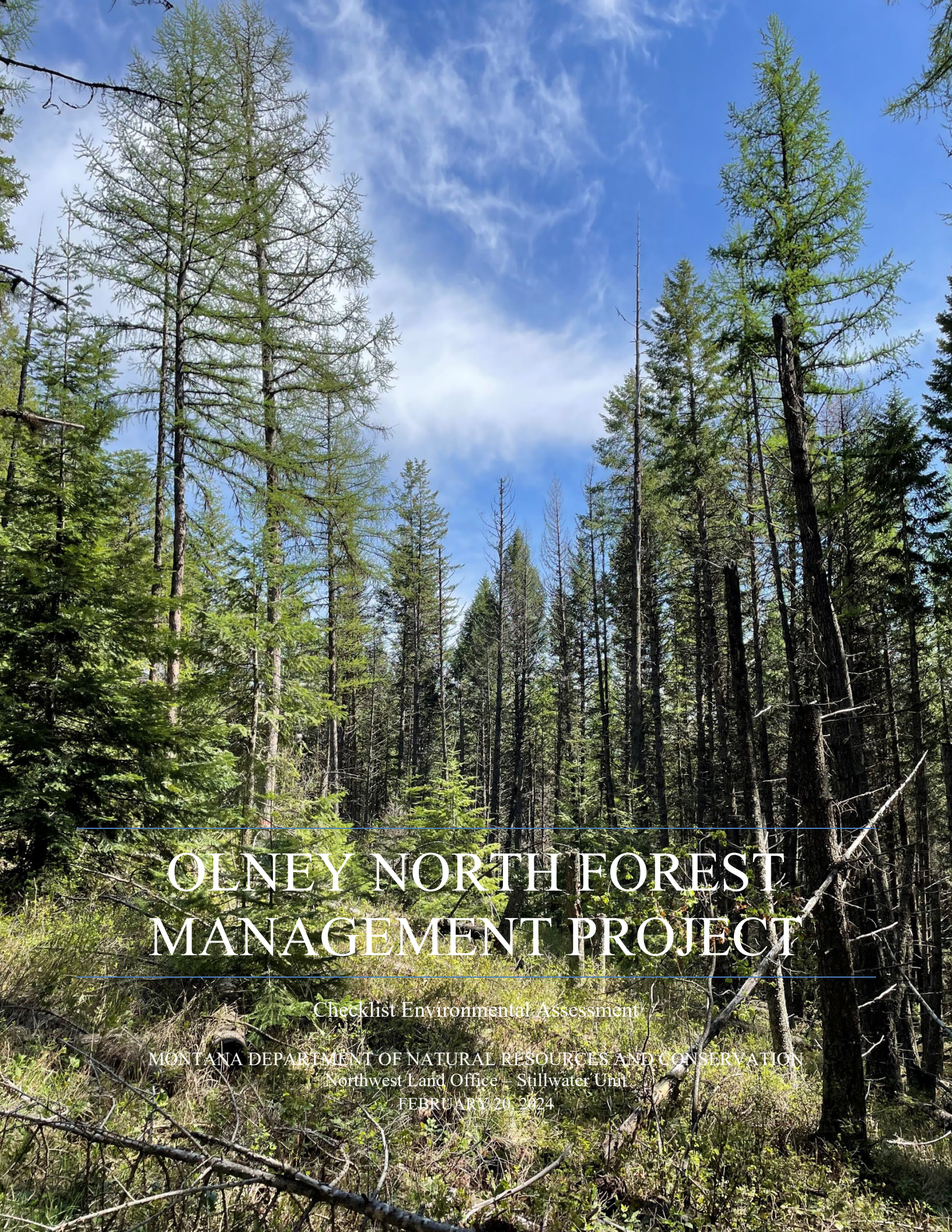

# OLNEY NORTH FOREST MANAGEMENT PROJECT

Checklist Environmental Assessment

MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION
Northwest Land Office – Stillwater Unit
FEBRUARY 20, 2024

# Environmental Assessment Checklist

**Project Name: Olney North Forest Management Project**
**Proposed Implementation Date: January 2024**
**Proponent: Stillwater Unit, Northwest Land Office, Montana DNRC**
**County: Flathead**

## Type and Purpose of Action

### Description of Proposed Action:

The Stillwater Unit of the Montana Department of Natural Resources and Conservation (DNRC) is proposing the Olney North Forest Management Project. The project is located within a 2-mile radius of Olney, MT (refer to Attachments vicinity map **A-1** and project map **A-2**) and includes the following sections:

**Table 1:** *Trust Beneficiaries and Treated Acres*

| Beneficiary | Legal Description | Total Acres | Treated Acres |
|---|---|---|---|
| Common Schools | | | |
| Public Buildings | **Sec. 8 T32N R23W** | **153.0** | **42.9** |
| MSU 2nd Grant | **Sec. 33 T33N R23W** | **241.1** | **102.6** |
| MSU Morrill | | | |
| Eastern College-MSU/Western College-U of M | | | |
| Montana Tech | **Sec. 5 & 18 T32N R23W** | **986.0** | **353.8** |
| University of Montana | | | |
| School for the Deaf and Blind | **Sec. 7 T32N R23W** | **510.5** | **229.3** |
| Pine Hills School | **Sec. 6 T32N R23W** | **590.6** | **343.7** |
| State Normal School | **Sec. 17 T32N R23W** | **61.2** | **21.7** |
| Public Land Trust | | | |
| Acquired Land | | | |

Objectives of the project include:

- Contribute approximately 6 million board feet (MMbf) to the annual targets of timber-harvest volumes of DNRC and Northwestern Land Office. DNRC is required by state law (MC77-5-221 through 223) to sell approximately 60 MMbf of timber annually and continue to produce revenue over time.
- Generate revenue for the Public Buildings, MSU 2nd Grant, Montana Tech, School for the Deaf and Blind, Pine Hills School, and State Normal School Trusts.
- Improve the long-term productivity of timber stands and reduce the incidence and risk of insect and disease damage through silvicultural treatments designed to reduce stand density and improve forest health and regenerate stands displaying poor vigor and growth.

- 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.
- Continue to apply silvicultural prescriptions in the Olney North Project area to promote biodiversity as called for in the State Forest Land Management Plan (1996).
- Apply Best Management Practices (BMPs) to meet design criteria that are necessary to promote long-term water quality during logging and road improvement operations.
- Identify areas of unauthorized off-road use and opportunities to improve long-term transportation systems for forest management, fire suppression activities, and administrative uses.

Proposed activities include:

**Table 2:** *Proposed Activities*

| Action | Quantity |
|---|---|
| **Proposed Harvest Activities** | # Acres |
| Seed Tree | 48 |
| Shelterwood | 201 |
| Individual Tree Selection | 332 |
| Commercial Thinning | 454 |
| Overstory Removal | 59 |
| | |
| **Total Treatment Acres** | **1,094** |
| **Proposed Forest Improvement Treatment** | # Acres |
| Mechanical Piling | 203 |
| Mechanical Site Preparation/Scarification | 242 |
| Mechanical High Hazard Fuels Reduction | 270 |
| Prescribed Fire | 160 |
| Planting | 82 |
| | |
| **Proposed Road Activities** | # Miles |
| New permanent road construction | 1.05 |
| New temporary road construction | 0.18 |
| Road maintenance | 8.9 |
| Permanent Road Reclamation | 0.65 |
| | |
| **Other Activities** | |
| | |

| | |
|---|---|
| **Duration of Activities:** | **7 years** |
| **Implementation Period:** | **June 16 – March 31** (annually) |

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

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

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

# Project Development

**SCOPING:**

- DATE:
  - April 20, 2022
- PUBLIC SCOPED:
  - The scoping notice was posted on the DNRC Website: https://dnrc.mt.gov/News/scoping-notices
  - In April and May 2022 DNRC solicited public participation for 37 days on the Olney North 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 and Tobacco Valley News.
  - Scoping notice was posted in the Olney, MT Post Office.
- AGENCIES SCOPED:
  - MT Fish, Wildlife, and Parks
  - USFS Flathead National Forest
  - All Montana Tribal Organizations
- COMMENTS RECEIVED:
  - How many: Seven public comments were received by mail/email and one comment was in-person at the Stillwater DNRC Unit.
  - Concerns:
    1. Two comments in support of active forest management were received from timber industry representatives with additional emphasis on economics, forest improvement, Streamside Management Zone (SMZ) management, and fuels reduction in the Wildland Urban Interface (WUI).
    2. Comment was received from Lincoln Electric regarding timber management adjacent to overhead powerlines and their right-of-way.
    3. Comment from adjacent landowner expressed concern about potential increase in noise following forest management activities, asking for small buffer be retained along shared property line.
    4. Comment from adjacent landowner regarding aesthetics and why we are conducting timber management around Olney, MT.
    5. Comment was received from a private individual in Olney, MT that was interested in doing a land swap with the DNRC.
    6. One in-person comment was received from Dog Sled Adventures, a commercial lessee, regarding forest management near roads and impacts from increased sunlight and earlier melting of snow on groomed trail system.
    7. Comment from the Cheyenne Nation regarding need to conduct a Cultural Report.
  - Results:
    1. The project will follow all SMZ law and adhere to BMPs to protect water quality.
    2. Project Leader will consider comments received from Lincoln Electric regarding powerline infrastructure during harvest design.
    3. Project Leader will consider comments received from adjacent landowner regarding increase in noise during harvest design through a retention buffer along

shared property lines and using heavier tree retention treatments that may balance concerns and project objectives.

4. Project Leader will consider comment received from adjacent landowner regarding aesthetics during harvest design through identifying areas to retain more tree's per acre of high vigor/quality/variety whenever practicable and finding opportunities to minimize landing location/size along open roadways. The portion of comment regarding "why" harvest timber around Olney, MT is answered through the following statue (MC77-5-221 through 223) and in addition, one major objective of the project is to implement fuels reduction around the town of Olney, MT within the WUI.
5. The comment from a nearby landowner regarding a possible land swap with the MT DNRC was found to be outside the scope of the project.
6. The Stillwater Unit followed up with Dogsled Adventures with an additional in-person meeting to discuss the proposed action. *See* **RECREATION** section for response / mitigations on page **27, labeled R.1 & R. 2.**
7. See **ARCHAEOLOGICAL SITES** section for response on pages **24-25**.

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.

**Interdisciplinary Team (ID):**

- Tony Nelson (*Hydrologist*)
- Josh Harris (*Hydrologist*)
- Victoria Forristal (Wildlife Biologist)
- Mike Anderson (Fisheries Biologist)
- Nicole Porter (*Special Uses Forester)*
- Amy Gannon (*Conservation Specialist)*
- Patrick Rennie (*Archeologist*).

**Project Development:**

**Stand Prioritization**

The following types of forest conditions focused foresters on considering treatments to improve stand health and stocking densities. These include:

- Stands adequately regenerated with desired species since last harvest entry.
- Overstocked stands with poor tree vigor, health, and growth.
- Areas of advanced insects/disease issues (stem rots/bark beetles).
- Stands within the Wildland Urban Interface that contain heavy fuel loadings of both live and dead material.

**Transportation Development**

Identifying opportunities for updates to the transportation plan within the project area to improve long-term forest management, reduce unauthorized off-road use/user-created trails, meet safety standards / BMPs, and improve access for fire suppression activities are main objectives of the project. The following were influencing factors on the proposed new/re-located permanent road:

- Optimization for future uses:

        - Assessment of existing road locations and standards was conducted during field reconnaissance. Roads were inspected for BMP effectiveness, and if the existing road standard is suitable for current and future uses.
        - The ID Team utilized rules associated with the Road Management (*ARM 36.11.421*).
    - Economics/BMPs (construction/maintenance costs):
        - New road construction and maintenance is a costly expense borne by timber sales. Transportation planning and road location adjustments were made due to the following: BMP issues (inadequate surface drainage and road surface bearing strength), inadequate safety standards, improving wildlife security, and resource protection.

**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.

- **Montana Department of Fish, Wildlife and Parks (DFWP)-** A Stream Protection Act Permit (124 Permit) is required from DFWP for activities that may affect the natural shape and form of a stream's channel, banks, or tributaries. Such activities include a new culvert install on an existing Class 3 crossing and a culvert replacement on an unnamed Class 2 stream.

**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 Public Buildings, MSU 2nd Grant, Montana Tech, School for the Deaf and Blind, State

Normal School, and Pine Hills School Trust at this time. Salvage logging, firewood gathering, recreational use, fire suppression, noxious weed control, additional requests for permits and easements, and ongoing management projects 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:**

Commercial timber harvest would remove 5.5 – 6.5 MMBF of timber using ground-based methods on 1,094 acres. Specific harvest unit data provided in *Attachment B – Olney North Forest Management Project Prescription Table.* Using this table with the *Attachment A. Pg 1 of 2 - State Trust Lands Vicinity Map,* and *Attachment A. Pg 2 of 2 - Olney North Forest Management Project Area Map* will provide additional detail for this project.

Silvicultural prescriptions applied under this alternative are as follows:

- New stands of healthy desirable tree species would be regenerated on 249 acres through the implementation of shelterwood, and seed tree treatments.
- Commercial thinning treatments would be implemented on 454acres with tree spacing ranging from 20’ – 30’ feet apart, focusing on reducing stand densities and promoting existing tree growth.
- Overstory removal treatments would be implemented on two units that have successfully regenerated for a total of 59.4 acres.
- Individual Tree Selection treatments would occur on 332 acres to increase crown separation and reduce fuel loadings in the WUI and promote existing tree growth.

Post-harvest treatments applied under this alternative to ensure successful regeneration of units as well as high hazard fuels reduction within the WUI are as follows:

- Mechanical piling would occur on up to 202.9 acres for fuels reduction and slash hazard mitigation.
- Mechanical piling and scarification would occur on up to 242.1 acres to provide sites for natural and planted trees to regenerate, of which 156.9 acres may be broadcast burned .
- Mechanical high hazard fuels reduction would occur on up to 270.3 acres to mitigate high wildfire hazard in the WUI and create shaded-fuel-breaks along primary road systems through but not limited to mastication, hand-thinning & piling, mechanical piling.

Road maintenance and BMP improvements would be performed on approximately 8.9 miles of existing roads. Replacement of one Class 2 stream crossing culvert and installation of one new Class 3 stream crossing would occur. Additionally, this project would relocate 0.63 miles of existing permanent road and reclaim 0.65 miles of permanent road on the east side of Highway 93. This would ensure BMP effectiveness, meet standard safety requirements, ensure wildlife/resource protection, and improve access for fire suppression activities. There would be 0.42 miles of new permanent road built on the west side of Highway 93 and approximately 0.18 miles of temp road built to facilitate harvest operations.

# 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:

Multiple entries into the project area for forest management have occurred with the first recorded entry in 1965. Throughout the project area remnants/signs of past management is present and have influenced the stand composition we see today.

The existing species mix in proposed harvest units is predominantly lodgepole pine and western larch/Douglas-fir, with mixed levels of subalpine-fir and Engelmann spruce throughout. The south and west aspects are generally free of understory competition and comprised mainly of grasses and brush as ground cover. Thick pockets of advanced subalpine fir, grand fir, and Engelmann spruce regeneration are common on north and east aspects. These stands are medium – to well-stocked with saw-timber .

**Table 3:** *Existing Conditions in Proposed Units*

| Harvest Unit | Habitat Group | Fire Regime | Current Cover Type | Age Class (years) | DFC | RX | Acres |
|---|---|---|---|---|---|---|---|
| 1 | Warm and moist (westside) | Mixed | Western Larch/Douglas Fir | 100-149 | Western Larch/Douglas Fir | Commercial Thinning | 48.1 |
| 1A | Cool and moist (westside) | Mixed | Lodgepole Pine | 0-39 | Lodgepole Pine | Commercial Thinning | 11.8 |
| 1B | Cool and moist (westside) | Mixed | Lodgepole Pine | 0-39 | Western Larch/Douglas Fir | Commercial Thinning | 21.1 |
| 2 | Warm and moist (westside) | Mixed | Subalpine Fir | 100-149 | Western Larch/Douglas Fir | Overstory Removal | 8.1 |
| 3 | Warm and moist (westside) | Mixed | Subalpine Fir | 100-149 | Western Larch/Douglas Fir | Overstory Removal | 51.3 |
| 4 | Warm and moist (westside) | Mixed-to-Stand Replacing | Western Larch/Douglas Fir | 0-39 | Western Larch/Douglas Fir | Commercial Thinning | 18.6 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 5 | Warm and moist (westside) | Mixed | Lodgepole Pine | 100-149 | Western Larch/Douglas Fir | Shelterwood Harvest | 159.6 |
| 6 | Warm and moist (westside) | Mixed | Lodgepole Pine | 100-149 | Western Larch/Douglas Fir | Seed Tree | 26.1 |
| 7 | Cold and moderately dry (westside) | Mixed | Lodgepole Pine | 40-99 | Western Larch/Douglas Fir | Commercial Thinning | 42.7 |
| 8 | Warm and moist (westside) | Mixed | Lodgepole Pine | 40-99 | Western Larch/Douglas Fir | Commercial Thinning | 123.5 |
| 9 | Cool and moist (westside) | Mixed | Mixed Conifer | 100-149 | Western Larch/Douglas Fir | Individual/Select Tree Harvest | 25.8 |
| 10 | Cool and moist (westside) | Mixed | Lodgepole Pine | 100-149 | Western Larch/Douglas Fir | Shelterwood Harvest | 21.3 |
| 11 | Cool and moist (westside) | Mixed | Lodgepole Pine | 40-99 | Western Larch/Douglas Fir | Commercial Thinning | 61.3 |
| 12 | Warm and moist (westside) | Mixed | Mixed Conifer | 40-99 | Western White Pine | Seed Tree | 9.3 |
| 13 | Warm and moist (westside) | Mixed | Mixed Conifer | 40-99 | Western Larch/Douglas Fir | Commercial Thinning | 14.4 |
| 14 | Warm and moist (westside) | Mixed | Mixed Conifer | 40-99 | Western White Pine | Commercial Thinning | 51.5 |
| 15 | Cool and moist (westside) | Mixed | Lodgepole Pine | 0-39 | Western Larch/Douglas Fir | Commercial Thinning | 31.1 |
| 16 | Warm and moist (westside) | Mixed | Western Larch/Douglas Fir | 40-99 | Western Larch/Douglas Fir | Commercial Thinning | 18.1 |
| 17 | Cool and moist (westside) | Mixed | Mixed Conifer | 40-99 | Western Larch/Douglas Fir | Individual/Select Tree Harvest | 270.3 |
| A | Cool and moist (westside) | Mixed | Douglas Fir | 100-149 | Western Larch/Douglas Fir | Individual/Select Tree Harvest | 9.9 |
| B | Moderately cool and moist (westside) | Mixed | Western Larch/Douglas Fir | 100-149 | Western Larch/Douglas Fir | Shelterwood Harvest | 19.7 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| C | Moderately cool and moist (westside) | Mixed | Mixed Conifer | 100-149 | Western Larch/Douglas Fir | Seed Tree | 12.9 |
| D | Cool and moist (westside) | Mixed | Lodgepole Pine | 0-39 | Western Larch/Douglas Fir | Commercial Thinning | 11.6 |
| E | Warm and moist (westside) | Mixed | Mixed Conifer | 40-99 | Western Larch/Douglas Fir | Individual/Select Tree Harvest | 25.9 |

**Current Cover-Type/DFCs:** Silvicultural treatments in proposed units would focus on maintaining or increasing the presence and growth of seral species in accordance with desired future conditions. This would be obtained through regeneration harvests, individual tree selection, and commercial thinning prescriptions.

**Old Growth:** Utilizing Stand Level Inventory (SLI) data, walkthroughs, and old growth verification cruises there are33.7 acres of old growth within the project area. No old growth removal will occur with this project.

**Fire Hazard/Fuels:** The Olney North Forest Management Project Area is located within the WUI and has mixed levels of fuel loading throughout. Stands located on southern/western aspects are generally more open timber fuel types with timber litter and sporadic understory regeneration and ladder fuels. Eastern and northern aspects see an increase in presence of fuel loading, ladder fuels, timber litter, and fuel continuity. One main objective for this project is to reduce fuel loadings within the WUI, as well as create pre-planned shaded-fuel-breaks and implement high hazard fuels reduction along private property lines and main roads. This would help improve public and firefighter safety should a wildfire occur within the general area.

**Table 4:** *Fire Groups in Proposed Harvest Units*

| Fire Group | Acres within Proposed Harvest Units | Percent of Proposed Harvest Units | Habitat Type Group | Severity |
|---|---|---|---|---|
| 11 | 367.8 | 34% | Warm and moist (westside) | Infrequent/Mixed |
| 9 | 499.2 | 46% | Cool and moist (westside) | Infrequent/Mixed |
| 9 | 155.5 | 14% | Moderately cool and moist | Infrequent/Mixed |
| 7 | 71.5 | 6% | Cold and moderately dry | Infrequent/Stand-Replacement |

**Insects and Diseases:** Larch mistletoe (*Arceuthobium laricis)* and Pini rot (*Phellinus pini*) is present throughout the project area in varying levels of severity. Armillaria root disease (*Armillaria ostoyae*) is

present in Unit 9 (25.8 ac) at moderate levels with five distinct pockets along a rocky ridge top (cover photo illustrates one of these root rot pockets).

**Sensitive/Rare Plants**: Through utilization of Montana's Natural Heritage Program Database, two species of concern were identified to exist within the project area; crested shieldfern (*Dryopteris cristata*) and adder's tongue (*Ophioglossum pusillum*).

**Noxious Weeds:** The primary noxious weeds identified in the project area include oxeye daisy, orange hawkweed, spotted knapweed, St. Johnswort, and Canada thistle.

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

*Comments:*
**V-1:** Although no species of concern were identified during initial field reconnaissance within any proposed harvest units, there is a remote possibility of find the non-wetland related species. If listed rare/sensitive plants are found during this project period, then harvesting operations would be diverted from the plants and further reviewed by DNRC and plant specialists.

**V-2:** The Action Alternative would harvest 5.5 – 6.5 MMbf over 1,094.0 acres of sawtimber (see *Attachment B – Prescription Table*). The silvicultural prescriptions implemented within these stands would maintain or transition current cover types to the desired future conditions (*ARM 36.11.405*) by reducing lodgepole pine (518.1 acres), subalpine fir (59.4 acres), mixed conifer (349.5 acres), and Douglas-fir (9.9 acres) cover types and transitioning them into 1,021.1 acres of western larch/Douglas-fir cover type. Approximately 107.7 acres would be converted to the 0 – 39 year age class through implementation of seedtree and overstory removal treatments. Mechanical scarification would occur on 242.1 acres following harvest to create seedbeds that would be receptive to natural regeneration and

planted trees. This would allow the vegetative community to grow into a desirable species mix that would be productive into the future.

**V-3:** Though the risk of wildfire would still exist post-harvest, silvicultural treatments within proposed units would assist in moderating fire intensity should a wildfire occur. Treatments applied would reduce the vertical and horizontal continuity of fuel loadings. Proposed harvest unit 17 would be treated as a shaded-fuel-break, focusing on the removal of understory ladder fuels, and increasing the crown separation of residual trees to mitigate crown fire potential. These treatments would allow fire suppression efforts to be more successful by moderating fire rate of spread, fire intensity, and creating defensible space around structures and critical infrastructure (powerlines).

**V-4:** No old growth will be harvested with this project. Cumulatively there is 14,422.2 acres of old-growth on the Stillwater Unit and following this and other planned harvest activities on the Unit, there would be an estimated 14,402.2 acres of old-growth, representing 11.18% of the area under jurisdiction of the Stillwater Unit.

*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. These measures 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 structures.

## SOIL DISTURBANCE AND PRODUCTIVITY:

**Soil Disturbance and Productivity Existing Conditions:** Timber harvesting in the proposed project area has been ongoing since the 1960s. Based on field reconnaissance, less than 15% of soils are impacted from past entries where ground-based yarding was done and impacts to soils from these activities are ameliorating through root penetration and frost action.

| 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** | | | | | |

| 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 | | |
| ***Action*** | | | | | | | | | | | | | | |
| Physical Disturbance (Compaction and Displacement) | | **X** | | | | **X** | | | | **X** | | | **Y** | **S-1** |
| Erosion | | **X** | | | | **X** | | | | **X** | | | **Y** | **S-2** |
| Nutrient Cycling | **X** | | | | **X** | | | | **X** | | | | | |
| Slope Stability | **X** | | | | **X** | | | | **X** | | | | | |
| Soil Productivity | | **X** | | | | **X** | | | | **X** | | | **Y** | **S-3** |

*Comments:*

**S-1:** Based on DNRC soil monitoring on similar soils with a similar harvest intensity, approximately 12.4% of area may be in an impacted condition (DNRC, 2006). This level is below the range analyzed for in the *EXPECTED FUTURE CONDITIONS* section of the *SFLMP*, and well within the 20-percent impacted area established as a level of concern in the *SFLMP (DNRC 1996)*. This level translates to a low risk of low direct, secondary and cumulative impacts to soil physical disturbance.

**S-2:** Low impacts to soil erosion are possible due to exposure of bare soil during yarding and skidding operations. Risk of erosion would be mitigated by implementing all applicable BMPs to harvesting activities.

**S-3:** Soil productivity would be impacted by the use of ground-based machinery to yard timber. As stated in comment S-1, levels of ground disturbance are expected to be less than 12.4% with roads included, which is well below the range analyzed for in the EXPECTED FUTURE CONDITIONS section of the SFLMP, and well within the 20-percent impacted area established as a level of concern in the SFLMP (DNRC 1996). This level translates to a low risk of low direct, secondary and cumulative impacts to soil productivity.

*Soil Mitigations:*

- Operate ground-based equipment only during periods of dry, frozen or snow-covered conditions.
- Space skid trails a minimum of 60 feet apart to minimize areas impacted by ground-based equipment.
- Use existing skid trails if they are in suitable locations to minimize potential for cumulative impacts to soil physical disturbance.
- Leave approximately 7-24 tons of woody material 3-inches in diameter or greater on the ground for nutrient cycling.

## WATER QUALITY AND QUANTITY:

Potential cumulative effects to water quality and quantity were deemed low due to the limited area of proposed harvest relative to watershed size, current channel stability and the flow regime of the hydrology in the project area (beaver ponds and wetlands).

**Water Quality and Quantity Existing Conditions:** Past activities in and around the proposed project area include timber management, agriculture, and home site development. These activities have led to reductions in forest canopy cover, and construction of roads. None of these activities has led to any identified impacts to water quality or quantity in or around the project area. The Stillwater River, Dog Creek and several unnamed tributaries to these streams flow through the proposed project area. The Stillwater River and Dog Creek are perennial, fish-bearing class 1 streams. Several additional class 2 and class 3 streams were identified throughout the proposed project area. All identified stream channels in the proposed project area were found to be stable and well-vegetated during field reconnaissance.

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

*Comments:*

**WQ-1:** All requirements found in ARM 36.11.301-313, and ARM 36.11.421-427 would be implemented, where applicable. In addition, all applicable forest management BMPs would be implemented. These measures would minimize any potential risk of sediment delivery to a stream or draw and leave a low risk of direct, secondary or cumulative impacts to water quality.

**WQ-2:** There is a very low risk of the proposed project affecting water quantity. Vegetation removal can impact water use and snowpack distribution in harvested areas. The proposed project would harvest timber from approximately 1,094 acres. In an approximately 17,511-acre watershed with wetlands and ponds to store and ameliorate changes in flow, the proposed harvest represents approximately 6% of the watershed area in harvesting. This presents a very low risk of measurable impacts to water quantity from the proposed harvesting.

*Water Quality & Quantity Mitigations:*

- Avoid use of ground-based equipment in the bottoms of draws to reduce risk of scour, compaction or routing of surface runoff in draws.
- Implement all applicable BMPs, HCP commitments, and SMZ Law rules to ensure protection of project area streams.

## FISHERIES:

**Fisheries Existing Conditions**: Two fish-bearing streams were identified in the proposed project area by the FishMT website (FWP, 2024). These are the Stillwater River and Dog Creek. According to FishMT, the Stillwater River contains native species including bull trout, largescale sucker, longnose sucker, mountain whitefish, northern pike minnow and peamouth. According to FishMT, Dog Creek contains westslope cutthroat trout. Each of these waterbodies also supports populations of introduced species. There is also an unnamed perennial stream in the Dog Creek system where a fish was observed by a DNRC hydrologist during field reconnaissance. Species identification was not possible at the time.

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

**Action Alternative (see Fisheries table below):**

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

*Comments:*

**F-1:** All requirements found in ARM 36.11.301-313, and ARM 36.11.421-427 would be implemented, where applicable. In addition, all applicable forest management BMPs would be implemented. These measures would minimize any potential risk of sediment delivery to a fish-bearing stream and leave a low risk of direct, secondary or cumulative impacts to water quality and fish habitat.

**F-2:** As outlined in **WQ-2**, with the proposal to harvest 1,094 acres of timber from approximately 6% of the watershed, there would be a very low risk of measurable impacts to water quantity or flow regime from the proposed harvesting.

**F-3:** All proposed harvesting of trees within the SMZ or RMZ of a class 1 stream or lake would follow all requirements of ARM 36.11.425 and DNRC's HCP commitments. This would leave a very low risk of the proposed project affecting existing or potential downed woody debris, stream shading or stream temperature in any fish-bearing stream.

**F-4:** Provided the measures listed in F-1, F-2, F-3, DNRC's HCP and the mitigation measures listed in the water quality portion of this analysis are followed, there is a very low risk of adverse direct, secondary or cumulative impacts to fish habitat or populations as a result of the proposed project.

*References:*

DNRC, 1996. State Forest Land Management Plan. Montana Department of Natural Resources and Conservation. Missoula, Montana.

DNRC, 2011. Montana Forestry Best Management Practices Monitoring: The 2010 Forestry BMP Audits Final Report. Montana Department of Natural Resources and Conservation, Forestry Division.

FWP, 2024. "FishMT" 17 January, 2024. < https://myfwp.mt.gov/fishMT/waterbody/55910>

## WILDLIFE:

**Wildlife Existing Conditions**: The Project Area is 2,660 acres, and 2,009 of these acres are included in DNRC's Habitat Conservation Plan (USFWS and DNRC 2010). The Project Area primarily consists of DNRC-managed lands (97.4% of Project Area) and includes the town of Olney, Montana. The Project Area is bisected by Highway 93, a 70-mph two-lane state highway, and the Burlington Northern Santa Fe (BNSF) railroad tracks on which at least 20-30 trains travel per day. There are approximately 18.6 miles of well-traveled open road and 8.1 miles of restricted roads in the Project Area. Illegal motorized use is prevalent on approximately 1.5 miles of unauthorized user-built trails west of the highway and in the powerline corridor east of the highway. Winter snowmobile use is high in the Project Area, as the Upper Whitefish Road is a groomed route that serves as a primary access point to the State Forest. Public, non-motorized recreational use of the Project Area is moderate, and increases during the big game hunting season.

The Project Area contains 1,078 acres of mature forest stands (trees ≥9" dbh with ≥40% canopy closure), of which 34 acres are old-growth forest using Green et al (1992) standards. Approximately 597 acres (22.5% of the Project Area) in the Project Area have been harvested within the last 20 years. Younger pole or sapling sized stands make up approximately 1,392 acres (52.4%) of the Project Area. Non-forested areas, including meadows and wetlands, highway and railroad corridors, and residences encompass approximately 190 acres within the Project Area.

Cumulative effects analysis areas (CEAA) include lands near the Project Area and include the 11,215-acre Small CEAA for animals with smaller home ranges like pileated woodpeckers and flammulated owls, and a 51,071-acre Large CEAA for animals that travel across larger areas such as grizzly bears and big game. Ownership in the Large CEAA consists of 77.4% DNRC, 14.4% USDA Forest Service, 5.0% industrial forest lands, and 3.2% private land. Primary land uses in the CEAAs are commercial timber harvest and outdoor recreation.

Recent and ongoing forest management projects in the CEAA include the Mollywood (*DNRC 2020*), McCabe Meadows (*DNRC 2022*) and McStryker (*DNRC 2022*) timber sales and the GNA Jackknife Timber Sale (*USFS 2022*). Proposed DNRC forest management projects in the CEAA include Lupfer Loop Timber Sale (*DNRC 2023*), Swift-Stryke Forest Management Project (*DNRC 2023),* Upper Stillwater Forest Management Project (*DNRC 2023*), and HB-883 Precommercial Thinning Projects (*DNRC 2023*). Impacts associated with habitat alterations due to these projects have not been accounted for in the quantitative portion of the following analysis.

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

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

**Action Alternative (see Wildlife table below):**

| Wildlife | Impact | | | | | | | | | | | | Can Impact be Mitigated? | Comment Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct | | | | Secondary | | | | Cumulative | | | | | |
| | No | Low | Mod | High | No | Low | Mod | High | No | Low | Mod | High | | |
| **Threatened and Endangered Species** | | | | | | | | | | | | | | |
| **Grizzly bear** *(Ursus arctos)* Habitat: Recovery areas, security from human activity | | | **X** | | | | **X** | | | | **X** | | **Y** | **WI-1** |
| **Lynx** (*Felis lynx*) Habitat: SF hab.types, dense sapling, old forest, deep snow zone | | **X** | | | | **X** | | | | **X** | | | **Y** | **WI-2** |
| **Yellow-billed cuckoo** (*Coccyzus americanus*) | **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 | | |
| Habitat: open cottonwood riparian forest with dense brush understories (Lake and Flathead counties) | | | | | | | | | | | | | | |
| **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** | | | **Y** | **WI-4** |
| **Black-backed woodpecker** *(Picoides arcticus)* Habitat: Mature to old burned or beetle-infested forest | **X** | | | | **X** | | | | **X** | | | | | **WI-3** |
| **Common loon** *(Gavia immer)* Habitat: Cold mountain lakes, nest in emergent vegetation | **X** | | | | **X** | | | | **X** | | | | | **WI-3** |
| **Fisher** *(Martes pennanti)* Habitat: Dense mature to old forest less than 6,000 feet in elevation and riparian | | **X** | | | | **X** | | | | **X** | | | **Y** | **WI-5** |
| **Flammulated owl** *(Otus flammeolus)* Habitat: Late-successional ponderosa pine and Douglas-fir forest | **X** | | | | **X** | | | | **X** | | | | | **WI-3** |
| **Peregrine falcon** *(Falco peregrinus)* Habitat: Cliff features near open foraging areas and/or wetlands | **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 | | |
| **Pileated woodpecker** *(Dryocopus pileatus)* Habitat: Late-successional ponderosa pine and larch-fir forest | | | **X** | | | | **X** | | | **X** | | | **Y** | **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** | | | **Y** | **WI-7** |
| **Hoary bat** (*Lasiurus cinereus*) Habitat: coniferous and deciduous forests and roost on foliage in trees, under bark, in snags, bridges | | **X** | | | | **X** | | | | **X** | | | **Y** | **WI-8** |
| **Townsend's big-eared bat** *(Plecotus townsendii)* Habitat: Caves, caverns, old mines | **X** | | | | **X** | | | | **X** | | | | | **WI-3** |
| **Big Game Species** | | | | | | | | | | | | | | |
| **Elk** | | **X** | | | | **X** | | | | **X** | | | **Y** | **WI-9** |
| **Whitetail** | | **X** | | | | **X** | | | | **X** | | | **Y** | **WI-9** |
| **Mule Deer** | | **X** | | | | **X** | | | | **X** | | | **Y** | **WI-9** |
| **Moose** | | **X** | | | | **X** | | | | **X** | | | **Y** | **WI-9** |
| **Other** | | | | | | | | | | | | | | |
| **Mature Forest** | | | **X** | | | | **X** | | | | **X** | | **N** | **WI-10** |

*Comments:*

**WI-1 Grizzly bear** – The Project Area is comprised of 1,509 acres in grizzly bear recovery habitat and 1,151 acres in non-recovery occupied habitat (*USFWS 1993, Wittinger 2002*) and includes a portion of the Lazy Creek grizzly bear management subunit. Grizzly bear hiding cover would be altered by the proposed harvest on approximately 714 acres within grizzly bear recovery habitat and 380 acres within non-recovery occupied habitat, or 1,064 acres in total (49.8% of hiding cover in the Project Area). Post-harvest, sufficient vegetation would be retained on 530 acres and would continue to provide hiding cover for bears. Hiding cover would be removed on 534 acres due to low conifer density, however retaining some small patches of regenerating conifers and submerchantable trees within the harvest units would increase the amount of available hiding cover. Additionally, harvest units were designed such that no point within harvest units retaining less than 25 trees per acre would be more than 600 feet from hiding cover. Approximately 1.9 acres of riparian habitat would be harvested, but hiding cover would be

retained. Post-harvest, 1,603 acres, or 60.3% of the Project Area would remain hiding cover. Approximately 1.1 miles of new permanent road and 0.2 miles of new temporary road would be constructed. This includes 0.63 miles of new permanent road and 0.2 miles of temporary road in the recovery zone. Additionally, 0.65 miles of existing road in the recovery zone would be obliterated. Due to the locations of the proposed road changes, public motorized access in the recovery zone would be reduced in areas of higher quality habitat, which would have a small beneficial impact to bears. Motorized use of open and restricted roads within the Project Area would increase during project implementation. New temporary road would be closed post-harvest, and existing restricted roads would remain restricted with gates or berms. In the recovery zone, visual screening would be maintained ≤ 100 feet from an open road where it is available. Where visual screening is scarce between an open road and preferred grizzly bear habitat (i.e., wetlands, meadows), all available cover will be retained. In non-recovery occupied habitat, fuels reduction treatments would remove visual screening along open roads where available habitat adjacent to the treatment is currently lacking visual screening. Any grizzly bears using the Project Area could be temporarily displaced by the proposed activities and associated disturbance for up to 7 years. Spring timing restrictions would be applied from April 1 – June 15 to provide security for grizzly bears in the spring. After harvest, 33,642 acres (65.9% of the Large CEAA) of well-connected hiding cover would remain in the Large CEAA and continued use of the area by grizzly bears is anticipated. Impacts to hiding cover and increased disturbance under the Action Alternative would be additive to recent, ongoing, and proposed forest management projects in the CEAA (*see existing conditions section*). The greatest risks to bears within the CEAA would remain human habitations and associated attractants that bring bears into conflict with people.

**WI-2. Canada Lynx –** The Project Area is comprised of 2,132 acres (80.0% of Project Area) of suitable lynx habitat. Approximately 1,060 acres (49.7%) of existing suitable habitat in the Project Area would be impacted by the proposed harvest activities. Of these acres, 601 acres (28.2% of suitable habitat) would be treated with harvest prescriptions that would remove conifer canopy cover such that these stands would be temporarily unsuitable lynx habitat. Approximately 459 acres (21.5% of suitable habitat) would receive harvest treatments that would reduce some habitat attributes but would overall continue to provide suitable lynx habitat. In total, 1,531 acres (57.6% of Project Area) in the Project Area would continue to provide suitable habitat for lynx post-harvest. To ensure that forest structural attributes preferred by snowshoe hares remain following harvest, some dense patches of advanced regeneration would be retained within portions of lynx winter forage habitat. Additionally, 7 to 24 tons/acre of coarse woody debris would be retained in accordance with DNRC Forest Management Rules (*ARM 36.11.414)* and retention of downed logs ≥15-inch diameter would be emphasized. Lynx habitat connectivity within the Project Area would be reduced, particularly where seed tree, shelterwood, and individual tree selection treatments are proposed. Post-harvest, suitable lynx habitat in the Large CEAA would be reduced from 69.3% to 68.2%, and habitat connectivity in the Large CEAA would remain high. If present near the Project Area, lynx could be temporarily displaced by forest management activities for up to 7 years. Disturbance/displacement and habitat alteration by the proposed activities would be additive to recent, ongoing, and proposed forest management projects in the CEAA (*see existing conditions section*).

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

**WI-4. Bald Eagle –** The proposed harvest is less than 0.2 miles from Lower Stillwater Lake bald eagle nest (*MTNHP 2023, DNRC unpublished data*). Use of this nest site by breeding bald eagles has been documented since 2019 (*MTNHP 2023, DNRC unpublished data*). The proposed harvest is within the nest site and the primary use area (*ARM 36.11.436(7)*). To reduce potential adverse impacts on nesting eagles, harvest is prohibited within 330 feet of the nest site and no harvest would be permitted from February 1 – August 15 within ½ mile of the nest. However, harvesting would be permitted during this time period east of Lower Stillwater Lake and the Glacier Gold composting site. A well-used open paved road within 0.2

miles and large-scale composting facility containing heavy equipment within 0.3 miles of the nest site indicate that these eagles are likely habituated to moderate amounts of motorized disturbance. Some vegetative screening along the open road would be removed, however ample vegetative cover shall remain in place between the nest site and open road to avoid disturbance from normal activities in the area.

**WI-5. Fisher –** The proposed activities would affect 355 acres of suitable fisher habitat (36.3% of suitable fisher habitat available in the Project Area). Fisher habitat would be removed on 278 acres (28.5%) due to low canopy cover and low retention of mature trees. The quality of some habitat attributes on the other 77 acres would be reduced, however retained conifer cover would be sufficient to continue providing suitable fisher habitat post-harvest. Habitat connectivity would decrease following logging but continue to provide moderate connectivity (26.3% of the Project Area) to suitable habitat on adjacent land. Approximately 1.1 miles of new permanent road and 0.2 miles of new temporary road would be built in the Project Area. Due to the locations of the proposed road construction, and the obliteration of 0.63 miles of existing road, the increase in access to trappers and associated mortality risk to fisher would be negligible. New temporary road would be closed post-harvest and existing restricted roads would continue to be restricted by gates or berms. To reduce some potential adverse effects on fishers, at least 2 large snags and 2 large snag recruitment trees per acre (>21 inches dbh) would be retained (*ARM 36.11.411*). These snags and large trees are important habitat features that provide resting and denning sites for fishers (*Olson 2014*). Approximately 2.1% of suitable fisher habitat in the Large CEAA would be affected, but abundance would remain moderate (19,523 acres, 38.3% of Large CEAA) after the proposed activities. 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 (*MNHP 2023, Krohner 2022*). 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*).

**WI-6. Pileated Woodpecker –** The proposed activities would affect 443 acres (43.4%) of available suitable pileated woodpecker habitat in the Project Area. Approximately 352 (34.4% of available habitat in Project Area) of these acres would be treated with prescriptions that would reduce mature canopy closure to less than 40%, making these stands unsuitable for nesting pileated woodpeckers post-harvest. The other 91 acres would remain suitable habitat, but at a reduced quality due to the removal of mature trees. Approximately 667 acres (25.1%) of the Project Area would remain as suitable habitat post-harvest. To reduce potential adverse effects on pileated woodpeckers, at least 2 large snags and 2 large snag recruitment trees per acre (>21 inches dbh, or largest size class available) would be retained and all snags cut for safety reasons would be left in the harvest unit (*ARM 36.11.411*). Additionally, 7 to 24 tons/per acre of downed wood would be retained, with an emphasis on logs >15” diameter. Post-harvest, approximately 19.3% (2,169 acres) of the Small CEAA will remain as poorly connected patches of suitable habitat, however continued use of suitable habitat by pileated woodpeckers in the Small CEAA would be anticipated. Habitat alterations due to the proposed action would be additive to recent, ongoing, and proposed forest management projects in the CEAA (*see existing conditions section*).

**Wl-7 Fringed myotis -** Approximately 1,094 acres of potential fringed myotis habitat would be affected by the proposed timber harvest. Fringed myotis utilize a variety of habitats and roost sites including pine and Douglas-fir forests (*Keinath 2004*). If present in the Project Area, they could be temporarily displaced by timber harvesting. To minimize impacts to fringed myotis, at least 2 large snags and 2 large snag recruitment trees per acre (>21 inches dbh, or largest size class available) would be retained and could provide roosting habitat.

**WI-8. Hoary bat –** The proposed activities would affect approximately 1,094 acres of potential hoary bat habitat. Hoary bats typically roost in tree foliage (*Bachen et al. 2020*) and if present they could be temporarily displaced by timber harvesting. Potential disturbance would only be expected from late May

through September, when hoary bats are in Montana. After the conclusion of activities, continued use of harvested areas by hoary bats would be anticipated. At least 2 large snags and 2 large snag recruitment trees per acre (>21 inches dbh, or largest size class available) would be retained and could provide roosting habitat.

**WI-9. Big Game –** The Project Area does not provide winter range habitat for deer or elk, but big game use the area during other times of the year (*DFWP 2008*). Hiding cover would be altered by the proposed activities on 1,064 acres (49.8% of hiding cover in the Project Area). Sufficient vegetation would be retained on 530 acres to continue providing hiding cover for big game post-harvest. Proposed harvest treatments would remove hiding cover on 534 acres, however retaining some small patches of regenerating conifers and submerchantable trees within the harvest units would decrease site distances and maintain some cover. The reduction in hiding cover could result in increased mortality risk to big game species due to hunting, particularly where open and restricted roads facilitate hunter access. Approximately 1.1 miles of new permanent road and 0.2 miles of new temporary road would be built in the Project Area. Due to the locations of the proposed new road construction, and the obliteration of 0.63 miles of existing open road, the increase in access for hunters and associated mortality risk would be minor. New temporary road would be closed post-harvest and existing restricted roads would continue to be restricted by gates or berms. Hiding cover would remain on approximately 65.9% of the Large CEAA. Habitat alterations due to the proposed action would be additive to recent, ongoing, and proposed forest management projects in the CEAA (*see existing conditions section*).

**WI-10. Mature Forest/Old-growth–** The proposed action would alter approximately 547 acres of mature forest (50.7% of mature forest within the Project Area) with a reasonably closed canopy (≥40% canopy closure). Harvest prescriptions on 481 acres (44.6% of existing mature forest) of mature forest within the Project Area would reduce mature live tree densities with post-harvest canopy closure of <10% to <40% and would no longer be considered suitable for species that prefer dense mature forests. However, habitat suitability for species utilizing younger stands and open forest with widely scattered mature trees would increase. There are approximately 34 acres of old growth in the Project Area, but none of these acres will be treated under the Action Alternative. Post-harvest, 597 acres (22.4% of Project Area) of mature forest in the Project Area would continue to be suitable for wildlife that prefer closed canopy mature forest. The proposed harvesting would remove approximately 15.7% of existing mature forest in the Small CEAA and mature forest abundance would remain low (22.9% of Small CEAA). Connectivity of mature forest in the Project Area and the Small CEAA would be reduced, as large patches of mature forest would be removed by harvesting. Habitat alterations due to the proposed action would be additive to recent, ongoing and proposed forest management projects in the CEAA *(see existing conditions section)*.

*Wildlife Mitigations:*

- If a threatened or endangered species is encountered, consult a DNRC biologist immediately. Similarly, if undocumented nesting raptors or wolf dens are encountered within ½ mile of the Project Area, contact a DNRC biologist.
- Contractors will adhere to food storage and sanitation requirements as described in the timber sale contract. Ensure that all attractants such as food, garbage, and petroleum products are stored in a bear-resistant manner.
- Prohibit contractors and purchasers conducting contract operations from carrying firearms while on duty as per *ARM 36.11.444(2)*.
- Prohibit all harvesting-related motorized activities more than 100 feet from open roads from April 1 – June 15 per GB-NR3 (*USFWS and DNRC 2010*).
- Retain visual screening along open roads in the grizzly bear recovery zone (i.e., east of Highway 93). Where visual screening is scarce between an open road and preferred grizzly bear habitat (i.e.,

wetlands, meadows), retain all available cover. Retaining visual screening to the extent possible in non-recovery occupied habitat (i.e., west of Highway 93) is recommended.
- No point in a unit with <25 TPA can be more than 600 feet to hiding cover or a topographic break, GB-NR4 (*USFWS and DNRC 2010*).
- Within commercial harvest units, retain patches of advanced regeneration of shade-tolerant trees as per LY-HB4 (*USFWS and DNRC 2010*).
- Prohibit mechanized forest management activities within 1/2 mile of the Lower Stillwater Lake bald eagle nest from February 1 – August 15 to protect nesting bald eagles. Harvesting would be permitted during this time period east of Lower Stillwater Lake and the Glacier Gold composting site.
- Effectively close restricted roads and skid trials in the Project Area via a combination of gates, kelly humps, rocks, and stumps. Maintain public motorized restrictions on restricted and roads during and after harvest activities.
- Retain at least 2 snags and 2 snag recruits per acre >21 inches dbh or the next largest available size class, particularly favoring ponderosa pine, western larch and Douglas-fir for retention. If snags are cut for safety concerns, they must be left in the harvest unit.
- Retain 7-24 tons/acre of coarse-woody debris and emphasize retention of 15-inch diameter downed logs, aiming for at least one 20-foot-long section per acre LY-HB2 (*USFWS and DNRC 2010*). High-hazard clean up areas are exempt from standard coarse-woody debris retention guidelines.

*Literature:*

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

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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** | | | **YES** | **AQ-1** |
| Dust | | **X** | | | | **X** | | | | **X** | | | **YES** | |

*Comments:*

**AQ-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 member of 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 strategies such as time of haul, mag chloride or other dust abatement application) 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** | | | | | **Arch - 1** |
| Aesthetics | | **X** | | | | **X** | | | | **X** | | | **YES** | **Aest – 1** |
| Demands on Environmental Resources of Land, Water, or Energy | **X** | | | | **X** | | | | **X** | | | | | |

*Comments:*

**Arch-1**: 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.

*Archeology Mitigations:*

However, if previously unknown cultural or paleontological materials are identified during project related activities, all work will cease until a professional assessment of such resources can be made.

**Aest-1:** Proposed harvest units are adjacent to, or visible from the Upper Whitefish Road, Fort Steele Road, other open roads within the project area, Highway 93, as well as portions of the townsite of Olney, MT. At certain locations along these routes, skid trails, new roads, and landings would be visible.

*Aesthetic Mitigations:*

- Blend unit edges and incorporate irregular shaped boundaries to mimic natural events.
- Design skid routes, landing areas, permanent/temporary roads in a manner which reduces the visual impact adjacent to open roads by utilizing jump-up landings, heavier tree retention along roadways, and minimize cut/fill of material on new roads.

**OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA:**

- Olney Urban Interface EA – March 2009
- Lupfer Morrill EA – April 2019
- McStryker Timber Sale EA – March 2022

## Impacts on the Human Population

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

**RECREATION:**

**Recreation Existing Conditions:**

The project area encompasses the forested land around the rural town of Olney, Montana making this area easily accessible to the local community and public. The project area is primarily used by the public for hiking, hunting, fishing, site seeing, motorized trail riding, snowmobiling and other general recreational uses. Many of the proposed haul routes are open to yearlong motorized use that currently receive moderate to high use from the public. In addition, there is a combination of eight LULs and SRULs that authorize separate business entities to conduct commercial recreational activities within the project area. Of those eight licenses, six are issued specifically for the winter operating season (December 1 – April 1) and two for the summer operating season (May 15- November 15).

| 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*** | | | | | | | | | | | | | | |

| 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 | | |
| 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** | | | **Yes** | **Safety-1** |
| Industrial, Commercial and Agricultural Activities and Production | **X** | | | | **X** | | | | **X** | | | | | |
| Quantity and Distribution of Employment | **X** | | | | **X** | | | | **X** | | | | | |
| Local Tax Base and Tax Revenues | **X** | | | | **X** | | | | **X** | | | | | |
| Demand for Government Services | **X** | | | | **X** | | | | | | | | | |
| Access To and Quality of Recreational and Wilderness Activities | | | **X** | | | **X** | | | **X** | | | | **Yes** | **Rec-1 Rec-2** |
| Density and Distribution of population and housing | **X** | | | | | | | | | | | | | |
| Social Structures and Mores | **X** | | | | | | | | | | | | | |
| Cultural Uniqueness and Diversity | **X** | | | | | | | | | | | | | |

*Comments:*

**Safety -1:** Mitigations have been developed for all log hauling to allow for safe travel and shared use of plowed roads during the winter season (see "Mitigations" below).

**Rec-1:** Dog Sled Adventures holds a license to conduct guided winter dogsled tours on trails located within the boundaries of the project area. Dog Sled Adventures would be significantly affected if proposed Units 11, 12, 13, 14, E and the north ends of Units 7 and 8 are harvested in the winter and the Stryker Face Road is plowed for hauling. Winter harvesting in these units would inhibit Dog Sled Adventures from operating while logging is active in those units. Mitigation measures such as restricting winter logging operations in the afore mentioned units would alleviate any conflicting uses between timber harvest activities and dogsled tours.

Dog Sled Adventures maintains a system of looped trails mainly utilizing existing road prisms. There is a concern that brushing the road prisms and removing timber and regen directly adjacent to the dogsled trails would result in direct sunlight exposure to the trails. Direct sunlight exposure would cause snow packed trails to melt off faster in late winter/early spring consequently reducing the duration of the commercial dogsled operating period.

**Rec-2:** The Flathead Snowmobile Association (FSA) currently has a license to maintain three trailheads and groom 65+ miles of trail on Stillwater State Forest. These trails are primarily established along open roads. Winter log hauling on the first 2 miles of the Upper Whitefish Road would have a direct effect on the public's use of the FSA groomed trail system and on the four businesses that utilize this system of trails to conduct commercial snowmobile tours. Over-the-snow vehicles and log trucks would need to share use of the plowed road until logging operations have finished for the winter season. FSA's commencement of grooming the first 2 miles of the Upper Whitefish Road would be delayed until after plowing operations have ceased. The public's "user experience" would be minimally diminished by sharing this normally groomed route with log trucks; however, the overall impact is expected to be low.

*Recreation Mitigations:*

- R.1: Logging and log hauling operations in 11, 12, 13, 14, E and the north ends of units 7 and 8 would not be allowed during the winter season (December 1 – April 1) however, portions of unit 7 and 8 where log hauling will avoid the groomed Dog Sled Adventures trail would be allowed in the winter season.
- R.2: Site specific opportunities for leaving 20-foot widths of advanced regen adjacent to dogsled trails, that are not conflict with the objectives of the timber sale, would be considered during project design.
- Restrict log hauling activities to the "work week" (Monday – Friday). Prior approval for holiday or weekend hauling could be granted by the Forest Officer on a case-by-case basis.
- Require contractors and licensed operators to routinely coordinate daily transportation activities on shared plowed and groomed routes with one another directly.
- The first two miles of the Upper Whitefish Road would be subject to snow plowing. Require contractors tto leave a 8ft. to 10ft. strip of 1-to-2-inch base of snow on plowed roads to accommodate over-the-snow use.
- Require contractors to "feather" berms where plowed roads intersect the groomed trail system.

## Locally Adopted Environmental Plans and Goals:

- Hazardous Fuels Reduction Grant

## Other Appropriate Social and Economic Circumstances:

The Olney Forest Management Project would generate approximately $979,790.00 for the Public Buildings, MSU 2nd Grant, Montana Tech, School for the Deaf and Blind, Pine Hills School, and State Normal School Trusts, invest $115,000.00 into road improvements/maintenance, and approximately $152,774.00 in Forest Improvement (FI) fees would be collected for FI projects. This is based on a stumpage rate of $26.25 per ton, multiplied by the estimated volume of 37,332 Tons (5.7 MMbf).

This stumpage rate was derived by comparing attributes of the proposed timber sale with the attributes and results of other DNRC timber sales recently advertised for bid. Costs related to the administration of the timber sale program are only tracked at the Northwest Land Office (NWLO) and Statewide level. DNRC does not track project-level costs for individual timber sales. An annual cash flow analysis is conducted on the DNRC forest product sales program. Revenue and costs are calculated Statewide and by Land Office. 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.

Currently, the Sustainable Yield Calculation is 68.3 MMbf and target harvest from Trust Lands is 60 MMbf. which represents approximately 16.4% of timber harvested in the state of Montana. This project would provide approximately 5.7 MMbf of timber towards the sustained yield target thus helping sustain current mill capacity.

## 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:** Jeremy Akin
**Title:** Forest Management Supervisor
**Date:** January 22, 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 the Type and Purpose of Action section of this document. This project received seven public comments during the 30-day scoping period. These comments were addressed in the analysis.

The lands involved in this project are held by the State of Montana in trust for the support of specific beneficiary institutions and DNRC is required by law to administer these trust lands to produce the largest measure of reasonable and legitimate return over the long run (Enabling Act of February 22, 1889; 1972 Montana Constitution, Article X Section 11; and 77-1-212 MCA). An estimated $979,790.00 for the Public Buildings, MSU 2nd Grant, Montana Tech, School for the Deaf and Blind, Pine Hills School, and State Normal School Trusts.

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

## Significance of Potential Impacts

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

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

## Need for Further Environmental Analysis

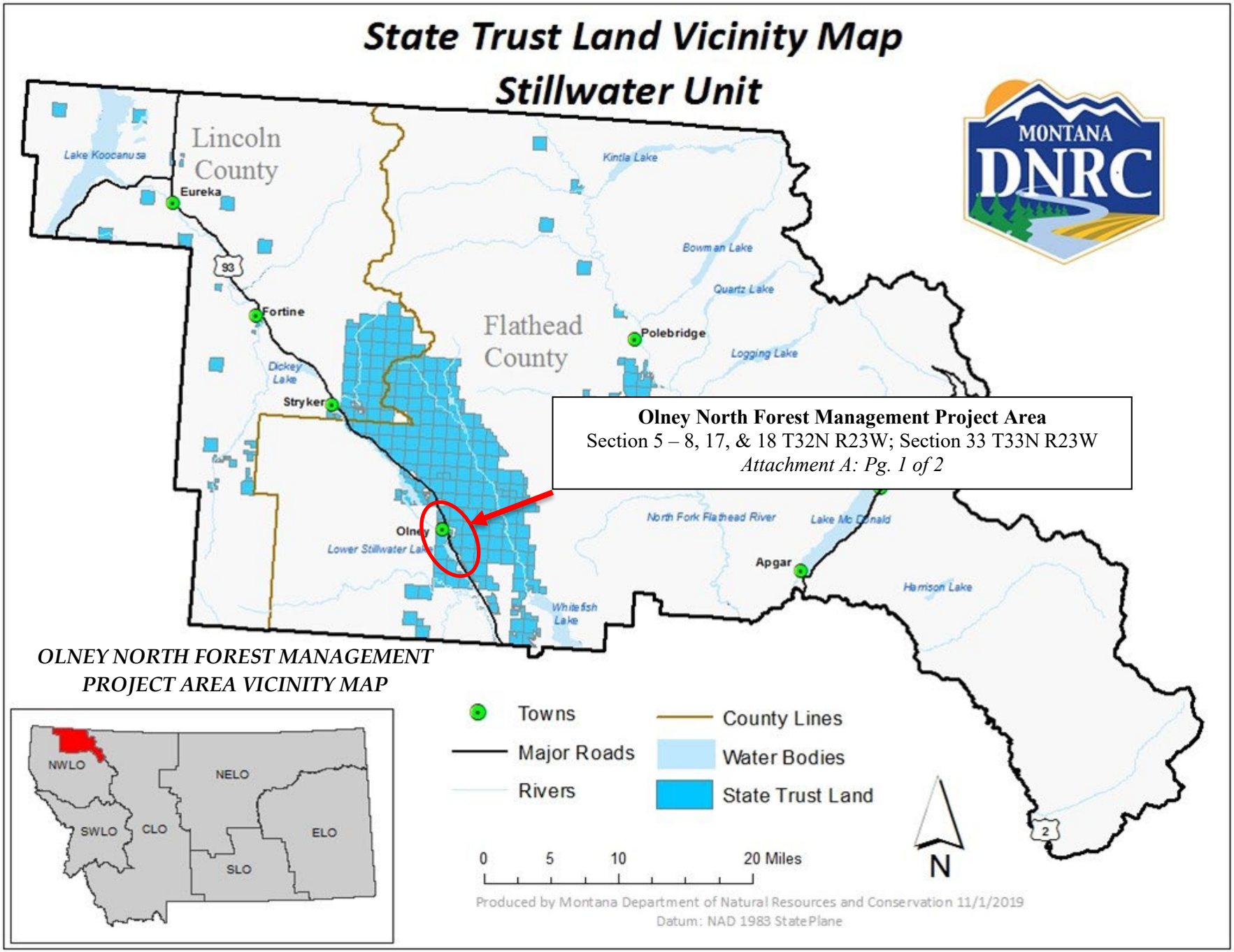
| | | | | | |
|---|---|---|---|---|---|
| ☐ | EIS | ☐ | More Detailed EA | ☒ | No Further Analysis |

**Environmental Assessment Checklist Approved By:**

**Name: Dave Ring**
**Title: Stillwater Unit Manager**
**Date: February 16, 2024**
**Signature: /s/ David A. Ring**

# Attachment A - Maps

A-1: Olney North Forest Management Project Area Vicinity Map

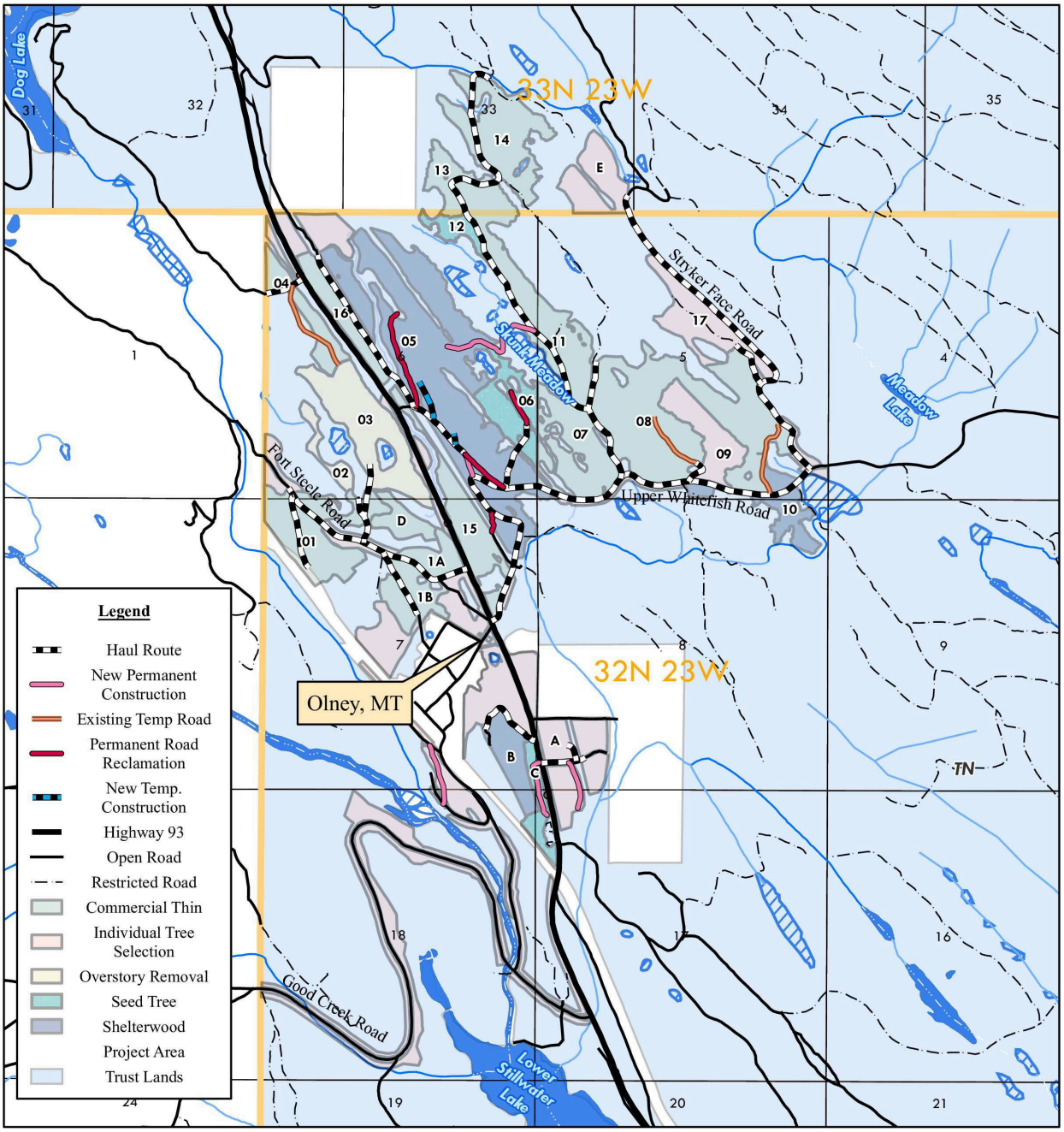


A-2: Olney North Forest Management Project Area Map

# Olney North Forest Management Project Area Map

Sections 5 - 8, 17, & 18 T32N R23W
Section 33 T33N R23W

*Attachment A: Pg. 2 of 2*




December 2023

0 0.23 0.45 0.9 Miles

Author: J. Akin

**Attachment B – Prescription Table**

**Olney North Forest Management Project Prescription Table**

| Commercial Harvest Units | | | |
|---|---|---|---|
| Unit # | Acres & Cut Mbf/ Acre | Prescription | Particulars involved in units |
| 1 | 48.1 acres<br>4 Mbf/ ac. | Commercial Thin | -Tractor Harvest Unit<br><br>-Retain a minimum of 2 snag recruits >21" DBH and 2 of the largest snags per acre.<br>-Preference to leave Western Larch, then Douglas-fir, then Lodgepole pine<br>-Thin across all species;<br>---Greater than 15" to 70' spacing<br>---Less than 16" to 25'-30' spacing<br>-Mandatory round-wood removal<br><br>-Slashing of advanced regeneration.<br>-Mechanical high hazard fuels reduction piling 200' inside unit boundary. |
| 1A | 11.8 acres<br>2 Mbf/ ac. | Commercial Thin | -Cut-to-Length (in-woods processing)<br><br>-Retain a minimum of 2 snag recruits >21" DBH and 2 of the largest snags per acre.<br>-Space trees 20' feet with preference to WL, DF, LP |
| 1B | 21.1 acres<br>2 Mbf/ ac. | Commercial Thin | -Cut-to-Length (in-woods processing)<br><br>-Retain a minimum of 2 snag recruits >21" DBH and 2 of the largest snags per acre.<br>-Space trees 20' feet with preference to WL, DF, LP<br>-Mechanical high hazard fuel reduction piling. |
| 2 | 8.1 acres<br>9 Mbf/ ac. | Overstory Removal | -Tractor Harvest Unit<br><br>-Retain a minimum of 2 snag recruits >21" DBH and 2 of the largest snags per acre.<br>---Preference to leave Western Larch, then Douglas fir.<br>-Protect all submerchantable timber |
| 3 | 51.3 acres<br>6 Mbf/ ac. | Overstory Removal | -Tractor Harvest Unit<br><br>-Retain a minimum of 2 snag recruits >21" DBH and 2 of the largest snags per acre.<br>---Preference to leave Western Larch, then Douglas fir.<br>-Protect all submerchantable timber |
| 4 | 18.6 acres<br>3 Mbf/ ac. | Commercial Thin | -Tractor Harvest Unit<br><br>-Retain a minimum of 2 snag recruits >21" DBH and 2 of the largest snags per acre.<br>-20'-25' foot spacing; prefer WL, DF, LP, ES<br><br>-Protect DF regeneration.<br>-Mechanical high hazard fuels reduction piling. |

| | | | |
|---|---|---|---|
| 5 | 159.6 acres<br>11 Mbf/ ac. | Shelterwood | -Tractor Harvest Unit - Leave-Tree-Marked<br>-Parts of unit Cut-to-Length harvest (in-woods process) to avoid large multiple landings.<br><br>-Retain a minimum of 2 snag recruits >21" DBH and 2 of the largest snags per acre.<br>-Retain 20-27 TPA with preference to Western larch then healthy Douglas-fir<br><br>-Slashing of advanced regeneration where it esists.<br>-Mechanical pile and scarify or broadcast burn.<br>-Rely on natural regeneration. |
| 6 | 26.1 acres<br>10 Mbf/ ac. | Seedtree | -Tractor Harvest Unit - Leave - Tree- Marked<br><br>-Retain a minimum of 2 snag recruits >21" DBH and 2 of the largest snags per acre.<br>-Retain 10 WL/DF trees per acre that exhibit good form and vigor.<br><br>-Slashing of advanced regeneration.<br>-Mechanical pile and scarify or broadcast burn.<br>-Rely on natural regeneration. |
| 7 | 42.7 acres<br>4.5 Mbf/ ac. | Commercial Thin | -Cut-to-Length (in-woods processing)<br><br>-Retain a minimum of 2 snag recruits >21" DBH and 2 of the largest snags per acre.<br>-Space trees 20'-25' feet with preference to WL, DF, LP.<br><br>-Mechanical high hazard fuel reduction piling 200' inside unit boundary and along roads.<br>-Protect advanced regeneration. |
| 8 | 123.5 acres<br>5 Mbf/ ac. | Commercial Thin | -Cut-to-Length (in-woods processing)<br><br>-Retain a minimum of 2 snag recruits >21" DBH and 2 of the largest snags per acre.<br>-Space trees 20'-25' feet with preference to WL, DF, LP.<br><br>-Mechanical high hazard fuel reduction piling 200' inside unit boundary and along roads.<br>-Protect advanced DF regeneration.<br>-Slashing of all SAF/GF advanced regeneration, east half ~50 acres. |
| 9 | 25.8 acres<br>7 Mbf/ ac. | Individual Tree Selection | -Tractor Harvest Unit - Leave-Tree-Marked<br><br>-Retain a minimum of 2 snag recruits >21" DBH and 2 of the largest snags per acre.<br>-Retain all WL. Space DF 35'-40' feet apart.<br><br>-Mechanical piling and scarification.<br>-Plant WL and 5% PP. |
| 10 | 21.3 acres<br>8 Mbf/ ac. | Shelterwood | -Tractor Harvest Unit - Leave-Tree-Marked<br><br>-Retain a minimum of 2 snag recruits >21" DBH and 2 of the largest snags per acre.<br>-Space trees 35'-40' feet apart with preference to WL, DF, LP, ES.<br>-Retain all WWP.<br><br>-Slashing of advanced regeneration<br>-Mechanical piling and scarification, and high hazard piling 200' inside unit boundary along open road.<br>-Rely on natural regeneration. |

| | | | |
|---|---|---|---|
| 11 | 61.3 acres<br>7 Mbf/ ac. | Commercial Thin | -Cut-to-Length (in-woods processing)<br><br>-Retain a minimum of 2 snag recruits >21" DBH and 2 of the largest snags per acre.<br>-Space trees 20'-25' feet with preference to WL, DF, LP.<br><br>-Mechanical high hazard fuel reduction piling 200' inside unit boundary and along roads.<br>-Protect advanced DF regeneration. |
| 12 | 9.3 acres<br>9 Mbf/ ac. | Seedtree | -Tractor Harvest Unit<br><br>-Retain a minimum of 2 snag recruits >21" DBH and 2 of the largest snags per acre.<br>-Retain 6-12 trees per acre at 60'-80' feet apart with preference to WL, DF.<br>-Retain all WWP.<br>-Cut all whitewoods.<br><br>-Mechanical piling and scarification and high hazard reduction piling 200' inside unit boundary along road.<br>-Plant WL and WWP.<br>-Slashing of advanced regeneration. |
| 13 | 14.4 acres<br>5 Mbf/ ac. | Commercial Thin | -Tractor Harvest Unit<br><br>-Retain a minimum of 2 snag recruits >21" DBH and 2 of the largest snags per acre.<br>-Space trees 25'-30' feet apart with preference to WL, DF.<br>-Retain all WWP.<br>-Cut all whitewoods.<br><br>-Mechanical piling and scarification and high hazard reduction piling 200' inside unit boundary along road.<br>-Slashing of advanced regeneration. |
| 14 | 51.5 acres<br>5 Mbf/ ac. | Commercial Thin | -Tractor Harvest Unit<br><br>-Retain a minimum of 2 snag recruits >21" DBH and 2 of the largest snags per acre.<br>-Space trees 25'-30' feet apart with preference to WL, DF.<br>-Retain all WWP.<br>-Cut all whitewoods.<br><br>-Mechanical piling and scarification and high hazard reduction piling 200' inside unit boundary along road.<br>-Slashing of advanced regeneration. |
| 15 | 31.1 acres<br>4 Mbf/ ac. | Commercial Thin | -Cut-to-Length (in-woods processing)<br><br>-Retain a minimum of 2 snag recruits >21" DBH and 2 of the largest snags per acre.<br>-Space trees 20'-25' feet with preference to WL, DF, LP.<br><br>-Mechanical high hazard fuel reduction piling.<br>-Protect advanced DF regeneration. |

| | | | |
|---|---|---|---|
| 16 | 18.1 acres<br>6 Mbf/ ac. | Commercial Thin | -Cut-to-Length (in-woods processing) - Leave-Tree-Marked<br><br>-Retain a minimum of 2 snag recruits >21" DBH and 2 of the largest snags per acre.<br>-Space trees 20'-30' feet with preference to WL, DF, LP.<br>-Mandatory pulp removal.<br><br>-Mechanical high hazard fuel reduction piling. |
| 17 | 270.3 acres<br>4 Mbf/ ac. | Individual Tree Selection (*shaded-fuel break*) | -Tractor Harvest Unit.<br><br>-Retain a minimum of 2 snag recruits >21" DBH and 2 of the largest snags per acre.<br>-Retain 27-100 TPA, spacing 22'-40' with preference to WL, DF to achieve 15-foot crown spacing.<br><br>-Slashing of advanced regeneration.<br>-Mechanical piling, hand piling, and mastication for high hazard fuels reduction. |
| A | 9.9 acres<br>5 Mbf/ ac. | Individual Tree Selection | -Tractor Harvest Unit - Leave-Tree-Marked<br><br>-Retain a minimum of 2 snag recruits >21" DBH and 2 of the largest snags per acre.<br>-Space trees 35'-40' feet apart with preference to WL, DF, LP.<br><br>-Mechanical piling and scarification.<br>-Slashing of advanced regeneration. |
| B | 19.7 acres<br>5 Mbf/ ac. | Shelterwood | -Tractor Harvest Unit - Leave-Tree-Marked<br><br>-Retain a minimum of 2 snag recruits >21" DBH and 2 of the largest snags per acre.<br>-Retain 20-27 TPA with preference to WL, DF.<br><br>-Slashing of advanced regeneration.<br>-Mechanical piling and scarification.<br>-Rely on natural regeneration. |
| C | 12.9 acres<br>6 Mbf/ ac. | Seedtree | -Tractor Harvest Unit<br><br>-Retain a minimum of 2 snag recruits >21" DBH and 2 of the largest snags per acre.<br>-Retain 10-15 TPA with preference to WL, DF.<br><br>-Slashing of advanced regeneration. |
| D | 11.6 acres<br>2 Mbf/ ac. | Commercial Thin | -Cut-to-Length (in-woods processing)<br><br>-Retain a minimum of 2 snag recruits >21" DBH and 2 of the largest snags per acre.<br>-Space trees 20' feet with preference to WL, DF, LP<br><br>-Mechanical high hazard fuel reduction piling. |

| | | | |
|---|---|---|---|
| E | 25.9 acres<br>6 Mbf/ ac. | Individual Tree Selection | -Tractor Harvest Unit<br><br>-Retain a minimum of 2 snag recruits >21" DBH and 2 of the largest snags per acre.<br>-Space trees 25'-40' feet apart with preference to WL, DF, LP.<br><br>-Mechanical piling and scarification.<br>-Slashing of advanced regeneration. |