Wildlife Biologist, Ryan.Klimstra@mt.gov, 406-542-5516
4) Torrey Ritter, Region 2 Nongame Wildlife Biologist, torrey.ritter@mt.gov, 406-381-2339

We encourage you to reach out with any questions or concerns about these comments. Thank you again for the opportunity to comment and we look forward to working with you in the future.

Sincerely,

Kendra McKlosky
Regional Supervisor, Region 2