Environmental Assessment Checklist
Project Name: North Lake Salvage Forest Management Project
Proposed Implementation Date: June 20, 2024
Proponent: Stillwater Unit, Northwest Land Office, Montana DNRC
County: Flathead County

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 North Lake Salvage Forest Management Project. The project is located approximately 7 miles northwest of the City of Whitefish, MT. (refer to Attachment A, A-1: Timber Sale Vicinity Map, and A-2: Timber Sale Harvest Units) and includes the following sections:

Beneficiary	Legal Description	Total Acres	Treated Acres
MSU 2nd Grant	T32N R22W S31	638.0	3.6
State Normal School	T31N R22W S6	402.2	71.7

Objectives of the project include:

- Salvage and maximize utilization of timber damagd by the North Lake Fire of 2023.
- Contribute to approximately 1.1 million board feet (MMbf) to DNRC's sustainable yield timber harvest volume target.
- 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.
- Move stands to desired future conditions and enhancing vigor by reducing stocking.
- Reduce the risk and severity of wildland fire in stands adjacent to private and public property by reducing fuel loading and stand density through silvicultural treatments.
- Apply Best Management Practices (BMPs) to meet design criteria that are necessary to promote long-term water quality during logging and road improvement operations.

Proposed activities include:

Action	Quantity
Proposed Harvest Activities	# Acres
Sanitation	29.5
Seed Tree	0
Shelterwood	34.4
Selection	0
Old Growth Maintenance/Restoration	0
Commercial Thinning	0
Salvage	11.4
Total Treatment Acres	75.3
Proposed Forest Improvement Treatment	# Acres
Pre-commercial Thinning / slashing	63.9
Site preparation/scarification	34.4
Planting	
Proposed Road Activities	# Miles
New permanent road construction	0.0
New temporary road construction	0.0
Road maintenance	3.7
Road reconstruction	0.0
Road abandoned	0.0
Road reclaimed	0.0
Other Activities	None
Duration of Activities:	2 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 (SFLMP) (DNRC 1996),
- Administrative Rules for Forest Management (ARMs) (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
- PUBLIC SCOPED:
  - The scoping notice was posted on the DNRC Website: https://dnrc.mt.gov/News/scoping-notices
  - In April and May 2023 DNRC solicited public participation for 30 days on the Swift-Stryke Forest Management Project. The Initial Proposal with maps was sent to agencies, individuals, licensees, and other organizations that have expressed interest in DNRC's management activities. A notification was also placed in the Daily Interlake in Kalispell and Tobacco Valley News in Eureka.
- AGENCIES SCOPED:
  - MT Fish, Wildlife, and Parks
  - USFS Flathead National Forest
  - All Montana Tribal Organizations
- COMMENTS RECEIVED:
  - How many: 5 commentors submitted concerns via email.
  - Concerns:
    - Two comments in support of active forest management were received from timber industry representatives with additional emphasis on economics, forest improvement, fuels management, Streamside Management Zone (SMZ) management, and fuels reduction in the Wildland Urban Interface (WUI).
    - One comment was received from Lincoln Electric regarding timber management adjacent to overhead powerlines and their right-of-way.
    - Two emails were received from the public with multiple concerns. See attachment C for a detailed list of concerns voiced during the scoping process and responses to applicable concerns.

Interdisciplinary Team (ID):

- Josh Harris (Hydrologist, Soils, Fisheries)
- Justin Cooper (Wildlife Biologist)
- Patrick Rennie (Archeologist)
- Eric Lewis and Cullen O'Brien (Foresters, Vegetation Specialists)
- Matt Lufholm (Forester Management Supervisor, Human Concerns)

Internal and external issues, as well as resource concerns, were considered by the Interdisciplinary Team (ID) and project Decisionmaker (Stillwater Unit Manager). These issues and concerns were incorporated into the project planning and design phases of the project and would be implemented in associated actions and contracts. The ID Team developed an action alternative within the framework of the SFLMP, HCP, and DNRC Forest Management Rules. One action alternative was developed because various issues and concerns of the ID Team can be addressed with adequate planning and associated mitigations.

Project Development:

- **Stand Prioritization -** Foresters focused on the following types of forest conditions to improve stand health and stocking densities. These include:
    - Areas of advanced insects/disease issues (stem rots/bark beetles).
    - Areas burned during the North Lake Fire during the summer of 2023.
    - Overstocked stands with poor tree vigor, health, and growth.

- **Transportation Development -** Roads were identified to maximize opportunities for updates to the transportation plan within the project area, to improve long-term forest management, meet safety standards/BMPs, and improve access for fire suppression activities. The following were influencing factors on roadwork:
    - Access – Gain access through adjacent private landowners using temporary road use permits.
    - Improving road surface stability – BMP assessment and employment for all segments in accordance with Road Management Standards (*ARM 36.11.421*).

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.

- **Montana/Idaho Airshed Group-** The DNRC is a member of the Montana/Idaho Airshed Group which was formed to minimize or prevent smoke impacts while using fire to accomplish land management objectives and/or fuel hazard reduction (Montana/Idaho Airshed Group 2010). As a member, DNRC must submit a list of planned burns to the Airshed Group's Smoke Monitoring Unit describing the type of burn to be conducted, the size of the burn in acres, the estimated fuel loading in tons/acre, and the location and elevation of each burn site. The Smoke Monitoring Unit provides timely restriction messages by airshed. DNRC is required to abide by those restrictions and burn only when granted approval by the Smoke Monitoring Unit when forecasted conditions are conducive to good smoke dispersion.

ALTERNATIVES CONSIDERED:

No-Action Alternative:

Under this alternative, no timber would be harvested. Therefore, no revenue would be generated from the project area for the State Normal Schools or MSU 2nd Grant Trust Beneficiaries 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:

The proposed project would harvest approximately 1.1 MMBF of timber using ground-based methods on 75.3 acres. Specific harvest unit data is provided in Attachment B – North Lake Salvage Prescription Table. Consult map in Attachment A-2 – Timber Sale Harvest Units for further detail.

Silvicultural prescriptions applied under this alternative are as follows:

- Shelterwood – A new stand of healthy trees of preferred species would be regenerated on 34.4 acres.
- Sanitation – This 29.5-acre stand would be selectively harvested to reduce presence of shade tolerant species while also reducing the vertical continuity of existing fuels.
- Salvage – 11.4 acres of identified stands that burned during July and August of 2023 would be salvaged to capture economic value of the damaged trees.

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 upper canopy layer of the proposed harvest units is dominated by a mixed-conifer cover type. Large Engelmann spruce (*Picea engelmannii*) dominates the overstory with Douglas-fir (*Pseudotsuga menzesii*), western larch (*Larix occidentalis*), and lodgepole pine (*Pinus contorta*) present throughout the stand. Isolated pockets of large live and dead black cottonwoods (*Populus nigra*) exist throughout the area as well. Shade tolerant species dominate the lower canopy layer.

Harvest Unit	Habitat Group	Fire Regime	Current Cover Type	Age Class (years)	DFC	RX	Acres
1	Cool and moist (westside)	Mixed-to-Stand Replacing	Mixed Conifer	150-199	Mixed Conifer	Shelterwood Harvest	34.4
2	Cool and moist (westside)	Mixed-to-Stand Replacing	Mixed Conifer	100-149	Mixed Conifer	Sanitation	29.6
3	Cool and moist (westside)	Mixed-to-Stand Replacing	Mixed Conifer	100-149	Mixed Conifer	Fire Salvage	11.4

Fire Hazard/Fuels: The North Lake Salvage Forest Management Project Area is located within the City of Whitefish Wildland Urban Interface (WUI). Heavy dead and downed woody debris (>3") are prevalent throughout the stands in the project area. Fire group 9 dominates the project area and is characterized by mixed-severity to stand-replacing fire regimes. The multi-storied canopy, blowdown, and dense understory contribute to the existing dense ladder fuels. The combination of deep duff layers, dense understory, and large rotten woody debris could contribute to substantial wildfire spread during unusually dry moisture conditions. These areas have the potential to increase fire intensity and activity, which could allow wildfire to spread into the overstory and kill the stands.

Insects and Diseases: Bark beetles, woodborers, and root rot are present throughout the project area. Treatment of these stands will prevent further infestation and loss within the stands. The Fire Salvage Units are at the highest risk for insect mortality if treatment does not occur.

Sensitive/Rare Plants: A query using the Montana Natural Heritage Species of Concern program yielded no species of concern within the North Lake Salvage Forest Management Project area. Though some species of concern may still occur in the area, they were not observed during reconnaissance or fieldwork. If any of the listed sensitive plants are found during this project period, then harvesting operations would be diverted from those locations and further reviewed by DNRC and plant specialists.

Noxious Weeds: Weeds identified in the project area include: spotted knapweed (*Centaurea stoube*), Canada thistle (*Cirsium arvense*), orange hawkweed (*Heiracium aurantiacum*), oxeye daisy (L*eucanthemum vulgare)*, and St. Johnswort *(Hypericum perforatum)*.

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			No	V-1
Age Class		X			X					X			No	V-1
Old Growth	X				X				X					V-2
Fire/Fuels		X				X				X			Yes	V-3
Insects/Disease		X				X				X			Yes	V-4
Rare Plants	X				X				X					V-5
Noxious Weeds		X				X				X			Yes	V-6

Comments:

V-1: The action alternative proposes to harvest 1.1 MMBF from the area (see Attachment B – Prescription Table). The silvicultural prescriptions implemented within these stands would transition current cover types to the desired future conditions (*ARM 36.11.405*) and maintain stand age class by:

- Reducing shade tolerant species in all canopy layers
- Transitioning cover type from Mixed Conifer to western larch/Douglas-fir (WL/DF)
- Retaining trees of preferred species (WL/DF) in all size classes and age classes.
- Mechanical scarification would occur on 34.4 acres in unit 1 to create seedbeds receptive to natural or manual regeneration.

V-2: No old growth will be harvested with this project. Cumulatively there is 14,422.2 acres of old growth on the Stillwater Unit. Following this and other planned harvest activities on the Stillwater Unit, there would remain estimated 14,402.2 old-growth acres, which represents 11.19% of the area managed by Stillwater Unit.

V-3: Risk of wildfire would persist post-harvest, however silvicultural treatments within proposed units would assist in moderating fire intensity. Treatments applied would reduce the vertical and horizontal continuity of fuel loadings. Units 1 and 2 would help reduce understory ladder fuels and increase crown separation of residual trees to mitigate crown fire potential. These treatments would aide fire suppression efforts to be more successful by moderating fire rate of spread and fire intensity.

V-4: Trees weakened by North Lake fire and as a result are susceptible to bark beetle attack will be removed by forest management actions of the project.

V-5: No vegetative species of concern were identified during field reconnaissance and layout within any of the proposed units. If listed rare/sensitive plants are discovered during the project, harvest operations would be diverted from the immediate area to allow time and space for reviewal by DNRC and plant specialists.

V-6: Pockets of noxious weeds identified within the project aera will be targeted and sprayed with herbicide prior mobilization of equipment. The project area will be surveyed for the presence of noxious weeds post-harvest. Follow up herbicide applications will be administered if are identified.

Vegetation Mitigations:

- Mitigation measures for noxious weed control include washing equipment before entering the site, sowing grass seed on roads after road maintenance and harvesting (*ARM 36. 11. 445*) and applying herbicide on spots of weed outbreaks along roadways including areas behind road closures. This would minimize the spread and continued prevalence of noxious weeds in the project area.
- Implement High Standard Hazard Reduction practices for 100' inside unit boundaries on harvest units that are within 1,000' feet of residential structures (east edge of unit 2).

SOIL DISTURBANCE AND PRODUCTIVITY:

Soil Disturbance and Productivity Existing Conditions: The predominate soil types in the project area are dystric eutrochrepts (terraces) and andeptic cryoboralfs (moraines), which overlay stratified glacial outwash (NRCS, 2004; USDA, 1998; Vuke, 2007). These soils have moderate to high productivity due to the climatic regime, soil moisture holding capacity, and organic surface soils. Section records indicate timber management started as early as 1948 and increased in intensity after 1963.

Previous ground-based harvest activities from the Lazy Swift #2 Sale in 2013 and the Lazy Swift Blowdown Salvage in 2020 are visible but are ameliorating in the project area.

Soils in the project area have a moderate risk of soil displacement and compaction based on soil texture, structure, and organic content. Soil erosion risk is moderate based on the local slope and percentages of silt, sand, and organic matter. In July 2023, the North Lake fire burnt approximately 11 acres of mature forest, exhibiting a range of severity from mixed to stand-replacing behavior. Notably, scattered patches within two zones, measuring approximately 8 acres and 3 acres, displayed clear signs of scorched trunks and canopies within the larger continuous mature stand. Rehabilitated bulldozer and hand crew fire lines are still visible on the landscape. No areas of chronic soil erosion were evident during the field review. No areas of slope instability were observed in the proposed harvest units during project review. Outside of burned areas, the coarse woody debris volumes were estimated at approximately 5-10 tons/acre, mostly comprised of smaller-size class material (<12"). The proposed tractor harvest of 75.3 acres is considered low intensity.

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			Yes	S-1
Erosion		X				X				X			Yes	S-2
Nutrient Cycling		X				X				X			Yes	S-3
Slope Stability	X				X				X					
Soil Productivity		X				X				X			Yes	S-4

Comments:

S-1: Monitoring of DNRC timber harvest shows the level of total detrimental soil impacts in a harvest area averages 13.2% for traditional ground-based operations, localized to primary skid trails and log landing sites (DNRC 2011). Detrimental soil impacts are considered substantive when they exceed 20% of a harvest area (DNRC 1996). Soil productivity is expected to be maintained when soil function is maintained within 80% of a harvest unit.

S-2: Standard implementation of forest Best Management Practices (BMPs) to control erosion concurrent with harvest activities would mitigate any erosion concerns in the project area. Primary or highly impacted skid trails would be covered with slash and debris.

S-3: Coarse woody debris would be left on-site in volumes recommended to help maintain soil moisture and forest productivity, generally in the 10-20 tons per acre range for habitat types found in the harvest locations (Graham et. al. 1994). Because coarse woody debris would be left on site in amounts recommended by scientific literature, benefits to nutrient cycling and forest productivity would be maintained over the long term.

S-4: Soil productivity would be impacted by the use of ground-based machinery to yard timber. Ground disturbance is expected to be less than 10%, well within the 20% impacted area established as a level of concern in the State Forest Land Management Plan (DNRC 1996). This level translates to a low risk of direct, secondary, and cumulative impacts on soil productivity.

Soil Mitigations:

ARM 36.11.422 (2) and (2) (a) state that appropriate BMPs shall be determined during project design and incorporated into implementation. To ensure that the incorporated BMPs are implemented, the specific requirements would be incorporated into the DNRC Timber Sale Contract. The following BMPs and recommendations are considered appropriate and would be implemented during harvesting operations:

- Limit equipment operations to periods when soils are relatively dry, (less than 20%), frozen, or snow-covered to minimize soil compaction, rutting, and to maintain drainage features. Check soil moisture conditions prior to equipment start-up.
- The logger and sale administrator would agree to a skidding plan prior to equipment operations. Skid-trail planning would identify which main trails to use and how many additional trails are needed. Trails that do not comply with BMPs (i.e., trails in draw bottoms) would not be used unless impacts can be adequately mitigated. Regardless of use, these trails may be closed with additional drainage installed, where needed, or grass-seeded to stabilize the site and control erosion.
- Tractor skidding should be limited to slopes of less than 45% unless the operation can be completed without causing excessive displacement or erosion.
- Maintain skid trails at 20% or less of the harvest unit acreage. Provide for drainage on skid trails and roads concurrently with operations.
- Slash disposal: Limit the combination of disturbance and scarification to 30 to 40% of the harvest units. No dozer piling on slopes over 35; no excavator piling on slopes over 45% unless the operation can be completed without causing excessive erosion. Consider lopping and scattering or jackpot burning on the steeper slopes.

- Compliance with Forestry Best Management Practices (BMP's), Streamside Management Zone (SMZ) laws, Montana DNRC Forested Trust Lands HCP and applicable DNRC Forest Management Administrative Rules.

Soils References:

DNRC 1996. Forestry Best Management Practices: State Forest Management Plan. Montana DNRC, Forest Management Bureau. Missoula, MT.

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.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/ accessed [10/23/2023]

Vuke, S.M., Porter, K.W., Lonn, J.D., and Lopez, D.A., 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 proposed project is situated within the Swift-Hemlock and Lazy Creek Watersheds, which are 18,248 and 10,240 acres in s, respectively. The Swift-Hemlock Watershed is approximately 89% forested, receives an average annual precipitation of 37 inches, and land ownership is distributed as follows: 66% State, 21% Federal, and 13% Private. The Lazy Creek Watershed is approximately 91% forested, receives an average annual precipitation of 23 inches, and land ownership is distributed as follows: 62% Private and 38% State. Both watersheds fall under the A-1 classification, which signifies high-quality water in the designated water quality use region. The main beneficial use specified for Class A-1 areas is public water supply (Makarowski, 2020). No waters in the project area are listed under the State 303(d) impaired waters list (DEQ, 2012). Swift Creek enters the Northeast quarter of Section 31, Township 32 North, Range 22 West, where it meanders Southward for approximately 4,500 feet before flowing out of the project area into Section 32. Lazy Creek enters the project from the Northwest quarter of Section 31, Township 31 North, Range 22 West, where it meanders to the Southwest approximately 5,500 feet before exiting the project into the west half of Section 6, Township 31 North, Range 22 West.

The project area has 3.7 miles (2.8 miles private, 0.9 miles state) of existing roads and two crossing structures. No new or temporary roads are proposed, and maintenance would occur on all existing roads. The proposed haul route has the potential for sedimentation and low direct, secondary, or

cumulative impacts on water quality. In previous analyses, water quantity was documented well below thresholds of concern (Lazy-Swift Blowdown, 2020; Lazy Swift #2, 2013). Due to the limited acreage of the proposed harvest and harvest intensity, the proposed actions have a high likelihood of low direct, secondary, or cumulative effects on water quantity due to the currently proposed actions.

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			Yes	W-1, W-2
Water Quantity	X				X				X					W-3

Comments:

W-1: Implementing BMPs by restricting operation windows to dry, frozen, or snow-covered conditions would minimize the risk of both direct and secondary impacts on sediment delivery resulting from hauling activities.

W-2: Due to the harvest systems utilized, unit size, and distance relative to stream channels, there is a temporary risk of low direct and secondary 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: Forest stands within the project area are likely independent of the hydrology and flow regimes of Swift and Lazy Creek. By implementing BMPs and streamside buffers, this harvest level is not expected to result in measurable effects on the timing, magnitude, or duration of peak flows in 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.
- Implement Montana Administrative Rules for Forest Management and Streamside Management Zones.
- Implement Montana DNRC Habitat Conservation Plan commitments for Riparian Management Zones and Sediment Delivery.

***Water Quality & Quantity* References:**

DEQ 2012. Clean Water Act Information Center (http://cwaic.mt.gov/), Montana Water Quality Assessment Database. Assessment Record MT76P004_010.

DNRC 2009. Beaver/Swift/Skyles Timber Sale Project Environmental Analysis. Montana Department of Natural Resources and Conservation, Olney, MT.

DNRC 2013. Lazy Swift #2 Timber Sale Project Environmental Analysis. Montana Department of Natural Resources and Conservation, Olney, MT.

DNRC 2020. Lazy-Swift Blowdown Project Environmental Analysis. Montana Department of Natural Resources and Conservation, Olney, MT.

Makarowski, K. 2020. Beneficial Use Assessment Method for Montana's Surface Waters. Helena, MT: Montana Department of Environmental Quality. Document WQPBWQM-001, Version 4.0.

Raskin, Edward B., Casey J. Clishe, Andrew T. Loch, Johanna M. Bell. 2006. Effectiveness of Timber harvest Practices for Controlling Sediment Related Water Quality Impacts. Journal of the American Water Resources Association 42(5), 1307–1327.

USFWS and DNRC. 2010. Montana Department of Natural Resources and Conservation Forested Trust Lands Habitat Conservation Plan, Final Environmental Impact Statement, Volumes I and II. U.S. Department of Interior, Fish and Wildlife Service, Region 6, Denver, Colorado, and Montana Department of Natural Resources and Conservation, Missoula, MT. September 2010.

FISHERIES:

Fisheries Existing Conditions: Situated on the project's eastern boundary, Swift Creek is known to be populated with Bull Trout, Westslope Cutthroat Trout, Mountain Whitefish, Slimy Sculpin, Rainbow Trout, and Eastern Brook Trout (MFWP, 2024). Swift Creek is a Bull trout Foraging, Migration, and Overwintering critical habitat (USWFS 2005). Lazy Creek has been populated with Eastern Brook Trout (MFWP, 2024).

The proposed harvest would occur in the northeast quarter of Section 6 and the lower southeast quarter of Section 31. Swift Creek is nearest to the proposed actions and is approximately 315 feet from the nearest unit boundary. Previous Riparian Management Zone (RMZ) widths in the Stillwater State Forest have ranged from 87 feet in West Fork Swift Creek (DNRC 2005) to 111 feet in Swede Creek (USFWS and DNRC 2010). The proposed harvest units are well outside previously established RMZ widths. No direct, secondary, or cumulative impacts would be expected to woody debris, shading, temperature, connectivity, or native populations.

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

Action Alternative (see Fisheries table below):

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

Comments:

F-1: Sediment delivery is possible at stream crossing locations along the haul route. The crossings currently meet BMPS, and maintenance would be completed at the end of the project.

F-2: Refer to water quantity description in the above section.

Fisheries 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.
- Implementation of Montana DNRCs Habitat Conservation Plan commitments for Riparian Management Zones and Sediment Delivery.

Fisheries References:

DNRC, 2005. DNRC Compiled Soils Monitoring Report on Timber Harvest Projects, 1988-2004. Prepared by J. Collins, Forest Management Bureau, Missoula, MT .

Fish, Wildlife & Parks." *FISHMT:: Waterbody Search*, myfwp.mt.gov/fishMT/explore. Accessed 3 Jan 2024.

USFWS and DNRC 2010. Montana Department of Natural Resources and Conservation Forested Trust Lands Habitat Conservation Plan, Final Environmental Impact Statement, Volumes I and II. U.S. Department of Interior, Fish and Wildlife Service, Region 6, Denver, Colorado, and Montana Department of Natural Resources and Conservation, Missoula, MT. September 2010.

WILDLIFE:

Wildlife Existing Conditions: The Project Area consists of two DNRC-managed parcels totaling 804 acres and is comprised of habitat conditions that favor native wildlife species associated with mature forest types containing a variety of canopy closure levels. Higher elevation areas include a mix of Douglas-fir and western larch forest types; however, bottomland areas contain even aged stands of Engelmann spruce and large black cottonwoods. The Project Area contains 287 acres of mature forest (trees ≥9" dbh with ≥40% canopy closure). Of these acres, 12 acres are considered old-growth forest using Green et al. (1992) standards. In July of 2023, the North Lake fire burned approximately 11 acres of mature forest with mixed-severity to stand-replacing behavior. Scattered patches within two areas (approximately 8 acres and 3 acres in size) showed obvious signs of scorched boles and crowns within the larger continuous mature stand. In addition, approximately 236 acres within the Project Area have been treated with regeneration harvests within the previous 10 years. Approximately 2.8 miles of roads are present within the Project Area, all of which are restricted from public motorized use. Restricted roads receive occasional motorized use for resource and fire-management purposes. Public non-motorized use is likely low in these parcels due to its distance from open roads and developed areas. Cumulative effects analysis areas incorporate lands near the Project Area and include a 5,525-acre area for animals with smaller home ranges, like pileated woodpeckers, and a 32,072-acre area for animals that travel across larger areas such as Canada lynx, fisher, and big game.

Recent (within the past 4 years) and ongoing forest management projects in the CEAA include the Boyle Lake (DNRC 2019) and the GNA Taylor Hellroaring Timber Sale (USDA 2019). Proposed DNRC forest management projects in the CEAA include Lupfer Loop Timber Sale (DNRC 2023), Swift-Stryke Forest Management Project (DNRC 2023), Olney North Timber Sale (DNRC 2022), 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. Wildlife would not be displaced by salvage or commercial logging activities. In the short-term, high mortality of Engelmann

spruce is expected in and around the areas burned by the North Lake fire due to prevalent bole and crown scorch; therefore, the density of snags would increase. Overall, habitat availability for most species would remain similar to current conditions. 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			Yes	WI-1
Lynx (*Felis lynx*) Habitat: SF hab.types, dense sapling, old forest, deep snow zone		X				X			X				Yes	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					WI-3
Sensitive Species														
Bald eagle *(Haliaeetus leucocephalus)* Habitat: Late-successional forest within 1 mile of open water	X				X				X					WI-4
Black-backed woodpecker	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		
(Picoides arcticus) Habitat: Mature to old burned or beetle-infested forest														
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				Yes	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				Yes	WI-6
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				Yes	WI-7

Wildlife	Impact												Can Impact be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Hoary bat (*Lasiurus cinereus*) Habitat: coniferous and deciduous forests and roost on foliage in trees, under bark, in snags, bridges		X				X			X				Yes	WI-8
Townsend's big-eared bat *(Plecotus townsendii)* Habitat: Caves, caverns, old mines	X				X				X					WI-3
Harlequin duck (*Histrionicus histrionicus*) Habitat: White-water streams, boulder and cobble substrates	X				X				X					WI-9
Big Game Species														
Elk		X				X				X			Yes	WI-10
Moose		X				X				X			Yes	WI-10
Whitetail		X				X				X			Yes	WI-10
Mule Deer		X				X				X			Yes	WI-10
Other														
Mature Forest		X				X				X			Yes	WI-11

Comments:

WI-1. Grizzly Bear – Timber harvest would affect approximately 75 acres (9.4% of the Project Area) of grizzly bear hiding cover within non-recovery occupied grizzly bear habitat (Wittinger 2002). Of the 474 acres of hiding cover in the Project Area, the proposed action would remove 75 acres (15.9% of available hiding cover). To mitigate for potential adverse effects, all points within proposed harvest units would be within 600 feet of vegetative or topographic screening/cover. No new roads would be built, but motorized use of 0.5 miles of existing restricted roads within the Project Area would increase during project implementation. Existing restricted roads used for harvesting would remain restricted during and after the project. Additionally, timing restrictions would be applied from April 1 – June 15 during project implementation to provide security for grizzly bears in the spring. Any grizzly bears using the Project Area could be temporarily displaced by the proposed activities for up to three years. After harvest, hiding cover would persist on approximately 70.8% of the 32,072-acre large cumulative effects analysis area (hereafter Large CEAA). Impacts to hiding cover and increased disturbance under the Action Alternative would be additive to any ongoing vegetation management projects on private and

public lands within the Large CEAA (see existing conditions section). Increased disturbance along the haul route, totaling 3.2 miles of restricted roads, would also be expected throughout the Large CEAA. Measurable cumulative changes to grizzly bear use of the Large CEAA would be low as a result of the Action Alternative. The greatest risks to bears within the Large CEAA would remain neighboring human habitations and associated attractants that bring bears into conflict with people.

WI-2. Canada Lynx – Approximately 75 acres of suitable lynx habitat (9.4% of the Project Area) would be altered by the proposed Action Alternative. All 75 acres (14.9% of existing suitable habitat in the Project Area) are considered to be winter foraging habitat for lynx and would be treated with harvest prescriptions that would not retain enough conifer cover to continue providing suitable lynx habitat immediately post-harvest. To ensure that some forest structural attributes preferred by lynx and lynx prey (snowshoe hares) remain following harvest, patches of advanced regeneration and shade-tolerant trees would be retained within portions of existing suitable lynx habitat. Additionally, 10 to 20 tons/acre of coarse woody debris would be retained in accordance with DNRC Forest Management Rules (ARM 36.11.414) and retention of large, downed logs ≥15-inch diameter would be emphasized (ARM 36.11.428(4)(b)). Lynx habitat connectivity within the Project Area is currently low due to small, irregularly shaped patches, interspersed unsuitable habitat types, tree mortality, and adjacent lands with past timber harvest and agricultural land use. However, lynx have been observed within 4 miles of the Project Area within the past 10 years (MTNHP 2024); therefore, occasional use of the Project Area by lynx is possible. The proposed Action Alternative would not appreciably reduce lynx habitat connectivity; however, any lynx that might be using the area could be temporarily displaced from the Project Area for up to three years by the proposed activities. Approximately 430 acres of suitable habitat would be retained in the Project Area and remain connected to suitable habitat in the surrounding 32,072-acre large cumulative effects analysis area (Large CEAA). The Action Alternative would slightly reduce potentially suitable lynx habitat from 59.5% to 59.2% within the Large CEAA. Disturbance/displacement and lynx habitat alteration by the proposed DNRC activities would be additive to forest management projects within the larger CEAA (see existing condition section). Considering the small amount of harvest and limited number of observations at the scale of the Large CEAA, negligible effects to lynx in the Large CEAA would be expected.

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

WI-4. Bald Eagle – The proposed harvest is less than 0.5 miles from the last known nest location for the Whitefish Lake - Swift Creek bald eagle pair (MTNHP 2024, DNRC unpublished data). Approximately 7 acres of the Project Area is within the primary use area (ARM 36.11.436(7)), of which 1 acre is proposed for fire salvage treatment. Use of this nest site by breeding bald eagles has not been documented since 2020; however, historic observations have been periodically recorded since 1982 at this nest site (MTNHP 2024, DNRC unpublished data). Thus, active use of this nest site and territory by a breeding pair of bald eagles is likely. Eagles using the Whitefish Lake territory are likely habituated to a great deal of disturbance, as the nest is within 400 feet of an occupied home and 0.2 miles of an open road. In addition, the nest site is within 0.2 miles of Whitefish Lake, which receives high amounts of recreational activity and motorized disturbance. Ample vegetative cover shall remain in place between the nest site and the open road to avoid disturbance from normal activities. Thus, negligible direct, indirect, or cumulative effects to bald eagles would be expected to occur as a result of the action alternative.

WI-5. Fisher – Approximately 75 acres of suitable fisher habitat would be affected by the proposed activities (16.2% of fisher habitat available in the Project Area). All these acres would be treated with harvest prescriptions that would cause these stands to become unsuitable for fisher use post-harvest due to low amounts of mature conifer cover. No riparian fisher habitat would be impacted by the proposed activities. After harvest activities, remaining suitable fisher habitat and habitat connectivity would be primarily associated with riparian areas running through the Project Area. To reduce some adverse effects on fishers, at least 2 large snags and 2 large snag recruitment trees per acre (>21 inches dbh) would be retained (ARM 36.11.411). These snags are important habitat features that provide resting and denning sites for fishers (Olson et al. 2014). No new permanent road would be built; however, disturbance along 0.5 miles of existing restricted roads would increase during the proposed activities. Fisher habitat connectivity would remain relatively similar across the Project Area after harvest; however, it is currently limited by interspersed unsuitable cover types and low availability of suitable habitat on adjacent private lands. Approximately 2.1% of suitable fisher habitat in the Large CEAA would be affected by the proposed activities, but the abundance of habitat would remain moderate (19,523 acres, 38.3% of Large CEAA) after harvest. However, the likelihood of fishers using the Project Area or Large CEAA is low given the lack of fisher observations in the area within the last 20 years (MTNHP 2024, Krohner 2020). Should any fishers be present within the Large CEAA, habitat alteration and potential disturbance would be additive to recent, ongoing, and proposed forest management projects in the CEAA (see existing conditions section). Considering the small amount of harvest at the scale of the large CEAA and lack of recent observations, negligible effects to fishers in the large CEAA would be expected.

WI-6. Pileated Woodpecker – The Project Area currently contains approximately 44 acres of suitable pileated woodpecker habitat (5.5% of the Project Area). The proposed activities would not affect any of these acres. Appreciable use of the Project Area by pileated woodpeckers is not likely due to interspersed unsuitable habitat types, tree mortality, and past timber harvest on adjacent lands; however, the Project Area does provide suitable foraging habitat if pileated woodpeckers are present. Any pileated woodpeckers using the Project Area could be temporarily displaced by the proposed activities for up to three years. To decrease 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, 10 to 20 tons/acre of downed wood would be retained, with an emphasis on logs >15" diameter. Habitat availability within the Small CEAA is limited due to past timber harvesting on surrounding private lands; however, 671 acres (12.1% of the Small CEAA) would remain as potentially suitable and moderately connected habitat, primarily on DNRC lands. Habitat alterations due to the proposed action would be additive to recent forest management projects on adjacent lands (see existing conditions section).

WI-7. Fringed myotis – The proposed activities would affect approximately 71 acres of potential fringed myotis foraging habitat (24.7% of potential habitat within the Project Area). Because fringed myotis typically roost in ponderosa pine or Douglas-fir forests and have been known to roost in buildings, roosting habitat would not be disturbed by the proposed activities. Potential disturbance would only be expected from April through October, when fringed myotis are in Montana. After the conclusion of activities, continued use of harvested areas by fringed myotis 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 structure for foraging habitat. Should any fringed myotis be present within the Project Area, habitat alteration and potential disturbance would be additive to any activities occurring or planned within the Large CEAA. Fringed myotis are considered rare in northwestern Montana, and wind energy and diseases such as white-nosed syndrome pose threats to their population (Bachen et al. 2020).

WI-8. Hoary bat – The proposed activities would affect approximately 71 acres of potential hoary bat roosting habitat (24.7% of potential habitat within the Project Area). Because hoary bats typically roost in trees and snags, they could be temporarily disturbed by timber harvesting. Potential disturbance would only be expected from June 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. Should any hoary bats be present within the Project Area, habitat alteration and potential disturbance would be additive to any activities occurring or planned within the Large CEAA.

WI-9. Harlequin duck – Swift Creek flows along the eastern boarder of the Project Area and has records of harlequin duck observations within the past 30 years (MTNHP 2024). Proposed harvest units are on average over 300 feet away from the edge of steep embankments/cliffs dropping to Swift Creek. Proposed roads receiving temporary use would be over 400 feet from Swift Creek. Aside from Swift Creek, the Project Area does not contain any suitable habitat for harlequin ducks. Thus, negligible direct, indirect, or cumulative effect to harlequin ducks would be expected to occur as a result of the Action Alternative.

WI-10. Big Game – The Project Area provides 804 acres (100% of the Project Area) of winter range habitat for white-tailed deer, mule deer, moose, and elk (DFWP 2008). Timber harvesting would affect 63 acres of thermal cover and snow intercept (23.6% of available thermal cover in the Project Area). All these acres would be treated with harvest prescriptions that would reduce mature canopy cover to 5-25%; reducing the capacity of these stands to provide thermal cover and snow intercept during more severe winter conditions. Approximately 203 acres of high-quality thermal cover (25.2% of the Project Area) would remain within the Project Area post-harvest. An additional 220 acres of marginal thermal cover (27.4% of the Project Area) would provide connectivity between scattered thermal cover areas in the Project Area post-harvest.

Approximately 75 acres of hiding cover (9.4% of the Project Area) would be altered by harvesting. Harvest prescriptions on all these acres (15.8% of cover available) would likely remove hiding cover. The retention of patches containing denser mature trees or sub-merchantable trees would limit sight distances in much of the Project Area. No open roads exist within the Project Area; however, 2.8 miles of restricted roads do exist. No new permanent restricted roads would be built under the Action Alternative; however, 0.5 miles of existing restricted roads within the Project Area would be used as part of the haul route. Thus, security for big game would decrease along 0.5 miles of restricted road within the Project Area during the duration of proposed activities under the Action Alternative.

Impacts to hiding cover and thermal cover/snow intercept under the Action Alternative would be additive to any ongoing or proposed vegetation management projects within the Large CEAA (see existing conditions section). Hiding cover would remain relatively abundant within the Large CEAA

(70.8%). High-quality thermal cover/snow intercept would continue to be limited but connected (29.6% of the CEAA) on big game winter range due to past timber management. Increased disturbance and reduced security along the haul route, totaling 3.2 miles of restricted roads, would also be expected throughout the Large CEAA. Patterns of big game use and movement wouldn't likely change within the Project Area. Overall, measurable big game population changes at the scale of the Large CEAA would be minor as a result of the Action Alternative.

WI-11. Mature Forest – The Project Area contains 287 acres (35.7% of the Project Area) of mature forest. The proposed action would harvest approximately 71 acres of mature forest (24.7% of mature forest within the Project Area) with a reasonably closed canopy (≥40% canopy closure). In total, prescriptions on all 71 acres would reduce live tree densities and mature overstory canopy cover to 5-25%. Habitat suitability for species utilizing younger stands and open forest with widely scattered mature trees would increase. Approximately 216 acres (26.9% of the Project Area) of mature forest would remain in the Project Area. Average mature forest patch size within the Project Area would decrease by 43.0% and total edge would decrease by 0.7 miles following fragmentation of connected forest from five patches into six patches post-harvest. To meet connective forest definitions, stands must be 300 feet wide (*ARM 36.11.403(20)(b)*). After harvest, forest stands in the Project Area would continue to provide a mosaic of habitat conditions, and moderate to dense patches of connected forest cover would remain relatively similar. Connectivity in the Swift Creek areas would be reduced, but travel will remain feasible considering that the younger timber stands present in the analysis area also likely provide connectivity. Proposed harvesting would alter approximately 4.7% of existing mature forest within the Small CEAA. Connectivity within the remaining 1,450 acres of mature forest in the Small CEAA would remain moderate, primarily through a riparian corridor along Swift Creek. Average mature patch size within the Small CEAA would decrease by 7.0% and total edge would decrease by 0.8 miles following fragmentation of connected forest from 53 patches into 54 patches post-harvest. Forest management projects on DNRC and commercial lands have removed mature forest and continue to alter mature forest stands within the Small CEAA (see existing conditions section); the proposed action would be additive to these changes at the broader spatial scale. After the proposed action, mature forest abundance would remain relatively low (26.2% of the Small CEAA) but connected through much of the Small CEAA.

Wildlife Mitigations:

- If a threatened or endangered species is encountered, consult a DNRC biologist immediately. Similarly, if undocumented nesting raptors or wolf dens are encountered within ½ mile of the Project Area, contact a DNRC biologist.
- Contractors will adhere to food storage and sanitation requirements as described in the timber sale contract. Ensure that all attractants such as food, garbage, and petroleum products are stored in a bear-resistant manner.
- Prohibit contractors and purchasers conducting contract operations from carrying firearms while on duty as per ARM 36.11.432(1).
- 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 temporary roads during and after harvest activities.

- Prohibit all harvesting-related motorized activities more than 100 feet from open roads from April 1 – June 15.
- Within commercial harvest units, retain patches of advanced regeneration trees as per ARM 36.11.428(4)(f).
- Retain at least 2 snags and 2 snag recruits per acre >21 inches dbh or the next 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 10-20 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 ARM 36.11.428(4)(b).

***Wildlife References**:*

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

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DNRC. 2022. Olney North Timber Sale Initial Proposal. Montana Department of Natural Resources and Conservation; Stillwater Unit, Olney, MT.

DNRC. 2023. HB 883 Precommercial Thinnning Projects Phase 1 Initial Proposal. Montana Department of Natural Resources and Conservation; Stillwater Unit, Olney, MT

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

Krohner, J. M. 2020. Finding fishers: determining the distribution of a rare forest mesocarnivore in the Northern Rocky Mountains. M.S. Thesis, University of Montana, Missoula, MT. 81 pp.

Montana Natural Heritage Program (MTNHP). 2024. Environmental Summary Report. for Latitude 47.48100 to 47.66630 and Longitude -114.84087 to -115.05046. Retrieved on October 23, 2023, from http://mtnhp.org/MapViewer.

Olson, L. E., J. D. Sauder, N. M. Albrecht, R. S. Vinkey, S. A. Cushman, and M. K. Schwartz. 2014. Modeling the effects of dispersal and patch size on predicted fisher (*Pekania [Martes] pennanti*) distribution in the U.S. Rocky Mountains. Biological Conservation 169:89-98.

USDA Forest Service. 2019. Final Decision Notice for the Taylor Hellroaring Project. United States Forest Service; Flathead National Forest, Tally Lake Ranger District, Flathead County, MT.

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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
Dust		X				X				X			Y	A-1

Comments:

A-1: The project area is in Airshed 2 as defined by the Montana/Idaho Airshed Group. No impact zones, as described by the Montana/Idaho Airshed Group, are within or near the project area. Under the Action Alternative, slash piles consisting of tree limbs, tops, and other vegetative debris would be generated throughout the project area during harvesting, site preparation, and fuels reduction activities. These slash piles would be burned after operations have been completed. Additionally, prescribed broadcast burning may occur after timber harvesting. Burning within the project area would be short term and would be conducted when conditions favor good to excellent ventilation and smoke dispersion as determined by the Montana DEQ and Montana/Idaho Airshed Group. The DNRC, as a cooperator with the Montana/Idaho Airshed Group, would burn only on approved days.

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 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:

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					
Aesthetics	X				X				X					
Demands on Environmental Resources of Land, Water, or Energy	X				X				X					

Comments:

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.

OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA:

- Swift-Stryke Forest Management Project (2024)
- HB 883 Precommercial Thinning Projects (DNRC 2023)

- Lupfer Loop Timber Sale Project (DNRC 2024)
- Olney North Timber Sale (DNRC 2022)
- Smith Lake Public Recreation Use Easement (2022)
- Taylor-Hellroaring Timber Sale – USFS (2022)
- Swift Smith Blowdown Timber Project (2020)
- Swift Smith Excaline Timber Salvage (2020)
- Beaver-to-Boyle Timber Sale Project Environmental Assessment (EA) (December 2019)
- Close the Loop Trail and Recreation Use Easements EA (January 2019)
- Whitefish Disc Golf EAC (2017)
- King Hemlock Timber Sale Project EA (2014)
- Lazy Swift 2 Timber Sale Project EA (2013)
- Whitefish Trail Phase III: Swift Creek EAC (2012)
- Beaver Swift Skyles Project Timber Sale EA (April 2009)
- Trail Runs Through It EA (2007)

Impacts on the Human Population

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

Will Alternative result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Health and Human Safety	X				X				X					
Industrial, Commercial and Agricultural Activities and Production	X				X				X					
Quantity and Distribution of Employment	X				X				X					
Local Tax Base and Tax Revenues	X				X				X					
Demand for Government Services	X				X				X					
Access To and Quality of Recreational and Wilderness Activities	X				X				X					
Density and Distribution of population and housing	X				X				X					
Social Structures and Mores	X				X				X					
Cultural Uniqueness and Diversity	X				X				X					
Action														
Health and Human Safety		X				X				X			Y	H-1
Industrial, Commercial and Agricultural Activities and Production	X				X				X					H-2
Quantity and Distribution of Employment	X				X				X					H-3
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					

H-1: Log truck traffic would be active within the project area and along the Lupfer County Road increasing the potential of traffic accidents. An estimated 10 logs trucks per day as well as administrative traffic would be anticipated Monday through Friday.

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

H-3: Employment in the logging industry is common in the area and this project would in a small part contribute to local employment and the status quo of logging community regulations. Increased log traffic on Lupfer County Road.

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: List State, County, City, USFS, BLM, Tribal, and other zoning or management plans, and identify how they would affect this project.

- There are no locally adopted environmental plans or goals associated with this proposal.

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 MSU 2nd Grant and State Normal School Trust beneficiaries. The estimated return to the trust for the proposed harvest is $165,640 based on an estimated harvest of 1.11 MM board feet (6,012 tons) and an overall stumpage value of $27.53 per ton. Costs, revenues, and estimates of return are estimates intended for relative comparison of alternatives, they are not intended to be used as absolute estimates of return.

References:

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

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

Does the proposed action involve potential risks or adverse effects that are uncertain but extremely harmful if they were to occur?
No.

Does the proposed action have impacts that are individually minor, but cumulatively significant or potentially significant?
No.

Environmental Assessment Checklist Prepared By:

Name: Matt Lufholm
Title: Forest Management Supervisor
Date: March 26, 2024

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 Section I – Type and Purpose of Action 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).

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. This Action Alternative also addresses the five public comments received during the public scoping process. 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 adverse impacts will be controlled, mitigated, or avoided by the design of the project to the extent that the impacts are not significant.

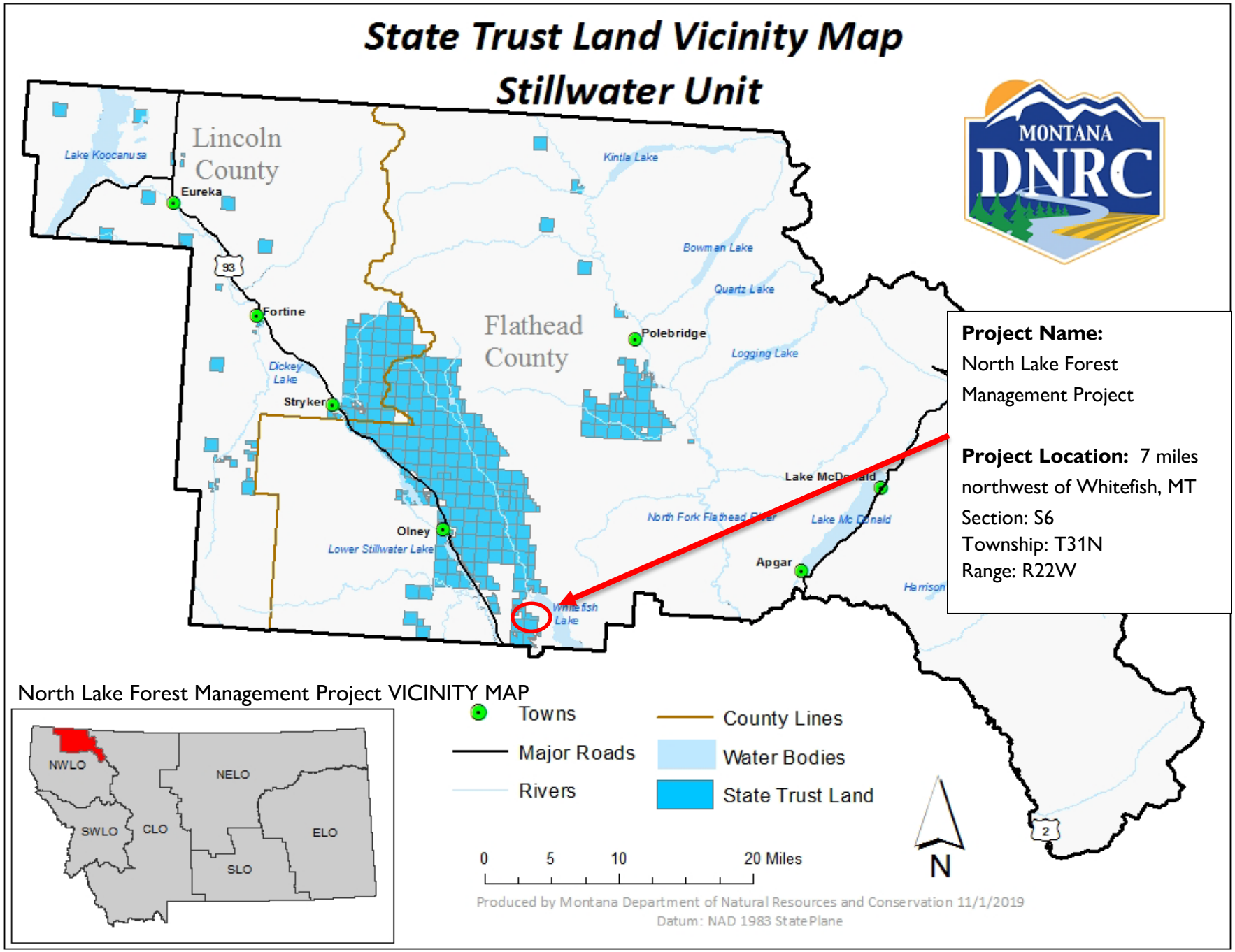
Need for Further Environmental Analysis

☐	EIS	☐	More Detailed EA	☒	No Further Analysis

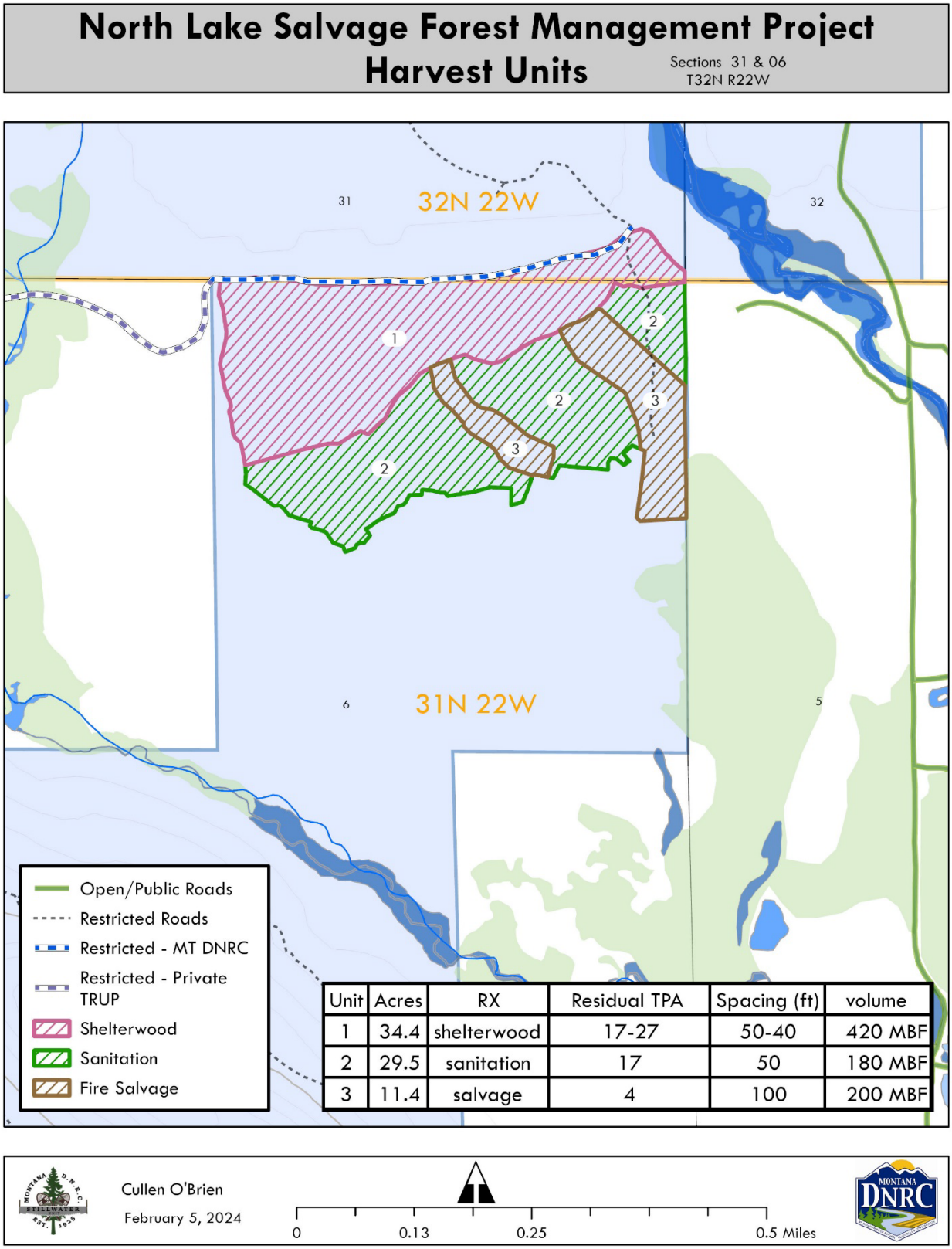
Environmental Assessment Checklist Approved By:
Name: Dave Ring
Title: Stillwater Unit Manager
Date: March 22,2024
Signature: /s/ David A. Ring

Attachment A - Maps

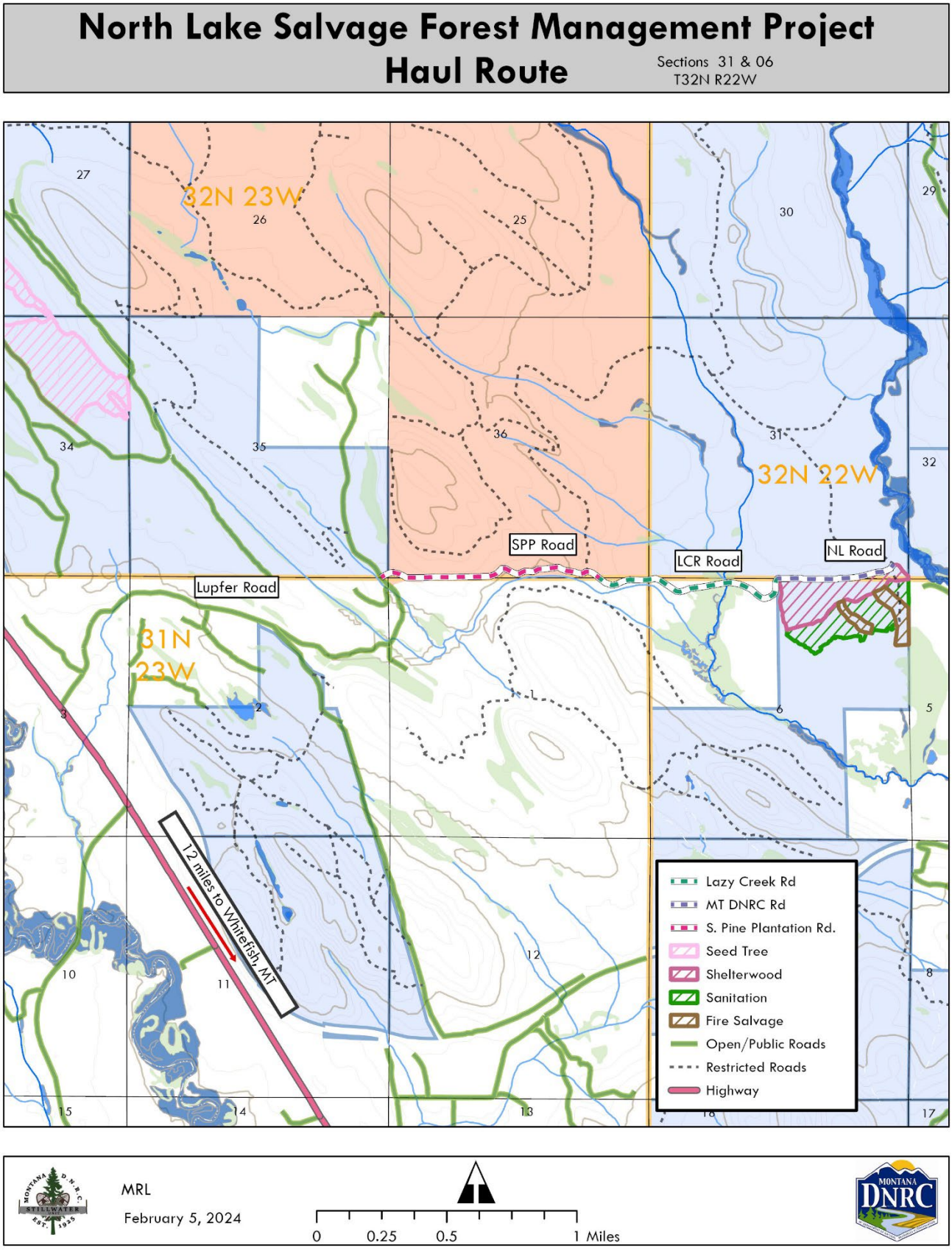
A-1: Timber Sale Vicinity Map



A-2: Timber Sale Harvest Units (map intended to be viewed in color)



A-3: Haul Route (map intended to be viewed in color)



Attachment B – Prescription Table

North Lake Timber Sale Project Prescription Table

Commercial Harvest Units			
Unit #	Acres & Cut Mbf/ Acre	Prescription	Unit Details
1	34.4 acres 11.9 Mbf/ ac.	Shelterwood	o Tractor Harvest or Cut-to-Length (in-woods processing) o Retain 17 -25 TPA // 40 - 50-foot spacing o Retain 2 snags, 2 snag recruits ≥ 21" DBH per acre o Prefer WL>DF>ES>LP>GF o Slash shade tolerant advanced regeneration o Machine Scarify post-harvest o Mechanical high hazard fuel reduction piling east edge of property line
2	29.6 acres 16.0 MBF/ac	Sanitation	Cut-to-Length (in-woods processing) o Retain 17 TPA // 50-foot spacing o Retain 2 snags, 2 snag recruits ≥ 21" DBH per acre o Prefer WL>DF>ES>LP>GF o Retain advanced regeneration o Mechanical high hazard fuel reduction piling east edge of property line o NOTE: Harvest under frozen and/or dry conditions
3	11.8 acres 20 Mbf/ ac.	Salvage	Tractor Harvest or Cut-to-Length (in-woods processing) o Retain non-damaged WL>DF>ES>LP>GF o Salvage all fire-damaged stems o Retain 2 snags, 2 snag recruits ≥ 21" DBH per acre o Mechanical high hazard fuel reduction piling east edge of property line

Attachment C - Scoping Comments and Responses

INTRODUCTION

This section contains public comment letters received from parties interested in the Swift-Stryke Forest Management Project multi-sale proposal during the project's scoping period and DNRC's responses to those comments. The area impacted by the North Lake Salvage Forest Management Project and analyzed in this document is a smaller subsection of the initially scoped area. The forested stands analyzed in this document are also outside the boundaries of lands covered by the Montana DNRC Forested Trust Lands HCP. All work would be accomplished in accordance with SFLMP and ARMs.

Five email comments were received from the public. The contents of each comment 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 not 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.

Table C-1 – Comment and response from Friends of the Wild Swan

Comment #	***Friends of the Wild Swan*** ***PO Box 103*** ***Bigfork, MT 59911*** May 18, 2023 Montana DNRC Stillwater Unit Attn: Jeremy Akin, Forest Management Supervisor PO Box 164 Olney, MT 59927 Via email to: Jeremy.Akin@mt.gov	DNRC Responses
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	***DNRC Response to Comment 1:*** *For information on current location and connectivity of old-growth stands, please refer to the old growth section of the vegetation analysis page 8 and in the Wildlife Analysis page 15. Connectivity would be reviewed and analyzed in any future projects proposed. No old growth stands will be treated as part of this project.*

	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 Forest Management 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 in the Vegetation Analysis (8 and Wildlife Analysis on page15.) The estimated amounts of*

		old growth prior to the project and the amount of old growth after this project (by alternative) are also disclosed, though no old growth stands 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.* *Additionally, no old-growth stands would be treated as part of this project.*

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 11.18% (page 8 in the vegetation analysis – Vegetation), which is above the target level modeled in the sustainable yield calculation and demonstrates compliance with ARM 36.11.407.*
5	**Wildlife**	***DNRC Response to Comment 5:*** *The State Forest Land Management Plan (SFLMP; DNRC 1996) requires DNRC to implement a comprehensive set of resource*

	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.	*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 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 North Lake Salvage Timber Sale was designed to comply with all measures that support biodiversity as required by the SFLMP and Forest Management ARMs.*
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). 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 bald eagles. 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 North Lake Salvage Action Alternative is anticipated to adversely affect some wildlife species due to tree removal. However, no old-growth removal or treatment would occur within the North Lake Salvage Project Area; therefore, no adverse 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 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 still not trigger significant population impacts? If there currently isn't enough habitat, how can you justify taking more?**	***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 stand structures are based on ecological characteristics (e.g., landtype, 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, 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.	***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 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:*** *Information regarding corridors for wildlife can be found within the Wildlife Analysis section. 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 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 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 North Lake Salvage Project Area does include winter range habitat for deer, moose, and 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	***DNRC Response to Comment 14:*** *Thermal cover was analyzed in detail considering that the area does include important winter range habitat (DFWP 2008). 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*

	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.	*cover and summer thermal cover, but treatments would also likely increase the availability of forbs and grass which may benefit white-tailed deer and 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 is available in WI-10 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? Winter foraging habitat is limited – how much is there? Where is it?**	***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 in WI-2 Canada Lynx within the Wildlife Analysis. Suitable habitat is present throughout most (62.8%) of the Project Area and is composed of Engelmann spruce and mix of Douglas-fir and western larch forest types. 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 ARMs. 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 remove approximately 75 acres of suitable lynx habitat. We anticipate that these stands would be avoided by lynx for 40-60 years until saplings are large enough to support a snowshoe hare population. We disagree that winter foraging habitat is limited in the Project Area and anticipate that 395 acres (51.7% 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. Post-harvest suitable habitat ratios would meet all retention requirements as described in DNRC's Forest Management ARMs and connectivity would remain high considering that 56.3% 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**	***DNRC Response to Comment 16:*** *In the North Lake Salvage Project Area, the total road density is 2.2 miles/square mile and open and seasonally open road density is 0.0 miles/square mile. The Project Area does not contain security zone habitat (i.e., core), and timber harvest is not*

	restricts the timing of activities in certain grizzly bear secure core.	*proposed in security zone habitat. Detailed analyses of effects of the action alternative on grizzly bears can be found in WI-1 Grizzly Bear within the Wildlife Analysis. 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	***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*

	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. 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)	*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.*

	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. 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 remove approximately 75 acres of fisher habitat (16.2% 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 section. 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 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	***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 2020 and addressed public comments regarding these types of concerns during that process. On November 27, 2023, the Service announced the final rule to list wolverines in the contiguous United States as a "threatened" species under the ESA (USFWS 2023). For this project, wolverines are considered to be a threatened species. 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). It was determined that the Project Area lies outside of the normal distribution for wolverine, and suitable habitat was not found to be present. Thus, negligible adverse direct, secondary, or cumulative effects to wolverines would be expected to occur as a result of the Action Alternative. No direct, secondary, or cumulative effects would be anticipated as a result of the No Action Alternative.*

	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. 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?** <u>Habitat Fragmentation</u> 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	***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. The North Lake Salvage Project Area does not retain persistent spring snowpack (Copeland et al. 2010) and roads providing motorized public access do not exist in this area. No new permanent or temporary roads are proposed for construction. It was determined that the Project Area lies outside of the normal distribution for wolverine, and suitable habitat was not found to be present. Thus, negligible adverse direct, secondary, or cumulative effects to wolverines would be expected to occur as a result of the Action Alternative. No direct, secondary, or cumulative effects would be anticipated as a result of the No Action Alternative.*

	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 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-11 Mature Forest within the Wildlife Analysis section. 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>**	***DNRC Response to Comment 23:***

	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.	*Existing Soils conditions, anticipated impacts, and proposed mitigations are disclosed in the Environmental Assessment Checklist's Soil Disturbance and Productivity section page 8.* *Soil moisture is directly related to site vegetation, precipitation, evaporation, and transpiration. Implementing any action alternative would modify site vegetation and, potentially, soil moisture. Studies have shown that soil moisture typically increases after forest harvesting until competing vegetation becomes established, typically 2 to 4 years (Devine and Harrington 2006, Crews and Wright 2000, Klock and Lopushinsky 1980, Dahms 1971, Troendle 1970). 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 can potentially 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 levels within harvest units will vary by habitat type, as Graham et al. (1994) recommended. This level of woody material will continue supporting mycorrhizal fungi's habitat and associated energy sources.* *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.**	***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*

	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.**	*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 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.**	***DNRC Response to Comment 25:*** *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	***DNRC Response to Comment 26:*** *The Lazy Creek and Swift-Hemlock Creek Watersheds have road densities of 4.12 and 3.53 mi/mi^2 respectively. Without mitigation, roads may directly alter streams by increasing erosion and sedimentation, which in turn may result in altered stream channel morphology, and runoff characteristics of watersheds*

	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?**	*(Furniss, et al. 1991). As part of the timber sale requirements, roads that do not meet Forestry BMPs would be improved to minimize erosion and sediment delivery. During a review of BMP effectiveness, including stream buffer effectiveness, Raskin et al. (2006) found that 95 percent of erosion features (disturbed soil) greater than 10 meters (approximately 33 feet) from the stream did not deliver sediment. Their findings indicated that the main reasons stream buffers are effective include 1) keeping active erosion sites away from the stream, and 2) stream buffers may intercept and filter runoff from upland sites as long as the runoff is not concentrated in gullies or similar features. No new roads would be constructed in completion of the North Lake Salvage Forest Management Project.*
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	***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.*

	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 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.** • **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.**	***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.*
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	***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.*

	related to sediment particle sizes of the spawning habitat (Bjornn and Reiser 1991, p. 98).	
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 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).	***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.*
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**	***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.*

	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 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.** **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.**	***DNRC Response to Comment 33:*** *Cumulative effects based on past, present and foreseeable logging are found in the EA under each resource section.*
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**	***DNRC Response to Comment 34:*** *Existing conditions, anticipated impacts, and proposed mitigations are disclosed under each resource section in the Environmental Assessment Checklist.*

	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 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 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 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**	***DNRC Response to Comment 35:*** *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,*

	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.	*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. 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	***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 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*

	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 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	*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.*

	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 8 of the Vegetation Analysis in the EA
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.** 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	***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 programmatic costs is available in the Trust Land Management Division Fiscal Year 2023 Return on Assets Report and DNRC FY 2023 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,	***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 salvaged material.* 3. *No SMZs have been identified within the project area.*

	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. 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**	***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 the contract.*

	project, the noise travels long distances and easily at all hours of the day, especially during the early morning hours. 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	*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 document for further information.*
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 tree's 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.	***DNRC Response to Comment 43:*** *There are no powerlines in this project area, so these concerns have not been addressed in this document. Any work adjacent to powerline infrastructure would be coordinated with the applicable power company.*

	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. 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 fuels management have been incorporated into the design of the action alternative..*

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