Environmental Assessment Checklist

Project Name: Swift Stryke Forest Management Project
Proposed Implementation Date: June 2025
Proponent: Stillwater Unit, Northwest Land Office, Montana DNRC
County: Flathead

Type and Purpose of Action

Description of Proposed Action:

The Stillwater Unit of the Montana Department of Natural Resources and Conservation (DNRC) is proposing the **Swift Stryke Forest Management Project**. The project is located 3 miles east of Olney, MT (refer to Attachments vicinity map A-1 and project map A-2), and includes the following sections:

Beneficiary	Legal Description	Total Acres	Treated Acres
Common Schools	**T32N R23W Sections 3,4 and 9 T33N R23W, Sections 22,23,25-27 and 34-36**	**7,008**	**1,351.7**

Table 1 – Project Trust Beneficiaries

Objectives of the project include:

- Manage stand densities to increase tree health, growth, and vigor.
- To contribute to the Montana DNRC's Sustained Yield.
- Generate revenue for the Common Schools Trust.
- Promote biodiversity on State ownership by managing for appropriate or desired stand structures and species compositions based on ecological characteristics such as topography, habitat type, disturbance regime, and unique characteristics.
- Create fuel breaks within the Wildland Urban Interface, especially near adjacent private land.
- Address insect and disease issues.

Proposed activities include:

Action	Quantity
Proposed Harvest Activities	# Acres
Clearcut	0.0
Seed Tree	0.0
Shelterwood	0.0
Selection	0.0
Old Growth Removal	2.1
Commercial Thinning	1144.5
Over Story Removal	0.0
Salvage	0.0
Sanitation	128.2
Shaded fuel break	76.9
Total Treatment Acres	**1351.7**
Proposed Forest Improvement Treatment	# Acres
Pre-commercial Thinning	0.0
Site preparation/scarification	0.0
Planting	0.0
Proposed Road Activities	# Miles
New permanent road construction	0.0
New temporary road construction	3.0
Road maintenance	31.6
Road reconstruction	0.0
Road abandoned	0.0
Road reclaimed	0.0
Other Activities	N/A

Duration of Activities:	4 years
Implementation Period:	June 16- March 31 (annually)

The lands involved in this proposed project are held in trust by the State of Montana. (Enabling Act of February 22, 1889; 1972 Montana Constitution, Article X, Section 11). The Board of Land Commissioners and the DNRC are required by law to administer these trust lands to produce the largest measure of reasonable and legitimate return over the long run for the beneficiary institutions (Section 77-1-202, MCA).

The DNRC would manage lands involved in this project in accordance with:

- The State Forest Land Management Plan (DNRC 1996),
- Administrative Rules for Forest Management (ARM 36.11.401 through 471),
- The Montana DNRC Forested State Trust Lands Habitat Conservation Plan (HCP) (DNRC 2010)
- and all other applicable state and federal laws.

Project Development

SCOPING:

- DATE:
  - April 19, 2023 – May 19, 2023
- PUBLIC SCOPED:
  - The scoping notice was posted on the DNRC Website: https://dnrc.mt.gov/News/scoping-notices
  - Adjacent Landowners, Statewide scoping list, Tobacco Valley News and commercial licensees within project area
- AGENCIES SCOPED:
  - Montana Fish, Wildlife and Parks
  - US Forest Service, Kootenai National Forest
  - Montana Indigenous Tribal Organizations
- COMMENTS:
  - How many: Five public comments were received by email for this project.
  - Concerns:
    1. Two comments in support of active forest management were received from timber industry representatives with additional emphasis on economics, forest improvement, Streamside Management Zone (SMZ) management and fuels reduction within the Wildland Urban Interface (WUI).
    2. Comment was received from Lincoln Electric Cooperative regarding timber management along powerlines and rights-of-way (ROW) and coordinating timber projects with ROW clearance work.
    3. Comment was received from a local resident regarding noise from log-hauling traffic, haul route specifics, the need for follow-up slash pile burning and noxious weed prevention.
    4. Comment from Friends of the Wild Swan (FOWS) regarding old-growth forest habitat management, road systems, wildlife habitat fragmentation, water quality, climate change and noxious weeds.
  - Results:
    1. See Attachment C for a detailed list of concerns voiced during the scoping process and responses to applicable concerns.

DNRC specialists on the Interdisciplinary Team (ID Team) were consulted. The ID Team considered all the internal and external issues and determined that one action alternative could be developed and reviewed in this EA. The development of the project is described below and displays how concerns were addressed.

The ID Team includes several foresters and DNRC specialists:

- Justin Cooper (Wildlife Biologist),
- Josh Harris (Hydrologist),
- Patrick Rennie (Archeologist),
- Mike Anderson (Fisheries Biologist),
- Cullen O'Brien (Forester, Vegetation Specialist)

Project Development:

- **Stand Prioritization**

  Project leader focused on the following types of forest conditions to improve stand health and stocking densities. These include:
  - Overstocked stands with poor tree vigor, health, and growth.
  - Areas of advanced insects/disease issues (dwarf mistletoe).
  - Stands within the project area that contain heavy fuel loadings of both live and dead material.
- **Transportation Development**

  The ID team identified opportunities to update the transportation plan within the project area, meet safety standards / BMPs, and improve access for fire suppression activities is a main objective of the project.

OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED: *(Conservation Easements, Army Corps of Engineers, road use permits, etc.)*

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

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

Montana/Idaho Airshed Group- The DNRC is a member of the Montana/Idaho Airshed Group which was formed to minimize or prevent smoke impacts while using fire to accomplish land management objectives and/or fuel hazard reduction (Montana/Idaho Airshed Group 2010). As a member, DNRC must submit a list of planned burns to the Airshed Group's Smoke Monitoring Unit describing the type of burn to be conducted, the size of the burn in acres, the estimated fuel loading in

tons/acre, and the location and elevation of each burn site. The Smoke Monitoring Unit provides timely restriction messages by airshed. DNRC is required to abide by those restrictions and burn only when granted approval by the Smoke Monitoring Unit when forecasted conditions are conducive to good smoke dispersion.

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.

- Lazy Creek Conservation Easement- Multi-Resource Management Plan: The Lazy Creek Conservation property is located approximately 9 miles northwest of Whitefish, Montana in Flathead County. The Lazy Creek Conservation Easement contains sections 4, 3, 9-11, 14-16, 22, 23, 25-27 and 34-36. The purpose of the Multi-Resource Management Plan is to meet the requirements of the Department (MT FWP) to protect fish and wildlife habitat and provide for continued public access pursuant to various grant agreements. Adherence to this plan by the DNRC will facilitate compliance with the purpose of the conservation easement (*Lazy Creek Conservation Easement*. MT FWP, MT DNRC, MT TPL. *December 2017. Retrieved January 2025).*

ALTERNATIVES CONSIDERED:

No-Action Alternative: Under this alternative, no timber would be harvested and therefore no revenue would be generated from the project area for the Common Schools Trust at this time. Salvage logging, firewood gathering, recreational use, fire suppression, noxious-weed control, additional requests for permits and easements, and ongoing management requests may still occur. Natural events, such as plant succession, tree mortality due to insects and diseases, windthrow, down fuel accumulation, in-growth of ladder fuels, and wildfires, would continue to occur.

Action Alternative: A commercial timber harvest would take place to remove approximately 3.4-5.0 MMbf of timber using ground-based harvesting methods on 1,351.7 acres. Approximately $889,254.60 in revenue would be generated for the Common Schools trust. Specific harvest unit data is provided in Attachment B – Swift Stryke Forest Management Project Prescription Table. Using this table with the maps A-1 State Trust Lands Vicinity Map, and A-2, Swift Stryke Forest Management Project Harvest Maps, will provide additional detail for this project.

The following silvicultural prescriptions would be applied in the project area:

- Commercial Thin (1144.5 acres) – Enhance growth and health of the existing stands.
- Sanitation (130.3 acres) - remove dead and dying western larch infected with dwarf mistletoe.
- Shaded fuel break (76.9 acres) – removal of ladder fuels along the Upper Whitefish Road to aid wildland firefighting efforts, reduce fuel along high traffic roads and to provide for firefighter access and safety.

In addition to the proposed harvest treatments, post-harvest actions will be required to successfully meet Best Management Practices, control the spread of noxious weeds, regenerate new stands and reduce fuel loading.

- Pre and post treatment weed spraying would occur on all associated roads with the proposed Swift Stryke Forest Management Project.
- Road maintenance and BMP improvements would be performed on 13.8 miles of existing open roads and 37.3 miles of existing restricted roads. Additionally, up to 3.0 miles of temporary restricted road may be built as part of this project.
- Landing and slash piles would be burned to reduce fuel loads.

Recent and ongoing forest management projects in the Cumulative Effects Analysis Area (CEAA) include the Olney North Forest Management Project (D*NRC 2024*), Lupfer Loop Timber Sale (*DNRC 2024*), North Lake Salvage Forest Management Project (*DNRC 2024*), McStryker Timber Sale (*DNRC 2022*), and Upper Swede Timber Sale (*DNRC 2019*). Proposed DNRC forest management projects in the CEAA include the Dog Rock Timber Sale (*DNRC 2024),* Antice Flats Timber Sale *(DNRC 2024),* Upper Stillwater Forest Management Project (*DNRC 2023*), and HB-883 Precommercial Thinning Projects – Phase 1 (*DNRC 2024*).

Impacts on the Physical Environment

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

VEGETATION:

Vegetation Existing Conditions:

The lands involved in this environmental assessment possesses montane forests and riparian vegetation communities that support diverse terrestrial wildlife populations. Elevations vary from approximately 3,100 to 5,200 feet. Forestland dominates the landscape. It is a mixed conifer forest with all Montana commercial timber species represented. The current forest is well stocked with a vigorous growing stock of native mixed species. The desired future condition of the forest would be achieved through sustainable harvest to create and maintain a diversity of stand structure, age class and species mix with a preference for uneven aged stand conditions where ecological conditions permit. Dominant species are Douglas-fir, western larch, western white pine, true firs, and Engelmann spruce. Lodgepole pine, western red cedar, and ponderosa pine can also be found in most of the area. Broad leaf tree species such as cottonwood, paper birch, and aspen are also well represented throughout the project area.

The majority of the proposed commercial thinning treatment units occur in stands that were harvested during 1960's-70s. Pre-commercial thinning work that has been completed in these stands over the past decades have resulted in well stocked but not over stocked stands with little insect and disease present or form defects often seen in over stocked stagnated stands. While stands proposed for commercial thin treatments are in generally good condition and currently healthy, tree growth is beginning to slow due to overstocking. Additionally, previous harvests left several stands with western larch seed trees

infested with the parasitic plant larch dwarf mistletoe (*Arceuthobium laricis)*. The proposed treatments will remove trees infested with this parasite.

Harvest Unit	Habitat Group	Fire Regime	Current Cover Type	Age Class (years)	DFC	Rx	Acres
1	Cool and moist (westside)	Infrequent-to-mixed	Western Larch/Douglas Fir	40-99	Western Larch/Douglas Fir	Commercial Thinning	98.5
2	Cool and moist (westside)	Infrequent-to-mixed	Western Larch/Douglas Fir	40-99	Western Larch/Douglas Fir	Commercial Thinning	86.5
3	Warm and moist (westside)	Infrequent-to-mixed	Douglas Fir	40-99	Western Larch/Douglas Fir	Commercial Thinning	67.0
4	Warm and moist (westside)	Infrequent-to-mixed	Douglas Fir	40-99	Western Larch/Douglas Fir	Commercial Thinning	41.5
5	Warm and moist (westside)	Infrequent-to-mixed	Douglas Fir	40-99	Western Larch/Douglas Fir	Commercial Thinning	63.8
6	Cool and moist (westside)	Infrequent-to-mixed	Mixed Conifer	40-99	Western Larch/Douglas Fir	Commercial Thinning	21.1
7	Warm and moist (westside)	Infrequent-to-mixed	Western Larch/Douglas Fir	40-99	Western Larch/Douglas Fir	Commercial Thinning	86.4
8	Warm and moist (westside)	Infrequent-to-mixed	Western Larch/ Douglas Fir	40-99	Western Larch/ Douglas Fir	Commercial Thinning	320.4

9	Warm and moist (westside)	Infrequent-to-mixed	Western Larch/Douglas Fir	40-99	Western Larch/Douglas Fir	Commercial Thinning	213.9
10	Cool and moist (westside)	Infrequent-to-mixed	Mixed conifer	40-99	Western Larch/Douglas Fir	Commercial Thinning	9.3
11	Warm and moist (westside)	Infrequent-to-mixed	Western Larch/Douglas	40-99	Western Larch/Douglas Fir	Commercial Thinning	26.5
12	Warm and moist (westside)	Infrequent-to-mixed	Western Larch/Douglas Fir	40-99	Western Larch/Douglas Fir	Commercial Thinning	15.7
13	Warm and moist (westside)	Infrequent-to-mixed	Western Larch/Douglas Fir	40-99	Western Larch/Douglas Fir	Commercial Thinning	36.2
14	Cool and moist (westside)	Infrequent-to-mixed	Western Larch/Douglas Fir	40-99	Western Larch/Douglas Fir	Commercial Thinning	7.7
15	Warm and moist (westside)	Infrequent-to-mixed	Western Larch/Douglas Fir	40-99	Western Larch/Douglas Fir	Commercial Thinning	36.7
16	Warm and moist (westside)	Infrequent-to-mixed	Western Larch/Douglas Fir	40-99	Western Larch/Douglas Fir	Sanitation	3.9
16A	Warm and moist (westside	Infrequent-to-mixed	Mixed conifer	Old growth	Western larch/Douglas fir	Sanitation	2.1
17	Cool and moist (westside)	Infrequent-to-mixed	Western Larch/Douglas Fir	40-99	Western Larch/Douglas Fir	Commercial Thinning	6.7
18	Warm and moist (westside)	Infrequent-to-mixed	Western larch	0-39	Western Larch/Douglas Fir	Sanitation	85.3
19	Cool and moist (westside	Infrequent-to-mixed	Mixed conifer	40-99	Mixed conifer	Commercial Thinning	6.6
20	Cool and moist (westside)	Infrequent-to-mixed	Subalpine fir	100-149	Mixed conifer	Sanitation	23.7
21	Cool and moist (westside)	Infrequent-to-mixed	Mixed conifer	40-99	Mixed conifer	Sanitation	15.4

22	Warm and moist (westside	Infrequent-to-mixed	Mixed conifer	0-39	Western Larch/Douglas Fir	Shaded fuel break	76.9

Table 4 – Project Unit Specifics

Fire Hazard/Fuels: Stands within the project area have been intensively managed for timber production over the past century leading to little continuous coarse woody fuels horizontally or vertically arranged. Stands that are predominantly western larch in the over story do not contain conifer regeneration in the understory. Stands with a greater mixed conifer component contain laddered shade tolerant regeneration that could lead to a running crown fire given the right conditions.

Fire group types that occur in this project include: moist lower subalpine (***Fire group 9***) which typically burn infrequent but severe in these types, and the effects of fire are long lasting. Spruce is usually a major component of seral stands. Cold, moist upper subalpine and timberline habitat types (***Fire group 10***) are a collection of high elevation habitats in which fires are infrequent and are often small in extent because of normally sparse fuels. Severe fires have long term effects. Sub-alpine fir, spruce, whitebark pine, and subalpine larch are the predominant conifers. Moist grand fir, western redcedar and western hemlock habitat types (***Fire group 11***) are generally moist habitats in which fires are infrequent but often severe. In Montana they occur exclusively west of the continental divide.

Insects and Diseases:

Stands of dwarf mistletoe infested western larch have been Identified within the project area, approximately 130.3 acres in total. This project will address the outbreak of dwarf mistletoe through removal of residual shelterwood and seed trees infected with the parasitic plant. "Infected shelterwood or seed trees should be removed as soon as susceptible regeneration has become established." (Betty) Slashing western larch regeneration within 30ft of the infected overstory larch, "The average horizontal distance of seed flight is about 20 feet with 90% of the seed landing within 30-feet" (Betty) additionally a 100ft species break surrounding infected areas "In mixed species stands that contain wester larch infected by dwarf mistletoe, silvicultural treatments should favor other tree species. Non-hosts left between infected and non-infected larch prevent or slow spread and intensification of the parasite." (Betty) White pine blister rust is also present in low levels through the project area. Trees showing signs of infection would be removed.

Animal damage: Bears are girdling trees within the first five feet of the tree base by harvesting the carbohydrate rich cambium. Western larch is the only tree species being affected by bear-caused girdling within the project area. Tree morality resulting from this feeding behavior extends throughout the project area, with the most substantial mortality located along the section line, between sanitation units 16, 16A, 18 and commercial thinning units 2, 3, and 4. These areas of western larch mortality will be removed via sanitation treatments to create a break in species composition to retard the spread of dwarf mistletoe into adjacent stands.

Sensitive/Rare Plants: Three sensitive plant species have been identified within the Swift Stryke project area. *Ophioglossum pusilum (*Ader's tongue) is found in wet meadows, margins of fens, and gravelly moist soils in the valley and montane zones. *Geocaulon lividum* (Northern toadflax) is found in moist spruce

forests, often bordering wetland areas, in the montane zone. *Dryopteris cristata* (Crested shield fern) is also found in moist to wet, often organic soils at the forest margins of fens and swamps in the montane zone. These species typically reside in riparian areas and were not found in the proposed harvest units.

Noxious Weeds: In the project area, the following noxious weeds have been observed: spotted knapweed *(Centaurea stoube)*, Canada thistle *(Cirsium arvense)*, oxeye daisy (L*eucanthemum vulgare)*, orange hawkweed *(Hieracium aurantiacum)*, dalmatian toadflax *(Linaria dalmatica)*, houndstongue *(Cynoglossum officinale)*, and St. Johnswort *(Hypericum perforatum)*.

Alternative Impacts (see Vegetation table below):

Vegetation	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Current Cover/DFCs	X				X				X					
Age Class	X				X				X					
Old Growth	X				X				X					
Fire/Fuels	X				X					X				
Insects/Disease	X				X				X					
Rare Plants	X				X				X					
Noxious Weeds	X				X				X					
Action														
Current Cover/DFCs		X				X				X			**Y**	**V-1**
Age Class		X				X				X			**Y**	**V-1**
Old Growth		X				X				X			**N**	**V-2**
Fire/Fuels		X				X				X			**Y**	**V-3**
Insects/Disease		X				X				X			**Y**	**V-4**
Rare Plants	X				X				X				**Y**	**V-5**
Noxious Weeds		X				X				X			**Y**	**V-6**

Table 5 – Vegetation Table

V-1: VEGETATIVE COMMUNITY – This proposal includes timber harvest on 1,351.7 acres to remove between 3.4 - 5 MMBF. These are the proposed treatments of the action alternative:

- 1144.5 acres of mixed conifer stands would be treated by commercial thinning. Moving the species composition towards DFC while reducing competition for scarce resources amongst residual trees.

- 130.3 acres of western larch stands will be treated using a sanitation silvicultural prescription. This will target the removal of dead and dying larch infected with the parasitic dwarf mistletoe plant. And bear damaged trees?
- 76.9 acres adjacent to the Upper Whitefish Road will be treated using a shaded fuel break treatment, spacing submerchantable timber to 15x15' spacing, saw timber spaced to 20x20' and ladder fuels removed from under drip lines of overstory leave trees. Slash will be mechanically piled and burned.

V-2: OLD GROWTH – MT DNRC proposes to treat 2.1 acres of verified old growth forest stands within the project area with a sanitation silvicultural prescription. This treatment would remove 2.1 acres of old growth attributes according to the Green et. al. criteria for Westside Old Growth Type 4, including retention of large live trees, snags, and coarse woody debris. The treatment would target the removal of mistletoe infected western larch**.**

Cumulatively there are 14,135 acres of old-growth on the Stillwater Unit and following this and other planned harvest activities on the Unit, there would be an estimated 14,129 acres of old-growth, representing 11.0% of the area under jurisdiction of the Stillwater Unit. In total, 2.1 acres would be removed from Old Growth status following the proposed treatment. Furthermore, the DNRC differentiates between verified Old Growth forest and mature forest. Mature forest is defined as possessing a reasonably closed canopy (≥40% canopy closure of trees greater than 65 feet in height) while Old Growth must meet a threshold determined by the Green et. al criteria discussed above.

V-3: FOREST FUELS – Portions of the project area contain significant ladder fuels and multiple levels of conifer regeneration in the understory. These ladder fuels could increase fire intensity and activity, potentially allowing a wildfire to spread into the overstory canopy. These areas have been identified for treatment to reduce some of the danger to nearby residents. Following the commercial thin and shaded fuel break treatments the potential for stand replacing wildfire would be reduced (see vegetation mitigations below).

Forest Fuels Mitigations:

- Units with a boundary within 1,000 feet of a residence or road open to the public would be treated to comply with High Hazard Fuel Reduction standards.
- Existing blowdown and slash would be trampled with equipment to promote decay.
- Post-harvest thinning and limbing would reduce horizontal and vertical continuity.

V-4: INSECTS and DISEASES – this project will remove all western larch showing signs of dwarf mistletoe. Species that are not susceptible to the parasite will be prioritized as leave trees within 100' surrounding stands currently containing larch mistletoe.

V-5: RARE PLANTS- Three species of rare plants have been identified within the project area. No rare plant species were located within harvest unit boundaries during surveys. If listed rare/sensitive plants

are found during this project period, then harvesting operations would be diverted from the plants and further reviewed by DNRC and plant specialists.

V-6: NOXIOUS WEEDS - Noxious weeds are present along open and closed roads within the project area. Further soil disturbance and logging equipment activity could increase the amount and distribution of noxious weeds in the project area although with implementation of vegetation mitigations listed below the increase in populations and location would be lessened.

Noxious Weeds mitigations:
To limit weed establishment and propagation, the following measures would be implemented:

- Require all tracked or wheeled equipment to be cleaned of noxious weeds prior to entering project area.
- Control the spread of noxious weeds with pre– and post- emergent herbicide treatments on established weed populations.
- Require prompt vegetation seeding of all disturbed roadside sites. Roads used and closed as part of this proposal would be reseeded.

SOIL DISTURBANCE AND PRODUCTIVITY:

Soil Disturbance and Productivity Existing Conditions:

The project area is underlain by fluvial and subaqueous lacustrine deposits of the Belt Supergroup to the north and glacial till deposits to the south. Soils on the lower slopes are characterized by a neutral, alkaline, brittle glacial till, while the upper slopes and ridges are argillites, siltites, and limestones. Two major fault lines transect the project from the northwest to the southeast. The Flathead National Forest Area, Montana soil survey, features varied soil types based on elevation and slope. On the upper slopes and ridges, soils (23-8, 23-9) are characterized by glaciated mountain slopes and ridges mantled with glacial till and widely spaced dendritic drainage patterns. In contrast, lower slopes (26C-7, 26C-8) consist of rolling glacial till deposits with deranged drainage patterns, also mantled with glacial till and similar drainage characteristics.

The proposed project will harvest approximately up to 5 MMbf across 1,351.7 acres to meet management objectives. Treatment types include commercial thinning, overstory removal, and sanitation. The project will utilize 13.8 miles of existing open road, including the haul route, and 37.3 miles of existing restricted road. Planned activities include road maintenance, improvements, and reconstruction to enhance functionality and drainage. Additionally, up to 3 miles of temporary road construction may be required. The transportation plan aligns with the Lazy Creek Multi-Resource Management Plan and the HCP Stillwater State Forest Transportation Plan.

No-Action Alternative: No direct or indirect impacts would occur to soils resources beyond those described in Soils Existing Conditions. Cumulative effects (other related past and present factors; other future, related actions; and any impacts described in Soils Existing Conditions would continue to occur.

Soil Disturbance and Productivity	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Physical Disturbance (Compaction and Displacement)	**X**				**X**				**X**					
Erosion	**X**				**X**				**X**					
Nutrient Cycling	**X**				**X**				**X**					
Slope Stability	**X**				**X**				**X**					
Soil Productivity	**X**				**X**				**X**					
Action														
Physical Disturbance (Compaction and Displacement)		**X**				**X**				**X**			**Y**	**S-1**
Erosion		**X**				**X**				**X**			**Y**	**S-2**
Nutrient Cycling		**X**				**X**				**X**			**Y**	**S-3**
Slope Stability	**X**				**X**				**X**					
Soil Productivity		**X**				**X**				**X**			**Y**	**S-3**

Table 6 – Soils Table

Comments:

S-1: PHYSICAL DISTURBANCE - Cumulative effects would be controlled by limiting the area of adverse soil impacts to less than 20 percent of harvest areas (DNRC, 1996) through implementation of BMPs, skid trail planning, and limiting operations to dry, over snow, or frozen conditions (see Mitigation Section of this analysis). The proposed harvesting activities will rely on the existing road system, skid trails (where appropriate), and landing sites to reduce the area of new direct adverse effects. A larger area, not to exceed 40% (and likely less), would be directly physically disturbed if scarification by dispersed skidding is deemed necessary for germination of desired tree species. This would increase the area of direct effects by physical disturbance, but the risk of moderate or high cumulative impacts would be low with adherence to mitigation listed in the following section.

S-2: EROSION - Hillslope erosion will potentially result from the harvest of trees, yarding, and skid trail development associated with the project. The magnitude, area, and duration of erosion are expected to be lowered by BMPs and mitigations (refer to the following Mitigations Section of this analysis). Also, the risk of erosion on disturbed soils, such as skid trails, will be mitigated by standard BMPs limiting the runoff concentration that can lead to erosion. Therefore, the risk of unacceptable adverse direct, indirect, or cumulative impacts would be low.

S-3: NUTRIENT RECYCLING - Coarse woody debris would be left on-site in volumes recommended to help maintain or improve soil moisture and forest productivity. The dominant habitat types within the project area have an optimal CWD concentration ranging between 7 to 24

tons per acre (Graham et al., 1994). Tree limbs/tops would be left on site in feasible amounts that meet the optimal CWD concentrations listed here and in the mitigation section at the end of this analysis. The concentrations of CWD in the harvest areas are expected to increase with the project over the existing condition. Fine debris removal would also be minimized as much as practicable. Given these measures and the mitigation described below, the risk of measurable adverse direct, secondary, or cumulative impacts to nutrient cycling would be low.

Soil Mitigations:

- Limit equipment operations to periods when soils are relative-ly dry (less than 20 percent), frozen, or snow-covered to minimize soil compaction and rutting and maintain drain-age features. Check soil moisture conditions prior to equipment start-up.
- The logger and sales administrator will agree to a skidding plan prior to equipment operations. Skid-trail planning will identify which main trails to use and how many additional trails are needed. Trails not complying with BMPs (i.e., trails in draw bottoms) will only be used if impacts can be adequately mitigated.
- Tractor skidding will be limited to slopes of less than 45 percent unless the operation can be completed without causing excessive displacement or erosion.
- Skid trails will be kept to 20 percent or less of the harvest unit acreage and have adequate drainage concurrently with operations.
- Slash will be distributed within harvest units, including large (≥3-inch diameter) and fine material (such as branches and leafy material), to maintain or achieve the amount of coarse woody material appropriate to the dominant habitat type within the project area:
- Compliance with Forestry Best Management Practices (BMPs), Streamside Management Zone (SMZ) laws, Montana DNRC Forested Trust Lands HCP, and applicable DNRC Forest Management Administrative Rules.

References:

Montana Department of Natural Resources and Conservation (DNRC), 1996. Forestry Best Management Practices: State Forest Management Plan. Montana DNRC, Forest management Bureau. Missoula, MT.

Montana Department of Natural Resources and Conservation (DNRC), 2011. DNRC compiled soils monitoring report on timber harvest projects, 2006-2010, 1st Edition. Department of Natural Resources and Conservation, Forest Management Bureau, Missoula, MT.

Graham, R.T., Harvey, A.E., Jorgensen, M.F., Jain, T.B., and Page-Dumrose, D.S., 1994, Managing Course Woody Debris in Forests of the Rocky Mountains. U.S., Forest Service Research Paper INT-RP-477. Intermountain Research Station. 16p.

NRCS, United States Department of Agriculture. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/ accessed [6/19/2024]

Montana Bureau of Mines and Geology, 2007, Geologic Map of Montana - Compact Disc: Montana Bureau of Mines and Geology: Geologic Map 62-C, 73 p., 2 sheets, scale 1:500,000. This map was digitized in 2012 as a result of a contract between the U.S. Geological Survey and the Montana Bureau of Mines and Geology.

WATER QUALITY AND QUANTITY:

Water Quality and Quantity Existing Conditions:

The hydrologic assessment for the project area considers five distinct watersheds, delineated at the 6th-level hydrologic unit scale, as shown in Table H-1: Assessment Areas Used to Evaluate Potential Impacts to Hydrologic Resources. These watersheds vary in size, hydrological complexity, and contribution to overall water flow and resource management.

Assessment Area (6th level)	Hydrologic Code	Project Area %	Area Description
Hemlock Creek-Swift Creek	170102100505	40.4	Includes numerous first- and second- order tributaries to Swift Creek including King, Bear, Anchor, Trail, Hemlock, Taylor and Gill creeks.
Lower Stillwater Lake-Stillwater River	170102100107	34.2	Includes numerous first- and second- order tributaries which drain the west aspect of Stryker Ridge and discharge into the Lower Stillwater Lake.
Lazy Creek	170102100504	13.5	Primary first- order tributary that flows into Whitefish Lake
Dog Creek	170102100104	7.2	Includes numerous first- and second- order tributaries that flow from the west aspect of Stryker Ridge
Antice Creek-Swift Creek	170102100503	4.8	Includes numerous first- and second- order tributaries that flow from the east aspect of Stryker Ridge and from the west aspect of the Whitefish Range toward Swift Creek.

Table 7 - Assessment areas used to evaluate potential impacts to hydrologic resources.

The Antice Creek-Swift Creek Watershed is a relatively small watershed at 11 sq miles, with 6,436 forested acres, and receives the highest average annual precipitation at 40 inches. The watershed is entirely managed by DNRC, with 100% of its ownership under their jurisdiction. Lazy Creek, is slightly larger at 16 sq miles, has 9,486 forested acres (91% forest cover) but significantly lower precipitation at 23 inches. In contrast, the watershed has a mixed ownership structure, with 38% managed by DNRC and the remaining 62% classified as private ownership. Swift Creek-Hemlock Creek, the largest watershed at 29 sq miles, is dominated by 16,245 forested acres (89% forest cover), a high watershed relief of 4,137 feet, and supports 16.61 miles of streams hosting aquatic species. Ownership is distributed DNRC 66%, federal agencies 21%, and 13% private. Dog Creek, at 13 sq miles, is smaller, with 7,322 forested acres (85% forest cover), and moderate watershed relief of 3,501 feet. Finally, the Upper Stillwater River-Lower Stillwater Lake watershed spans 27 sq miles with 13,987 forested acres (80% forest cover) and lower precipitation and relief levels at 23 inches and 2,188 feet, respectively. The

watershed is 64% DNRC managed, 17% federally managed, and 18% other. Across the watersheds, no current streams are listed for impaired water quality TMDL/303(d).

Water Quality & Quantity	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Water Quality	**X**				**X**				**X**					
Water Quantity	**X**				**X**				**X**					
Action														
Water Quality		**X**				**X**				**X**			**Y**	**W-1, W-2**
Water Quantity		**X**				**X**				**X**			**Y**	**W-3**

Table 8. Hydrology Table

Comments:

W-1: WATER QUALITY - A 50-foot Stream Management Zone (extended to 100 feet on slopes greater than 35%) will be established along all streams and a 105-foot Riparian Management Zone with 50 feet of no harvest will be established along all Class 1 perennial streams. The potential risk of direct, secondary, or cumulative impacts on water quality due to sediment delivery is low.

W-2: WATER QUALITY - The harvest systems utilized, the location and size of harvest units relative to stream channels, the implementation of Forest Management BMPs, low to moderate precipitation levels observed in the project area, and surface water disconnection from downstream waters supporting beneficial uses, there is a low risk of additional direct water quality impacts for the proposed actions. Considering these impacts in combination with past and current activities, the proposed action is not likely to elevate the cumulative watershed effect beyond the existing condition.

W-3: WATER QUANTITY - The proposed harvest is not expected to impact current water uses due to the size and scale of the project. In concert with implementing BMPs and streamside buffers, this harvest level is not expected to have measurable effects on the timing, magnitude, or duration of peak flows in disconnected downstream receiving waters.

Water Quality & Quantity Mitigations:

- Best Management Practices for Forestry would be implemented and monitored for effectiveness concurrent with all forest management activities.
- Implementation of Montana Administrative Rules for Forest Management and Streamside Management Zones.
- Implementing Montana DNRCs Habitat Conservation Plan commitments for Riparian Management Zones and Sediment Delivery.

References:

Montana Department of Environmental Quality (DEQ), 2011. Montana Average Annual Precipitation 1981-2010. Montana Dept. of Environmental Quality, Helena, MT

Montana Department of Natural Resources and Conservation (DNRC). Habitat Conservation Plan - Trust Land Management Division - Fish, Wildlife, and Parks Management Bureau, 2010

FISHERIES:

Fisheries Existing Conditions:

A mix of forested landscapes and perennial streams characterizes the Hemlock Creek-Swift Creek Watershed area. Streams support populations of native trout species, such as Westslope Cutthroat Trout (Oncorhynchus clarkii lewisi) and Bull Trout (Salvelinus confluentus), which are common in Montana's forested watersheds. The Lower Stillwater Lake-Stillwater River watershed supports trout populations, including Rainbow Trout (Oncorhynchus mykiss), Brown Trout (Salmo trutta), and Mountain Whitefish (Prosopium williamsoni). Lazy Creek Watershed harbors native trout species, such as Westslope Cutthroat Trout, due to suitable habitat conditions. Dog Creek and Antice Creek-Swift Creek Watersheds support native trout species, benefiting from the area's forested environment and perennial streams.

Due to the limited acreage of the proposed harvest and low harvest intensity, the proposed actions have a high likelihood of non-detectable direct, secondary, or cumulative effects on critical Bull Trout or aquatic habitats. A low risk of sedimentation exists within 150 feet of the Lazy Creek stream crossing on the haul route. No other roads are within 300 feet of a fish-bearing stream. As stated in the above section, the proposed harvest level is not expected to result in measurable effects on the timing, magnitude, or duration of peak flows in downstream receiving waters, and any potential impacts to flow regimes are considered low.

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

Action Alternative (see Fisheries table below):

Fisheries	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Sediment	X				X				X					
Flow Regimes	X				X				X					
Woody Debris	X				X				X					
Stream Shading	X				X				X					
Stream Temperature	X				X				X					

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

Table 9 – Fisheries Table

Comments:

F-1: SEDIMENT - Roads within the project are 300 feet or greater from the river, and no crossings will be installed. Use of the haul route will cross multiple perennial streams, which may result in additional sediment delivery. The potential increase is likely immeasurable, resulting in a very low risk of any potential impact.

F-2: SEDIMENT - The proposed project will require a 50-foot Stream Management Zone (extended to 100 feet on slopes greater than 35%) along all streams and a 105-foot Riparian Management Zone with 50 feet of no harvest for all Class 1 perennial streams. The potential risk of direct, secondary, or cumulative impacts on water quality due to sediment delivery is low.

F-3: No harvest will occur within the initial 50 feet of the RMZ, leaving 100 percent tree retention and providing recruitable material. A low risk of having low impacts on woody debris and stream shading are possible but likely immeasurable. The removal of trees in the SMZ and RMZ has the potential to reduce the shade along approximately 8,448 feet of stream. This would be expected to have a moderate risk (50% chance) of having low impacts (measurable but not detrimental) for shading and temperature.

F-4: Due to the scope and intensity of the proposed project, no measurable effects are likely to the flow regime, fisheries population, or connectivity.

Fisheries Mitigations:

- All rules and regulations pertaining to the Stream Side Management Zone Law will be followed. An SMZ width of 100 feet is required on Class I and II streams when the slope is greater than 35%. An SMZ width of 50 feet is required on all streams when the slope is less than 35%.
- Implementing Montana DNRCs Habitat Conservation Plan commitments for Riparian Management Zones and Sediment Delivery.
- No additional project-specific mitigations are necessary beyond the project design and the mitigations listed in the Water Resources analysis.

References:

Montana Fish, Wildlife & Parks, (2024). Montana Fish Distribution, mFish database, https://fwp.mt.gov/gis/maps/mFish/?zoomFeatures=%7BlayerName:%22STREAMS%22,features:%5B%7BLLID:%221123386455677%22%7D%5D,fadeOutTimer:4%7D. Accessed 19 June 2024.

WILDLIFE:

Wildlife Existing Conditions: The Project Area is 7,008 acres, all of which are included in DNRC's Habitat Conservation Plan (*USFWS and DNRC 2010*). Approximately 5,714 acres of the Project Area were acquired by the state of Montana in 2018 (*DNRC 2018a, 2018b*). The Project Area consists of forested mountainsides along the southern most portions of Stryker Ridge transitioning to forested valley bottoms and the headwaters of Swift Creek, Lazy Creek, and Stillwater River. Elevations vary from 3,400 to 5,400 feet. Most of the Project Area was heavily managed for timber production over the last 100 years. Approximately 4,919 acres in the Project Area (70.2% of the Project Area) have been harvested within the last 40 years, leaving behind younger pole or sapling sized stands on approximately 4,674 acres (66.6% of the Project Area). The Project Area contains 883 acres of mature forest stands (trees ≥65 feet in height with ≥40% canopy closure), of which 416 acres are old-growth forest using Green et al (1992) standards. Mature and old growth stands in the Project Area are relatively small and scattered compared to the remainder of the Stillwater State Forest. Non-forested areas, including meadows and wetlands, encompass approximately 118 acres within the Project Area.

There are approximately 11.1 miles of well-traveled open road and 49.2 miles of restricted roads within the Project Area. Of these restricted roads, 0.6 miles are seasonally open to the public and 0.9 miles are considered active temporary roads. Public motorized use of open roads is high within the Project Area, especially during the summer, serving as primary access to the State Forest. Winter snowmobile use is high in the Project Area along groomed portions of the Upper Whitefish and Stryker Ridge Roads. Public, non-motorized recreational use of the Project Area is moderate, and increases during the big game hunting season.

Cumulative Effects Analysis Areas (CEAA) include lands near the Project Area and include the 16,276-acre Small CEAA for animals with smaller home ranges like pileated woodpeckers and flammulated owls, and a 61,572-acre Large CEAA for animals that travel across larger areas such as grizzly bears and big game. Ownership in the Large CEAA consists of 79.2% DNRC, 11.1% USDA Forest Service, 4.7% industrial forest lands, and 5.0% private land. Primary land uses in the CEAAs are commercial timber harvest and outdoor recreation.

Recent and ongoing forest management projects in the CEAA include the Olney North Forest Management Project (D*NRC 2024*), Lupfer Loop Timber Sale (*DNRC 2024*), North Lake Salvage Forest Management Project (*DNRC 2024*), McStryker Timber Sale (*DNRC 2022*), and Upper Swede Timber Sale (*DNRC 2019*). Proposed DNRC forest management projects in the CEAA include the Dog Rock Timber Sale (*DNRC 2024),* Upper Stillwater Forest Management Project (*DNRC 2023*), and HB-883

Precommercial Thinning Projects (*DNRC 2023*). Impacts associated with habitat alterations due to these proposed projects have not been accounted for in the quantitative portion of the following analysis.

Additional information on cumulative effects analysis areas and analysis methods are available upon request. Overall, the Project Area contains of variety of habitat conditions for native wildlife species.

No-Action Alternative: None of the proposed activities would occur. In the short-term, no changes to the amounts, quality, or spatial arrangement of mature forested habitat would occur. In the long-term, habitat suitability for mature forest-associated species would remain similar or increase compared to current conditions as long as disturbance (such as wildfire) is excluded. An increase in stand-replacement wildfire risk would be anticipated.

Action Alternative (see Wildlife table below):

Wildlife	Impact												Can Impact be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Threatened and Endangered Species														
Grizzly bear *(Ursus arctos)* Habitat: Recovery areas, security from human activity		**X**				**X**				**X**			**Y**	**WI-1**
Lynx (*Felis lynx*) Habitat: SF hab.types, dense sapling, old forest, deep snow zone		**X**				**X**				**X**			**Y**	**WI-2**
Yellow-billed cuckoo (*Coccyzus americanus*) Habitat: open cottonwood riparian forest with dense brush understories (Lake and Flathead counties)	**X**				**X**				**X**					**WI-3**
Wolverine (*Gulo gulo*) Habitat: high elevation areas that retain high snow levels in late spring		**X**				**X**				**X**			**Y**	**WI-4**
Sensitive Species														
Bald eagle	**X**				**X**				**X**					**WI-3**

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

Wildlife	Impact												Can Impact be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Fringed myotis (*Myotis thysanodes*) Habitat: low elevation ponderosa pine, Douglas-fir and riparian forest with diverse roost sites including outcrops, caves, mines		**X**				**X**				**X**			**Y**	**WI-7**
Hoary bat (*Lasiurus cinereus*) Habitat: coniferous and deciduous forests and roost on foliage in trees, under bark, in snags, bridges		**X**				**X**				**X**			**Y**	**WI-8**
Townsend's big-eared bat *(Plecotus townsendii)* Habitat: Caves, caverns, old mines	**X**				**X**				**X**					**WI-3**
Big Game Species														
Elk		**X**				**X**				**X**			**Y**	**WI-9**
Whitetail		**X**				**X**				**X**			**Y**	**WI-9**
Mule Deer		**X**				**X**				**X**			**Y**	**WI-9**
Moose		**X**				**X**				**X**			**Y**	**WI-9**
Other														
Mature Forest		**X**				**X**				**X**			**N**	**WI-10**
Old Growth		**X**				**X**				**X**			**N**	**WI-10**

Comments:

WI-1. Grizzly bear – The Project Area is comprised of 7,008 acres in grizzly bear recovery habitat (*USFWS 1993, Wittinger 2002*) and includes portions of the Lazy Creek, Stryker, and Upper Whitefish grizzly bear management subunits. Grizzly bear hiding cover would be altered by the proposed harvest on approximately 1,351 acres within grizzly bear recovery habitat (22.7% of hiding cover in the Project Area). Post-harvest, sufficient vegetation would be retained on 1,229 acres within the proposed harvest units and would continue to provide hiding cover for bears in the Project Area. Hiding cover would be removed on 121 acres (2.0% of available hiding cover within the Project Area) due to low conifer density, however retaining some small patches of regenerating conifers and sub-merchantable trees within the harvest units would increase the amount of available hiding cover. Additionally, harvest units were designed such that no point within harvest units retaining less than 25 trees per acre would be more than 600 feet from hiding cover. The total road density is 5.6 miles/square mile within the Project

Area. Open and seasonally open road density is 1.1 miles/square mile. The Project Area does not contain any grizzly security zone habitat (i.e., core). Post-harvest, 5,840 acres, or 83.3% of the Project Area would remain hiding cover. Approximately 0.4 miles of new temporary road would be constructed. Motorized use of open and restricted roads within the Project Area would increase during project implementation. New temporary road would be closed post-harvest, and existing restricted roads would remain restricted with gates or berms. Visual screening would be maintained ≤100 feet from an open road where it is available. Fuels reduction treatments along open roads would remove visual screening up to 100 feet from portions of the Upper Whitefish Road; however, visual screening will be retained beyond this distance. Where visual screening is scarce between an open road and preferred grizzly bear habitat (i.e. wetlands, meadows), all available cover will be retained. Any grizzly bears using the Project Area could be temporarily displaced by the proposed activities and associated disturbance for up to 5 years. Spring timing restrictions would be applied from April 1 – June 15 to provide security for grizzly bears in the spring. After harvest, 48,037 acres (78.0 % of the Large CEAA) of well-connected hiding cover would remain in the Large CEAA and continued use of the area by grizzly bears is anticipated. Impacts to hiding cover and increased disturbance under the Action Alternative would be additive to recent, ongoing, and proposed forest management projects in the CEAA (*see existing conditions section*). The greatest risks to bears within the CEAA would remain human habitations and associated attractants that bring bears into conflict with people.

WI-2. Canada Lynx – The Project Area is comprised of 6,403 acres (91.4% of Project Area) of suitable lynx habitat. Approximately 1,358 acres (21.2%) of existing suitable habitat in the Project Area would be impacted by the proposed harvest activities. Of these acres, 122 acres (9.0% of suitable habitat) would be treated with harvest prescriptions that would remove conifer canopy cover such that these stands would be temporarily unsuitable lynx habitat after harvest. Approximately 1,236 acres (19.3% of suitable habitat) would receive harvest treatments that would reduce some habitat attributes but would overall continue to provide suitable lynx habitat. In total, 6,281 acres (86.6% of Project Area) in the Project Area would continue to provide suitable habitat for lynx post-harvest. To ensure that forest structural attributes preferred by snowshoe hares remain following harvest, some dense patches of advanced regeneration would be retained within portions of lynx winter forage habitat. Additionally, 7 to 24 tons/acre of coarse woody debris would be retained in accordance with DNRC Forest Management Rules (*ARM 36.11.414)* and retention of downed logs ≥15-inch diameter would be emphasized. Lynx habitat connectivity within the Project Area would be reduced, particularly along open roads where fuels reduction treatments would increase distance to cover from approximately 45 to 250 feet. Post-harvest, suitable lynx habitat in the Large CEAA would be reduced from 76.7% to 76.5%, and habitat connectivity in the Large CEAA would remain high. If present near the Project Area, lynx could be temporarily displaced by forest management activities for up to 5 years. Disturbance/displacement and habitat alteration by the proposed activities would be additive to recent, ongoing, and proposed forest management projects in the CEAA (*see existing conditions section*).

WI-3. This species was evaluated, and it was determined that the Project Area lies outside of the normal distribution for the species, and/or suitable habitat was not found to be present.

WI-4. Wolverine – Wolverine habitat is present within portions (9.8%) of the Project Area retaining persistent spring snowpack (*Copeland et al. 2010*). Approximately 312 acres proposed for harvest coincide with areas that contain persistent snow cover (*Copeland et al. 2010*). Proposed harvest on 5 of

these acres (0.7% of existing persistent spring snowpack in the Project Area) would remove the majority of large overstory trees, creating impacts similar to a wildfire, which can cause declines in both peak snow accumulation and snow duration (*Kampf et al. 2022*). Minor short-term displacement associated with logging disturbance could occur if wolverines are in the area. Logging is not likely to occur during the wolverine denning season (February – May) given the difficulty of accessing the area and that grizzly bear timing restrictions begin in April and extend through at least June 15th. Wolverines have not been observed within the Project Area; however, several observations have been documented within the Large CEAA as recently as 2016 (*MNHP 2024*). Given the large home range area wolverines occupy (average 150 plus square miles; *Hornocker and Hash 1981*) and the long distances wolverines typically cover during their movements, the proposed activities are not expected to measurably affect use of the area by wolverines. Due to the existing levels of winter recreation within the Project Area and the lack of quality persistent snowpack at these lower elevations, the likelihood of appreciable use by wolverines is low. Existing restricted roads used for harvesting would remain restricted during and after the project. However, 0.4 miles of proposed temporary road construction may increase the accessibility of the area for snowmobiling, potentially causing some displacement of wolverines in the winter for 15 to 25 years until trees grow to a height that reduces snowmobile access. Should any wolverines be present within the Large CEAA, habitat alteration and potential disturbance would be additive to recent, ongoing, and proposed forest management projects and recreational use in the CEAA (*see existing conditions section*).

WI-5. Fisher – The proposed activities would affect 99 acres of currently suitable fisher habitat (3.3% of suitable fisher habitat available in the Project Area). Fisher habitat would be removed on 84 acres (2.8%) due to low canopy cover and low retention of mature trees. The quality of some habitat attributes on the other 15 acres would be reduced, however retained conifer cover would be sufficient to continue providing suitable fisher habitat post-harvest. The proposed activities would affect 1,101 acres of preferred fisher cover types that do not currently have the stand structure needed to be considered suitable fisher habitat; thus, prolonging the time until it becomes suitable habitat again. Habitat connectivity would decrease following logging but continue to provide moderate connectivity to suitable habitat (41.0% of the Project Area). Approximately 0.4 miles of new temporary road would be built in the Project Area. Due to the locations of the proposed road construction, the increase in access to trappers and associated mortality risk to fisher would be negligible. New temporary road would be closed post-harvest and existing restricted roads would continue to be restricted by gates or berms. To reduce some potential adverse effects on fishers, at least 2 large snags and 2 large snag recruitment trees per acre (>21 inches dbh) would be retained (*ARM 36.11.411*). These snags and large trees are important habitat features that provide resting and denning sites for fishers (*Olson 2014*). Approximately 1.4% of suitable fisher habitat in the Small CEAA would be affected, but abundance would remain moderate (6,889 acres, 42.3% of Small CEAA) after the proposed activities. However, the likelihood of fishers using the Project Area or Small CEAA is low given the lack of fisher observations in the area within the last 20 years (*MNHP 2024, Krohner 2022*). Should any fishers be present within the Small CEAA, habitat alteration and potential disturbance would be additive to recent, ongoing, and proposed forest management projects in the CEAA (*see existing conditions section*).

WI-6. Pileated Woodpecker – The proposed activities would affect 17 acres (2.7%) of available suitable pileated woodpecker habitat in the Project Area. Approximately 10 (1.6% of available habitat in Project Area) of these acres would be treated with prescriptions that would reduce mature canopy

closure to less than 40%, making these stands unsuitable for nesting pileated woodpeckers post-harvest. The other 7 acres would remain suitable habitat, but at a reduced quality due to the removal of mature trees. Approximately 621 acres (8.9%) of the Project Area would remain as suitable habitat post-harvest. To reduce potential adverse effects on pileated woodpeckers, at least 2 large snags and 2 large snag recruitment trees per acre (>21 inches dbh, or largest size class available) would be retained and all snags cut for safety reasons would be left in the harvest unit (*ARM 36.11.411*). Additionally, 7 to 24 tons/per acre of downed wood would be retained, with an emphasis on logs >15" diameter. Post-harvest, approximately 13.4% (2,179 acres) of the Small CEAA will remain as poorly connected patches of suitable habitat, however continued use of suitable habitat by pileated woodpeckers in the Small CEAA would be anticipated. Habitat alterations due to the proposed action would be additive to recent, ongoing, and proposed forest management projects in the CEAA (*see existing conditions section*).

WI-7. Fringed myotis – Approximately 86 acres of potential fringed myotis habitat (9.7% of potential habitat available) would be affected by the proposed timber harvest. Fringed myotis utilize a variety of habitats and roost sites including pine and Douglas-fir forests (*Keinath 2004*). If present in the Project Area, they could be temporarily displaced by timber harvesting. To minimize impacts to fringed myotis, at least 2 large snags and 2 large snag recruitment trees per acre (>21 inches dbh, or largest size class available) would be retained and could provide roosting habitat.

WI-8. Hoary bat – The proposed activities would affect approximately 86 acres of potential hoary bat habitat (9.7% of potential habitat available). Hoary bats typically roost in tree foliage (*Bachen et al. 2020*) and if present they could be temporarily displaced by timber harvesting. Potential disturbance would only be expected from late May through September, when hoary bats are in Montana. After the conclusion of activities, continued use of harvested areas by hoary bats would be anticipated. At least 2 large snags and 2 large snag recruitment trees per acre (>21 inches dbh, or largest size class available) would be retained and could provide roosting habitat.

WI-9. Big Game – The Project Area does provide winter habitat for moose, but it does not provide winter range habitat for deer or elk. However, deer and elk do use the area during other times of the year (*DFWP 2008*). The Project Area contains 2,768 acres (39.5% of the Project Area) that provide at least a marginal degree thermal cover and snow intercept (≥40% canopy closure). Timber harvesting would affect 9 acres of high-quality thermal cover and snow intercept (≥60% canopy closure; 1.7 % of available high-quality thermal cover in the Project Area), and an additional 152 acres of marginal thermal cover (40%-60% canopy closure) would be affected by the proposed activities (6.8% of available marginal thermal cover in the Project Area). Of these acres, 7 acres of high-quality and 133 acres of marginal thermal cover and snow intercept would be treated with harvest prescriptions that would reduce mature canopy cover below 40%; thus, reducing the capacity of these stands to provide thermal cover and snow intercept during more severe winter conditions. Approximately 530 acres of high-quality thermal cover (7.6% of the Project Area) would remain within the Project Area post-harvest. An additional 2,098 acres of marginal thermal cover (29.9% of the Project Area) would provide connectivity between scattered thermal cover areas in the Project Area post-harvest. Overall, an estimated 140 acres of total thermal cover (5.1% of currently available thermal cover) would be removed by the proposed activities.

Hiding cover would be altered by the proposed activities on 1,351 acres (22.7% of hiding cover in the Project Area). Sufficient vegetation would be retained on 1,229 acres to continue providing hiding cover

for big game post-harvest. Proposed harvest treatments would remove hiding cover on 121 acres, however retaining some small patches of regenerating conifers and sub-merchantable trees within the harvest units would decrease site distances and maintain some cover. The reduction in hiding cover could result in increased mortality risk to big game species due to hunting, particularly where open and restricted roads facilitate hunter access. Approximately 0.4 miles of new temporary road would be built in the Project Area. Due to the locations of the proposed new road construction, the increase in access for hunters and associated mortality risk would be minor. New temporary road would be closed post-harvest and existing restricted roads would continue to be restricted by gates or berms. Hiding cover would remain on approximately 78.0 % of the Large CEAA. Habitat alterations due to the proposed action would be additive to recent, ongoing, and proposed forest management projects in the CEAA (*see existing conditions section*).

WI-10. Mature Forest / Old-growth – The proposed action would alter approximately 86 acres of mature forest (9.7% of mature forest within the Project Area) with a reasonably closed canopy (≥40% canopy closure of trees greater than 65 feet in height). Harvest prescriptions on 73 acres (8.3% of existing mature forest) of mature forest within the Project Area would reduce mature live tree densities with post-harvest canopy closure of <40% and would no longer be considered suitable for species that prefer dense mature forests. However, habitat suitability for species utilizing younger stands and open forest with widely scattered mature trees would increase. Harvest prescriptions would also treat and remove 6 acres of old growth in two areas approximately 2.1 acres in size (1.4% of old growth present in the Project Area). The removal of old growth would reduce patch size, but this removal would not fragment any old growth stands. Post-harvest, 810 acres (11.6% of Project Area) of mature forest in the Project Area would continue to be suitable for wildlife that prefer closed canopy mature forest. Connectivity within the Project Area would remain low with scattered small patches of mature forest after harvest. To facilitate movement of wildlife through the Project Area and to adjacent lands, the only existing corridor in the Project Area that is approximately 300 feet wide will be retained along Swift Creek, Antice Creek, and one of the tributaries to Antice Creek. This corridor would provide a forested connection between Swift Creek and Dog Creek across the southern portion of Stryker Ridge. The average patch would be reduced 4.1% (0.5 acre), and the maximum patch size would be reduced by 19.5% (41 acres). The proposed harvesting would remove approximately 1.8% of existing mature forest in the Small CEAA, and mature forest abundance would remain low (23.2% of Small CEAA). Connectivity of mature forest in the Project Area and the Small CEAA would remain low post-harvest. Average mature patch size within the Small CEAA would remain approximately 27 acres and maximum patch size would remain 1,216 acres. Historic, commercial and DNRC forest management on 10,033 acres (61.7% of the Small CEAA) has removed much of the mature forest within the Project Area and the Small CEAA over the past 40 years. Habitat alterations due to the proposed action would be additive to recent, ongoing and proposed forest management projects in the CEAA *(see existing conditions section)*.

Wildlife Mitigations:

- If a threatened or endangered species is encountered, consult a DNRC biologist immediately. Similarly, if undocumented nesting raptors or wolf dens are encountered within ½ mile of the Project Area, contact a DNRC biologist.

- Contractors will adhere to food storage and sanitation requirements as described in the timber sale contract. Ensure that all attractants such as food, garbage, and petroleum products are stored in a bear-resistant manner.
- Prohibit contractors and purchasers conducting contract operations from carrying firearms while on duty as per *ARM 36.11.444(2)*.
- Prohibit all harvesting-related motorized activities more than 100 feet from open roads from April 1 – June 15 per GB-NR3 (*USFWS and DNRC 2010*).
- Retain visual screening between open roads and all harvest units retaining <25 TPA (applies to units along Upper Whitefish Rd. and Stryker Ridge Rd.).
- No point in a unit can be more than 600 feet to hiding cover or a topographic break, GB-NR4 (*USFWS and DNRC 2010*).
- Within commercial harvest units, retain patches of advanced regeneration of shade-tolerant trees as per LY-HB4 (*USFWS and DNRC 2010*).
- Effectively close restricted roads and skid trials in the Project Area via a combination of gates, kelly humps, rocks, and stumps. Maintain public motorized restrictions on restricted and roads during and after harvest activities.
- Retain at least 2 snags and 2 snag recruits per acre >21 inches dbh or the next largest available size class, particularly favoring ponderosa pine, western larch and Douglas-fir for retention. If snags are cut for safety concerns, they must be left in the harvest unit.
- Retain 7-24 tons/acre of coarse-woody debris and emphasize retention of 15-inch diameter downed logs, aiming for at least one 20-foot-long section per acre LY-HB2 (*USFWS and DNRC 2010*). High-hazard clean up areas are exempt from standard coarse-woody debris retention guidelines.

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AIR QUALITY:

Air Quality	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Smoke	**x**				**x**				**x**					
Dust	**x**				**x**				**x**					
Action														
Smoke		**x**				**x**				**x**			**Y**	**A-1, A-2**
Dust		**x**				**x**				**x**			**Y**	**A-3**

Table 11 – Air Quality Table

Comments:

A-1: This project is not within an impact zone as described by the Montana/Idaho Airshed Group. Under the Action Alternative, some slash piles consisting of tree limbs, tops, and other vegetative debris would be created throughout the project area during harvesting and site preparation. These slash piles would ultimately be burned after harvesting and site preparation operations have been completed.

A-2: Burning that may occur on adjacent properties in combination with the proposed action could potentially increase cumulative impacts to the local airshed. Thus, cumulative impacts to air quality due to slash pile burning associated with the proposed action would also be expected to be minimal.

A-3: Under the Action Alternative, dust may be generated by log hauling activities during dry conditions.

Air Quality Mitigations:

- Only burn on days approved by the Montana/Idaho Airshed Group and DEQ.
- Conduct test-burn to verify good smoke dispersion.

- Dust abatement (magnesium chloride or calcium chloride) may be applied on some road segments, depending on the seasonal conditions, proximity to private residences, and level of public traffic.

ARCHAEOLOGICAL SITES / AESTHETICS / DEMANDS ON ENVIRONMENTAL RESOURCES:

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

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.

Will Alternative result in potential impacts to:	**Impact**												**Can Impact Be Mitigated?**	**Comment Number**
	Direct				**Secondary**				**Cumulative**					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Historical or Archaeological Sites	**x**				**x**				**x**					
Aesthetics	**x**				**x**				**x**					
Demands on Environmental Resources of Land, Water, or Energy	**x**				**x**				**x**					
Action														
Historical or Archaeological Sites	**x**				**x**				**x**					Arch - 1
Aesthetics		**x**				**x**				**x**			**Y**	Aest -1
Demands on Environmental Resources of Land, Water, or Energy	**x**				**x**				**x**					

Table 12 – Archeology and Aesthetic Table

Comments:
Arch -1: 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.

Aest -1: Proposed harvest units are adjacent to, or visible from the Upper Whitefish Road or other open roads within the project area. At certain locations along these routes, skid trails, temp roads, and landings could be visible, however visual impacts are anticipated to be low due to the nature of the harvest prescriptions and remaining stand density.

Aesthetic Mitigations:

- Blend unit edges and incorporate irregular shaped boundaries to mimic natural events.

OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA:

- Olney North Forest Management Project – 2024
- North Lake Salvage EA - 2024
- Olney Urban Interface EA – 2009
- McStryker Timber Sale EA – 2022
- New Acquisition PCT - 2024

Impacts on the Human Population

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

Recreation:

This project encompasses forested land roughly 3 miles east of the town of Olney, Montana, making this area easily accessible to both the local community and the general public. This project area is primarily used for hiking, hunting, site seeing, motorized trail riding, snowmobiling and other general recreational pursuits. A majority of the proposed haul route is open yearlong to motorized use that currently receives moderate to high use from the public. In addition, there are several LULs and SRULs that authorize local business entities to conduct commercial recreational activities within the area.

Specifically, there are 3 snowmobile SRULs and 2 UTV/ATV SRULs commercially active within the project area. No comments were received from any of these license holders in regards to this project.

Will Alternative result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Health and Human Safety	X				X				X					
Industrial, Commercial and Agricultural Activities and Production	X				X				X					
Quantity and Distribution of Employment	X				X				X					
Local Tax Base and Tax Revenues	X				X				X					
Demand for Government Services	X				X				X					
Access To and Quality of Recreational and Wilderness Activities	X				X				X					
Density and Distribution of population and housing	X				X				X					
Social Structures and Mores	X				X				X					
Cultural Uniqueness and Diversity	X				X				X					
Action														
Health and Human Safety		X				X				X			Y	H-1
Industrial, Commercial and Agricultural Activities and Production	X				X				X					
Quantity and Distribution of Employment	X				X				X					
Local Tax Base and Tax Revenues	X				X				X					
Demand for Government Services	X				X				X					

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		
Access To and Quality of Recreational and Wilderness Activities		X			X				X					
Density and Distribution of population and housing	X				X				X					
Social Structures and Mores	X				X				X					
Cultural Uniqueness and Diversity	X				X				X					

Table 13 –Human Impacts Table

Comments:

H-1: Log truck traffic would be active within the project area and along the Upper Whitefish Road system increasing the potential of traffic accidents. An estimated 10 logs trucks per day as well as administrative traffic would be anticipated Monday through Friday during business hours. Speed limits along the entirety of the haul route are 25 mph. Adherence to this speed limit will mitigate any potential conflict.

Mitigations:

- Log Hauling and Timber Harvest Safety signs would be posted in accordance with MT DNRC contract standards and specifications.

Locally Adopted Environmental Plans and Goals:

- Lazy Creek Conservation Easement

Other Appropriate Social and Economic Circumstances:

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

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

Action: The timber harvest would generate additional revenue for the Common Schools Trust. The estimated return to the trust for the proposed harvest is $889,254.60 based on an estimated harvest of 4.3 million board feet (34,268 tons) and an overall stumpage value of $25.95 per ton. This estimated stumpage value was obtained through the DNRC's timber sale appraisal calculator. Costs, revenues, and estimates of return are estimates intended for relative comparison of alternatives, they are not intended to be used as absolute estimates of return.

References:

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

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

Does the proposed action involve potential risks or adverse effects that are uncertain but extremely harmful if they were to occur?
NONE

Does the proposed action have impacts that are individually minor, but cumulatively significant or potentially significant?
NONE

Environmental Assessment Checklist Prepared By:

Name: Cullen O'Brien, Sam Bracken
Title: Management Foresters
Date: February 24, 2025

Finding

Alternative Selected

Upon review of the Checklist EA, and attachments, I find the Action Alternative, as proposed, meets the intent of the project objectives as stated in the Type and Purpose of Action section of this document. This project received five public comments during the 30-day scoping period. These comments were addressed in Attachment C of this analysis.

The lands involved in this project are held by the State of Montana in trust for the support of specific beneficiary institutions and DNRC is required by law to administer these trust lands to produce the largest measure of reasonable and legitimate return over the long run (Enabling Act of February 22, 1889; 1972 Montana Constitution, Article X Section 11; and 77-1-212 MCA). An estimated $889,254.60 would be generated for the Common Schools Trust.

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

Significance of Potential Impacts

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

I find there will be no significant impacts to the human environments as a result of implementing the Action Alternative. In summary, I find that the identified impacts will be controlled, mitigated, or avoided by the design of the project to the extent that the impacts are not significant.

Need for Further Environmental Analysis

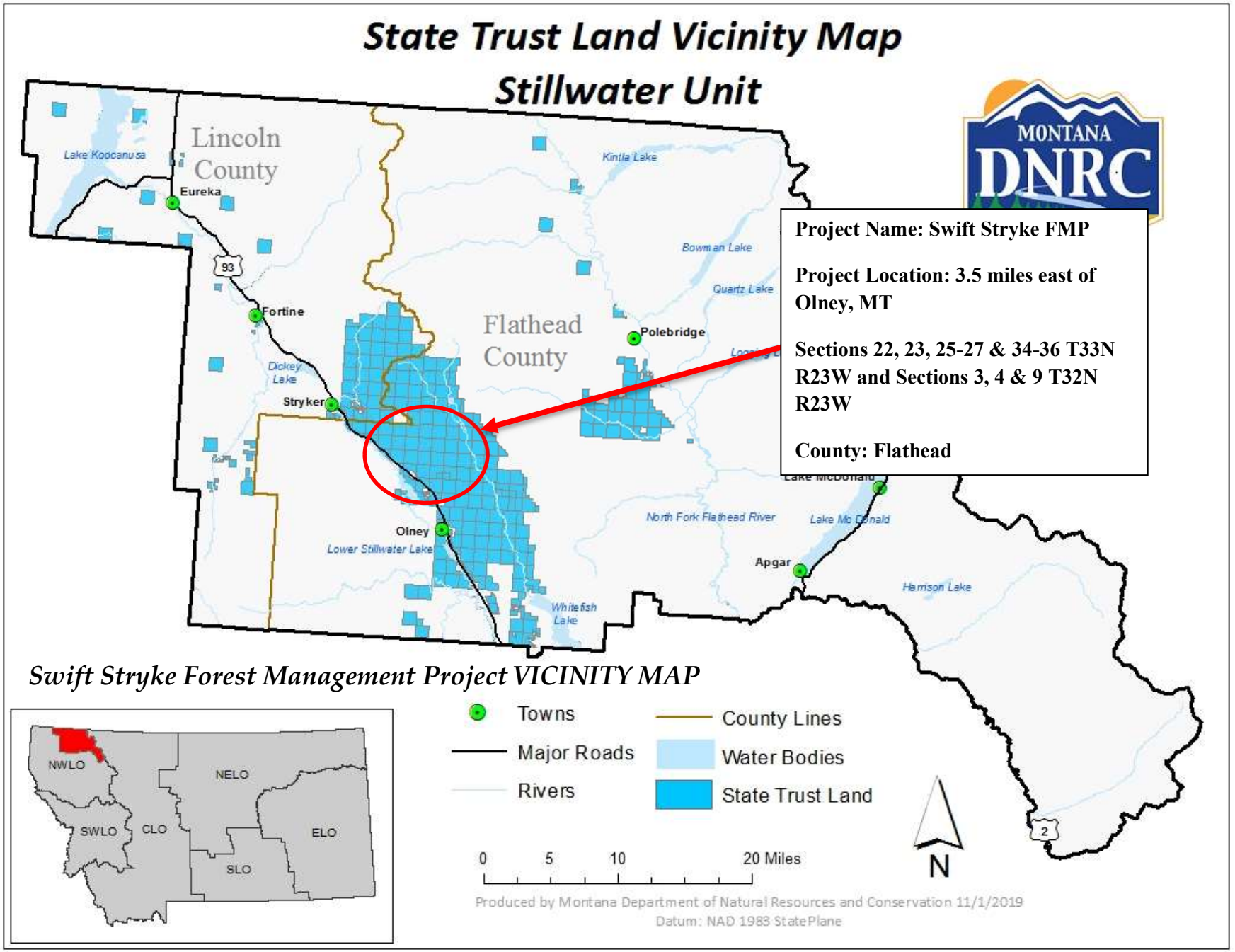
☐	EIS	☐	More Detailed EA	☒	No Further Analysis

Environmental Assessment Checklist Approved By:

Name: Dave Ring
Title: Stillwater Unit Manager
Date: February 23, 2025
Signature: /s/ David A. Ring

Attachment A
Swift Stryke Forest Management Project Maps

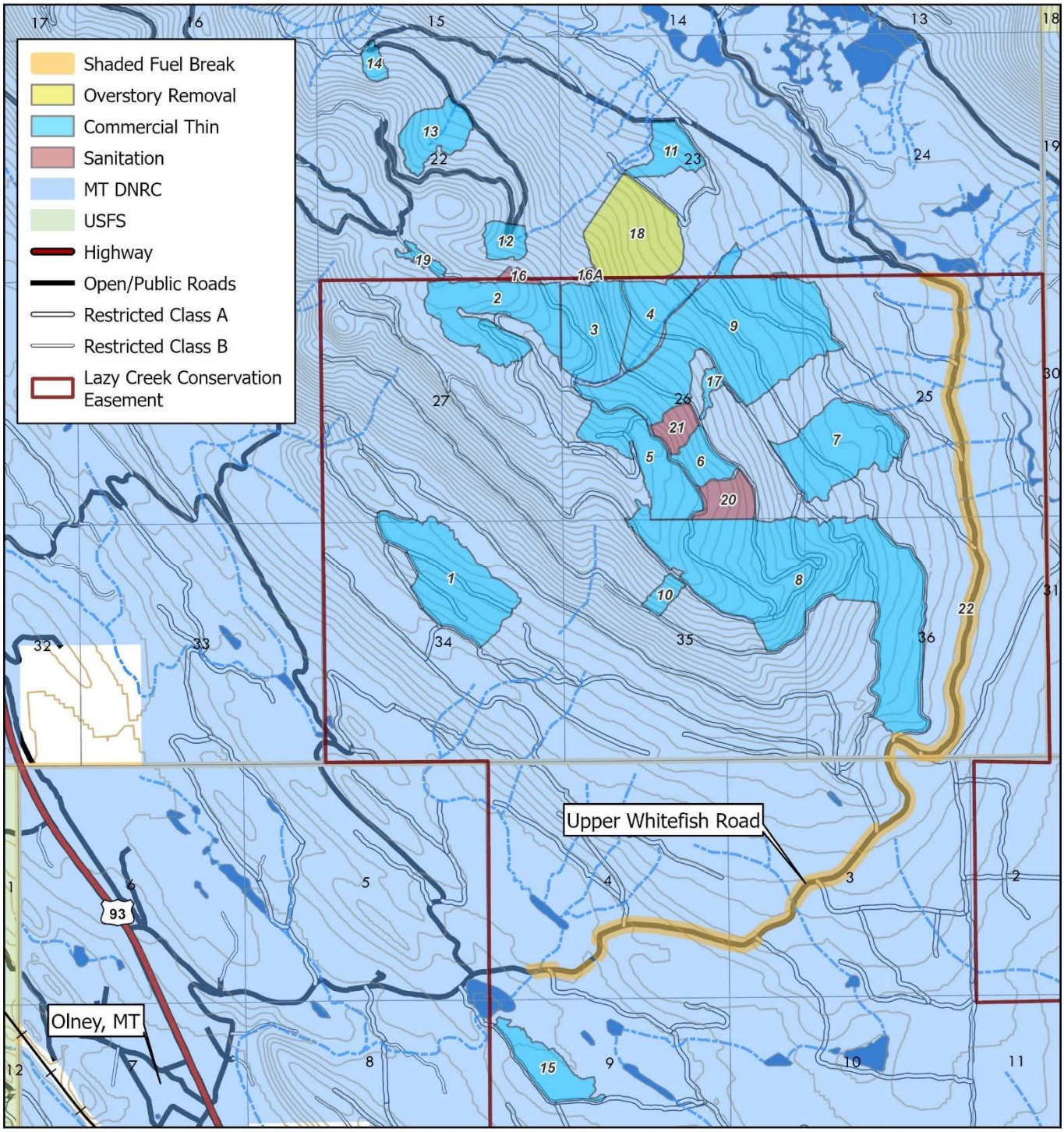
A-1: Timber Sale Vicinity Map



Swift Stryke Forest Management Project

T33N R23W Sections 22, 23, 25, 26, 27, 34-36
and T32N R23W Sections 3, 4 & 9

Project Area Map



January 2025

0 0.5 1
Miles

Stillwater Unit

Attachment B
Swift Stryke Forest Management Project Prescription Table

Attachment B – Swift Stryke Forest Management Project Prescription Table

Unit #	Est. Acres	Prescription	Particulars involved in unit(s)
1	98.5	Commercial thin	-Tractor harvest or CTL unit. -18'-20' Spacing -WL>DF>LP>WP>AF>GF
2	86.5	Commercial thin	- Tractor harvest or CTL unit. -18'-20' Spacing for WL, DF, WP -If WL, DF, WP are not available for leave retain LP and true firs in thinned out clumps of 3-6 trees. - WL>DF>LP>WP>AF>GF
3	67.0	Commercial thin	-Tractor harvest or CTL unit. -18'-20' Spacing -WL>DF>WP>LP>AF>GF
4	41.5	Commercial thin	Tractor harvest or CTL unit. -18'-20' Spacing -WL>DF>WP>LP>AF>GF
5	63.8	Commercial thin	-Tractor harvest or CTL unit. -18'-20' Spacing -WL>DF>WP>LP>AF>GF
6	21.1	Commercial thin	-Tractor harvest or CTL unit. -18'-20' Spacing -WL>DF>WP>LP>AF>GF
7	86.4	Commercial thin	-Tractor harvest or CTL unit. -18'-20' Spacing -WL>DF>WP>LP>AF>GF
8	320.4	Commercial thin	-Tractor harvest or CTL unit. -18'-20' Spacing -WL>DF>WP>LP>AF>GF
9	213.9	Commercial thin	-Tractor harvest or CTL unit. -18'-20' Spacing -WL>DF>WP>LP>AF>GF
10	9.3	Commercial thin	-Tractor harvest or CTL unit. -18'-20' Spacing -WL>DF>WP>LP>AF>GF
11	26.5	Commercial thin	-Tractor harvest or CTL unit. -18'-20' Spacing -WL>DF>WP>LP>AF>GF
12	15.7	Commercial thin	-Tractor harvest or CTL unit. -18'-20' Spacing -WL>DF>WP>LP>AF>GF
13	36.2	Commercial thin	-Tractor harvest or CTL unit. -18'-20' Spacing -WL>DF>WP>LP>AF>GF
14	7.7	Commercial thin	-Tractor harvest or CTL unit. -18'-20' Spacing

			-WL>DF>WP>LP>AF>GF
15	36.7	Commercial thin	-Tractor harvest or CTL unit. -18'-20' Spacing -WL>DF>WP>LP>AF>GF
16	3.9	Sanitation	-Tractor harvest -Remove overstory western larch infected with dwarf mistletoe -slash WL advanced regeneration 30' surrounding WL cut trees, avoid damaging regeneration of other species.
16A	2.1	Sanitation	-Tractor harvest -Remove overstory western larch infected with dwarf mistletoe -slash WL advanced regeneration 30' surrounding WL cut trees, avoid damaging regeneration of other species.
17	6.7	Commercial thin	-Tractor harvest or CTL unit. -18'-20' Spacing -WL>DF>WP>LP>AF>GF
18	85.3	Sanitation	-Tractor harvest -Remove overstory western larch infected with dwarf mistletoe -slash WL advanced regeneration 30' surrounding WL cut trees, avoid damaging regeneration of other species.
19	6.6	Commercial thin	-Tractor harvest or CTL unit. -18'-20' Spacing -WL>DF>WP>LP>AF>GF
20	23.7	Commercial thin	-Tractor harvest or CTL unit. -18'-20' Spacing -WL>DF>WP>LP>AF>GF
21	15.4	Sanitation	-Tractor harvest -Remove overstory western larch infected with dwarf mistletoe -slash WL advanced regeneration 30' surrounding WL cut trees, avoid damaging regeneration of other species.
22	76.9	Shaded Fuel Break	-Tractor harvest -Remove overstory western larch infected with dwarf mistletoe -slash advanced regeneration to 15x15 -remove ladder fuels from under drip lines of over story trees. Remove interlocking crowns in leave trees

AF = Alpine fir
BMP = Best Management Practices
DBH = Diameter at Breast Height
DF = Douglas-fir
ERZ = Equipment Restriction Zone
ES = Englemann spruce
GF = Grand fir
LPP = Lodgepole pine
RMZ = Riparian Management Zone
SMZ = Streamside Management Zone
WL = Western Larch
WRC = Western Red Cedar
WUI = Wildland Urban Interface
WWP = Western White Pine

Attachment C

Swift Stryke Forest Management Project

Scoping Comments and Responses

INTRODUCTION

This section contains public comment letters received from parties interested in the Swift-Stryke Forest Management Project during the project's scoping period and DNRC's responses to those comments. Five email comments were received from the public. The contents of each comments are displayed in the left column of the following table, with DNRC responses in the right column. The specific questions or comment is presented in **bold** font and DNRC's responses are presented in *italic* font. Portions of the comment letter that are either an opinion or recommendation and do not require a response from DNRC are <u>not</u> portrayed in bold font.

All comments were carefully reviewed. The DNRC appreciates both the time and thought that was involved in producing these comments. The decisionmaker will carefully consider each received comment to aid in their decision on a course of action for this project.

Comment #	***Friends of the Wild Swan*** ***PO Box 103*** ***Bigfork, MT 59911***	DNRC Responses
	May 18, 2023	***DNRC Response to Comment 1:*** *For information on current location and connectivity of old-growth stands, please refer to the EA Vegetation Analysis comment V-2 (pg. 10) and Wildlife Analysis comment WI-10 (pg. 25-26). Connectivity would be reviewed and analyzed in any future projects proposed.*
	Montana DNRC Stillwater Unit Attn: Jeremy Akin, Forest Management Supervisor PO Box 164 Olney, MT 59927 Via email to: Jeremy.Akin@mt.gov	
1	Following are Friends of the Wild Swan's comments on the proposed Swift Stryke Forest Management Project to be incorporated into your Environmental Impact Statement. These lands have been heavily logged and roaded by corporations such as Weyerhauser and Plum Creek so they need restoration, rather than logging to meet the state's timber target. Your focus should also be on	

	down-sizing the road system rather than increasing it -- that would provide wildlife with secure habitat, improve aquatic ecosystems as well as water quality. **<u>Old-Growth Forest Habitat</u>** **There must be a plan for how old-growth forests will be managed on the Stillwater State Forest. Since there is likely little old growth forest habitat in the project area due to past logging there is an opportunity to allow stands to develop into old growth. Existing old-growth habitat must be identified and mapped (preferably with an aerial photograph map). Where does old growth currently exist on the forest? How is it connected? How will connectivity be maintained or improved? These were recommendations of the Technical Review Committee of scientists that were hired by DNRC. (Pfister et al 2000).** Realizing that existing old-growth stands do not last forever, there must be a provision for putting stands on longer rotations so that habitat is connected.	
2	**Existing old-growth stands must be put on longer rotations so that this component of the forest is retained. Other stands should be put on long rotations so that they develop old-growth characteristics and are able to replace existing old growth. These are not "reserves" but long rotations.**	***DNRC Response to Comment 2:*** *DNRC management decisions regarding old growth at the project level follow ARM 36.11.418(a) and (c). When considering old-growth management at the project level, careful attention is given to many variables including, but not limited to cover types, stand locations, patch sizes, habitat connectivity, insect/disease risk, etc. This approach has allowed the DNRC to evaluate conservation biology principles and trade-offs at the landscape scale and have flexibility to address stand changes and economic losses caused by natural disturbance agents, such as insects, diseases, and wildfire. DNRC must also consider the requirements of MCA 77-5-116, which is a law that prohibits the Department from establishing old-growth deferrals and set-asides without compensation to trust beneficiaries. For each timber sale in the Swift-Stryke Timber Sale Project, stand maps are produced to help evaluate management priorities and trade-offs necessary for informed decision-making. Environmental impacts on old growth are described in the EA's*

		Vegetation Analysis and Wildlife Analysis. The estimated amounts of old growth prior to the project and the amount of old growth after this project (by alternative) are also disclosed, including the estimated 2.1 acres of old growth that will be treated as part of this project.
3	**DNRC must use the Green et al old-growth definition in its entirety instead of only the minimum number of large trees. Manipulating old-growth forest habitat using the assumption that it will still be old growth after logging is an untested hypothesis and is not supported by science.** **Where is the existing old growth on the Stillwater State Forest?** A priority and goal for this project should be to designate an old-growth network to ensure that this component of biodiversity is maintained over the long term. The EIS must analyze what the effects of logging will be on existing and recruitment old growth forest habitat, riparian areas, wetlands and other habitats both in terms of blowdown and other effects on the forest itself as well as on old-growth dependent wildlife. Are there sufficient snags and down woody material? If not, what can be done to restore these attributes?	***DNRC Response to Comment 3:*** *DNRC defines old growth as a forest stand that meets or exceeds the minimum number, size, and age of large trees, and stand basal area, as noted in "Old Growth Forest Types of the Northern Region" by Green et al. (1992, errata corrected 02/05, 12/07, 10/08, 12/11) [ARM 36.11.403(54)]. Descriptions within the various resource analyses presented in this document of old growth forests on state trust lands are consistent with this definition. Green et al. (1992) state in their report that "old growth is not necessarily 'virgin' or 'primeval'. Old growth could develop following human disturbances." Additionally, there is a growing body of scientific literature addressing the use of silvicultural harvest treatments to retain and promote the development of old-growth forest attributes (Larson et al. 2012, Bauhus et al. 2009, Raymond et al. 2009, Twedt and Somershoe 2009, Brewer et al. 2008, Fiedler et al. 2007, Keeton 2006, Beese et al. 2003, Latham and Tappeiner 2002, Fiedler 2000). DNRC's management reflects and incorporates that research. ARM 36.11.418 describes the types of silvicultural cutting treatments that may be used in old-growth stands on state trust lands. Two of those treatment types, old-growth maintenance and old-growth restoration, require the stand meets the minimum criteria presented by Green et al. (1992) after harvesting to be defined as old growth. When implementing such treatments, DNRC works to maintain other attributes associated with old-growth forests to the extent practicable, including multi-storied canopy structures, presence of snags and coarse woody debris. DNRC acknowledges that when treatments in old –growth stands occur, habitat attributes are altered and habitat quality for some associated species of wildlife may be reduced (Jobes et al. 2004). As such, because a logged old-growth stand may meet the Green et al. definition after treatment, it does not mean that it will provide high-quality habitat for all old-growth associated species. Such stands following logging, however, will possess a definable threshold of very large, old trees that would otherwise take*

		centuries to develop, and which provide important raw materials for other attributes found in old growth stands. Please refer to the Vegetation Existing Conditions section V-2 of this EA for more information regarding old growth in the project area.
4	**The project must demonstrate compliance with ARM 36.11.407 so that the amount and distribution of old growth forest habitat is within the historic range, not just at the low threshold.**	***DNRC Response to Comment 4:*** *ARMs 36.11.407 and 36.11.418 require DNRC to manage old growth for biodiversity and fiduciary objectives. Age class representation and historical natural disturbance patterns are considered as specified in ARM 36.11.407 and 36.11.418 in DNRC's management of old growth, as well as MCA 77-5-116, which states that old growth may not be set aside for the purposes of preservation unless the trust is compensated for that disposition. The historical distribution of old growth is considered at a regional landscape scale by assessing the proportions of old forest stands present in differing climatic sections across the state that were compiled by Losensky (1997); however, those proportions provide only a snapshot in time of past forest conditions, and the amount of old growth present on the landscape would vary based on natural disturbance patterns present prior to Euro-American settlement. The data Losensky (1997) used for his analysis lacked sufficient resolution to provide historic estimates that are consistent with DNRC's current old growth definition [ARM 36.11.403(54)] based on Green et al. (1992). Thus, DNRC conducted an analysis that found approximately 19.8 percent of its western Montana lands would have historically been old growth using DNRC's current definition. The importance of maintaining old-growth to meet biodiversity objectives was reflected by the inclusion of a constraint requiring the model used to determine the annual sustainable yield to maintain or achieve a target number of old growth acres on each administrative unit using management regimes consistent with those described in ARM 36.11.418. In the most recent Sustainable Yield Calculation (MB&G 2020), the model constraint was designed to ensure that each administrative unit within the Northwestern and Southwestern Land Offices would maintain 8 percent old growth, which represents slightly less than one-half the historic estimate of 19.8 percent and provides a balance between DNRC's biodiversity and fiduciary objectives. Stillwater Unit's analysis of old growth amount was estimated at 11% (page 11 of Appendix A – Vegetation), which is*

		above the target level modeled in the sustainable yield calculation and demonstrates compliance with ARM 36.11.407.
5	**Wildlife** **What conservation strategies does DNRC have to ensure that biological diversity is maintained on the Stillwater State Forest?** The SFLMP rules do not constitute an overall conservation strategy, they are broad guidance.	***DNRC Response to Comment 5:*** *The State Forest Land Management Plan (SFLMP, Record of Decision (ROD), 1996) requires DNRC to implement a comprehensive set of resource management standards to address biodiversity. Specific measures and requirements were later codified in ARMs in 2003 and have since been revised as recently as December 2020. The ARMs pertaining to biodiversity (36.11.404 through 36.11.419) address important coarse filter considerations and ecological attributes such as, land types, disturbance regimes, forest cover type, age class, fragmentation, patch size, patch shape, patch connectivity, linkage, stand structure, and old-growth amounts, which are applied as appropriate to each local project and area. These ARMs also contain important measures that are applied to ensure that attributes such as large snags and coarse woody debris are retained on all lands managed by DNRC, these support habitat needs of numerous species of wildlife. The ARMs require DNRC to address the needs of listed threatened, endangered, and sensitive plant and animal species under a fine filter management approach (ARM 36.11.406; ARM 36.11.428, ARM 36.11.436). The Forest Management HCP adopted in 2012, provides further assurances that DNRC will continue to meet federal legal requirements under the Endangered Species Act for listed terrestrial and aquatic threatened and endangered fine filter species. The Forest Management ARMs pertaining to road management (ARM 36.11.421), wetland management (ARM 36.11.425), livestock grazing (ARM 36.11.444), and weed control (ARM 36.11.445), were designed and are implemented where applicable with resource protection and support for maintaining biodiversity in mind. The Swift Stryke Forest Management Project was designed to comply with all measures that support biodiversity as required by the SFLMP, Forest Management ARMs and DNRC's Forest Management HCP.*
6	**When will DNRC develop conservation strategies for sensitive and old growth associated species? Previous EISs have disclosed that previous logging projects have a negative impact on pileated woodpeckers, fisher, big game and other wildlife.**	***DNRC Response to Comment 6:*** *DNRC's conservation approach to threatened, endangered, and sensitive species is addressed through application of both the coarse and fine filter management approaches as specified in the*

		SFLMP (SFLMP, ROD, 1996), Forest Management ARMs (ARM 36.11.406; ARM 36.11.428, ARM 36.11.436), and as required by measures contained in the HCP. DNRC currently addresses habitat for such species more specifically under the Forest Management Rules (ARM 36.11.427 through 36.11.442) that address endangered, threatened, and sensitive species such as grizzly bears and Canada lynx. Measures for these species are frequently reviewed and can be revised when necessary. Addressing the revision of programmatic strategies for these species and applicable ARMs was beyond the scope and purpose of this project analysis. Like other timber sale environmental analyses, the proposed Swift Stryke Forest Management Project Action Alternative is anticipated to adversely affect some wildlife species due to tree removal. Harvest prescriptions would also treat and remove 6 acres of old growth in two areas approximately 3 acres in size (1.4% of old growth present in the project area). The removal of old growth would reduce patch size, but this removal would not fragment old growth stands. Thus, negligible effects to old growth associated species are anticipated. Detailed analyses of effects to threatened and sensitive wildlife species are described in the Wildlife Analysis.
7	**DNRC must mitigate for these previous negative impacts and ensure that future projects do not diminish biological diversity.**	***DNRC Response to Comment 7:*** *DNRC mitigates for adverse effects to wildlife on previous timber sales according to the HCP and Forest Management Rules. These mitigations are consistently applied at the project level and are described in the Wildlife Analysis within each Environmental Assessment for each timber sale and are intended to promote the maintenance of biological diversity. Relevant cumulative habitat-related effects associated with previous natural and man-caused disturbances were identified, analyzed, and disclosed for each species and resource category contained in the analysis.*
8	**For all wildlife DNRC needs to quantify what does current habitat availability, local population monitoring, and current status of the species indicate about current population health in this landscape, or in other words, <u>is the current habitat enough?</u> If it is, how much more can you take and**	***DNRC Response to Comment 8:*** *DNRC promotes biodiversity by taking a 'coarse-filter approach', which favors an appropriate mix of stand structures and compositions on state trust lands (ARM 36.11.404). Appropriate*

	still not trigger significant population impacts? If there currently isn't enough habitat, how can you justify taking more?	*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 similar to those with which Montana wildlife evolved, the full complement of species would persist, and biodiversity would 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 (Lozensky 1997). 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 considers the status for each listed species that may be affected. In the SFLMP, DNRC acknowledged that localized adverse impacts would be expected and accepted within the context of an overall strategy that supports habitat capability for these species. DNRC also recognized that their role in conserving such species was supportive, but subsidiary to the principal role played by Federal agencies with larger land holdings (SFLMP, ROD:31, 1996).* *For each species or habitat issue, existing conditions are described and compared to the anticipated effects of the No-Action and Action alternatives. If suitable habitat conditions for a particular species exist within a Project Area, relevant mitigations are applied regardless of if the animal is present, thus, local population monitoring is typically not conducted. DNRC consults DFWP and USFWS for information regarding local population status, concerns, and appropriate mitigations and assists with monitoring efforts when possible. We believe the analysis adequately describes and discloses anticipated effects of the proposed activities. Under the MEPA process, project decision makers must review the analysis and weigh the impacts and environmental consequences before issuing a final decision.*
9	**Wildlife require corridors to move for foraging, denning, nesting and seasonal habitats. The EIS must disclose: Where are these corridors? What is the habitat quality in them? What size are they? Are they wide enough to protect from edge effects and provide security? Are they fragmented by roads or past logging units? How much canopy cover,**	***DNRC Response to Comment 9:*** Detailed analyses of effects to mature forested habitat and connectivity are described in the Wildlife Analysis. A map of connected forest pre- and post-harvest is available upon request. We believe the analysis addressed the appropriate

	thermal cover or hiding cover is in them? How much down woody debris is in them? What type of habitat is considered suitable? Once these questions have been answered then the project must ensure that adequate habitat linkages are delineated and protected. Corridors of interior forest habitat between old growth habitat have been recommended by the old growth Technical Review Team, and they recommend a minimum width of >100 meters.	parameters and accurately disclosed impacts that would be associated with the proposed activities. A 300-foot minimum width was used in analyses of connected forest and impacts to forest edge is described in WI-11 of the Wildlife Analysis. These stands contain ≥40% canopy cover comprised primarily of trees that are on average >9 inches dbh. Coarse woody debris retention in these corridors would follow recommendations by habitat type from Graham et al. (1994). Habitat quality is species dependent and described in analyses of effects on sensitive species within the Wildlife Analysis.
10	**Do you have any actual width criteria you are using at present to define corridors in the project area? DNRC needs to map all corridor habitat in the project area, and define both current and long term objectives for maintaining these corridors over time.**	***DNRC Response to Comment 10:*** *Outside of riparian areas, we considered stands 300-feet wide to provide connectivity as per ARM 36.11.403(21)(b). DNRC intends to retain corridors along creeks and prominent ridgelines and to retain connectivity between drainages. Corridors are evaluated at the project level and the location of corridors are anticipated to change over time as stands age and following natural processes such as windstorms, wildfire, or pest outbreaks.*
11	**DNRC must disclose whether there have been sightings, nests and/or dens of sensitive, threatened and endangered species in the project area and what is being done to protect them.**	***DNRC Response to Comment 11:*** *DNRC reports nests and sightings of sensitive, threatened, and endangered species to MNHP. Information regarding key high use areas or denning sites for threatened and endangered species is sensitive and is typically not published. DNRC applies mitigations and protections for species based on the presence of suitable habitat rather than species observations, which are less reliable. We believe the analysis provides all important and relevant information necessary to make an informed decision regarding habitat effects to threatened, endangered and sensitive species.*
12	**The EIS must evaluate the impacts of blowdown on forest structure and edge effects.**	***DNRC Response to Comment 12:*** *Wind events occasionally remove large stands of timber leaving openings resembling clearcuts behind. DNRC cannot predict the size or location of large wind events, and when they occur it is unfortunate. Secondary potential effects of wind are commonly discussed by DNRC ID teams when developing timber stand prescriptions. In cases where extreme wind events or other natural*

		disturbance events occur in previously logged stands, appropriate follow up environmental reviews are conducted, and subsequent salvages are mitigated and designed to comply with DNRC's Forest Management HCP and ARMs.
13	**Has DNRC defined how much deer and elk winter range needs to be maintained over time on this landscape to maintain stable big game populations? What are your management goals for big game winter range and associated populations on Stillwater State Forest lands? Do you have any limitations on the amount of big game winter range that you can remove over a given period of time?**	***DNRC Response to Comment 13:*** *The Swift-Stryke Project Area does not include winter range habitat for deer or elk (DFWP 2008). Defining winter range habitat needs to support stable big game populations is outside the scope of this project. DNRC is required under ARM 36.11.443 to solicit feedback from DFWP regarding big game concerns and to work with DFWP on a project-level basis to implement appropriate mitigations, such as timing restrictions and alteration of harvest prescriptions.*
14	**How will this project affect those elk, mule deer and whitetail deer habitat attributes such as thermal cover, hiding cover, security, etc? How will this project affect moose?** Guidelines for elk security are a minimum of 250 acres for providing security under favorable conditions; under less favorable conditions the minimum must be >250 acres. Effective security areas may consist of several cover-types if the block is relatively unfragmented. Among security areas of the same size, one with the least amount of edge and the greatest width generally will be the most effective. Wallows, springs and saddles may require more cover than other habitats.	***DNRC Response to Comment 14:*** *The project area contains potential moose winter range, but it does not contain elk, mule deer, or white-tailed deer winter range habitat as identified by DFWP (DFWP 2008). Elk security habitat (Hillis et. al 1991) does not occur in the project area. Ungulate sign was observed in the Project Area and we anticipate that proposed logging treatments would have both positive and negative impacts on big game. Reductions in mature canopy cover would reduce the availability of hiding cover and summer thermal cover, but treatments would also likely increase the availability of forbs and grass which may benefit mule deer in particular (Hayes 2020). DNRC defers to DFWP on concerns regarding big game populations and moose were not brought up as a species of particular concern regarding this project. Detailed analysis of potential impacts to big game species can be found in comment WI-9 Big Game within the Wildlife Analysis.*
15	**Where is the current lynx foraging and denning habitat located? How will it be maintained, how will it be improved, how is it connected? How will it be impacted by this project? What are the effects to critical habitat for lynx? Will it be adversely modified? Lynx avoid clearcuts, will this project include or expand clearcuts and negatively impact lynx?**	***DNRC Response to Comment 15:*** *Detailed analyses of effects of the action alternative on Canada lynx including assessments of suitable habitat types and connectivity can be found beginning in WI-2 Canada Lynx within the Wildlife Analysis. Suitable habitat is present throughout most*

	Winter foraging habitat is limited – how much is there? Where is it?	*(91.4%) of the Project Area and is composed of well-connected dense pole and sapling stands. Suitable lynx habitat is analyzed in terms of winter foraging habitat, summer foraging habitat, and other suitable habitat as described in DRNC's Forest Management HCP. DNRC does not categorize specific areas as lynx denning habitat since denning habitat is not likely to be a limiting factor (USFWS and DNRC 2011).* *The proposed harvest would temporarily remove approximately 122 acres of suitable lynx habitat and none of these acres would be impacted by clear cuts. We anticipate that these stands would be avoided by lynx for 10-15 years until disturbance has dissipated and stands regain a minimum number of 40% total canopy closure. We disagree that winter foraging habitat is limited in the Project Area and anticipate that 6,281 acres (86.6% of the Project Area) would provide winter foraging habitat post-harvest. Winter foraging habitat is present throughout the Project Area and large contiguous patches would remain post-harvest and well-connected via other suitable lynx habitat. Post-harvest suitable habitat ratios would meet all retention requirements as described in DNRC's Forest Management HCP and connectivity would remain high considering that 89.6% of the Project Area would contain suitable lynx habitat. Federally designated Critical Habitat for Canada lynx does not occur in the Project Area and would not be affected.*
16	**What is the current total and open road density? How much grizzly bear core area is there? Will new roads be built? Will roads be decommissioned? How does this project favor the needs of the grizzly bear? This project must comply with ARM 36.11.432 which restricts the timing of activities in certain grizzly bear secure core.**	***DNRC Response to Comment 16:*** *In the Swift-Stryke Project Area, the total road density is 5.6 miles/square mile and open and seasonally open road density is 1.1 miles/square mile. The Project Area does not contain any grizzly bear security zone habitat (ie., core). Detailed analyses of effects of the action alternative on grizzly bears including impacts to hiding cover and road density can be found in WI-1. We anticipate that the timber sale would adversely impact grizzly bears. However, mitigations such as spring timing restrictions and vegetation retention in regeneration treatments would be implemented to reduce these adverse impacts.*

17	**How will this project contribute to viability of sensitive species?**	***DNRC Response to Comment 17:*** *Detailed analyses of effects to threatened and sensitive wildlife species are described in the Wildlife Analysis section. Population viability analyses are beyond the scope of this analysis. In general, DNRC manages landscapes such that ecological characteristics like cover type, age class, and stand structure are balanced and appropriate for the local area as per ARM 36.11.404. If these attributes are considered and properly managed as per historic conditions, habitat for native wildlife species will be maintained. 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.*
18	**What monitoring will be done for wildlife? fish? old-growth dependent wildlife? sensitive plants? other? What past monitoring has been done to determine whether the proposed treatments actually achieve the desired results?** New research shows that the Rocky Mountain Fisher selects for large, old trees, snags and dense overhead cover more than had been previously thought. Research also shows that Fisher do not select and use riparian areas as much as biologists had hypothesized. Retention and recruitment of connected old-growth forest habitats is very important to maintain viability of fisher; relying on riparian buffer zones is not adequate. This project must maintain existing fisher habitat outside of riparian areas and provide linkage corridors. Fishers appear to be selective of relatively dense overhead cover and large forest structures at resting sites because they use relatively large trees, snags, and logs for resting, and the forest conditions around such structures differ from those that occur randomly in the forest. (Aubrey et al. 2013) All known fisher reproductive dens are in cavities in live trees or snags. Reproductive dens are typically in the oldest and largest trees available.	***DNRC Response to Comment 18:*** *DNRC has conducted monitoring pertaining to the DNRC Forest Management Program required by the SFLMP since 1997, and the four comprehensive 5-year monitoring reports may be found at the following link – http://dnrc.mt.gov/divisions/trust/forest-management/forest-management-plan. These reports contain information pertaining to wildlife, fisheries, and terrestrial and aquatic habitat monitoring results as required by the standards contained in the SFLMP. DNRC is also required to conduct annual monitoring as a requirement of the Forest Management HCP (http://dnrc.mt.gov/divisions/trust/forest-management/hcp/hcp-implementation-and-monintoring). Eleven reports addressing compliance with measures contained in the HCP have been produced.* *DNRC engages in many efforts to monitor the effectiveness of treatments implemented during a timber sale:* • *Timber sale inspections conducted during sale administration ensure that sale operations comply with certain standard operating procedures, Administrative Rules for Forest Management, Montana Best Management Practices for Forestry (BMPs), and any other mitigation measures that might be stipulated in the sale contract.* • *Regeneration surveys are used following harvesting to monitor regeneration success.* • *Internal DNRC and statewide BMP audits are conducted on completed DNRC timber sales either annually or biannually to determine whether BMPs were properly applied and*

	Large trees with cavities and platforms are also used extensively by males and females for resting. (Naney et al. 2012) Moderate to dense canopy closure provides key habitat features, and overstory trees provide one of the key components of this cover. They also contribute to the structural diversity of forested environments. Overstory trees also contribute to current and future structural elements and prey species abundance and diversity. One of the most consistent predictors of fishers appears to be expanses of forest with moderate to high canopy cover. (Id.) Fishers have relatively large home ranges, use habitat at multiple spatial scales, and typically avoid areas with little or no contiguous cover. Fragmented landscapes may affect landscape permeability, either permanently through vegetation type conversion or temporarily until vegetation recovery occurs. Fragmentation can affect fishers' use of the landscape because moderate to high amounts of contiguous cover are a consistent predictor of fisher occurrence at large spatial scales. (Id.) The incidence of heartwood decay and cavity development is more important to fishers for denning than is the tree species. Other characteristics, such as the size and height of the cavity opening and the interior dimensions of the cavity, may also influence females' choice of natal and pre-weaning den structures. The cavity must be large enough to accommodate an adult female and 1–4 growing kits, and have a relatively small opening (just large enough for a female to fit through) high off the ground. The cavity must also have adequate thermal properties to protect kits from weather extremes. (Raley et al. 2012) Fisher resting habitat in western North America is also strongly tied to forest structure. Fishers typically rest in large deformed or deteriorating live trees, snags, and logs, and forest conditions around the rest structures (i.e., the rest site) frequently include structural elements characteristic of late-seral forests.	*whether the BMPs were effective in preventing erosion and sediment delivery.* • *DNRC participates in fisheries monitoring with the Department of Fish, Wildlife, and Parks to measure the potential impact of forest management on fisheries habitats.* • *DNRC conducts fish populations, passage, and genetic surveys, fish habitat inventories, and riparian stand assessments to evaluate both existing effects as well as potential effects of the proposed Action Alternative. Implementation of post-project fisheries resource monitoring is generally limited to riparian timber harvest effects.* • *Road closure devices are monitored annually to determine whether each is effective at keeping motorized users from entering restricted areas.* • *Biodiversity field reviews are conducted on selected timber sales, typically three to five years following harvesting, to monitor the implementation at the timber sale level of the biodiversity resource management standards described in the State Forest Land Management Plan and Administrative Rules for Forest Management. These reviews are conducted in a field setting and examine biodiversity issues associated with the timber sale, the silvicultural treatments used, and biodiversity-related mitigations (such as protection of snags, coarse woody debris, nutrients, and wildlife) implemented during the sale.*

	In live trees, fishers rested primarily in rust brooms in more northern study areas and mistletoe brooms or other platforms elsewhere. In contrast, fishers primarily used cavities when resting in snags. Fishers used hollow portions of logs or subnivean spaces beneath logs more frequently in regions with cold winters. These results suggest that fishers use structures associated with subnivean spaces to minimize heat loss during cold weather. (Id.) In western North America, a moderate to dense forest canopy is one of the strongest and most consistent predictors of fisher distribution and habitat use or selection at all spatial scales. The association of fishers with high amounts of canopy cover is further demonstrated by their avoidance of open environments. (Id.) Previously, it was thought that fishers in western North America may favor riparian forests; however, results from recent studies do not support this hypothesis. Although riparian forests were important to fishers in some locales, consistent use or selection for riparian forests has not been demonstrated. (Id.) Female fishers consistently selected for large trees at both stand and landscape scales. Thus, we recommend that silvicultural treatments of stands consider not only the retention of large trees, but consider the larger landscape when managing for fishers. (Schwartz et al. 2013) Female fishers are selecting habitat at two scales: a stand scale as indicated by stands that have large trees (as well as a large variation in tree size) and a landscape scale with a high proportion of large trees. Thus, it appears that while fishers can be detected in riparian stringers that bisect open landscapes, this habitat may not be sufficient for persistence. The converse is also likely true. Landscapes that do not have variation in large trees, snags, and cavities, and drier landscapes (i.e., landscapes with ponderosa and lodgepole pine) are probably not sufficient for fisher persistence either. Forest activities that promote the growth of multi-stage stands with ample structure and variation in tree widths and ages will provide the best habitat for fishers. Retaining	

	trees that have decadence, disease, or defects will help provide some of this habitat. (Id.) The relationship between the extent of open areas and probability of home range occupancy suggests that past and proposed forest harvesting can strongly affect the ability of the landscape to support fishers. Landscapes with previous widespread and intensive forest harvesting may lose their ability to support fishers until these harvested areas regenerate sufficiently. Intensive forest harvesting in the future may exacerbate the already diminished ability of modified landscapes to support fishers, particularly in forests that are slated for salvage harvest of diseased or damaged trees. (Weir and Corbould 2010) Because salvage harvest of beetle-killed trees typically involves clearcut harvesting, whereby all tree species (including spruce and fir) and secondary structure within the harvest unit are felled or cleared, our results suggest that this expedited harvest will gravely affect the ability of these landscapes to be occupied by fishers. (Id.)	
19	**How will this project impact fisher and its habitat? How will making sure that fisher habitat is sufficient provide for the needs of other wildlife?**	***DNRC Response to Comment 19:*** *We anticipate that the proposed harvest would adversely impact fisher and would temporarily remove approximately 84 acres of fisher habitat (2.8% of fisher habitat in the Project Area). Additional information regarding impacts of the proposed activities on fishers can be found in WI-5 Fisher within the Wildlife Analysis. We consider addressing the relationships between fisher habitat and other species of wildlife beyond the scope of this analysis and not relevant under the procedural requirements of MEPA for this project.*
20	**Wolverine are proposed for listing under the Endangered Species Act. The SFLMP does not contain any standards for wolverine and needs to be revised to account for this changed circumstance. New scientific studies are emerging about landscape effects from logging and other human**	***DNRC Response to Comment 20:*** *Updating the SFLMP or ARMs does not directly relate to the scope of the project and was not addressed in this analysis, and any such revisions pertaining to species listings would not require the revision of management standards. DNRC revised the ARMs in*

	activities on wolverines so habitat usage, prey availability and motorized use must be considered in the EIS. For example, Fisher, et al Wolverines (Gulo gulo luscus) on the Rocky Mountain slopes: natural heterogeneity and landscape alteration as predictors of distribution found: Wolverines were more abundant in rugged areas protected from anthropogenic development. Wolverines were less likely to occur at sites with oil and gas exploration, forest harvest, or burned areas, even after accounting for the effect of topography. Wolverines elsewhere avoid human-disturbed areas (Carroll et al. 2001; Rowland et al. 2003; May et al. 2006) and recreational and industrial activity (Krebs et al. 2007). Human activities such as trapping, poaching, and road mortality have accounted for 46% (North America; Krebs et al. 2004) to 52% (Scandinavia; Persson et al. 2009) of known-cause wolverine mortalities across their range. Wolverines avoid roads and other human development in British Columbia (Krebs et al. 2007), Norway (May et al. 2008), Idaho (Copeland et al. 2007), Montana (Carroll et al. 2001), and throughout the northwestern United States (Rowland et al. 2003). Wolverine occurrence also increases with topographic ruggedness, where there is a combination of low- and high-elevation habitats. Bighorn sheep (Ovis canadensis Shaw, 1804) (Festa-Bianchet 1988), mule deer (Odocoileus hemionus (Rafinesque, 1817)) (D'Eon and Serrouya 2005), and other ungulates winter at lower elevations; in Scandinavia, wolverines showed significant selection for lower elevation habitats during winter months (Landa et al. 1998). It is possible that wolverines require lower elevations for foraging and higher elevations for predation refuge. Persistent spring snow cover has been hypothesized as important (Schwartz et al. 2009; Copeland et al. 2010) but is not a good predictor at this scale, since spring snow cover was sufficiently persistent across our study landscape to prevent modelling but wolverine occurrence still varied.	*2020 and addressed public comments regarding these types of concerns during that process. As of November 2023, the USFWS found that wolverines do meet the definition of threatened or endangered under the ESA, adding North American wolverine to the Federal List of Engendered and Threatened Wildlife. According to the Wolverine Species Status Assessment (USFWS 2018) wolverine behavior associated with logging and hauling appears driven by trade-offs between foraging opportunities and avoidance of predation. Attraction or avoidance of features like logging cuts or roads depends on a complex variety of factors. DNRC will continue to review scientific literature regarding wolverines and will continue contributing to ongoing research and monitoring efforts as described in Lukacs et al. (2020). Discussion regarding potential impacts of proposed activities on wolverines is available in comment WI-4 of the Wildlife Analysis.*

	Southwest Crown of the Continent monitoring detected wolverines at elevations ranging from 3,346-7,567 feet.	
21	**Are wolverine currently being displaced by roads on the Stillwater State Forest? How much more displacement will occur for wolverine as well as other wildlife from this project?** Habitat Fragmentation Habitat fragmentation is generally defined as the process of subdividing a continuous habitat type into smaller patches, which results in the loss of original habitat, reduction in patch size, and increasing isolation of patches. (Heilman et al. 2002) Habitat fragmentation is considered to be one of the single most important factors leading to loss of native species (especially in forested landscapes) and one of the primary causes of the present extinction crisis. Although it is true that natural disturbances such as fire and disease fragment native forests, human activities are by far the most extensive agents of forest fragmentation. For example, during a 20-year period in the Klamath–Siskiyou ecoregion, fire was responsible for 6% of forest loss, while clear-cut logging was responsible for 94% (emphasis added) (Id.) Depending on the severity of the fragmentation process and sensitivity of the ecosystems affected, native plants, animals, and many natural ecosystem processes (e.g., nutrient cycling, pollination, predator–prey interactions, and natural disturbance regimes) are compromised or fundamentally altered. For many species, migration between suitable habitat patches becomes more difficult, leading to smaller population sizes, decreased gene flow, and possible local extinctions. (Id.) As native forests become increasingly fragmented, ecosystem dynamics switch from being predominantly internally driven to being predominantly externally driven. Simultaneously, remnant patches become altered by changes within the patches themselves as the	***DNRC Response to Comment 21:*** *Specific information regarding the impact of the current road density on local wolverine habitat use in the Stillwater State Forest is not available. Wolverine habitat is present with portions (9.8%) of the Project Area retaining persistent spring snowpack (Copeland et al. 2010), and roads providing motorized public access in this area are limited to the Upper Whitefish and Stryker Ridge Roads. New permanent roads are not proposed for construction, but approximately 0.4 miles of temporary roads would be constructed to access harvest units. Road construction may increase the accessibility of the area for snowmobiling, potentially causing some displacement of wolverines in the winter for 15 to 25 years until trees grow to a height that reduces snowmobile access. Additionally, it is important to note that the effects of roads and disturbance represent a low-level stressor for wolverines (USFWS 2018). Discussion regarding potential impacts of the proposed activities on wolverines is available in comment WI-4. Information on displacement and other potential impacts to sensitive species can be found in the Wildlife Analysis.*

	remnants become more and more isolated, thereby resulting in further ecological degradation across the landscape. Declines in forest species as a result of fragmentation have been documented for numerous taxa, including neotropical migrant songbirds, small mammals and invertebrates Forest fragmentation has also been associated with increased susceptibility to exotic invasion (Id.) Among the common changes in forests over the past two centuries are loss of old forests, simplification of forest structure, decreasing size of forest patches, increasing isolation of patches, disruption of natural fire regimes, and increased road building, all of which have had negative effects on native biodiversity. These trends can be reversed, or at least slowed, through better management. (Noss 1999)	
22	Fragmentation has likely occurred in this project area due to its past history so this project must seek to reduce fragmentation and edge effects and increase patch size and core areas. **Past management through even-aged silvicultural prescriptions have contributed to the fragmentation of forest habitat to the detriment of many bird and wildlife species. Large and small openings should be allowed to be created through natural processes rather than clearcut logging.**	***DNRC Response to Comment 22:*** *Detailed analyses of effects to mature forested habitat and connectivity are described in WI-10 Mature Forest of the Wildlife Analysis. School trust lands are managed lands and DNRC implements timber sales to generate revenue to benefit the school trusts pursuant to 77-1-202, MCA. However, DNRC seeks to design timber sales in a sustainable, thoughtful manner that emulates natural disturbance and reduces adverse impacts to local wildlife and the environment. DNRC implements many silvicultural techniques including even-aged management treatments like clearcuts when appropriate for the stand conditions and landscape. In the SFLMP, DNRC acknowledged that localized adverse impacts would be expected and accepted within the context of an overall strategy that supports habitat capability for these species.*
23	**<u>Roads and Soils</u>** **How will soils be impacted by this project? Opening up stands will dry them out, how will this impact mychorizal fungi and other soil organisms? How much soil damage is there? Does DNRC have a standard for soil disturbance?** No new roads should be built, not even temporary roads. Roads fragment habitat and increase mortality for wildlife such as elk, grizzly bear and lynx. Roads degrade stream habitat for fish. Roads take acres out of the timber-growing base.	***DNRC Response to Comment 23:*** *Soil moisture is directly related to site vegetation, precipitation, evaporation, and transpiration. Implementing any action alternative would modify site vegetation and, potentially, soil moisture. A large number of empirical studies (Devine and Harrington 2006, Crews and Wright 2000, Klock and Lopushinsky 1980, Dahms 1971, Troendle 1970) show that soil moisture is typically increased after forest harvesting until competing vegetation becomes established, typically 2 to 4 years. At that point, no significant effects on soil moisture are observed. Soils in the Swift-Stryke project area are not expected to be drier.*

		Organic matter on the forest floor provides the environment and energy source for various microorganisms critical to continued site productivity. Substantial increases in utilization intensity, extremely hot wildfires, excessive soil disturbance, or excessive site preparation have the potential to reduce site productivity. Harvest activities and mitigation measures designed in both alternatives will adequately mitigate excessive soil impacts and site nutrient losses. These activities will be monitored for both implementation and effectiveness through contract administration. The coarse and fine woody material retention level within harvest units will vary by habitat type, as Graham et al. (1994) recommended. This level of woody material will continue to support mycorrhizal fungi habitat and associated energy sources. *Anticipated impacts to soils are disclosed in Appendix B- Soils Analysis. DNRC standards for soil disturbance are found in DNRC's State Forest Land Management Plan (DNRC, 1996)*
24	**Roads, even temporary roads, have negative impacts on wildlife and fish habitat including:** **a) The greatest surface erosion from roads occurs during the construction phase and first year after.** **b) Soil erosion and compaction (as always occurs with roads) causes long-term loss of soil productivity.** **c) The loss of topsoil and attendant loss of soil productivity is permanent.** **d) Road obliteration does not immediately stop severely elevated soil erosion from roads.** **e) Even "temporary" roads have enduring impacts on aquatic resources.** **f) Roads and increased sedimentation cause long-term negative impacts on a variety of aquatic species.**	***DNRC Response to Comment 24:*** *When planning transportation systems, DNRC is instructed to plan for the minimum number of road miles (ARM 36.11.421[1]). DNRC occasionally needs to construct additional roads in order to access timber stands for management. As described in ARM 36.11.422, DNRC shall implement all applicable BMPs on existing roads proposed for use and on all new road construction, including temporary roads. A historical road that is causing resource damage is prioritized for corrective actions to lessen or eliminate its negative impacts. The Action Alternative attempts to minimize the miles of proposed road construction needed to meet project goals. The temporary roads proposed under the Action Alternative would be reclaimed upon completion of use for this project.*
25	Water Quality and Fish Habitat	***DNRC Response to Comment 25:***

	Water quality and native fish habitat needs to be protected, and where necessary, restored. Important parameters that are measurable and good indicators of fish habitat are temperature and sediment. Bull trout and westslope cutthroat trout are sensitive to fine sediments that can clog spawning gravels. Studies in the Flathead Basin in Montana demonstrate a "significant negative relationship existed between fry emergence success and the percentage of substrate materials less than 6.35 mm in diameter." (Weaver and Fraley, 1991) Juvenile bull trout are also more substrate oriented than other trout species. Streams are considered "threatened" when the percentage of fine materials in spawning gravels in any given year is greater than 35% and "impaired" when the percentage of fine materials in spawning gravels in any given year is greater than 40%. (Flathead Basin Commission, 1991). Cold water is also necessary for successful spawning and rearing. **The EIS should fully disclose the current condition of streams in the timber sale area and develop a plan for restoring streams that are not meeting habitat parameters.**	*Existing Hydrologic conditions, anticipated impacts, and proposed mitigations are disclosed in the Environmental Assessment Checklist's Water Quality and Quantity section page 11.*
26	Large woody debris is an important component for pool formation in watersheds. Logging in streamside, riparian areas can alter the complex balance of large woody debris in streams causing changes to stream habitats. Exclusion of logging in riparian areas may be necessary to maintain natural stream morphology and habitat features. (Hauer, et al, 1999, Large woody debris in bull trout (Salvelinus confluentus) spawning streams of logged and wilderness watersheds in northwest Montana). Streamside buffers provide shade that keep water temperatures cool, allow trees to fall into streams to create pools and prevent sediment from reaching the stream. **Swift Creek is designated critical habitat for bull trout so this project should not adversely modify critical habitat. What are the road densities in these watersheds? How are they impacting aquatic habitat?**	***DNRC Response to Comment 26:*** Respective road densities for watersheds based on available data. Watershed Name / Road Density (mi/mi^2) Swift Creek-Antice Creek: 4.06 Lazy Creek: 4.12 Swift Creek-Hemlock Creek: 3.53 Dog Creek: 4.47 Upper Stillwater River-Lower Stillwater Lake: 4.83

		Existing Fisheries conditions, anticipated impacts, and proposed mitigations are disclosed in the Environmental Assessment Checklist's Fisheries section page 13.
27	**The EIS must fully and completely analyze the impacts to bull trout critical habitat and westslope cutthroat trout habitat.** There is no standard for sediment in either the State Forest Management Plan or the Habitat Conservation Plan, yet sediment is one of the key factors impacting water quality and fish habitat. [See USFWS 2010] The introduction of sediment in excess of natural amounts can have multiple adverse effects on bull trout and their habitat (Rhodes et al. 1994, pp. 16-21; Berry, Rubinstein, Melzian, and Hill 2003, p. 7). The effect of sediment beyond natural background conditions can be fatal at high levels. Embryo survival and subsequent fry emergence success have been highly correlated to percentage of fine material within the streambed (Shepard et al. 1984, pp. 146, 152). Low levels of sediment may result in sublethal and behavioral effects such as increased activity, stress, and emigration rates; loss or reduction of foraging capability; reduced growth and resistance to disease; physical abrasion; clogging of gills; and interference with orientation in homing and migration (McLeay et al. 1987a, p. 671; Newcombe and MacDonald 1991, pp. 72, 76, 77; Barrett, Grossman, and Rosenfeld 1992, p. 437;Lake and Hinch 1999, p. 865; Bash et al. 2001n, p. 9; Watts et al. 2003, p. 551; Vondracek et al. 2003, p. 1005; Berry, Rubinstein, Melzian, and Hill 2003, p. 33). The effects of increased suspended sediments can cause changes in the abundance and/or type of food organisms, alterations in fish habitat, and long-term impacts to fish populations (Anderson et al. 1996, pp. 1, 9, 12, 14, 15; Reid and Anderson 1999, pp. 1, 7-15). No threshold has been determined in which fine-sediment addition to a stream is harmless (Suttle et al. 2004, p. 973). Even at low concentrations, fine-sediment deposition can decrease growth and survival of juvenile salmonids. Aquatic systems are complex interactive systems, and isolating the effects of sediment to fish is difficult (Castro and Reckendorf 1995d, pp. 2-3). The effects of sediment on receiving water ecosystems are complex and multi-dimensional, and further compounded by the fact that sediment flux is a natural and vital process for aquatic systems (Berry, Rubinstein, Melzian, and Hill 2003, p. 4). Environmental factors	***DNRC Response to Comment 27:*** *Existing Fisheries conditions, anticipated impacts, and proposed mitigations are disclosed in the Environmental Assessment Checklist's Fisheries section page 13.*

	that affect the magnitude of sediment impacts on salmonids include duration of exposure, frequency of exposure, toxicity, temperature, life stage of fish, angularity and size of particle, severity/magnitude of pulse, time of occurrence, general condition of biota, and availability of and access to refugia (Bash et al. 2001m, p. 11). Potential impacts caused by excessive suspended sediments are varied and complex and are often masked by other concurrent activities (Newcombe 2003, p. 530). The difficulty in determining which environmental variables act as limiting factors has made it difficult to establish the specific effects of sediment impacts on fish (Chapman 1988, p. 2). For example, excess fines in spawning gravels may not lead to smaller populations of adults if the amount of juvenile winter habitat limits the number of juveniles that reach adulthood. Often there are multiple independent variables with complex inter-relationships that can influence population size. The ecological dominance of a given species is often determined by environmental variables. A chronic input of sediment could tip the ecological balance in favor of one species in mixed salmonid populations or in species communities composed of salmonids and nonsalmonids (Everest et al. 1987, p. 120). Bull trout have more spatially restrictive biological requirements at the individual and population levels than other salmonids (USFWS (U.S. Fish and Wildlife Service) 1998, p. 5). Therefore, they are especially vulnerable to environmental changes such as sediment deposition.	
28	**The EIS must analyze the impacts to aquatic ecosystems by assessing the following impacts:** **Aquatic Impacts** • **Classify and analyze the level of impacts to bull trout and westslope cutthroat trout in streams, rivers and lakes from sediment and other habitat alterations:** • **Lethal: Direct mortality to any life stage, reduction in egg-to-fry survival, and loss of spawning or rearing habitat. These effects damage the capacity of the bull trout to produce fish and sustain populations.**	***DNRC Response to Comment 28:*** *Existing Fisheries conditions, anticipated impacts, and proposed mitigations are disclosed in the Environmental Assessment Checklist's Fisheries section page 13.*

	• **Sublethal: Reduction in feeding and growth rates, decrease in habitat quality, reduced tolerance to disease and toxicants, respiratory impairment, and physiological stress. While not leading to immediate death, may produce mortalities and population decline over time.** • **Behavioral: Avoidance and distribution, homing and migration, and foraging and predation. Behavioral effects change the activity patterns or alter the kinds of activity usually associated with an unperturbed environment. Behavior effects may lead to immediate death or population decline or mortality over time.**	
29	**Direct effects:** • **Gill Trauma** - High levels of suspended sediment and turbidity can result in direct mortality of fish by damaging and clogging gills (Curry and MacNeill 2004, p. 140). • **Spawning, redds, eggs** - The effects of suspended sediment, deposited in a redd and potentially reducing water flow and smothering eggs or alevins or impeding fry emergence, are related to sediment particle sizes of the spawning habitat (Bjornn and Reiser 1991, p. 98).	***DNRC Response to Comment 29:*** *Existing Fisheries conditions, anticipated impacts, and proposed mitigations are disclosed in the Environmental Assessment Checklist's Fisheries section page 13.*
30	**Indirect effects:** • **Macroinvertebrates** - Sedimentation can have an effect on bull trout and fish populations through impacts or alterations to the macroinvertebrate communities or populations (Anderson, Taylor, and Balch 1996, pp. 14-15). • **Feeding behavior** - Increased turbidity and suspended sediment can affect a number of factors related to feeding for salmonids, including feeding rates, reaction distance, prey selection, and prey abundance (Barrett, Grossman, and Rosenfeld 1992, pp. 437, 440; Henley, Patterson, Neves, and Lemly 2000, p. 133; Bash et al. 2001d, p. 21). • **Habitat effects** - All life history stages are associated with complex forms of cover including large woody debris, undercut banks, boulders, and pools. Other habitat characteristic important	***DNRC Response to Comment 30:*** *Existing Fisheries conditions, anticipated impacts, and proposed mitigations are disclosed in the Environmental Assessment Checklist's Fisheries section page 13.*

	to bull trout include channel and hydrologic stability, substrate composition, temperature, and the presence of migration corridors (Rieman and McIntyre 1993, p. 5). • **Physiological effects** - Sublethal levels of suspended sediment may cause undue physiological stress on fish, which may reduce the ability of the fish to perform vital functions (Cederholm and Reid 1987, p. 388, 390). • **Behavioral effects** - These behavioral changes include avoidance of habitat, reduction in feeding, increased activity, redistribution and migration to other habitats and locations, disruption of territoriality, and altered homing (Anderson, Taylor, and Balch 1996, p. 6; Bash et al. 2001t, pp. 19-25; Suttle, Power, Levine, and McNeely 2004, p. 971).	
31	**How will this project affect native fish? What is the current condition in the riparian areas? How will this project protect rather than adversely impact fish habitat and water quality? No logging or road building should be done in riparian areas. There should not be any stream crossings. Roads should be decommissioned and removed, not upgraded and rebuilt.** Hauer, et al. (1999) found that bull trout streams in wilderness habitats had consistent ratios of large to small and attached to unattached large woody debris. However, bull trout streams in watersheds with logging activity had substantial variation in these ratios. They identified logging as creating the most substantive change in stream habitats. "The implications of this study for forest managers are twofold: (i) with riparian logging comes increased unpredictability in the frequency of size, attachment, and stability of the LWD and (ii) maintaining the appropriate ratios of size frequency, orientation, and bank attachment, as well as rate of delivery, storage, and transport of LWD to streams, is essential to maintaining historic LWD characteristics and dynamics. Our data suggest that exclusion of logging from riparian zones may be necessary to maintain natural stream morphology and habitat features. Likewise, careful upland management is also necessary to prevent cumulative effects that result in altered water flow regimes and	***DNRC Response to Comment 31:*** *Existing Fisheries conditions, anticipated impacts, and proposed mitigations are disclosed in the Environmental Assessment Checklist's Fisheries section page 13.*

	sediment delivery regimes. While not specifically evaluated in this study, in general, it appears that patterns of upland logging space and time may have cumulative effects that could additionally alter the balance of LWD delivery, storage, and transport in fluvial systems. These issues will be critical for forest managers attempting to prevent future detrimental environmental change or setting restoration goals for degraded bull trout spawning streams." Muhlfeld, et al. (2009) evaluated the association of local habitat features (width, gradient, and elevation), watershed characteristics (mean and maximum summer water temperatures, the number of road crossings, and road density), and biotic factors (the distance to the source of hybridization and trout density) with the spread of hybridization between native westslope cutthroat trout *Oncorhynchus clarkii lewisi* and introduced rainbow trout *O. mykiss* in the upper Flathead River system in Montana and British Columbia. They found that hybridization was positively associated with mean summer water temperature and the number of upstream road crossings and negatively associated with the distance to the main source of hybridization. Their results suggest that hybridization is more likely to occur and spread in streams with warm water temperatures, increased land use disturbance, and proximity to the main source of hybridization.	
32	**The EIS must use the best available science to analyze how logging riparian habitat will impact native fish and water quality.**	***DNRC Response to Comment 32:*** *The DNRC remains committed to using the best available science to support the accomplishment of Trust and project objectives.*
33	**<u>Cumulative Effects</u>** **The Environmental Impact Statement must evaluate the cumulative effects of past, present and foreseeable future logging plans in this area including the Upper Stillwater project on the Stillwater State Forest.**	***DNRC Response to Comment 33:*** *Cumulative effects based on past, present and foreseeable logging are found in the EA under each resource section.*

	The EIS must disclose the current condition of the project area, including, but not limited to: **a) miles of roads in the project area, their current condition such as impacts to streams, amount of hiding cover, weed presence;** **b) current stream conditions such as temperature, sediment, pool frequency, bank stability, cobble embeddedness, McNeil core results, redd counts;** **c) big game winter and summer range forage, canopy cover, thermal cover;** **d) size of existing openings, distance to cover.**	
34	**What has monitoring from previous timber sales told you about your logging practices and assumptions made in those EISs? What is the condition of habitat for sensitive, threatened, endangered, big game, fish and old-growth associated species? What is your growth and yield of trees in the large clearcuts from previous projects? What fine filter monitoring for wildlife and fish has been done? What are those results?** **How will this project's additional impacts affect water quality, fish and wildlife habitat?**	***DNRC Response to Comment 34:*** *Existing conditions, anticipated impacts, and proposed mitigations are disclosed under each resource section in the Environmental Assessment Checklist.* *DNRC has conducted monitoring pertaining to the DNRC Forest Management Program required by the SFLMP since 1997, and the four comprehensive 5-year monitoring reports may be found at the following link –https://dnrc.mt.gov/TrustLand/about/planning-and-reports. These reports contain information pertaining to wildlife, fisheries, and terrestrial and aquatic habitat monitoring results as required by the standards contained in the SFLMP. DNRC is also required to conduct annual monitoring as a requirement of the Forest Management HCP (https://dnrc.mt.gov/TrustLand/about/planning-and-reports). Eleven reports addressing compliance with measures contained in the HCP have been produced. DNRC engages in many efforts to monitor the effectiveness of treatments implemented during a timber sale:* • *Timber sale inspections conducted during sale administration ensure that sale operations comply with certain standard operating procedures, Administrative Rules for Forest Management, Montana Best Management Practices for Forestry (BMPs), and any other mitigation measures that might be stipulated in the sale contract.*

		• *Regeneration surveys are used following harvesting to monitor regeneration success.* • *Internal DNRC and statewide BMP audits are conducted on completed DNRC timber sales either annually or biannually to determine whether BMPs were properly applied and whether the BMPs were effective in preventing erosion and sediment delivery.* • *DNRC participates in fisheries monitoring with the Department of Fish, Wildlife, and Parks to measure the potential impact of forest management on fisheries habitats.* • *DNRC conducts fish populations, passage, and genetic surveys, fish habitat inventories, and riparian stand assessments to evaluate both existing effects as well as potential effects of the proposed Action Alternative Implementation of post-project fisheries resource monitoring is generally limited to riparian timber harvest effects.* • *Road closure devices are monitored annually to determine whether each is effective at keeping motorized users from entering restricted areas.* • *Biodiversity field reviews are conducted on selected timber sales, typically three to five years following harvesting, to monitor the implementation at the timber sale level of the biodiversity resource management standards described in the State Forest Land Management Plan and Administrative Rules for Forest Management. These reviews are conducted in a field setting and examine biodiversity issues associated with the timber sale, the silvicultural treatments used, and biodiversity-related mitigations (such as protection of snags, coarse woody debris, nutrients, and wildlife) implemented during the sale.* *Determining growth and yield of trees from past clearcuts is beyond the scope of this project and pertains to the sustainable yield calculation, which is a complex statewide project. DNRC's most recent SYC was completed by an independent consulting firm, Mason, Bruce, & Girard, in 2020. The SYC process included collecting and summarizing forest inventory data which was used to determine both the current forest conditions and the expected growth and yield associated with the range of management actions used by DNRC. For more information, the 2020 SYC Final Report is available for download online at: Planning and Reports (mt.gov).*
35	Economically Unsuitable Lands	***DNRC Response to Comment 35:***

	The EIS should disclose the net economic gain or loss of logging lands unsuitable for timber management for biological or economic reasons. We request that DNRC permanently remove all unsuitable lands from the timber base as they are identified. This will provide added certainty for wildlife security and reveal a more accurate picture of the forest's economic potential in the future. **DNRC must identify all lands that are unsuitable for timber production. The EIS should disclose what the rate of growth is from past cutting units, and the number of times past logging units have been replanted. Continuing to log in similar areas that have had regeneration problems does not provide any benefit to the school trust.**	*This issue is programmatic in nature and beyond the scope of this project. DNRC does identify lands unsuitable for timber production and those areas are noted in the stand level inventory. Additionally, such lands are not included in and do not contribute to DNRC's annual sustainable yield. DNRC's annual sustainable yield is based only on commercial forest acres, which are acres comprised of conifer species and have site productivity greater than 20 cubic feet per acre per year. Furthermore, although some sites may be viable for commercial timber management from a site productivity standpoint, other factors such as topography, wet areas, or lack of legal access, among others, preclude timber management. DNRC identifies such areas as 'deferred' from management, and those areas are not included in the sustainable yield calculation (SYC). The most recent SYC accounted for those factors.*
36	**DNRC must disclose the basis for the growth and yield calculation on the Stillwater State Forest. What differences are there between past project yield and current project yield? What additional actions is DNRC taking to improve yield? What is present net value?**	***DNRC Response to Comment 36:*** *This request is beyond the scope of this project and pertains to the sustainable-yield calculation, which is a complex statewide project. DNRC's most recent SYC was completed by an independent consulting firm, Mason, Bruce, & Girard, in 2020. The SYC process included collecting and summarizing forest inventory data which was used to determine both the current forest conditions and the expected growth and yield associated with the range of management actions used by DNRC. For more information, the 2020 SYC Final Report is available for download online at:* Planning and Reports (mt.gov).
37	**How will climate change affect growth and yield of these forests and habitat for species? How is DNRC planning to mitigate these effects?** The failure to complete an adequate economic analysis in the past has created an inflated view of the value of logging over other positive economic assets found on the forest. MEPA alternatives must fully examine other viable economic options. A short-term, cash-flow analysis is not adequate, especially if DNRC must then conduct another timber sale in the future to clean up damage from past sales.	***DNRC Response to Comment 37:*** *Evidence of widespread climate change has been well documented and reported and is an important consideration today (Intergovernmental Panel on Climate Change (IPCC) 2014). In Montana, effects of climate change will be related to changes in temperature and moisture availability, and the response of individual tree species, forests and habitats will be complex and variable, depending local site and stand conditions. Changes in temperature and moisture availability may affect the ability of some tree species to establish and regenerate on some sites. Forest productivity may increase in some areas due to longer*

Climate Change

Climate change is happening, it is affecting plant growth, stream flows, forests and weather patterns and it will intensify. Neither DNRC's Administrative Rules for Forest Management and Streamside Management nor the Habitat Conservation Plan for listed species fully considers the impacts of climate change.

Past conditions will not predict the future in the wake of climate change. The Montana Climate Assessment (MCA) [Found at http://montanaclimate.org/] is an effort to synthesize, evaluate, and share credible and relevant scientific information about climate change in Montana. It must be considered in development of HBRC. Following are key messages and conclusions:

KEY MESSAGES

• Annual average temperatures, including daily minimums, maximums, and averages, have risen across the state between 1950 and 2015. The increases range between 2.0-3.0°F (1.1-1.7°C) during this period. [high agreement, robust evidence]

• Winter and spring in Montana have experienced the most warming. Average temperatures during these seasons have risen by 3.9°F (2.2°C) between 1950 and 2015. [high agreement, robust evidence]

• Montana's growing season length is increasing due to the earlier onset of spring and more extended summers; we are also experiencing more warm days and fewer cool nights. From 1951-2010, the growing season increased by 12 days. In addition, the annual number of warm days has increased by 2.0% and the annual number of cool nights has decreased by 4.6% over this period. [high agreement, robust evidence]

• Despite no historical changes in average annual precipitation between 1950 and 2015, there have been changes in average seasonal

growing seasons associated with increased temperature where moisture is not limited but may decrease in other areas where increasing temperature results in decreased water availability (Wade et al. 2017). Drought severity is expected to increase, leading to increases in forest and tree mortality. Changing climate may also lead to changes in the range of some species, resulting in changes in forest composition and distribution (Wade et al. 2017). Given possible changes in the amounts and types of trees and other plants observed in forests, unique vegetation community associations and new climax community types may also begin to appear in the future (Fox 2007). Changing climate is also expected to alter natural disturbance regimes, such as fire and insects, with the resulting effects expected to have greater impact on Montana's forests than changes in temperature and moisture availability that directly affect individual trees and species (Wade et al. 2017). Understanding changes in tree species composition in forests, and the ability of various tree species to thrive under changing climate conditions, may take decades. Predicting possible effects of climate change in forests at local levels is also difficult due to large-scale variables at play, such as possible increases in global evaporation rates, and possible changes in global ocean currents and jet stream. Such outcomes could influence locally observed precipitation amounts and possible influences on natural disturbance regimes (such as changing the average intensity, frequency, and scale of fire events). Normal year to year variation in weather also confounds the ability to identify, understand, predict, and respond to influences of climate change. Given the many variables and difficulty in understanding the ramifications of changing climate, detailed assessment of possible direct, indirect, or cumulative effects of climate change in association with project activities described in this EA is beyond the scope of this analysis. In the face of current uncertainty associated with climate change, DNRC is continuing to manage for biodiversity as guided under the SFLMP. Under the management philosophy of the SFLMP, DNRC will continue to manage for biodiversity using a coarse filter approach that favors an appropriate mix of stand structures and compositions on state lands as described by ARM 36.11.404, while also working to understand relevant ecosystem changes as research findings and changes in climate evolve.

precipitation over the same period. Average winter precipitation has decreased by 0.9 inches (2.3 cm), which can mostly be attributed to natural variability and an increase in El Niño events, especially in the western and central parts of the state. A significant increase in spring precipitation (1.3-2.0 inches [3.3-5.1 cm]) has also occurred during this period for the eastern portion of the state. [moderate agreement, robust evidence]

• The state of Montana is projected to continue to warm in all geographic locations, seasons, and under all emission scenarios throughout the 21st century. By mid century, Montana temperatures are projected to increase by approximately 4.5-6.0°F (2.5-3.3°C) depending on the emission scenario. By the end-of-century, Montana temperatures are projected to increase 5.6-9.8°F (3.1-5.4°C) depending on the emission scenario. These state-level changes are larger than the average changes projected globally and nationally. [high agreement, robust evidence]

• The number of days in a year when daily temperature exceeds 90°F (32°C) and the number of frost-free days are expected to increase across the state and in both emission scenarios studied. Increases in the number of days above 90°F (32°C) are expected to be greatest in the eastern part of the state. Increases in the number of frost-free days are expected to be greatest in the western part of the state. [high agreement, robust evidence]

• Across the state, precipitation is projected to increase in winter, spring, and fall; precipitation is projected to decrease in summer. The largest increases are expected to occur during spring in the southern part of the state. The largest decreases are expected to occur during summer in the central and southern parts of the state. [moderate agreement, moderate evidence]

This EIS must fully evaluate whether logged areas will regenerate and how changes in precipitation patterns affect streams.

38	**<u>Weeds</u>** **Controlling weeds and preventing their spread is a huge issue that DNRC does not have a grip on. Current methods are obviously not working, weeds spread on forest roads, in cutting units, landings, burn piles, and on to adjacent ownerships. The best way to prevent weeds from spreading out of control is not to disturb the native vegetation.**	***DNRC Response to Comment 38:*** *DNRC disagrees with the assertion that an effective weed management plan has not been implemented. On open roads, weed seed is introduced primarily via motor vehicle use. Established infestations of noxious weeds are being addressed with an ongoing program of site-specific herbicide spraying along roads and in small areas of infestation as outlined in the Cooperative Integrated Noxious Weed Management Agreement (CINWA) between Flathead County and the DNRC. Within the proposed project area, spot spraying would target log landing areas and roadways.* *Upon reclamation and final blading, roads would also be grass seeded to mitigate the spread of weeds. Logging equipment would be washed prior to entering the sale area and would be inspected by the Forest Officer to ensure that it meets contract standards. Follow up spot treatments would occur in harvest units and on skid trails following logging as needed. Weed-related effects associated with the proposed action are addressed on pages 11-12 of the project EA and the Vegetative Analysis.*
39	**So what plan does the Stillwater State Forest have for weeds in the project area?** It is likely that this project will spread more weeds, they must be eradicated not spread. Washing equipment does not work, please do not attempt to dupe the public into believing that the same past failed mitigation measures to control weeds will somehow miraculously work in this project. DNRC cannot just resign itself to the fact that there will be an invasive species problem in the project area indefinitely. This is not adequate.	***DNRC Response to Comment 39:*** *DNRC plans to complete herbicide treatments of noxious weeds on the project area to control existing weed infestations. All equipment would be washed and inspected prior to start of work. All restricted roads would be reseeded to site-adapted grass to reduce the threat of noxious weed spread. The project area would be monitored for noxious weeds after harvest operations are complete and herbicide treatments may be applied if needed.*
40	**<u>Costs</u>** **DNRC must track the costs expended to plan and implement this timber sale. Without this information it cannot accurately determine whether revenue is being generated for the school trust.**	***DNRC Response to Comment 40:*** *Itemized cost accounting involves many unknown variables and is conducted at the programmatic level, rather than on a project-by-project basis. In this EA (see Impacts on the Human Population-Other Appropriate Social and Economic Circumstances), project costs are estimated based on the most recent annual programmatic revenue to cost ratios. A more detailed review of*

	We expect our comments to be fully considered in the EIS. Please keep us informed as this project develops and of any field trips to the project area. /s/Arlene Montgomery Program Director	*programmatic costs is available in the Trust Land Management Division Fiscal Year 2024 Return on Assets Report and DNRC FY 2024 Annual Report.*
41	***F.H. Stoltze Land & Lumber Company*** ***Box 1429, Columbia Falls,*** ***MT 59912*** May 17, 2023 Jeremy Akin Stillwater Unit PO Box 164 Olney, MT 59927 RE: Comments on the Swift-Stryke Forest Management Project Jeremy, F.H. Stoltze Land and Lumber would like to show our support for the Swift-Stryke Forest Management Project. Active forest management is the best way to achieve the goals set in the proposal. Timber harvest will greatly reduce the fuel load and increase forest resilience to wildfire. The associated roads will increase access for firefighting and other management activities. The harvest types will increase the health and vigor of the forest and promote new growth to regenerate the stand. Products sold will provide income to the School Trusts and support local jobs.	***DNRC Response to Comment 41:*** *Thank you for your comment.* 1. *As discussed in the vegetation management section of this document, forest fuels, hazard fuels management, and forest health have been incorporated into the design of the action alternative.* 2. *Non-saw product removal would be required with this project to capture the economic value of the material.* 3. *Multiple SMZ's have been identified within the project area and harvest design will be guided by SMZ law.*

	One item to consider is the current market of non-saw products, such as pulp. Supply exceeds demand driving prices down and increasing quotas from the very few facilities that purchase it. This makes it very difficult, both financially and physically, to handle these products. I understand that proper management requires the removal of these products to achieve the set goals. I suggest that DNRC explore other ways of to handle these products to increase options for purchasers. Another input would be to increase riparian area management. The map attached to the proposal shows multiple streams and in turn SMZ areas. I would like to see these areas managed, within SMZ law, instead of being treated as off-limits zones. Healthy riparian stands improve and ensure the overall health of the watershed. Thank you for the opportunity to comment and I look forward to seeing this project move forward. Sincerely, Jeff Whitlock Forester F.H. Stoltze Land and Lumber	
42	***Dana Bagnoli*** ***Local Resident*** Jeremy, I have a few comments/requests about the project, 1. **Please consider enforcing a NO jake brake use for any truck en-route or within the project**, the noise travels long distances and easily at all hours of the day, especially during the early morning hours.	***DNRC Response to Comment 42:*** 1. *All equipment and log hauling would be conducted in accordance with local, state and federal regulations. No additional restrictions on compression release engine braking systems would be included in this contract.* 2. *Pile burning and slash disposal would be conducted in accordance with our standards as a major burner as determined by Montana DEQ and Montana / Idaho Airshed Group. Consult the section on Air Quality in this EA document for further information.* 3. *Please refer to "invasive weeds" in the Vegetation section.*

	2. On future project area maps please highlight/buffer all haul routes, the current map does not provide an adequate level of detail. **3. Conduct pile and broadcast burning of all remaining piles and activity slash within the project area and take actions to prevent invasive weed growth.** Sincerely, Dana Bagnoli	
43	***Lincoln Electric Cooperative Inc.*** ***P.O. Box 628, 312 Osloski Road,*** ***Eureka, MT 59917*** Jeremy, Good morning, thank you for including me and Lincoln Electric Coop in the scoping proposal for the Swift-Stryke Forest Management Project. Lincoln Electric Cooperative may have overhead and underground power lines within the project boundaries. LEC works hard in keeping our right of ways cleared and maintained. We also have a fire and storm mitigation plan that we incorporate with our ROW maintenance program. When we see an opportunity like this project, we like to work together with groups to have a successful project and harden our system to provide the fire and storm mitigation that is needed at the same time. When clearing is performed along the overhead power lines, we like to see any tree that would reach the line be taken down. Smaller trees that are not tall enough to reach the overhead powerline would be the preferred trees to be left in the corridor area. Usually when a wind event or heavy snow event happens following the clearing of the trees, it will cause the trees to fall into the power lines, creating the potential for fire and power outages. Any excavation around URD facilities would also need to be located and continue to maintain LEC depth requirements. We appreciate any coordination or meetings in the ROW corridors to address a plan or any strategies to meet associated risks to the project. Please coordinate any onsite meetings with our ROW foreman, Jeremy Persson at 406-889-3301.	***DNRC Response to Comment 43:*** *The closest powerlines to this project are along the Highway 93 right of way. No work with this project is planned near these powerlines. Any work adjacent to powerline infrastructure would be coordinated with the applicable power company.*

	LEC can provide GIS mapping of our facilities in the project corridors as well. Please reach out to the engineering department at 406-889-3301. Please reach out to me if you would like more information or have other concerns with our existing power lines in this project. Thanks again for working with us on our fire and storm mitigation plan. Stan Williams Operations **Lincoln Electric Cooperative, Inc**	
44	***Stillwater Post and Pole LLC*** ***P.O. Box 1200,*** ***Eureka, MT 59917*** Hi Matt, Thanks for the opportunity! I think it's a wonderful project. As I recall there was a lot of thick undercover in that area that presented a high fire risk. Forest management is always a good thing for everyone, including wildlife. Keep up the good work and keep me in the loop. Thanks again! Jerry Gingerich Stillwater Post and Pole LLC	***DNRC Response to Comment 44:*** *As discussed in the vegetation management section of this document, forest fuels and hazard fuel management have been incorporated into the design of the action alternative.*

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