HB 883 Precommercial Thinning Projects – Phase 1
Checklist Environmental Assessment

May 17, 2024

Montana DNRC - Trust Land Management Division
Forest Management Bureau

Environmental Assessment Checklist

Project Name: HB 883 Precommercial Thinning Projects – Phase 1
Proposed Implementation Date: July 2024
Proponent: Trust Lands Forest Management Program, Montana DNRC
County: Flathead, Lake, Lincoln, Missoula, Powell, Sanders
Trust Beneficiary: Common Schools (50%), Acquired Lands (18%), Public Buildings (10%), Montana State University (7%), State Normal School; MSU – Eastern/Western (6%), Montana Tech (5%), School for Deaf & Blind (2%), State Reform School (1%) MSU Morrill (1%)

Type and Purpose of Action

Description of Proposed Action:

The Trust Lands Forest Management Program of the Montana Department of Natural Resources and Conservation (DNRC) is proposing the Phase 1 HB 883 Precommercial Thinning Project. The project is located across 6 counties within the Clearwater, Missoula, Plains, Kalispell, Stillwater, Swan and Libby administrative units (refer to Attachment A-**1**) and includes numerous parcels in the following counties:

County	Legal Description	Project Area (Acres)	Treated Acres
Flathead	**57 parcels**	**31,000**	**3,671**
Lake	**13 parcels**	**7,002**	**1,281**
Lincoln	**12 parcels**	**7,610**	**801**
Missoula	**23 parcels**	**12,124**	**2,435**
Powell	**2 parcels**	**721**	**315**
Sanders	**4 parcels**	**1323**	**269**

Objectives of the project include:

- Utilize HB 883 funds to treat forested State Trust Lands that are present within or in proximity to Wildland Urban Interface (WUI) areas or Forest Action Plan (FAP) priority areas. DNRC would utilize precommercial thinning to manage stand density, increase stand vigor, and in some instances, promote desired species compositions to achieve goals and objectives outlined in the State Forest Land Management Plan.

Proposed activities include:

Action	Quantity
Proposed Harvest Activities	# Acres
Clearcut	0.0
Seed Tree	0.0
Shelterwood	0.0
Selection	0.0
Old Growth Maintenance/Restoration	0.0
Commercial Thinning	0.0
Salvage	0.0
Total Commercial Treatment Acres	**0.0**
Proposed Forest Improvement Treatment	# Acres
Pre-commercial Thinning	**8,772**
Site preparation/scarification	**0.0**
Planting	
Proposed Road Activities	# Miles
New permanent road construction	0.0
New temporary road construction	0.0
Road maintenance	0.0
Road reconstruction	0.0
Road abandoned	0.0
Road reclaimed	0.0
Other Activities	

Duration of Activities:	2 years
Implementation Period:	Summer 2024 – Summer 2026

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)
- Applicable conservation easements covering the project area lands:
  - Swan River CE – Montana FWP
  - West Swan Valley – Montana FWP
  - North Swan Valley – Montana FWP
- and all other applicable state and federal laws.

Project Development

SCOPING:

- DATE:
  - December 13, 2023 – January 25, 2024
- PUBLIC SCOPED:
  - The scoping notice was posted on the DNRC Website: https://dnrc.mt.gov/News/scoping-notices
  - The scoping notice was emailed Statewide, Stillwater, Swan, Plains, Libby, Kalispell, Missoula and Clearwater Unit scoping lists via GovDelivery
- AGENCIES SCOPED:
  - Montana Department of Fish, Wildlife & Parks
  - Montana Tribal Agencies
  - Bureau of Land Management
  - United States Forest Service
- COMMENTS RECEIVED:
  - How many: Comments were received from six individuals/organizations in the form of emails, mailed letters and phone calls.
  - Concerns: Three comments from Bureau of Land Management, Lincoln Electric Cooperative and a representative from Powell County provided general support for the project. One comment from Montana Department of Fish & Wildlife (FWP) expressed concern about wildlife species and encouraged communication between FWP and DNRC during project development. Two comments from nonprofit organizations expressed concerns about wildlife, fisheries, vegetation, recreation, slash, weeds, roads and public participation.
  - Results (how were concerns addressed): DNRC acknowledged receipt of written comments and discussed comments that were verbally submitted over the phone. All scoping comments were considered by the ID team during the project development process. DNRC developed analysis issues from substantive public comments, which are analyzed in the following document.

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

INTERDISCIPLINARY TEAM (ID):

- Forest Management Planner: Emilia Grzesik (Project Leader)
- Archeologist: Patrick Rennie
- Wildlife Biologist: Chris Forristal
- Hydrologist: Jeff Schmalenberg
- Soil Scientist: Jeff Schmalenberg
- Fisheries Biologist: Mike Anderson
- Silviculturist: Tim Spoelma

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 Fish Wildlife and Parks (FWP) conservation easement land steward Grant Bronk was consulted to ensure compliance with the conservation easement. FWP biologists Jay Kolbe and Kristi Dubious were also consulted during pre-harvest planning. A management plan for the Blackfoot Clearwater Game Range was developed as part of the conservation easement. This management plan outlines procedures and protocol for project planning and implementation. The DNRC followed all commitments outlined in the management plan when designing the project. FWP representatives and the ID team leader worked closely during project development to ensure the conservation easement and management plan were being adhered to.

ALTERNATIVES CONSIDERED:

No-Action Alternative: Under this alternative, no precommercial thinning treatments would occur. Wildfire risk in areas within or in proximity to WUI and FAP priority areas would not change. Forest stand density, vigor and species composition would not change.

Action Alternative: Precommercial thinning treatments would occur on approximately 8,772 acres of forested Trust Lands to decrease risk of wildfire, decrease stand density, increase stand vigor and, in some instances, promote desired species composition. PCT treatments would be largely accomplished using hand thinning methods, with minor mechanical thinning (~6% of the project area).

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: Project scoping identified eight issues, listed below, related to potential effects on vegetation from this project.

1. The proposed project may affect forest habitat types and species compositions.
2. The proposed project may affect stand age classes through tree removal.
3. The proposed project may affect forest stand vigor through tree removal.
4. The proposed project may affect stand structure through tree removal.
5. The proposed project may reduce the risk of wildfire in treated areas.
6. The proposed project may result in slash piles that may be burned.
7. The proposed project may affect sensitive plants, including whitebark pine.
8. The proposed project may increase the amount and spread of invasive weeds.

The proposed project area encompasses 60,980 acres, of which 59,790 acres are forested. Direct and indirect effects were analyzed at the scale of the proposed treatment units and cumulative effects were analyzed at the scale of the project area.

Forest Habitat Types and Species Composition:

Forest habitat type classification systems describe repeated patterns of similar site conditions and vegetation communities that exist across the landscape and can be used to describe potential patterns of plant succession, site productivity, and to inform management decisions. Pfister *et al*. (1977) developed a widely used forest habitat type classification system for Montana, and DNRC's Stand Level Inventory (SLI) includes the habitat type classification for stands that have been inventoried using walkthrough methods. Green *et al.* (1992) grouped the habitat types described by Pfister *et al.* (1977) according to temperature/moisture regimes, such as warm and dry or cool and moist. Table V-1 shows the acreage by habitat type group within the project area and proposed treatment units. Vegetation Analysis Attachment Table 1 lists the specific habitat types and their acreage within the project area and proposed treatment units.

Table V-1: Forest habitat type groups within the project area and proposed treatment units.

Habitat Type Group	Project Area Acres	Treatment Unit Acres
2 – Warm and Dry	299	53
4 – Moderately Warm and Dry	13,619	2,543
5 – Moderately Cool and Dry	1,820	178
6 – Warm and Moist	18,131	2,084
7 – Cool and Moist	14,487	1,848
8 – Wet	531	0
9 – Moderately Cool and Moist	2,849	569
10 - Cool and Moderately Dry	7,920	1,496
11 – Cold and Moderately Dry	134	0
Total	59,790	8,772

Within both the project area and proposed treatment units, the most common habitat type groups are Group 6 – Warm and Moist, Group 4 – Warm and Moderately Dry, Group 7 – Cool and Moist, and Group 10 – Cool and Moderately Dry. Group 6 – Warm and Moist includes most habitat types in the grand fir (ABGR), western redcedar (THPL), and western hemlock (TSHE) habitat type series, such as grand fir/queencup beadlily (ABGR/CLUN), western redcedar/queencup beadlily (THPL/CLUN), western hemlock/queencup beadlily (TSHE/CLUN), and associated phases of those habitat types. Group 4 – Warm and Moderately Dry includes habitat types in the Douglas-fir (PSME) series that occur on comparatively warm and dry sites, such as Douglas-fir/dwarf huckleberry (PSME/VACA), Douglas-fir/ninebark (PSME/PHMA), Douglas-fir/snowberry (PSME/SYAL), Douglas-fir/pinegrass (PSME/CARU) and associated phases of those habitat types. Group 7 – Cool and Moist includes subalpine fir (ABLA) and spruce (PICEA) habitat types found at low-to-mid elevations on cool aspects (north and east), including subalpine fir/queencup beadlily (ABLA/CLUN), subalpine fir/twinflower (ABLA/LIBO), subalpine fir/menziesia (ABLA/MEFE), spruce/queencup beadlily (PICEA/CLUN), and associated phases of those types. Group 10 – Cool and Moderately Dry includes subalpine fir and spruce sites comparatively dryer sites that are typically approaching the lower limit of the upper subalpine zone, such as subalpine fir/beargrass (ABLA/XETE), subalpine fir/dwarf huckleberry (ABLA/VACA), spruce/dwarf huckleberry (PICEA/VACA), and associated phases of those types.

Current forest types in terms of species composition within the project area and proposed treatment units are described in Table V-2. The current forest types can be directly compared to the desired cover type for a given stand determined by DNRC's site-specific model (ARM 36.11.405). As shown in Table V-2, the mixed conifer, subalpine, Douglas-fir, and lodgepole pine cover types are currently over-represented in both the project area and proposed units, while the western larch/Douglas-fir, western white pine, and ponderosa pine cover types are currently under-represented compared to desired cover types.

Table V-2: Current cover types and desired future conditions in the project area and proposed treatment units.

	Project Area			Proposed Treatment Units		
Forest Type	**Current**	**Desired**	**Difference**	**Current**	**Desired**	**Difference**
Douglas-fir	7,559	3,747	3,812	832	536	296
Hardwoods	77	175	(98)	18	3	15
Lodgepole pine	8,880	6,242	2,638	1,855	888	967
Mixed conifer	15,571	3,277	12,293	1,614	441	1,172
Non-stocked	528	0	528	4	0	4
Ponderosa pine	7,089	9,980	(2,891)	1,558	2,074	(516)
Subalpine	5,572	1,764	3,808	730	366	364
Western larch/ Douglas-fir	12,501	25,217	(12,715)	1,620	3,319	(1,699)
Western white pine	2,014	9,388	(7,374)	541	1,144	(602)
Total	59,790	59,790		8,772	8,772	

Age Classes:

DNRC assigns age class based on the dominant canopy layer in terms of percentage of canopy cover. Age classes within the project area and proposed treatment units are shown in Table V-3. The proposed treatments focus on younger age classes, with 77% of the proposed treatment acres in the seedling/sapling (0-39) and poletimber (40-99) age classes. Treatment is proposed in 4 acres of old growth that is composed of small portions of old growth stands adjacent to larger stands in younger age classes that are proposed for treatment.

Table V-3: Age class within the project area and proposed treatment units.

	Project Area		Proposed Treatment Units	
Age Class	**Acres**	**Percent**	**Acres**	**Percent**
0-39	14,261	24	4,492	51
40-99	22,431	38	2,252	26
140-149	14,490	24	1,623	19
150-199	4,823	8	323	4
200+	723	1	77	1
Old growth	3,062	5	4	0
Total	59,790	100	8,772	100

Stand Vigor:

Stand vigor is a qualitative assessment of stand health relative to growth potential, and is influenced by factors including stand density, age, insects and disease, and environmental factors such as drought. DNRC categorizes stand vigor in four categories:

1- Full vigor: individual trees have adequate growing space with full crowns, and tree growth is not impeded.
2- Good to average: individual trees are competing for resources but still have good crown form and growth.
3- Below average to poor: characterized by reduced growth, trees with poor crown form and ratio, and competition-induced mortality (stem exclusion) within the stand.
4- Poor: stand-level growth has stagnated, with individual trees affected by suppression or severely impacted by insects, disease, or environmental factors.

Table V-4 shows stand vigor classification within the project area and proposed treatment units. Within both the project area and proposed treatment units, most stands are classified in the full or good to average vigor classes.

Table V-4: Stand vigor classification in the project area and proposed treatment units.

	Project Area		Proposed Treatment Units	
Vigor Class	**Acres**	**Percent**	**Acres**	**Percent**
1-Full	8,434	14	3,000	34
2-Good to average	42,543	71	4,968	57
3-Below average to poor	7,546	13	719	8
4-Poor	338	1	77	1
Unclassified	930	2	7	0
Total	59,790	100	77	100

Stand Structure:

Stand structure refers to the number of distinct canopy layers present in a stand and is described by three classes: single-storied, two-storied, and mulit-storied. Single-storied stands are composed of one canopy layer and are typical of even-aged stands. Two-storied stands have two distinct canopy layers that are indicative of two separate age classes within the stand, usually where regeneration has established under a dominant overstory canopy layer. Multi-storied stands have at least three distinct canopy layers and are indicative of uneven-aged stands and complex vertical canopy structure. Table V-5 shows stand structure categories within the project area and proposed treatment units.

Table V-5: Stand structure classification in the project area and proposed treatment units.

	Project Area		Proposed Treatment Units	
Structure Class	**Acres**	**Percent**	**Acres**	**Percent**
1-Single-storied	12,362	21	2,711	31
2-Two-storied	9,915	17	1,581	18
3-Multi-storied	36,594	61	4,474	51
4-Unclassified	919	2	5	0
Total	59,970	100	8,772	100

Fire Hazard/Fuels:

Natural fire regimes in the project area range from frequent, low-severity fires on warm and dry habitat type groups (habitat type groups 2, 4 and 5) to mixed severity on cool or moist habitat type groups (habitat type groups 6-11). Risk of stand-replacing fires within the proposed treatment units is increased due to high tree density that ranges from 500 to over 7,500 trees per acre and presence of continuous canopy fuels associated with high tree density. Ladder fuels are present in stands where multiple canopy layers are present, leading to increased risk of crown fire. Ground fuels are variable but generally occur at low levels and are not continuous due to effects of past timber harvesting or wildfire. 3,456 acres of the proposed treatment units are within the Wildland/Urban Interface (WUI) as defined by county Community Wildfire Protection Plans (CWPP), and an additional 3,459 acres are within one mile of WUI areas.

Sensitive/Rare Plants:

DNRC's Stand Level Inventory (SLI) and the Montana Natural Heritage Program *(*MTNHP*)* were used to identify the potential presence of plant Species of Concern, including threatened, endangered, or sensitive plant species, in the project area. Species of Concern are native species that are considered at risk of extirpation in Montana due to declining populations, threats to their habitats, restricted distribution, or other factors. Designation as a Montana Species of Concern is not a statutory or regulatory classification (MTNHP 2024). Results of this search were compared to the location of proposed treatment units for potential direct and indirect impacts and to assess the need for protective mitigation measures.

MTNHP data queried in April 2024 identified 30 Species of Concern and 7 Potential Species of Concern with potential presence in the project area (see Vegetation Analysis Attachment Table 3 for a full list of species*)*. Of those, 10 species are potentially present within the proposed treatment units, and one species, whitebark pine, has verified presence within one proposed treatment unit.

Noxious Weeds:

Noxious weeds, including spotted knapweed (*Centaurea mauclosa*), yellow hawkweed (*Hieracium caespitosum*), orange hawkweed (*Hieracium aurantiacum*), Canada thistle (*Cirsium arvense*), Bull thistle (*Cirsium vulgare*), oxeye daisy (*Chrysanthemum leucanthemum*), and common St. John's-wort (*Hypericum perforatum*), among others, are present within the project area. These weeds are most often present along roads and landings from previous timber sales within the project area, but also occur less frequently and with limited distribution within the proposed treatment units.

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**					
Tree/Stand Vigor	**X**				**X**				**X**					
Stand Structure	**X**				**X**				**X**					
Fire/Fuels	**X**				**X**				**X**					
Sensitive/Rare Plants	**X**				**X**				**X**					
Noxious Weeds	**X**				**X**				**X**					
Action														
Current Cover/DFCs			**X**				**X**			**X**				**1,2,9**
Age Class	**X**				**X**					**X**				**3,9**
Old Growth	**X**				**X**				**X**					**3,9**
Tree/Stand Vigor		**X**				**X**				**X**				**4,9**
Stand Structure	**X**				**X**				**X**					**5,9**
Fire/Fuels			**X**			**X**				**X**				**6,9**
Sensitive/Rare Plants	**X**				**X**				**X**					**7,9**
Noxious Weeds		**X**				**X**				**X**				**8,9**

Comments:

1. Forest habitat types describe the potential vegetation community that could develop on a given site in the absence of disturbance. Because the habitat type describes a potential stable, climax vegetation community, habitat types do not change following disturbance, including forest management activities (Pfister *et al.* 1977).

2. Treatment would alter species composition, favoring shade-intolerant, early seral species such as western white pine, western larch, ponderosa pine, Douglas-fir, and lodgepole pine in most treatment units. As a result, forest cover types are expected to trend toward desired cover types on 48% of the treated acres, while desired cover types would be maintained and remain unchanged on 52% of the treated acres. See Vegetation Analysis Attachment Table 2 for a detailed summary of expected changes to forest cover types within proposed treatment units.

3. The determination of age class is based on the dominant overstory layer in the stand. Tree removal associated with this project will reduce tree density but maintain the existing canopy structure; as a result, no changes in age class, including old growth, are expected from this project.

4. Reduction of stand density within the proposed treatment units is expected to increase both individual tree growth and overall stand vigor (Moreau *et al.* 2022, del Río Gaztelurrutia *et al.* 2017). Stands currently classified as good to average vigor are expected to increase to full vigor and stands currently classified as below average vigor are expected to increase to good to average vigor. Overall, 91% of treated acres would be expected to attain full vigor, and 8% would have good to average vigor following treatment. Stands currently classified as poor vigor may see a modest increase in vigor but are expected to remain below average due to effects of suppressed or stagnant growth.

5. The proposed treatments are not expected to alter stand structure in terms of the presence of canopy layers that currently exist within treated stands. Treatments in single-storied stands will maintain a single-storied canopy structure, with reduced tree density and increased spacing between trees. Treatments within two-storied stands would maintain a two-storied canopy structure with reduced tree density and increased tree spacing in the lower canopy layer. Treatments in multi-storied stands would maintain presence of all canopy levels, with reduced tree density and increased tree spacing in the lower and mid-canopy levels.

6. The proposed treatments would alter the amount and distribution of canopy and surface fuels in the project area, including on 6,915 acres (78% of the proposed acres) that are within the WUI or within one mile of the WUI.

   Tree density would be reduced to 222 (14 x 14 foot spacing) to 303 trees per acre (12 x 12 foot spacing) in most treatment units, resulting in decreased canopy fuel continuity and decreased potential for spread of fire from tree to tree (Piqué *et al.* 2022, Peterson *et al.* 2005). Reduction in tree density would also decrease the amount of ladder fuels, especially in multi-storied stands, resulting in reduced likelihood of transmission of surface fire to tree crowns (Johnson *et al.* 2007).

   Slash treatment and disposal is essential to fully realize the positive impacts of thinning and reduced tree density on fire hazard and potential behavior (Piqué *et al.* 2022, Morici *et al.* 2021, Fulé *et al.* 2001, Graham *et al.* 1999, Agee 1993, Alexander 1988, Alexander and Yancik 1977). Trees in treated stands that have low amounts of surface fuels have higher tree survival in the event of subsequent wildfire than untreated stands (Prichard *et al.* 2010, Stephens et a. 2009, Ritchie *et al.* 2007) or treated stands where slash was not treated (Leverkus *et al.* 2021, Raymond *et al.* 2005, Weatherspoon and Skinner 1995). In the proposed treatment units, slash will be lopped and scattered, hand piled and burned, or masticated to comply with the requirements of Montana's administrative rules for slash hazard reduction (ARM 36.11.221-232). High standard reduction requirements would be implemented where treatment unit boundaries coincide with changes in land ownership or near residences, campgrounds, or other infrastructure such as communications structures or powerlines (ARM 36.11.223-226). In all cases, expected surface flame lengths would be less than four feet in accordance with the general standard for slash reduction (ARM 36.11.223). Hand piling and burning or mastication would provide a higher level of surface fuel reduction than lop and scatter treatments. In

areas where slash is lopped and scattered, material is typically compressed following one winter and fine branches and needles begin to decompose and incorporate into the forest floor (Schnepf, no date). After 6 years, lopped and scattered slash is expected to return to pre-treatment levels (Morici *et al.* 2021, Vaillant *et al.* 2015).

7. Whitebark pine, a federally listed threatened species under the Endangered Species Act that occurs in upper subalpine and timberline forest habitats, is present within one proposed treatment unit. Forest management activities can be beneficial for whitebark pine and aid in its recovery (US Department of the Interior); however, no whitebark pine will be commercially harvested under this project and individual whitebark pine trees encountered in the project area will be protected to the greatest possible extent during activities associated with this project. Any previously unknown whitebark pine stands will be reported according to ARM 36.11.428(3).

   No other plant Species of Concern have been observed in any of the proposed treatment units, and of those potentially present in the project area or proposed treatment units, most occur in wetland habitats where forest management activities are not proposed or are unlikely to occur.

8. Opportunities for continued spread or establishment of noxious weeds from this project would be limited because of minimal ground disturbance caused by hand thinning operations and the lack of road building associated with this project. Treatment units where mechanical equipment is used to accomplish mastication provide the best opportunity for ground disturbance or introduction of weeds from other sites. Integrated weed management measures, including required washing and inspection of mechanized equipment prior to operation would be required to minimize potential spread of noxious weeds. Other ongoing weed management activities conducted by DNRC, such as spot or roadside herbicide application to control existing populations, would continue.

9. Precommercial thinning has been completed on 1,576 acres within the project area since 2015. Other precommercial thinning projects within the project area that are not associated with this project are currently in progress or planned within the next five years on 1,993 acres. In total, precommercial thinning will have occurred on 12,341 acres (20%) of the project area. The effects previously completed, planned, or in-progress precommercial thinning treatments are similar to those expected for this project with regard to impacts on species composition and progress toward desired conditions, age class, stand vigor, stand structure, fire and fuel hazard reduction, sensitive plants, and noxious weeds.

Vegetation Mitigations:

- Protect individual whitebark pine trees encountered in proposed treatment units (“ghost” during thinning operations).
- Document presence and establish and implement measures to protect any plant Species of Concern encountered in proposed treatment units.
- Required washing and inspection of mechanized equipment prior to operations to reduce potential spread of noxious weeds.

SOIL DISTURBANCE AND PRODUCTIVITY:

Soil Disturbance and Productivity Existing Conditions: Soils supporting forest growth in areas proposed for treatment were predominately derived from argillite and quartzite parent material of the Belt Supergroup. Soil texture is commonly a gravelly silt-loam grading from sandy loams to clay loams, dependent on elevation and aspect. Soil compaction, displacement and erosion hazard is generally low to moderate if standard forest management best management practices are implemented effectively.

Soil productivity in stands proposed for treatment have moderate to high productivity due to favorable precipitation regimes, productive soils and, in many locations, a volcanic ash cap that holds moisture well throughout the growing season. Site nutrient balances were likely affected in previous commercial forest harvests, but have since been restored through soil biotics, decomposition and mycorrhizal activity as observed by fully stocked and vigorous growing conditions within areas proposed for treatment. All proposed treatments are within past harvest units or areas of wildfire disturbance. Historical detrimental soil disturbance from previous entries is estimated at or slightly above 20% of the area as many forest entries occurred prior to forest management BMP's or direction from the State Forest Land Management Plan.

The proposed actions present no risk to slope instability.

Soil Disturbance and Productivity	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Physical Disturbance (Compaction and Displacement)	**X**				**X**				**X**					
Erosion	**X**				**X**				**X**					
Nutrient Cycling	**X**				**X**				**X**					
Slope Stability	**X**				**X**				**X**					
Soil Productivity	**X**				**X**				**X**					
Action														
Physical Disturbance (Compaction and Displacement)		**X**			**X**					**X**			**Y**	**S-1**
Erosion	**X**				**X**				**X**					**S-2**
Nutrient Cycling	**X**				**X**				**X**					**S-3**
Slope Stability	**X**				**X**				**X**				**N/A**	
Soil Productivity	**X**				**X**				**X**				**N/A**	**S-4**

Comments:
S-1. Approximately 6% of the total acres (504 acres) proposed for thinning would employ mechanical thinning and/or mastication using small, motorized equipment. On these acres, the potential for compaction and displacement exists, though the equipment used typically has much lower ground pressure then traditional commercial harvest equipment. As a result, there

is a low risk of direct effects to soil physical properties. All other acres proposed for treatment would use hand-thinning methods, resulting in no potential for soil disturbance.

S-2. Erosion potential from in-woods operations where motorized, tracked equipment would be used (6% of treatment area) has a low probability of surface erosion due to type of equipment that would be used, implementation of BMP's and contract specific mitigation measures listed below.

S-3. Most slash treatments would use lopped and scattered and, to a lesser degree, mastication methods. These methods would retain all foliar nutrients on site. In some instances where slash hazard laws would not be met with these treatment methods or adjacent to private property boundaries, hand piling and burning would occur. All of these slash disposal methods would have unmeasurable effects to available soil nutrients.

S-4. Soil productivity was likely reduced in areas proposed for treatment as a result from the initial commercial entry or stand replacement fire event. These effects have since been ameliorated through time as a result of freeze-thaw processes, soil biologic activity and natural regeneration. The proposed activity will have no measurable negative effect on soil productivity.

Soil Mitigations:

1. Limit equipment operations to periods when soils are relatively dry, (less than 20 percent oven-dried weight), frozen, or snow-covered to minimize soil compaction and rutting and maintain drainage features. Check soil moisture conditions prior to equipment start-up.
2. The contractor and forest officer would agree to a general equipment operations plan prior to operations. Locations of equipment operations and/or restrictions would be identified. Existing skid 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 provide control erosion as needed.
3. Implementation of all Administrative Rules for Forest Management

WATER QUALITY AND QUANTITY:

Water Quality and Quantity Existing Conditions: The proposed actions encompass 42 separate 6th code watersheds throughout northwest and west-central Montana. Waters in project area watershed classified as B-1. Waters classified B-1 are to be maintained suitable for drinking, culinary, and food processing purposes, after conventional treatment; bathing, swimming, and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply. Road inventory has been completed on 97% of the roads in project area watersheds (Hydrology Attachment) with 90% of the roads meeting Best Management Practices for Forestry. Approximately 5% of the existing crossing structures (perennial, intermittent, ephemeral and road ditch relief culverts) inventoried present a moderate or high risk of sediment delivery. Road inventory information

suggests a high probability of low level existing cumulative effects to water quality from sediment delivery to surface waters from forest road networks in project area watersheds.

Flow regimes within these watersheds are likely within the natural range of variability considering the dominate natural disturbance regimes in western Montana and levels of historic forest cover (Losensky,1997). Watershed canopy cover has likely vacuolated over the past 200 years as forests experience stand replacement fire events and subsequent regeneration. Stand density in areas of proposed treatment is currently well to overstocked with transpiration likely accounting for a higher proportion of the water balance then historical condition.

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**			**N/A**	**H-1**
Water Quantity	**X**				**X**				**X**				**N/A**	
Action														
Water Quality	**X**				**X**					**X**			**N/A**	**H-1**
Water Quantity	**X**					**X**			**X**				**N/A**	**H-2**

Comments:
H-1. No road construction, reconstruction or maintenance is proposed under the action alternative. Road use typically associated with administrative access use would be expected to implement proposed treatments. This would consist of light weight passenger trucks and vans over a period of 2-3 weeks for each project area. No additional sediment delivery from forest roads would be expected over the low-level effects described in the existing conditions. Application of corrective actions to address sediment delivery from road surfaces and stream crossings is ongoing and driven by commitments and timelines from DNRC Forest Management HCP (DNRC 2012).

H-2. Measurable increases to soil water availability would be expected as a result of decreasing tree density in proposed treatment units and subsequent reductions in transpiration. Canopy interception would be reduced resulting in reduced snow sublimation. No effects to streamflow or hydrograph timing would be expected due to the dispersed nature of treatment units over 42 watersheds and total acres treated in any given watershed.

Water Quality & Quantity Mitigations:
1. Implement all applicable Best Management Practices for Forest Management.
2. Implement all applicable Administrative Rules for Forest Management.
3. Implement all applicable Streamside Management Zones laws.
4. Apply all applicable conservation commitments within Montana's Forest Management Habitat Conservation Plan.

FISHERIES:

Introduction: The proposed activities under consideration in this analysis include pre-commercial thinning on 8,772 acres of DNRC-Trust Lands. During project scoping, two comments were received related to the potential environmental effects of the proposed project.

1. The proposed project may affect fisheries or fisheries habitat.
2. The proposed project may affect riparian areas, which may directly or indirectly impact fisheries habitat.

Fisheries Existing Conditions:
Project area watersheds and federally listed endangered or threatened, and state species of concern are found in Table FS-1. The proposed project area includes 41 fish bearing watersheds (6th HUC) in six counties in western Montana. The fisheries analysis will focus on Bull (*Salvelinus confluentus*), Westslope cutthroat (*Oncorhynchus clarkii lewisii*) and Columbia Basin redband (*O. mykiss gairdnerii*) trout and habitat. While other fish species are present in the project area (MFISH 2024), anticipated impacts of the proposed project would impact other species similarly, and all proposed mitigations would apply to this project in the same manner regardless of the species present. Considerable overlap between native and introduced species occurs in the project area.

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			Y	FS-1
Flow Regimes	X				X				X					
Woody Debris	X				X				X					FS-2
Stream Shading	X				X				X					FS-2
Stream Temperature	X				X				X					FS-2
Connectivity				X								X	Y	FS-3
Populations				X								X	N	FS-4
Action														
Sediment	X				X					X			Y	FS-5
Flow Regimes	X				X				X					FS-6
Woody Debris	X				X				X					FS-6
Stream Shading	X				X				X					FS-6
Stream Temperature	X				X				X					FS-6
Connectivity	X				X							X	Y	FS-3
Populations	X				X							X	N	FS-4

Comments:
FS-1: Road inventory has been completed on the majority of project area streams during the last 10 years as a part of the HCP. Known sediment sources are present in 12 of the project area watersheds (DNRC 2024). Application of corrective actions to address sediment delivery

from road surfaces and stream crossings is ongoing and driven by commitments and timelines from the HCP (DNRC 2012).

FS-2: While previous timber management has occurred in all project area watersheds, the current conditions of flow regime, stream shade, stream temperature, and large woody debris loading rates are likely within the range of historic conditions observed in natural watersheds subject to natural levels of disturbance (DNRC 1996).

FS-3: Fisheries connectivity is impaired by existing stream crossings in 13 project area watersheds (DNRC 2024). No existing crossings limit connectivity in Bull trout watersheds. All crossings are on Westslope cutthroat or Columbia River redband trout streams. Implementation of the HCP conservation strategy focused on improving connectivity would continue to occur under either the No-Action or Action Alternative. Existing high-level impacts to connectivity would continue to occur until stream crossings are replaced or removed under timelines established under the HCP (DNRC 2012).

FS-4: Significant overlap between native and introduced fish species occurs throughout the project areas. No introduction, suppression, or removal of native or introduced fish would occur as a result of implementation of this project. Existing high impacts of introduced species on native fish species including competition, displacement, predation, and hybridization would continue to occur with selection of either the No-Action Alternative or the Action Alternative.

FS-5: Selection of the Action Alternative would not elevate Sediment Delivery from existing levels. Access to proposed PCT units would be on existing open- and restricted-access forest roads, largely in light duty vehicles transporting hand crews. No equipment operation would occur in the RMZ. Low level cumulative impacts would continue to occur at sediment delivery locations until corrective actions are applied under the HCP.

FS-6: Some thinning would occur in the RMZ along Class 1 streams in 21 of the project area watersheds (Table FS-2). Target stand characteristics following thinning would promote focal species growth, with fully mature target stand condition being a nearly closed canopy, providing shade, recruitment of large woody debris, and moderating stream temperatures. Short-term impacts to flow regime, stream shade, stream temperature, and large woody debris are unlikely to occur under selection of the No-Action or Action Alternative. Long-term benefits may occur as a result of increased individual tree growth due to reduction in competition and increased individual tree vigor (See Vegetation Analysis for detail).

WILDLIFE:

Wildlife Existing Conditions: Direct and Secondary impacts were analyzed within the Wildlife Analysis Area (hereafter WAA). The 169,771-acre WAA is comprised of DNRC-managed parcels containing proposed thinning units plus the Swan, Coal Creek, Stillwater West and East Lynx Management Areas. Approximately 99% of these lands are included in DNRC's Habitat Conservation Plan (USFWS and DNRC 2010). Wildlife habitat is diverse withing the WAA, ranging from treeless alpine terrain to wet mesic forest to dry ponderosa pine sites interspersed with open meadows. Human use of and influence on wildlife habitat is similarly diverse, with some areas containing major highways and human developments whereas other areas are remote and have little to no human presence. Roads, particularly open (unrestricted) roads can

disturb or displace some wildlife species. Road densities within the WAA are described in Table W-2. Public, non-motorized recreational use of the WAA is low to moderate, and likely increases during the big game hunting season.

Although the WAA contains a wide range of wildlife habitat, precommercial thinning (PCT) treatments are typically focused on forested stands in young age classes dominated by densely stocked seedling to pole sized trees ranging from 4 to 20 feet tall. Increasing density of trees in stands can begin to exclude larger wildlife species due to the difficulty and danger of movement. In contrast, some smaller species (e.g. snowshoe hare) can utilize these forest conditions for shelter, food and protection. PCT treatments aim to increase the growth and vigor of healthy trees by reducing competition while still maintaining stocking levels of 222 to 302 trees per acre. In addition to increased growth, the risk of habitat loss or conversion by stand-replacement wildfire is reduced in treated stands (Piqué *et al.* 2022, Peterson *et al.* 2005).

Cumulative effects analysis areas (CEAA) include lands encompassing the WAA parcels and are large enough to consider annual movements of animals that travel across sizeable areas such as grizzly bears and big game. Primary land uses in the CEAAs are commercial timber harvest, outdoor recreation and ranching. Additional information on cumulative effects analysis areas and analysis methods are available upon request.

No-Action: None of the proposed activities would occur. In the short-term, no changes to the amounts, quality, or spatial arrangement of forested habitat would occur. In the long-term, habitat suitability for forest-associated species would remain similar 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**	**WL-1**
Lynx (*Felis lynx*) Habitat: SF hab.types, dense sapling, old forest, deep snow zone			**X**				**X**			**X**			**Y**	**WL-2**
Yellow-billed cuckoo (*Coccyzus americanus*) Habitat: open cottonwood riparian forest with dense brush understories (Lake and Flathead counties)	**X**				**X**				**X**					**WL-3**

Wildlife	Impact												Can Impact be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Wolverine (*Gulo gulo*) Habitat: high elevation areas that retain high snow levels in late spring		**X**			**X**				**X**				**Y**	**WL-4**
Sensitive Species														
Bald eagle *(Haliaeetus leucocephalus)* Habitat: Late-successional forest within 1 mile of open water		**X**				**X**			**X**					**WL-5**
Black-backed woodpecker *(Picoides arcticus)* Habitat: Mature to old burned or beetle-infested forest	**X**				**X**				**X**					**WL-3**
Common loon *(Gavia immer)* Habitat: Cold mountain lakes, nest in emergent vegetation	**X**				**X**				**X**					**WL-3**
Fisher *(Martes pennanti)* Habitat: Dense mature to old forest less than 6,000 feet in elevation and riparian		**X**				**X**				**X**			**Y**	**WL-6**
Flammulated owl *(Otus flammeolus)* Habitat: Late-successional ponderosa pine and Douglas-fir forest		**X**				**X**			**X**				**Y**	**WL-7**
Peregrine falcon *(Falco peregrinus)* Habitat: Cliff features near open foraging areas and/or wetlands	**X**				**X**				**X**					**WL-3**
Pileated woodpecker *(Dryocopus pileatus)*		**X**				**X**			**X**				**Y**	**WL-8**

Wildlife	Impact												Can Impact be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Habitat: Late-successional ponderosa pine and larch-fir forest														
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**					**WL-9**
Hoary bat (*Lasiurus cinereus*) Habitat: coniferous and deciduous forests and roost on foliage in trees, under bark, in snags, bridges		**X**				**X**			**X**				**Y**	**WL-9**
Townsend's big-eared bat *(Plecotus townsendii)* Habitat: Caves, caverns, old mines	**X**				**X**				**X**					**WL-3**
Big Game Species														
Elk		**X**				**X**				**X**			**Y**	**WL-10**
Whitetail		**X**				**X**				**X**			**Y**	**WL-10**
Mule Deer		**X**				**X**				**X**			**Y**	**WL-10**
Other														

Comments:

WL-1 Grizzly bear – The WAA contains 148,727 acres of grizzly bear recovery habitat and 2,917 acres in non-recovery occupied habitat (*USFWS 1993, Wittinger 2002*). Nearly all of these acres are part of the Northern Continental Divide Ecosystem (NCDE), except for 640 acres within non-recovery occupied habitat associated with the Cabinet Yaak Ecosystem (CYE). Grizzly bear hiding cover would be altered by the proposed precommercial thinning on approximately 3,974 acres within grizzly bear recovery habitat and 786 acres within non-recovery occupied habitat, or 4,760 acres in total (5.7% of hiding cover in the WAA). However, PCT treatments do not remove hiding cover as residual tree densities continue to provide adequate cover. No new roads would be constructed. Motorized use of existing open, temporary and restricted roads within the Project Area would increase short-term during project implementation. Existing restricted roads would remain restricted with gates or berms. Current road densities are enumerated in Table W-2. 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. Proposed thinning units are spread across a broad geographic area and average 54 acres in size; potential displacement would be expected to be short-term and localized. Any grizzly bears using the immediate area near thinning units could be temporarily displaced by the proposed activities and associated disturbance for up to 1 month per unit. Spring timing restrictions would be applied from April 1 – June 15 (or June 30 in some parts of the Stillwater State Forest) to provide security for grizzly bears in the spring. Increased temporary disturbance under the Action Alternative would be additive to recent and ongoing forest management projects. Additional mitigations to minimize human-bear conflicts would be implemented (see *Wildlife Mitigations*). The greatest risks to bears within the CEAA would continue to be human habitations and associated attractants that bring bears into conflict with people.

WL-2. Canada Lynx – Approximately 5,121 acres (4.4%) of existing suitable habitat in the WAA would be impacted by the proposed thinning activities. All of these acres would receive thinning treatments that would reduce some habitat attributes but would overall continue to provide suitable lynx habitat. Anticipated changes in lynx habitat under the Action Alternative are enumerated in Table W-3. Thinning in more densely stocked stands could convert lynx "summer foraging" habitat into "other suitable" lynx habitat (Table W-3). To ensure that forest structural attributes preferred by snowshoe hares remain following harvest, some shade-tolerant tree species would be retained within thinning units. Additionally, coarse woody debris would be preserved in accordance with DNRC Forest Management Rules (*ARM 36.11.414)*. Within lynx management areas (LMAs), deferral areas representing 20% of the acreage proposed for thinning (see Table W-4) would be excluded from any forest management until these stands grow into sawtimber (averaging ≥8" dbh). Lynx habitat connectivity within the WAA would not be measurably affected. The proposed activities could temporarily displace any lynx that might be using the immediate area in or adjacent to thinning units. If present near a PCT unit, lynx could be temporarily displaced by forest management activities for up to 1 month per unit. Disturbance/displacement and habitat alteration by the proposed DNRC activities be additive to past, proposed, and ongoing forest management projects.

WL-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.

WL-4. Wolverine – Potentially suitable wolverine habitat exists within the WAA. Wolverines have been observed in the WAA (Montana Natural Heritage Program data, 6 May 2024, Southwestern Crown Carnivore Monitoring Team 2023) and occasional use of the area by wolverines is possible. Thinning could occur on 354 acres that retain persistent spring snowpack at least four out of seven years (Copeland et al. 2010). No effects to potential denning habitat are anticipated as avalanche chutes and talus are absent from proposed PCT areas. During the non-denning season, minor short-term displacement associated with thinning disturbance could occur if wolverines are in the immediate area. No new roads would be built. Given the large home range area wolverines occupy (average 150 plus square miles), the long distances wolverines typically cover during their movements, lack of denning habitat, and that the proposed activities would not occur between April 1 and June 15 and are unlikely to occur during the winter (most of the wolverine denning season); the proposed activities are not expected to measurably affect use of the area by wolverines. Thus, this species will not be considered further in the analysis. Negligible adverse direct, indirect, or cumulative effects to wolverines would be expected to occur as a result of either Action Alternative.

WL-5. Bald Eagle – Approximately 31 acres of a single proposed thinning unit is within the primary use area of the Lower Stillwater Lake bald eagle nest (*MTNHP 2024, DNRC direct observation*). Use of this nest site by breeding bald eagles has been documented since 2019 (*MTNHP 2024, DNRC direct observation*). The proposed thinning is within the nest site and the primary use area (*ARM 36.11.436(7)*) but 880 feet away at its closest point. To reduce potential adverse impacts on nesting eagles, thinning is prohibited within 330 feet of the nest site and no activities would be permitted from February 1 – August 15 within ½ mile of the nest. A well-used open paved road within 0.2 miles and a large-scale composting facility containing heavy equipment within 0.3 miles of the nest site indicates 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.

WL-6. Fisher – The proposed thinning activities could affect 1,228 acres of potentially suitable fisher habitat (6.9% of suitable fisher habitat available in the WAA). However, as PCT treatments are focused on stands dominated by young trees, most of these acres are likely of low quality to fishers. Fisher habitat would not be removed by thinning treatments targeting small trees. Another 2,712 acres of preferred fisher covertypes would undergo thinning. By increasing growth and health of remaining trees, as well as favoring seral species, thinning treatments could result in stands growing into suitable fisher habitat more quickly. No new roads would be built, and existing restricted roads would continue to be restricted by gates or berms. 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*). Connectivity of suitable fisher habitat would not be appreciably affected by the proposed treatments. However, the likelihood of fishers using much of the WAA is low given the lack of fisher observations in the majority of the area within the last 20 years (*MNHP 2024, Krohner 2022*). Should any fishers be present within the WAA, potential disturbance would be additive to any recent and ongoing forest management projects.

WL-7. Flammulated Owl – The proposed activities could alter up to 2,612 acres of preferred flammulated owl habitat types in the WAA. Many of these acres do not currently exhibit suitable forest structure for use by flammulated owls. Because mature trees are not targeted by PCT prescriptions, flammulated owl habitat would be minimally affected. Increased growth of thinned stands and the favoring of seral species would advance recruitment of future flammulated owl habitat. Snags and snag recruits would not be impacted (*ARM 36.11.411*). Temporary disturbance due to the proposed action could displace flammulated owls in the short term and would be additive to recent and ongoing forest management projects.

WL-8. Pileated Woodpecker – The proposed activities could affect up to 1,040 acres of potentially suitable pileated woodpecker habitat in the WAA. However, all of these acres would remain suitable habitat, because precommercial thinning does not target mature trees. The removal of saplings and small pole-sized trees would not appreciably affect pileated woodpecker habitat. Increased growth of thinned stands and the favoring of seral species would speed development of future pileated woodpecker habitat. Snags, snag recruits, and large woody debris would not be impacted (*ARM 36.11.411*). Pileated woodpeckers are generally tolerant of human activities, but any temporary disturbance due to the proposed action would be additive to recent and ongoing forest management projects.

WL-9 Fringed myotis and Hoary bat – Potential habitat for these two bat species could be affected by the proposed thinning. Fringed myotis utilize a variety of habitats and roost sites including pine and Douglas-fir forests (*Keinath 2004*). Hoary bats typically roost in tree foliage

(*Bachen et al. 2020*). If present in the immediate vicinity of thinning units, they could be temporarily displaced by the activities. Potential disturbance would only be expected from late May through September, when these bats are active in Montana. Snags and large trees that could provide roosting habitat would not be impacted (*ARM 36.11.411*). No known caves or congregations of bats are present in the WAA.

WL-10. Big Game – Portions of the WAA contain winter range for deer, elk and moose (*DFWP 2008*). Hiding cover would be altered by the proposed activities on 7,145 acres (5.7% of hiding cover in the WAA). Sufficient vegetation would be retained on all of these acres to continue providing hiding cover for big game post-harvest. Mature forest stands providing high-quality thermal cover for wintering big game are not typically targeted for PCT prescriptions. Proposed harvest treatments would remove small trees that are not providing appreciable amounts of thermal cover or snow intercept on big game winter range. Increased growth of thinned stands and the favoring of seral species would likely favor big game in the long term by decreasing the amount of time needed for stands to mature and creating more foraging opportunities. No new roads would be built, and existing restricted roads would continue to be restricted by gates or berms. Hiding cover would remain abundant within the WAA and CEAA. Temporary disturbance due to the proposed action would be additive to recent and ongoing forest management projects. Measurable big game population changes at the scale of the CEAA would not be expected under either alternative.

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 motorized precommercial thinning activities more than 100 feet from open roads from April 1 – June 15 or June 30 depending upon location in grizzly bear recovery zones and NROH, referring to the Stillwater Transportation Plan in the Stillwater and Coal Creek State Forests (*USFWS and DNRC 2010*).
- Retain visual screening along open roads in the grizzly bear recovery zone. 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 is recommended.
- Within precommercial thinning units, retain shade-tolerant trees as per LY-HB4 where available and appropriate (*USFWS and DNRC 2010*).
- Prohibit mechanized forest management activities within ¼ mile of the Lower Stillwater Lake bald eagle nest from February 1 – August 15 to protect nesting bald eagles.
- Maintain public motorized restrictions on restricted roads during and after thinning 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 coarse-woody debris according to ARM 36.11.414 and emphasize retention of 15-inch diameter downed logs, aiming for at least one 20-foot-long section per acre LY-HB2 (*USFWS and DNRC 2010*). High-hazard clean up areas are exempt from standard coarse-woody debris retention guidelines.

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**	**1**
Dust		**X**			**X**				**X**					**2**

Comments:

1. Hand-piled slash would be burned on some treatment units and would likely occur during the months of September through November or March through May depending on fuel and weather conditions. None of the proposed treatment units are within air quality impact zones. Burning activities would be short in duration and conducted when conditions favor good to excellent ventilation and smoke dispersion as determined and approved by *DEQ,* the smoke monitoring unit of the *Montana/Idaho Airshed Group*, and county air quality programs in Flathead, Lincoln, and Missoula Counties. Burning activities would be done in accordance with DNRC's Major Open Burning Permit issued by DEQ, and would meet *EPA* standards, which would minimize the direct, indirect, and cumulative effects of burning activities.
2. PCT operations at a single site would be short in duration. Dust may be created from driving on portions of native surface roads during summer and fall months. Contract clauses would specify the use of dust abatement or require vehicles to reduce speed if necessary to reduce dust near any affected residences.

Air Quality Mitigations:

- Burning within the project area will be short in duration and will be conducted when conditions favor good to excellent ventilation and smoke dispersion as determined by the Montana Department of Environmental Quality and the Montana/Idaho Airshed Group.
- DNRC will only burn on days approved by the DEQ, Montana/Idaho Airshed Group, and county air quality programs.

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	**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		
Resources of Land, Water, or Energy														
Action														
Historical or Archaeological Sites	**X**				**X**				**X**					**1**
Aesthetics		**X**			**X**				**X**					**2**
Demands on Environmental Resources of Land, Water, or Energy	**X**				**X**				**X**					

Comments:

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.

   Considering the low-impact nature of proposed pre-commercial thinning work, 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.

2. Forested stands proposed for PCT treatment are dense and over-stocked with early seral tree species. The proposed activities would thin out the trees within the stand, creating a more open stand structure. Noise from pre-commercial thinning activities, primarily from the use of chainsaws, would be audible in and around the project area but would be short in duration. Noise from project activities could be expected to be present anytime between July 2024 through to the end of 2025 during the general “work week”.

OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA: *List other studies, plans or projects on these tracts. Determine cumulative impacts likely to occur as a result of current private, state or federal actions in the analysis area, and from future proposed state actions in the analysis area that are under MEPA review (scoped) or permitting review by any state agency.*

- Squeezer Meadows EIS, NWLO/Swan Unit
- Onley North Forest Management Projects, NWLO/Stillwater Unit
- Upper Stillwater Forest Management Projects, NWLO/Stillwater Unit
- Dog Rock Environmental Assessment, NWLO/Stillwater
- Foothills Restoration Environmental Assessment, NWLO/Kalispell

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

Comments: The proposed project would have no impacts on the human population.

Mitigations: N/A

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.*

- The project area was identified based on occurrence within or nearby the wildland urban interface (WUI) and/or within or nearby Montana Forest Action Plan priority areas.

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 or cost.

No Action: The No Action alternative would not utilize any HB 883 funds and would not change future revenue generation to the associated trusts at this time.

Action: The proposed action would utilize funds from House Bill 883 to conduct PCT activities within the project area. Approximately $1,900,500 of the total HB 883 funds allocated to the Trust Lands Forest Management Program would be utilized to implement proposed treatments through third-party contractors. Management of stand density at this time would likely result in a decreased risk of stand stagnation and an increase in stand vigor. As a result, trust beneficiaries would likely realize a return on investment sooner than the no action alternative.

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

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

Environmental Assessment Checklist Prepared By:

Name: Trust Land Management - Forest Management Bureau Staff
(See List of Preparers)
Date: May 17, 2024

Finding

Alternative Selected

After reviewing the project objectives, the project's proposed alternatives, public comment, and resource specific environmental analysis, I have selected to implement the action alternative.

Significance of Potential Impacts

The following information was used to determine the potential for significant impacts:

1. Public scoping comments and issue statements developed from both public comment and resource specialists.
2. Geographic scope and scale of the proposed action including duration, timing and intensity of these actions.
3. Relevant plans, permits, rules and laws
    a. State Forest Land Management Plan
    b. Administrative Rules for Forest Management
    c. Montana DNRC Forested Habitat Conservation Plan
    d. Montana DNRC Incidental Take Permit
    e. Montana House Bill 883
4. Individual resource effects analysis presented in this Environmental Assessment.

After using the information gained from the above listed sources and project considerations, I find that the proposed actions, as presented, do not pose any likelihood of significant impacts.

Need for Further Environmental Analysis

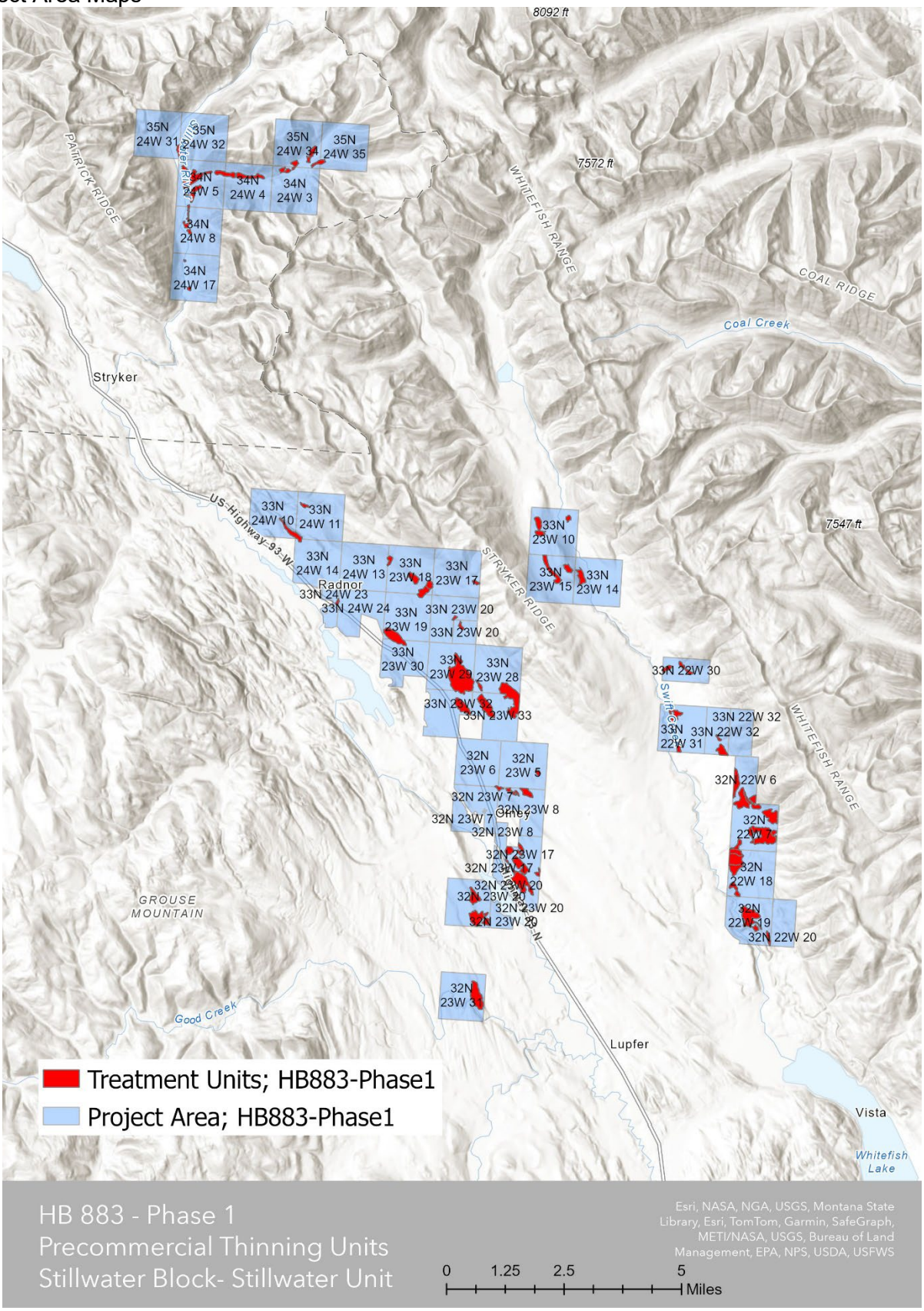
[ ]	EIS	[ ]	More Detailed EA	[X]	No Further Analysis

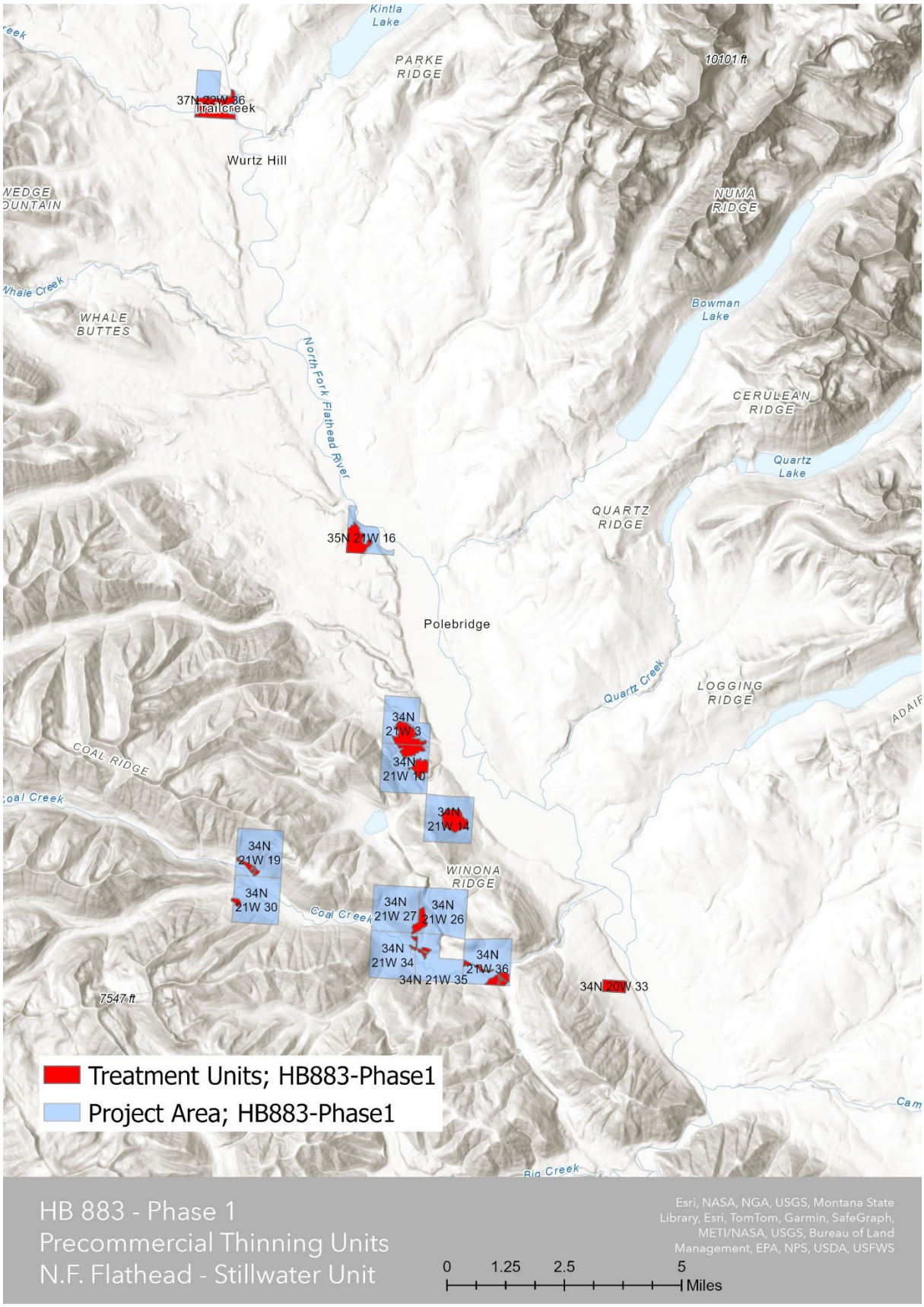
Environmental Assessment Checklist Approved By:

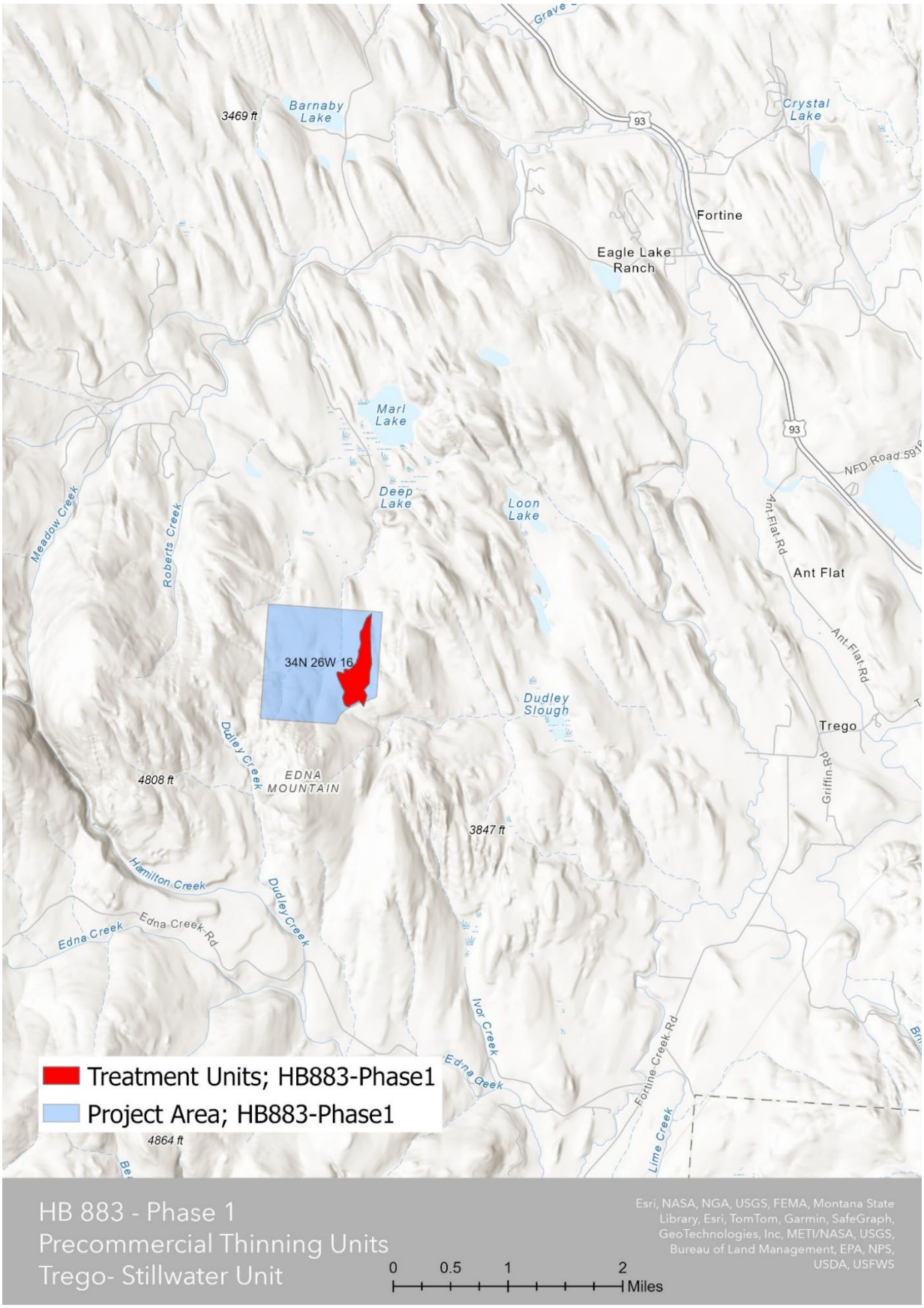
Name: Dan Rogers
Title: Forest Management Bureau Chief
Date: May 17, 2024
Signature: /s/ Dan Rogers

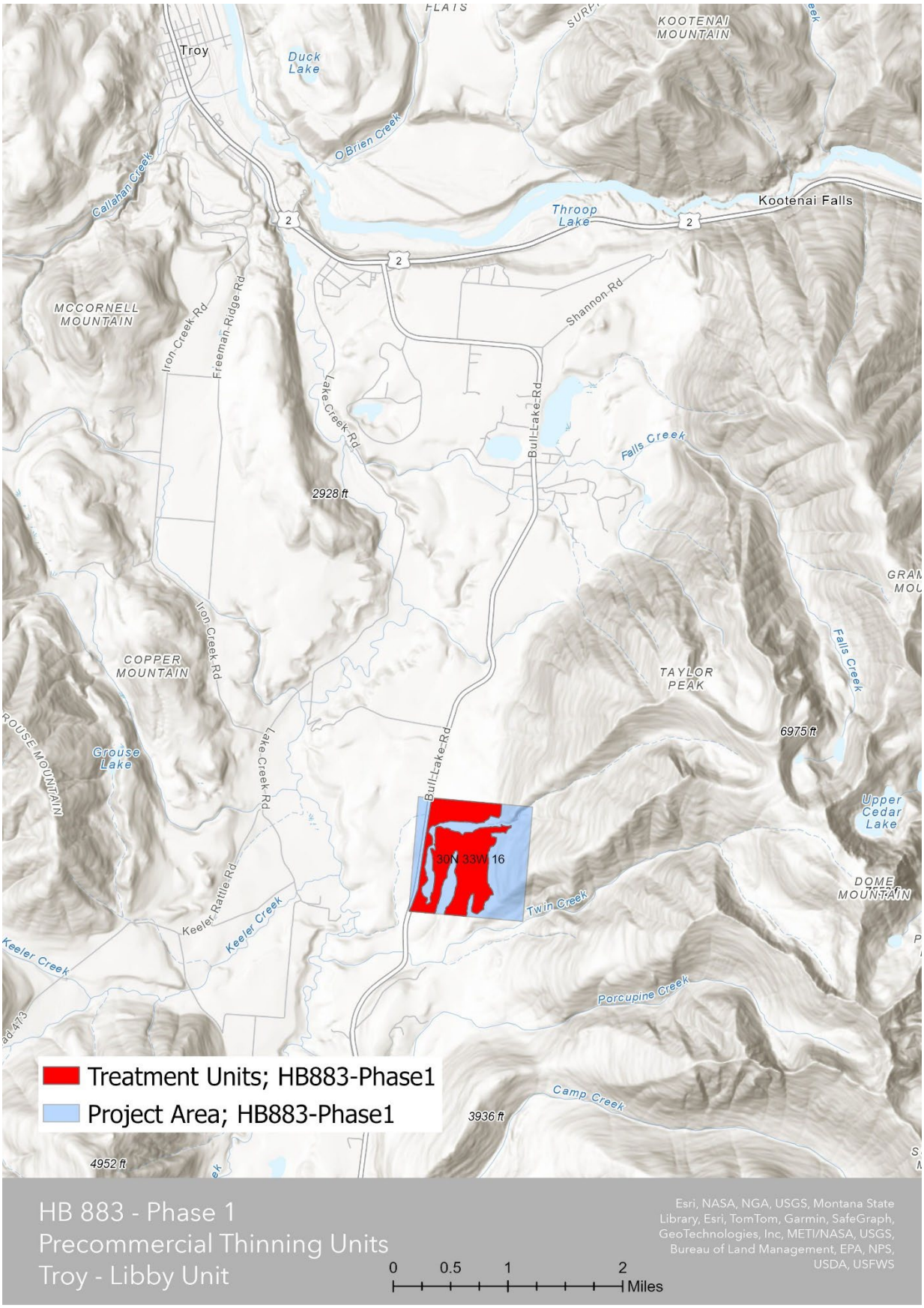
Attachment A - Maps

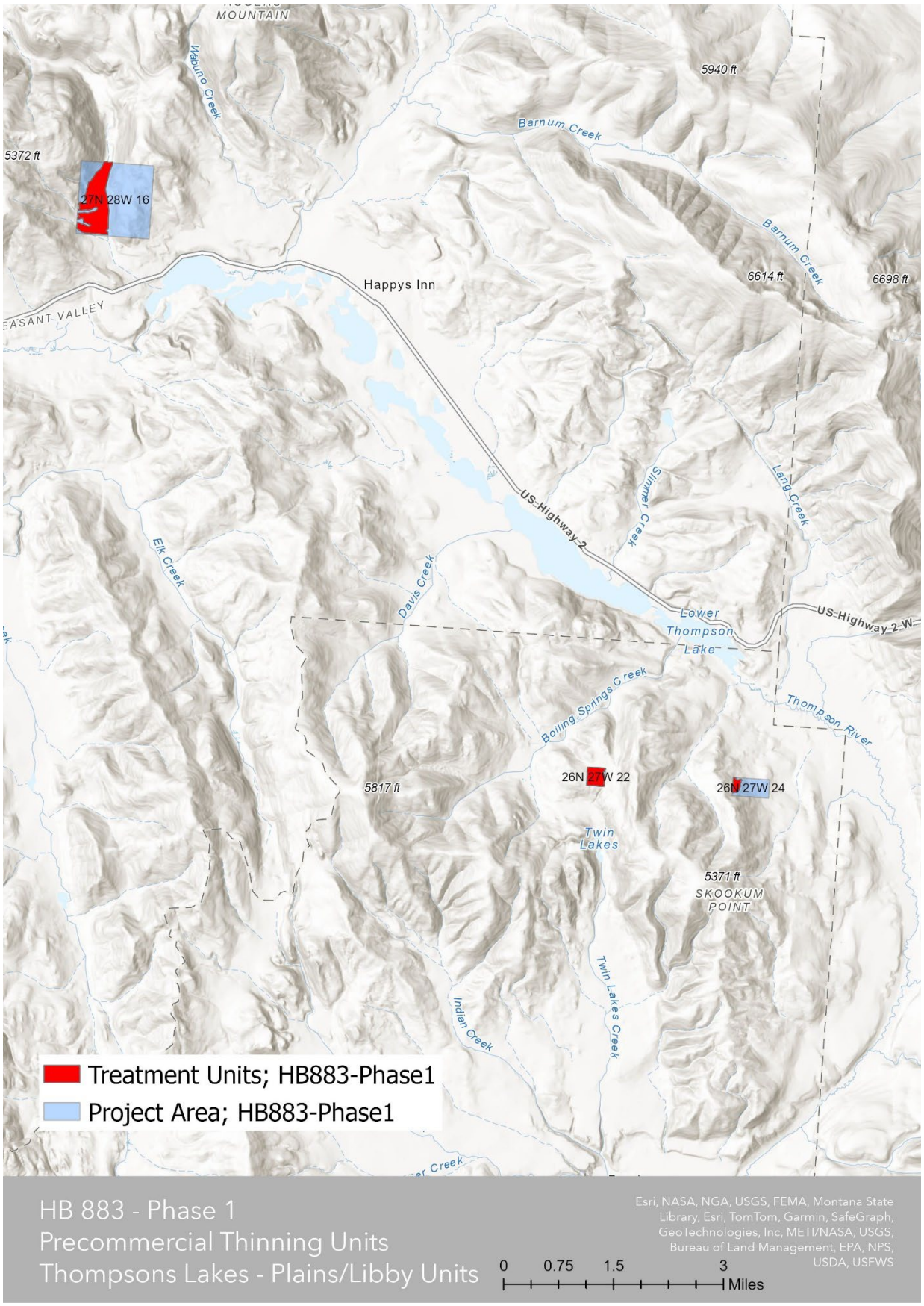
A-1: Project Area Maps

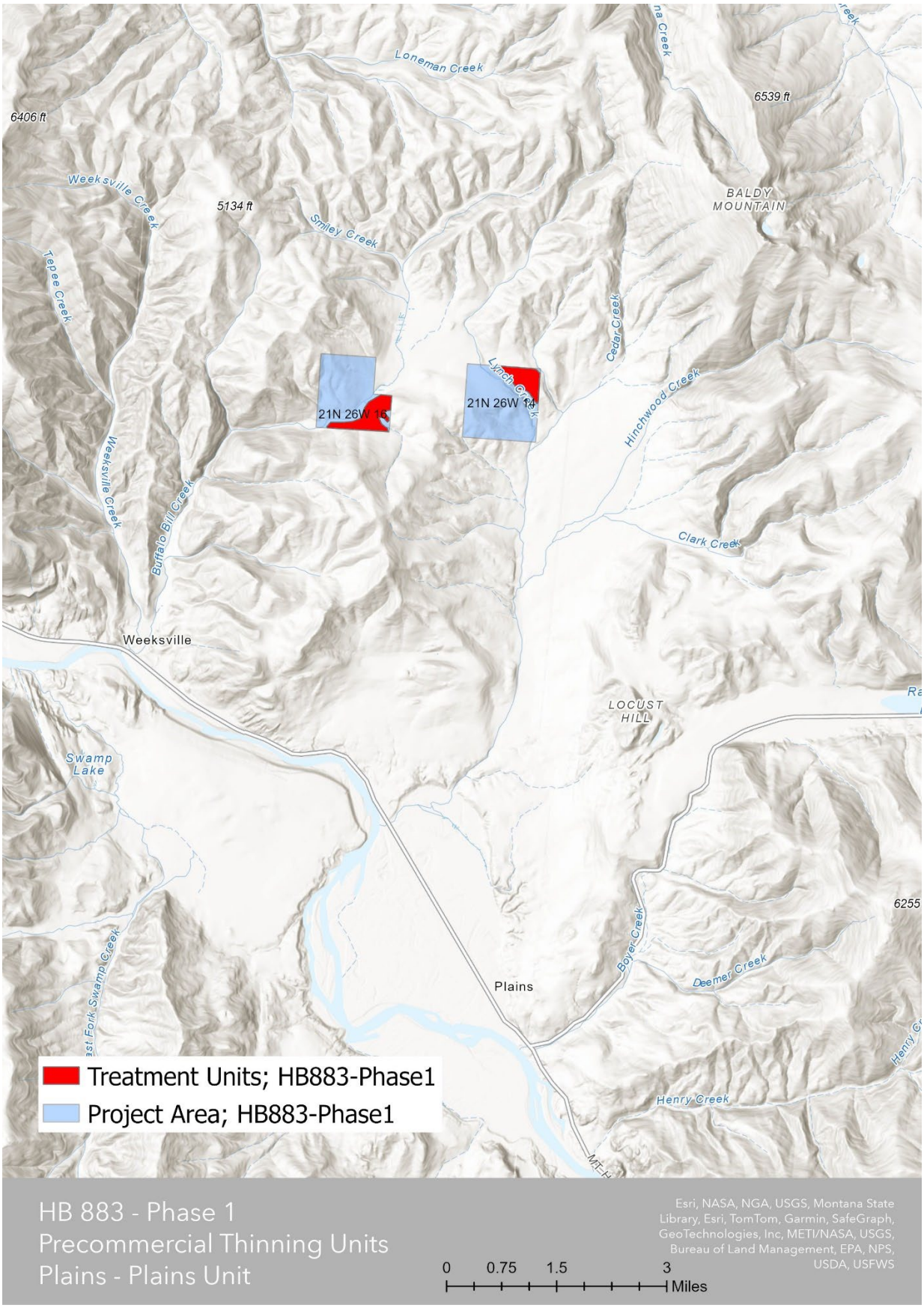


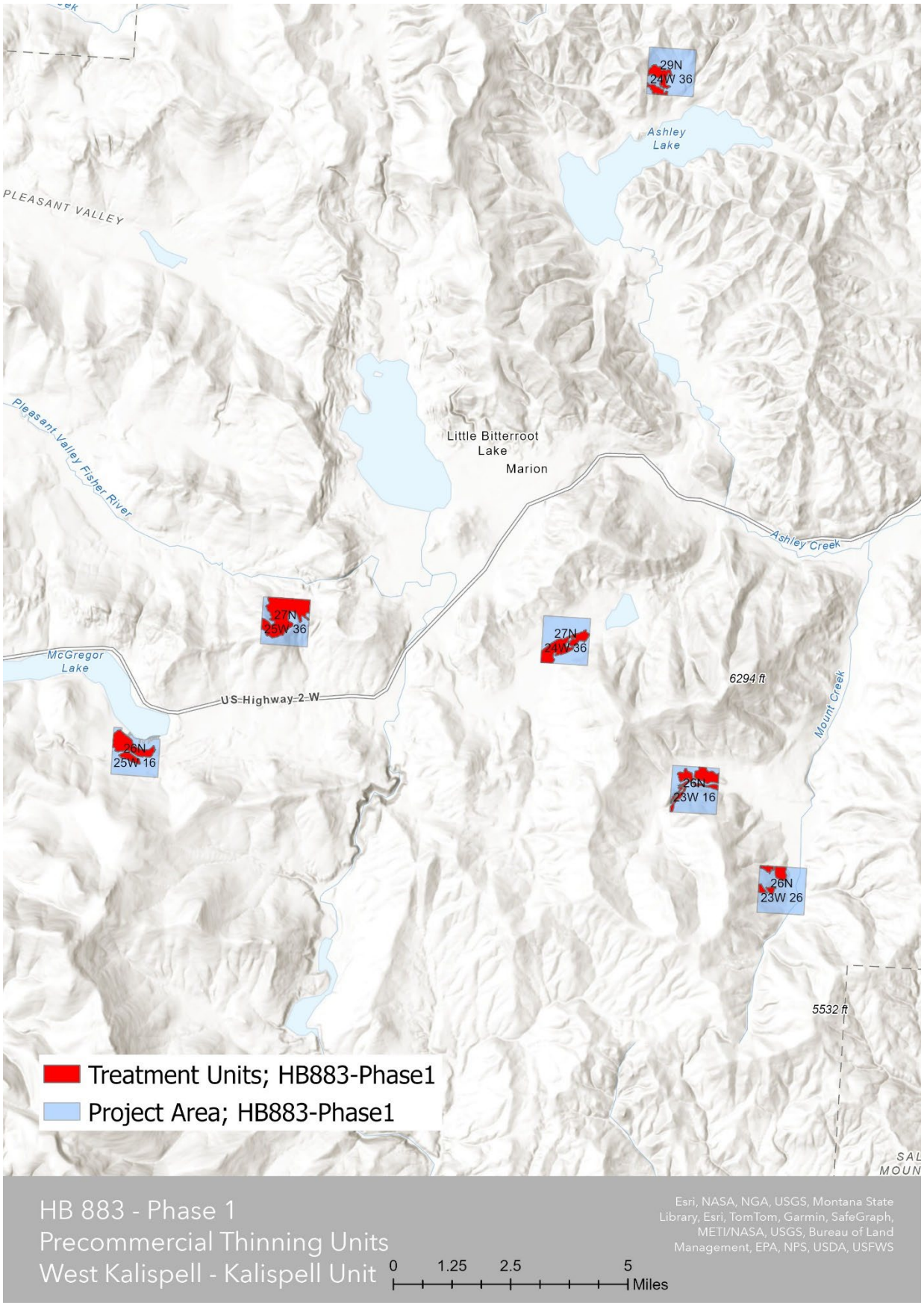

Kintla Lake
PARKE RIDGE
10101 ft
37N 22W 36
Trailcreek
Wurtz Hill
NUMA RIDGE
Whale Creek
WHALE BUTTES
Bowman Lake
North Fork Flathead River
CERULEAN RIDGE
Quartz Lake
QUARTZ RIDGE
35N 21W 16
Polebridge
Quartz Creek
LOGGING RIDGE
34N 21W 3
34N 21W 10
COAL RIDGE
Coal Creek
34N 21W 14
34N 21W 19
WINONA RIDGE
34N 21W 30
34N 21W 27
34N 21W 26
Coal Creek
34N 21W 34
34N 21W 36
34N 21W 35
34N 20W 33
7547 ft
Treatment Units; HB883-Phase1
Project Area; HB883-Phase1
HB 883 - Phase 1
Precommercial Thinning Units
N.F. Flathead - Stillwater Unit
Esri, NASA, NGA, USGS, Montana State Library, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS
0 1.25 2.5 5
Miles

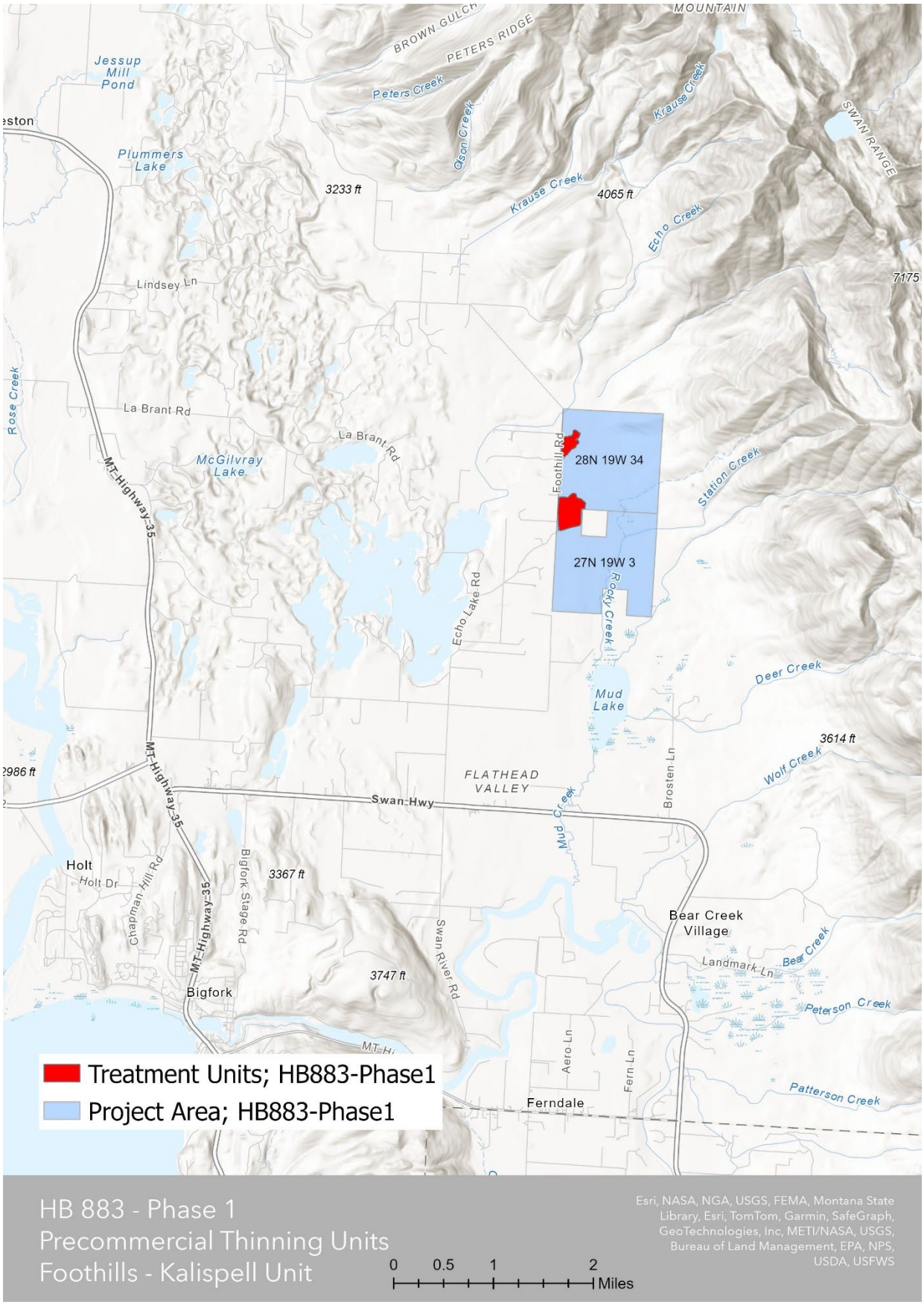

Barnaby Lake
3469 ft
Crystal Lake
93
Fortine
Eagle Lake Ranch
Marl Lake
Deep Lake
Loon Lake
NFD Road 5916
Ant Flat Rd
Ant Flat
Meadow Creek
Roberts Creek
34N 26W 16
Dudley Slough
Trego
Griffin Rd
Dudley Creek
EDNA MOUNTAIN
4808 ft
3847 ft
Hamilton Creek
Edna Creek
Edna Creek Rd
Ivor Creek
Fortine Creek Rd
Lime Creek
4864 ft
Treatment Units; HB883-Phase1
Project Area; HB883-Phase1
HB 883 - Phase 1
Precommercial Thinning Units
Trego- Stillwater Unit
0 0.5 1 2
Miles
Esri, NASA, NGA, USGS, FEMA, Montana State Library, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS

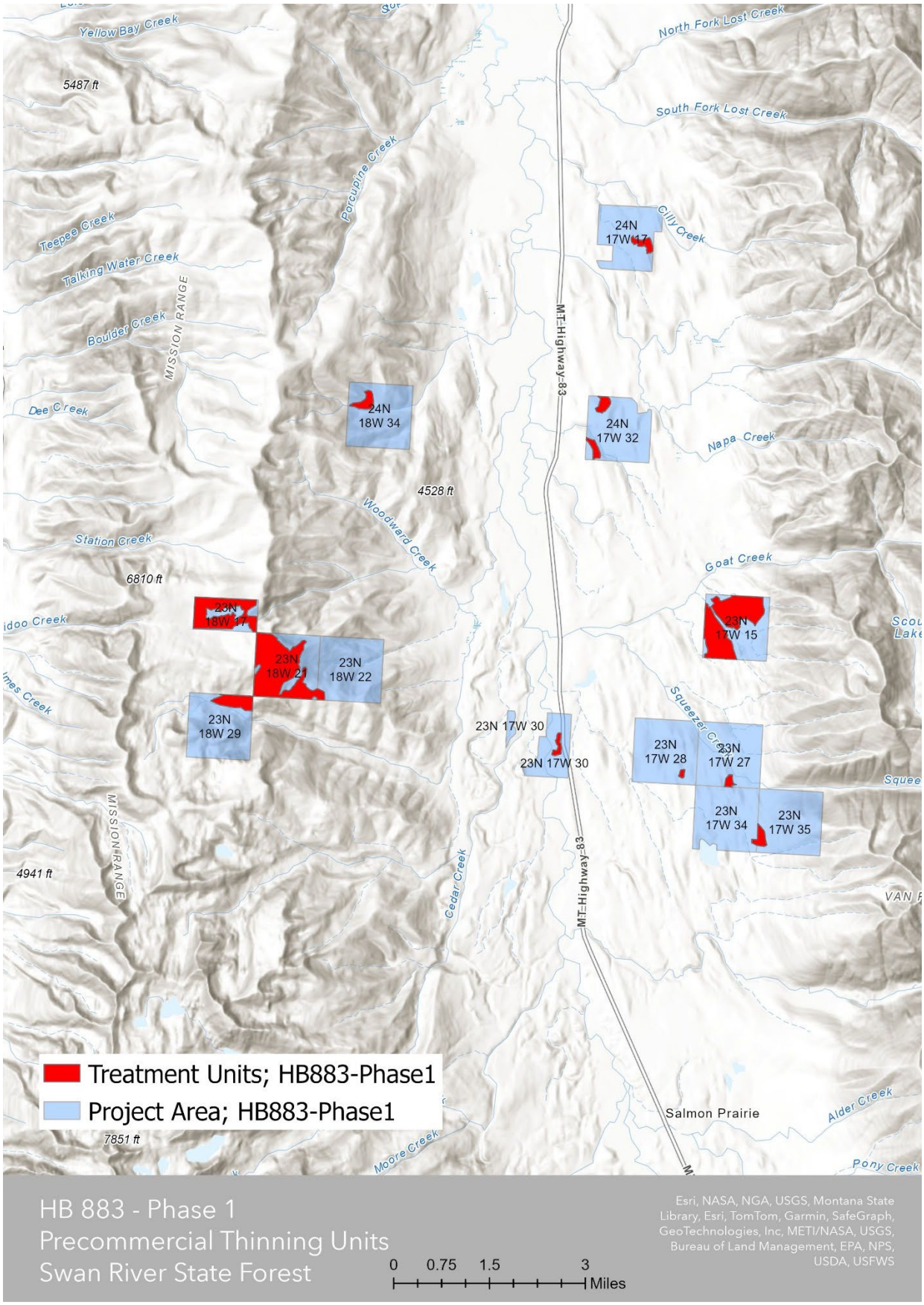

Troy
Duck Lake
O'Brien Creek
Callahan Creek
KOOTENAI MOUNTAIN
Kootenai Falls
Throop Lake
2
MCCORNELL MOUNTAIN
Iron Creek Rd
Freeman Ridge Rd
Shannon Rd
Lake Creek Rd
Bull Lake Rd
Falls Creek
2928 ft
COPPER MOUNTAIN
TAYLOR PEAK
6975 ft
Grouse Lake
ROUSE MOUNTAIN
Upper Cedar Lake
30N 33W 16
DOME MOUNTAIN
Twin Creek
Keeler Rattle Rd
Keeler Creek
Porcupine Creek
Camp Creek
3936 ft
4952 ft
Treatment Units; HB883-Phase1
Project Area; HB883-Phase1
HB 883 - Phase 1
Precommercial Thinning Units
Troy - Libby Unit
0 0.5 1 2
Miles
Esri, NASA, NGA, USGS, Montana State Library, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS

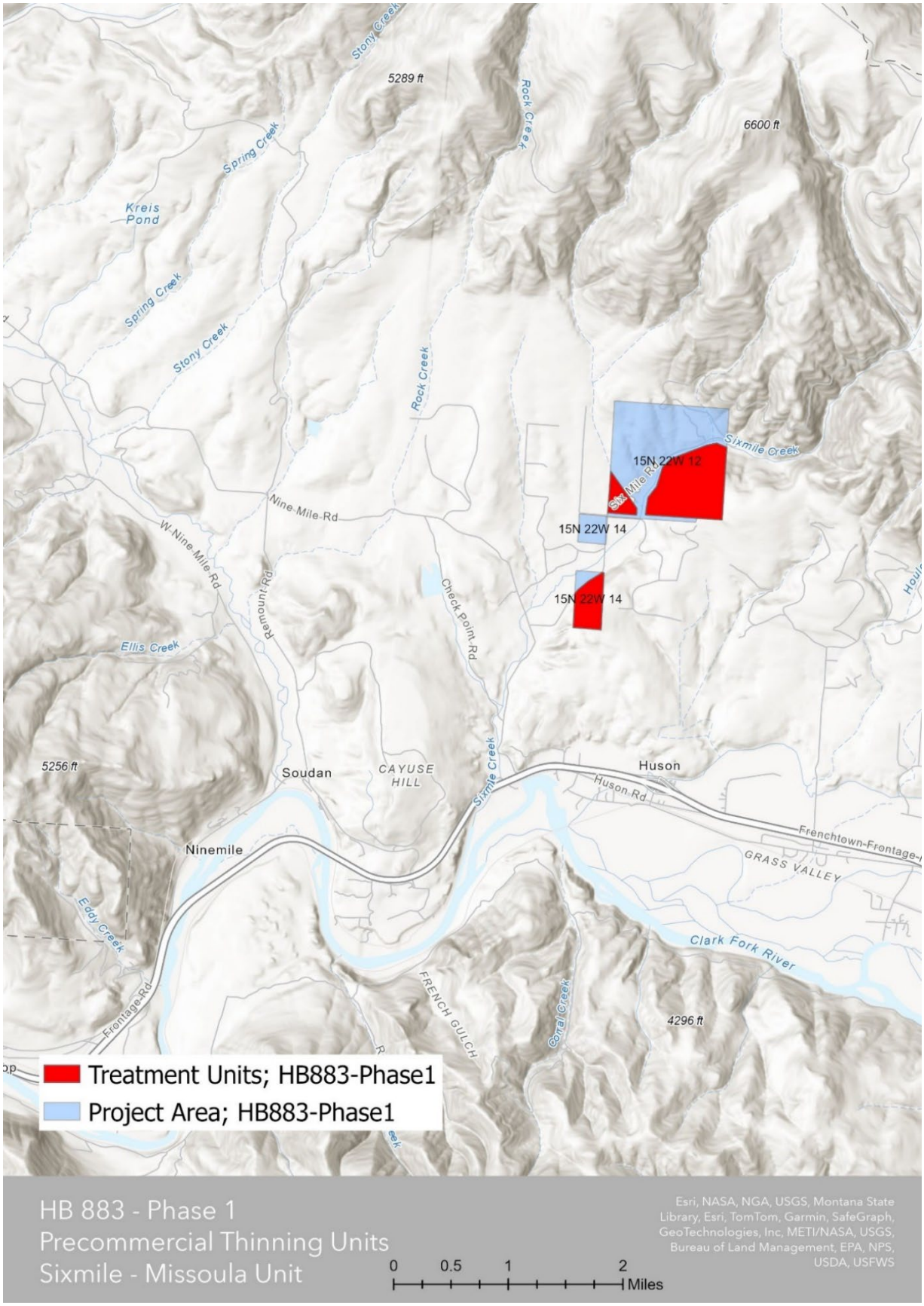

MOUNTAIN
Wabuno Creek
5940 ft
Barnum Creek
5372 ft
27N 28W 16
Barnum Creek
Happys Inn
6614 ft
6698 ft
EASANT VALLEY
US-Highway-2
Slimmer Creek
Lang Creek
Elk Creek
Davis Creek
Lower Thompson Lake
US-Highway-2-W
Boiling Springs Creek
Thompson River
26N 27W 22
26N 27W 24
5817 ft
Twin Lakes
5371 ft
SKOOKUM POINT
Twin Lakes Creek
Indian Creek
Treatment Units; HB883-Phase1
Project Area; HB883-Phase1
HB 883 - Phase 1
Precommercial Thinning Units
Thompsons Lakes - Plains/Libby Units
Esri, NASA, NGA, USGS, FEMA, Montana State Library, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS
0 0.75 1.5 3
Miles

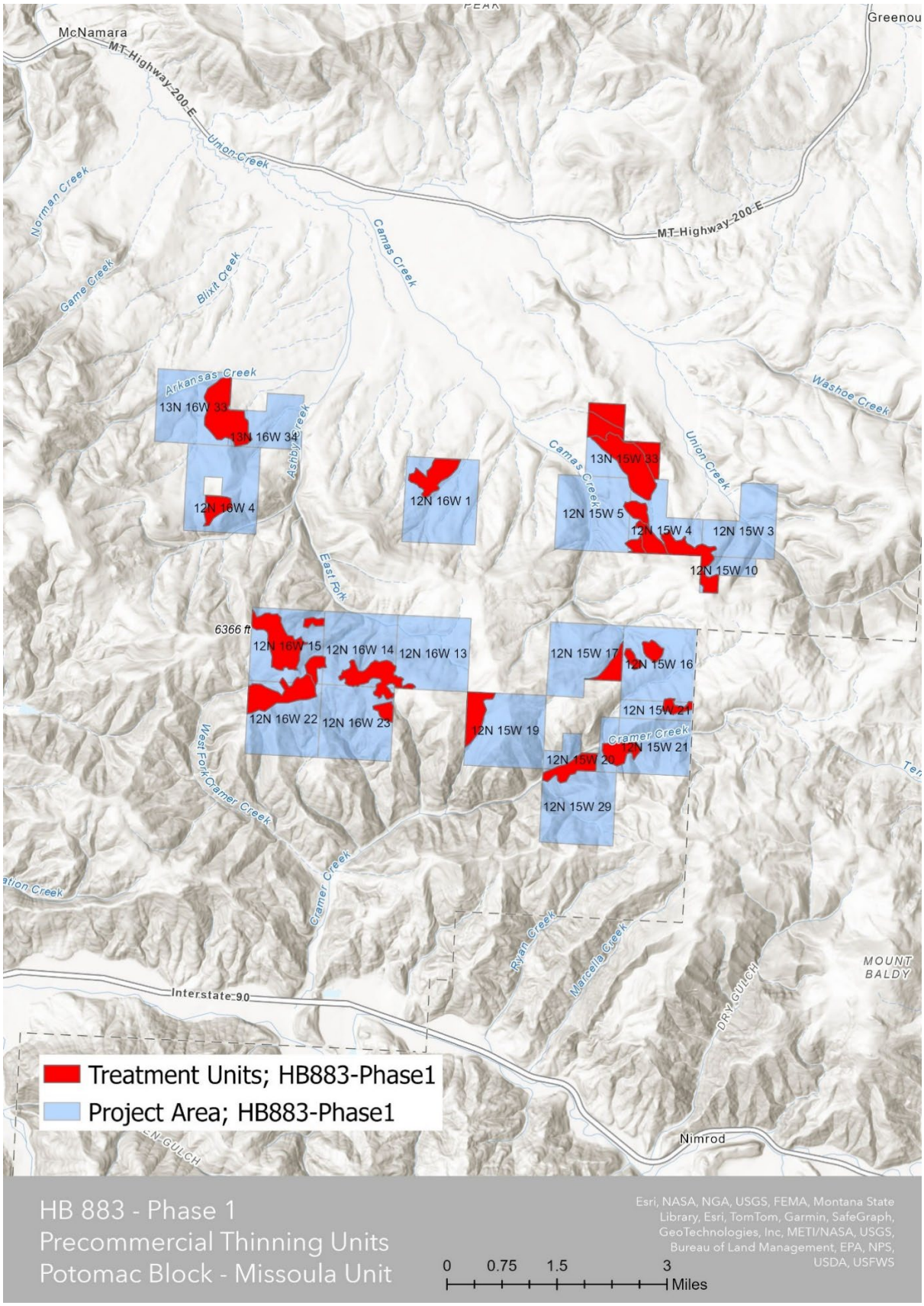

Loneman Creek
6406 ft
6539 ft
Weeksville Creek
5134 ft
Smiley Creek
BALDY MOUNTAIN
Tepee Creek
Cedar Creek
21N 26W 16
21N 26W 14
Hinchwood Creek
Weeksville Creek
Buffalo Bill Creek
Clark Creek
Weeksville
LOCUST HILL
Swamp Lake
6255
Bayer Creek
Deemer Creek
Plains
Henry Creek
Treatment Units; HB883-Phase1
Project Area; HB883-Phase1
HB 883 - Phase 1
Precommercial Thinning Units
Plains - Plains Unit
Esri, NASA, NGA, USGS, Montana State Library, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS
0 0.75 1.5 3
Miles

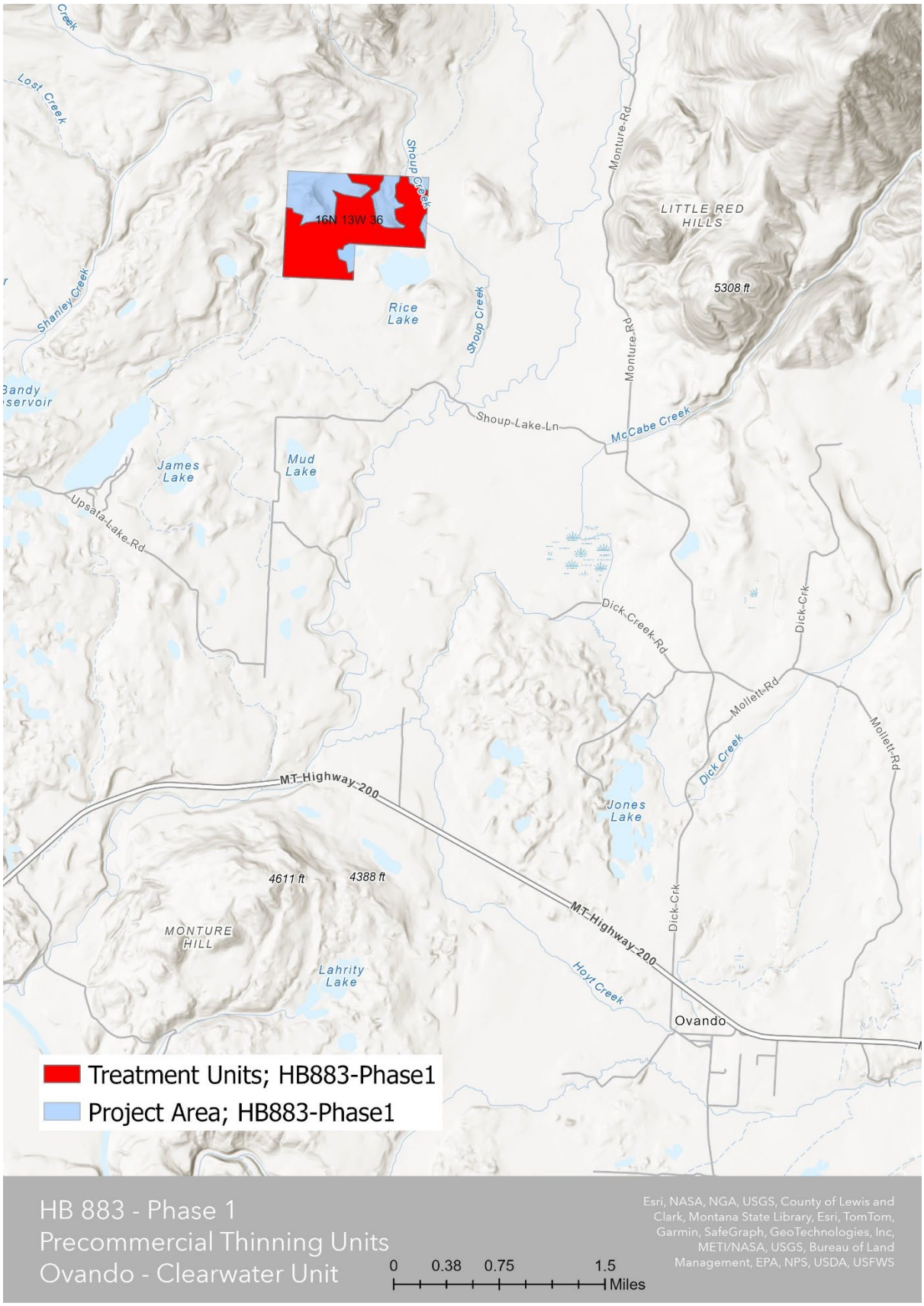

29N 24W 36
Ashley Lake
PLEASANT VALLEY
Pleasant Valley Fisher River
Little Bitterroot Lake
Marion
Ashley Creek
27N 25W 36
27N 24W 36
McGregor Lake
US Highway 2 W
6294 ft
Mount Creek
26N 25W 16
26N 23W 16
26N 23W 26
5532 ft
Treatment Units; HB883-Phase1
Project Area; HB883-Phase1
HB 883 - Phase 1
Precommercial Thinning Units
West Kalispell - Kalispell Unit
0 1.25 2.5 5 Miles
Esri, NASA, NGA, USGS, Montana State Library, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS

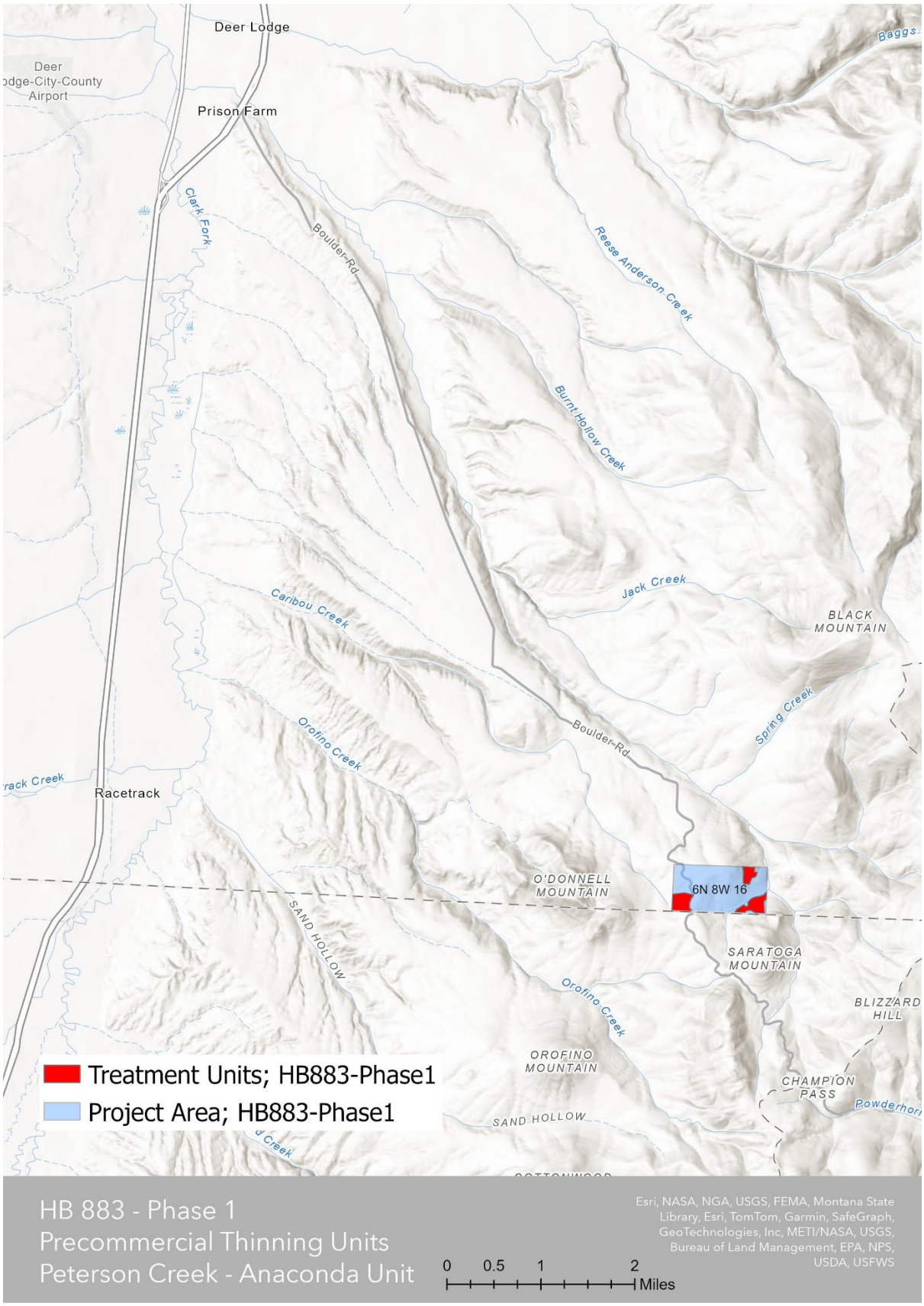

BROWN GULCH
PETERS RIDGE
MOUNTAIN
Jessup Mill Pond
Peters Creek
Olson Creek
Krause Creek
SWAN RANGE
Plummers Lake
3233 ft
4065 ft
Echo Creek
7175
Lindsey Ln
Rose Creek
La Brant Rd
McGilvray Lake
MT Highway 35
28N 19W 34
Foothill Rd
Station Creek
27N 19W 3
Rocky Creek
Echo Lake Rd
Deer Creek
Mud Lake
3614 ft
Wolf Creek
FLATHEAD VALLEY
Swan Hwy
Brosten Ln
Mud Creek
Holt
Holt Dr
Chapman Hill Rd
Bigfork Stage Rd
3367 ft
Bear Creek Village
Landmark Ln
Bear Creek
Peterson Creek
3747 ft
Swan River Rd
Bigfork
Aero Ln
Fern Ln
Ferndale
Patterson Creek
Treatment Units; HB883-Phase1
Project Area; HB883-Phase1
HB 883 - Phase 1
Precommercial Thinning Units
Foothills - Kalispell Unit
0 0.5 1 2
Miles
Esri, NASA, NGA, USGS, FEMA, Montana State Library, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS


Yellow Bay Creek
5487 ft
North Fork Lost Creek
South Fork Lost Creek
Porcupine Creek
Teepee Creek
Talking Water Creek
Boulder Creek
MISSION RANGE
Dee Creek
Cilly Creek
MT Highway 83
24N 17W 17
24N 18W 34
24N 17W 32
Napa Creek
4528 ft
Woodward Creek
Station Creek
6810 ft
Goat Creek
23N 18W 17
23N 18W 21
23N 18W 22
23N 18W 29
23N 17W 15
23N 17W 30
23N 17W 30
23N 17W 28
23N 17W 27
23N 17W 34
23N 17W 35
Squeezer Creek
4941 ft
Cedar Creek
MISSION RANGE
MT Highway 83
Salmon Prairie
Alder Creek
Moore Creek
Pony Creek
7851 ft
Treatment Units; HB883-Phase1
Project Area; HB883-Phase1
HB 883 - Phase 1
Precommercial Thinning Units
Swan River State Forest
0 0.75 1.5 3
Miles
Esri, NASA, NGA, USGS, Montana State Library, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS


Stony Creek
5289 ft
Rock Creek
6600 ft
Spring Creek
Kreis Pond
Spring Creek
Stony Creek
Rock Creek
Sixmile Creek
15N 22W 12
Six Mile Rd
Nine Mile Rd
15N 22W 14
15N 22W 14
W Nine Mile Rd
Newmont Rd
Check Point Rd
Ellis Creek
5256 ft
Soudan
CAYUSE HILL
Sixmile Creek
Huson
Huson Rd
Frenchtown-Frontage-
GRASS VALLEY
Ninemile
Eddy Creek
Clark Fork River
Frontage Rd
FRENCH GULCH
Coral Creek
4296 ft
Treatment Units; HB883-Phase1
Project Area; HB883-Phase1
HB 883 - Phase 1
Precommercial Thinning Units
Sixmile - Missoula Unit
0 0.5 1 2
Miles
Esri, NASA, NGA, USGS, Montana State Library, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS


McNamara
MT Highway 200 E
Union Creek
Norman Creek
Game Creek
Blixt Creek
Camas Creek
MT Highway 200 E
Greenou
Arkansas Creek
13N 16W 33
13N 16W 34
Ashby Creek
12N 16W 4
12N 16W 1
East Fork
Washoe Creek
Union Creek
13N 15W 33
Camas Creek
12N 15W 5
12N 15W 4
12N 15W 3
12N 15W 10
6366 ft
12N 16W 15
12N 16W 14
12N 16W 13
12N 15W 17
12N 15W 16
12N 15W 21
12N 16W 22
12N 16W 23
12N 15W 19
Cramer Creek
12N 15W 21
12N 15W 20
West Fork Cramer Creek
12N 15W 29
Cramer Creek
Ryan Creek
Marcella Creek
MOUNT BALDY
DRY GULCH
Interstate 90
Nimrod
Treatment Units; HB883-Phase1
Project Area; HB883-Phase1
HB 883 - Phase 1
Precommercial Thinning Units
Potomac Block - Missoula Unit
Esri, NASA, NGA, USGS, FEMA, Montana State Library, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS
0 0.75 1.5 3
Miles


16N 13W 36
Lost Creek
Shanley Creek
Shoup Creek
Monture Rd
LITTLE RED HILLS
5308 ft
Rice Lake
Shoup Creek
Monture Rd
Shoup Lake Ln
McCabe Creek
James Lake
Mud Lake
Upsata Lake Rd
Dick Creek Rd
Dick Crk
Mollett Rd
Mollett Rd
Dick Creek
MT Highway 200
Jones Lake
4611 ft
4388 ft
MONTURE HILL
Lahrity Lake
Hoyt Creek
Dick Crk
MT Highway 200
Ovando
Treatment Units; HB883-Phase1
Project Area; HB883-Phase1
HB 883 - Phase 1
Precommercial Thinning Units
Ovando - Clearwater Unit
0 0.38 0.75 1.5
Miles
Esri, NASA, NGA, USGS, County of Lewis and Clark, Montana State Library, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS


Deer Lodge
Deer Lodge-City-County Airport
Prison Farm
Clark Fork
Boulder Rd
Reese Anderson Creek
Burnt Hollow Creek
Jack Creek
Caribou Creek
BLACK MOUNTAIN
Spring Creek
Orofino Creek
Racetrack
O'DONNELL MOUNTAIN
6N 8W 16
SAND HOLLOW
SARATOGA MOUNTAIN
BLIZZARD HILL
OROFINO MOUNTAIN
CHAMPION PASS
Treatment Units; HB883-Phase1
Project Area; HB883-Phase1
HB 883 - Phase 1
Precommercial Thinning Units
Peterson Creek - Anaconda Unit
0 0.5 1 2
Miles
Esri, NASA, NGA, USGS, FEMA, Montana State Library, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS

Attachment B - Vegetation

Vegetation Analysis Attachment

Table 1: Forest habitat types in the project area and proposed treatment units.

Group / Type Number	Habitat Type Group / Type Name	Common Name	Project Area Acres	Treatment Unit Acres
2	**Warm and Dry**		**299**	**53**
210	PSME/AGSP	Douglas-fir/bluebunch wheatgrass	80	-
230	PSME/FESC	Douglas-fir/rough fescue	10	0
311	PSME/SYAL-AGSP	Douglas-fir/snowberry-bluebunch wheatgrass phase	99	12
321	PSME/CARU-AGSP	Douglas-fir/pinegrass-bluebunch wheatgrass phase	71	30
350	PSME/ARUV	Douglas-fir/kinnikinnick	37	11
4	**Moderately Warm and Dry**		**13,619**	**2,543**
250	PSME/VACA	Douglas-fir/dwarf huckleberry	5,046	1,008
260	PSME/PHMA	Douglas-fir/ninebark	1,617	262
261	PSME/PHMA-PHMA	Douglas-fir/ninebark-ninebark phase	491	79
262	PSME/PHMA-CARU	Douglas-fir/ninebark-pinegrass phase	2,417	321
282	PSME/VAGL-ARUV	Douglas-fir/blue huckleberry-kinnikinnick phase	82	82
310	PSME/SYAL	Douglas-fir/snowberry	335	64
312	PSME/SYAL-CARU	Douglas-fir/snowberry-pinegrass phase	2,568	491
313	PSME/SYAL-SYAL	Douglas-fir/snoberry-snowberry phase	66	1
322	PSME/CARU-ARUV	Douglas-fir/pinegrass-kinnikinnick phase	577	40
324	PSME/CARU-PIPO	Douglas-fir/pinegrass-ponderosa pine phase	353	195
330	PSME/CAGE	Douglas-fir/elk sedge	1	-
340	PSME/SPBE	Douglas-fir/white spirea	67	-
5	**Moderately Cool and Dry**		**1,820**	**178**
281	PSME/VAGL-VAGL	Douglas-fir/blue huckleberry-blue huckleberry phase	50	0
283	PSME/VAGL-XETE	Douglas-fir/blue huckleberry-beargrass phase	153	38
292	PSME/LIBO-CARU	Douglas-fir/twinflower-pinegrass phase	274	26
320	PSME/CARU	Douglas-fir/pinegrass	1,003	97
323	PSME/CARU-CARU	Douglas-fir/pinegrass-pinegrass phase	177	8
360	PSME/JUCO	Douglas-fir/common juniper	15	1
510	ABGR/XETE	grand fir/beargrass	142	7
750	ABLA/CARU	subalpine fir/pinegrass	6	-
6	**Warm and Moist**		**18,131**	**2,084**
520	ABGR/CLUN	grand fir/queencup beadlily	863	53
521	ABGR/CLUN-CLUN	grand fir/queencup beadlily-queencup beadlily phase	3,275	320
522	ABGR/CLUN-ARNU	grand fir/queencup beadlily-wild sarsaparilla phase	1,343	83
523	ABGR/CLUN-XETE	grand fir/queencup beadlily-beargrass phase	1,943	397
530	THPL/CLUN	western redcedar/queencup beadlily	49	-

Group / Type Number	Habitat Type Group / Type Name	Common Name	Project Area Acres	Treatment Unit Acres
531	THPL/CLUN-CLUN	western redcedar/queencup beadlily-queencup beadlily phase	6,841	787
532	THPL/CLUN-ARNU	western redcedar/queencup beadlily-wild sarsaparilla phase	2,242	342
533	THPL/CLUN-MEFE	western redcedar/queencup beadlily-menziesia phase	727	16
571	TSHE/CLUN-CLUN	western hemlock/queencup beadlily-queencup beadlily phase	683	87
572	TSHE/CLUN-ARNU	western hemlock/queencup beadlily-wild sarsaparilla phase	166	0
7	**Cool and Moist**		**14,487**	**1,848**
420	PICEA/CLUN	spruce/queencup beadlily	153	3
421	PICEA/CLUN-VACA	spruce/queencup beadlily-dwarf huckleberry phase	126	1
422	PICEA/CLUN-CLUN	spruce/queencup beadlily-queencup beadlily phase	145	25
620	ABLA/CLUN	subalpine fir/queencup beadlily	1,386	394
621	ABLA/CLUN-CLUN	subalpine fir/queencup beadlily-queencup beadlily phase	1,796	102
622	ABLA/CLUN-ARNU	subalpine fir/queencup beadlily-wild sarsaparilla phase	1,790	39
623	ABLA/CLUN-VACA	subalpine fir/queencup beadlily-dwarf huckleberry phase	1,229	342
624	ABLA/CLUN-XETE	subalpine fir/queencup beadlily-beargrass phase	1,575	239
625	ABLA/CLUN-MEFE	subalpine fir/queencup beadlily-menziesia phase	1,626	190
660	ABLA/LIBO	subalpine fir/twinflower	83	17
661	ABLA/LIBO-LIBO	subalpine fir/twinflower-twinflower phase	972	50
662	ABLA/LIBO-XETE	subalpine fir/twinflower-beargrass phase	323	37
670	ABLA/MEFE	subalpine fir/menziesia	2,465	316
740	ABLA/ALSI	subalpine fir/Sitka alder	819	93
8	**Wet**		**531**	**0**
410	PICEA/EQAR	spruce/common horsetail	181	**-**
440	PICEA/GATR	spruce/sweetscented bedstraw	5	**-**
480	PICEA/SMST	spruce/starry Solomon's seal	26	0
550	THPL/OPHO	western redcedar/devil's club	165	-
610	ABLA/OPHO	subalpine fir/devil's club	100	-
630	ABLA/GATR	subalpine fir/sweetscented bedstraw	16	-
650	ABLA/CACA	subalpine fir/bluejoint	37	-
9	**Moderately Cool and Moist**		**2,849**	**569**
290	PSME/LIBO	Douglas-fir/twinflower	7	3
291	PSME/LIBO-SYAL	Douglas-fir/twinflower-snowberry phase	295	10
293	PSME/LIBO-VAGL	Douglas-fir/twinflower-blue huckleberry phase	129	11
470	PICEA/LIBO	spruce/twinflower	187	24
590	ABGR/LIBO	grand fir/twinflower	319	93
591	ABGR/LIBO-LIBO	grand fir/twinflower-twinflower phase	1,247	368
592	ABGR/LIBO-XETE	grand fir/twinflower-beargrass phase	665	60
Group / Type Number	**Habitat Type Group / Type Name**	**Common Name**	**Project Area Acres**	**Treatment Unit Acres**

10	**Cool and Moderately Dry**		**7,920**	**1,496**
430	PICEA/PHMA	spruce/ninebark	130	-
450	PICEA/VACA	spruce/dwarf huckleberry	18	-
640	ABLA/VACA	subalpine fir/dwarf huckleberry	3,607	848
663	ABLA/LIBO-VASC	subalpine fir/twinflower-grouse whortleberry phase	161	0
690	ABLA/XETE	subalpine fir/beargrass	956	84
691	ABLA/XETE-VAGL	subalpine fir/beargrass-blue huckleberry phase	2,237	372
692	ABLA/XETE-VASC	subalpine fir/beargrass-grousewhortleberry phase	431	4
720	ABLA/VAGL	subalpine fir/blue huckleberry	181	41
920	PICO/VACA	lodgepole pine/dwarf huckleberry	176	136
940	PICO/VASC	lodgepole pine/grouse whortleberry	23	10
11	**Cold and Moderately Dry**		**134**	**-**
832	ABLA/LUHI-MEFE	subalpine fir/smooth wood-rush-menziesia phase	134	-
	Total		**59,790**	**8,772**

Table 2: Conversion of current cover types to desired cover types in the proposed treatment units.

	Desired Future Condition									
Current Cover Type	To DF	To LP	To MC	To PP	To SUBALP	To WL/DF	To WWP	Total Acres Converted	No Change	Total Acres
DF		7		95		270	6	377	455	832
HW		8				6		15	3	18
LP	1		71	84	54	699	130	1,039	816	1,855
MC	80	2		286		841	223	1,431	182	1,614
NS						4		4		4
PP						89	187	277	1,281	1,558
SUBALP		1	27	35		353	2	417	313	730
WL/DF	1	54	158	293			109	614	1,005	1,620
WWP			3			52		56	486	541
Total	536	888	441	2,074	366	3,319	1,144	4,230	4,542	8,772

DF = Douglas-fir; HW = hardwoods; LP = lodgepole pine; MC = mixed conifer, NS = non-stocked; PP = ponderosa pine; SUBALP = subalpine; WL/DF = western larch/Douglas-fir; WWP = western white pine

Table 3: Sensitive or rare plant species with potential presence in the project area and proposed treatment units.

Common Name	Scientific Name	State Rank*	Status**	Habitat	Potential Treatment Unit Presence	Verified Treatment Unit Presence
Round-leaved Orchis	*Amerorchis rotundifolia*	S3	SOC	Wetland	X	
Beck Water-marigold	*Bidens beckii*	S2	SOC	Aquatic		
Wavy Moonwort	*Botrychium crenulatum*	S3	SOC	Roadside/Disturbed Sites		
Wishbone Moonwort	*Botrychium furculatum*	S1S2	SOC	Subalpine Meadows, Disturbed Sites		
Western Moonwort	*Botrychium hesperium*	S3	SOC	Roadside/Disturbed Sites		
Mountain Moonwort	*Botrychium montanum*	S3S4	PSOC	Wet Forest		
Peculiar Moonwort	*Botrychium paradoxum*	S3	SOC	Subalpine Meadows		
Least Moonwort	*Botrychium simplex*	S2	SOC	Meadows, Roadsides /Disturbed Sites		
Big-leaf Sedge	*Carex amplifolia*	S3	SOC	Wetland		
Bristly Sedge	*Carex comosa*	S1S2	SOC	Wetland		
Small Yellow Lady's-slipper	*Cypripedium parviflorum*	S3S4	PSOC	Wet Forest		
Roundleaf Sundew	*Drosera rotundifolia*	S3S4	PSOC	Wetland	X	
Crested Shieldfern	*Dryopteris cristata*	S3	SOC	Wetland		
Beaked Spikerush	*Eleocharis rostellata*	S3	SOC	Wetland		
Giant Helleborine	*Epipactis gigantea*	S2S3	SOC	Wetland		
Marsh Horsetail	*Equisetum palustre*	S3	SOC	Wet Forest		
Slender Cottongrass	*Eriophorum gracile*	S3	SOC	Wetland		
Northern Toadflax	*Geocaulon lividum*	S3S4	PSOC	Wetland		
Kalm's Lobelia	*Lobelia kalmii*	S3	SOC	Wetland	X	
Adder's Tongue	*Ophioglossum pusillum*	S3	SOC	Wetland		
Whitebark Pine	*Pinus albicaulis*	S3	SOC	Subalpine Forest, Timberline	X	X
Blunt-leaved Pondweed	*Potamogeton obtusifolius*	S3	SOC	Wetland		
Pod Grass	*Scheuchzeria palustris*	S3	SOC	Wetland		
Slender Wedgegrass	*Sphenopholis intermedia*	S3S4	PSOC	Wetland	X	
Tufted Club-rush	*Trichophorum cespitosum*	S2	SOC	Wetland		
Flatleaf Bladderwort	*Utricularia intermedia*	S2	SOC	Wetland		
Stiff Matt Moss	*Brachythecium turgidum*	SH	PSOC	Wetland	X	
Richardson's Calliergon Moss	*Calliergon richardsonii*	SH	PSOC	Wetland	X	
Hamatocaulis Moss	*Hamatocaulis vernicosus*	S1	SOC	Wetland	X	
A Conecap Moss	*Hygroamblystegium varium ssp. noterophilum*	S1	SOC	Springs	X	
Limprichtia Moss	*Scorpidium revolvens*	S1	SOC	Wetland		
A Scorpidium Moss	*Scorpidium scorpioides*	S2	SOC	Wetland	X	

Norwegian Syntrichia Moss	*Syntrichia norvegica*	S1	SOC	Rock	X	
Pustulate Tarpaper Lichen	*Collema curtisporum*	S1	SOC	Moist Riparian Forest		
Gray Lungwort Lichen	*Lobaria hallii*	S2	SOC	Moist Riparian Forest		
Chalky Bush Lichen	*Ramalina labiosorediata*	S1	SOC	Moist Riparian Forest		
Hooded Bush Lichen	*Ramalina obtusata*	S2	SOC	Moist Riparian Forest		

*State Rank:

S1: At high risk because of extremely limited and/or rapidly declining population numbers, range and/or habitat, making it highly vulnerable to global extinction or extirpation in the state.

S2: At risk because of very limited and/or potentially declining population numbers, range and/or habitat, making it vulnerable to global extinction or extirpation in the state.

S3: Potentially at risk because of limited and/or declining numbers, range and/or habitat, even though it may be abundant in some areas.

S4: Apparently secure, though it may be quite rare in parts of its range, and/or suspected to be declining.

SH: Historical, known only from records usually 40 or more years old; may be rediscovered.

**Status:

SOC: Species of Concern

PSOC: Potential Species of Concern

Attachment C – Hydrology

Watershed Name (6th Code HUC)	DNRC Project Area Ownership (Acres)	Total DNRC Road (miles)	Percent Inventoried	Road Meeting BMP's (%)	Road Not Meeting BMP's (%)	Total Crossing Structures	Crossing Structures Meeting BMP's (%)	Moderate or High Sediment Risk Crossing Structures
Ashby Creek	4,036	46.17	100%	96%	4%	64	63%	10
Ashley Lake	641	8.38	75%	75%	0%	2	100%	0
Bigfork Dam	823	6.01	100%	78%	22%	2	100%	0
Clark Fork River-Caribou Creek	99	0.61	100%	100%	0%	0	N/A	0
Cramer Creek	4,122	43.88	100%	90%	10%	38	66%	3
Cyclone Creek	1,395	4.21	100%	100%	0%	17	94%	0
Dog Creek	5,783	36.89	99%	84%	15%	180	81%	4
Flathead River-Rose Creek	397	1.84	100%	100%	0%	5	80%	0
Goat Creek	1,735	21.27	100%	99%	1%	40	70%	7
Hay Creek	1,372	8.40	100%	89%	11%	45	87%	1
Kishenehn Creek	276	1.94	100%	100%	0%	0	N/A	0
Lower Coal Creek	1,774	5.68	100%	97%	3%	45	80%	1
Lower Good Creek	620	3.10	100%	86%	14%	10	100%	0
Lower Lake Creek	439	2.18	100%	100%	0%	0	N/A	0
Lower Monture Creek	402	4.64	100%	96%	4%	5	40%	0
Lower Union Creek	2,509	25.98	100%	93%	7%	42	83%	3
Lunch Creek	642	8.56	100%	100%	0%	1	100%	0
McGregor Creek	212	3.63	7%	100%	0%	17	100%	0
Meadow Creek	601	4.08	100%	73%	27%	4	100%	0
Middle Middle Swan River	2,470	20.68	100%	98%	2%	44	57%	5
Mount Creek	1,271	12.93	63%	63%	0%	31	52%	0
North Fork Flathead River-Ford Creek	483	1.53	72%	72%	0%	5	100%	0
North Fork Flathead River-Winona Ridge	381	0.94	100%	100%	0%	12	100%	0
Peterson Creek	222	1.98	100%	100%	0%	0	N/A	0
Pleasant Valley Fisher River-Loon Lake	638	4.76	100%	100%	0%	2	100%	0
Sixmile Creek	739	5.92	100%	100%	0%	24	71%	2
South Fork Upper Coal Creek	340	2.71	100%	100%	0%	25	84%	0
Stillwater River Headwaters	5,690	14.41	100%	78%	22%	135	81%	8
Swift Creek-Antice Creek	1,864	13.65	100%	97%	3%	84	88%	1

Swift Creek-Hemlock Creek	4,153	22.87	100%	90%	10%	172	73%	8
Thompson Lakes	106	1.02	1%	90%	0%	0	N/A	0
Trail Creek	157	0.63	100%	100%	0%	0	N/A	0
Upper Bitteroot River-Sickler Creek	1,176	10.17	100%	47%	45%	13	100%	0
Upper Coal Creek	813	1.45	100%	100%	0%	14	71%	0
Upper Lake Creek	202	0.83	100%	100%	0%	0	N/A	0
Upper Middle Swan Creek	1,762	14.34	100%	99%	1%	33	82%	1
Upper Pleasant Valley Fisher River	442	3.52	100%	77%	23%	3	67%	0
Upper Stillwater River-Hellroaring Creek	2,563	20.31	99%	89%	10%	58	71%	2
Upper Stillwater River-Lower Stillwater Lake	4,121	25.74	99%	90%	8%	53	75%	1
Upper Union Creek	732	11.13	100%	85%	15%	14	93%	1
Weeksville Creek	563	6.22	100%	100%	0%	6	100%	0
Woodward Creek	2,244	23.09	100%	99%	1%	42	55%	4
Summary/Weighted Averages	**61,011**	**458**	**97%**	**90%**	**8%**	**1,287**	**77%**	**62**

Attachment D - Fisheries

Table FS-1: Occupied river miles for Bull trout, including listed critical habitat, Westslope cutthroat, and Columbia River redband trout in project area watersheds.

	Bull trout				Westslope cutthroat		Columbia River redband	
		Critical Habitat						
Watershed Name (6th Code HUC)	Present in Watershed	Spawn-Rear	Foraging-Overwinter-Migration	Occupied habitat within 500 feet of Proposed Treatment	Present in Watershed	Occupied habitat within 500 feet of Proposed Treatment	Present in Watershed	Occupied habitat within 500 feet of Proposed Treatment
Ashby Creek	-	-	-	-	18.1	0.5	-	-
Bigfork Dam	14.6	-	-	-	30.5	-	-	-
Clark Fork River-Caribou Creek	-	-	3.9	-	4.3	-	-	-
Cramer Creek	-	-	-	-	10.7	1.6	-	-
Cyclone Creek	9.6	9.1	-	0.2	9.6	0.3	-	-
Dog Creek	-	-	-	-	0.5	-	-	-
Flathead River-Rose Creek	8.4	-	8.4	-	8.5	-	-	-
Goat Creek	19.9	15.0	-	0.2	11.5	0.4	-	-
Hay Creek	22.1	-	-	0.8	24.7	1.5	-	-
Kishenehn Creek	35.2	8.2	7.9	0.4	30.6	0.7	-	-
Lower Coal Creek	10.9	10.9	-	1.2	17.4	3.0	-	-
Lower Good Creek	-	-	-	-	18.5	-	-	-
Lower Lake Creek	10.8	0.1	1.1	-	31.2	-	5.8	0.0
Lower Monture Creek	11.1	11.1	-	-	11.1	-	-	-
Lower Union Creek	-	-	-	-	25.7	-	-	-
Lunch Creek	-	-	-	-	21.7	0.7	-	-
McGregor Creek	-	-	-	-	18.0	-	-	-
Meadow Creek	-	-	-	-	8.8	-	-	-
Middle Middle Swan River	14.0	0.1	14.0	-	16.0	-	-	-
Mount Creek	-	-	-	-	14.4	-	-	-
North Fork Flathead River-Ford Creek	36.7	0.1	22.9	1.1	47.9	2.2	-	-
North Fork Flathead River-Winona Ridge	8.5	0.1	8.4	-	11.8	-	-	-
Peterson Creek	-	-	-	-	17.5	-	-	-
Pleasant Valley Fisher River-Loon Lake	-	-	-	-	15.0	-	0.6	0.0
Sixmile Creek	-	-	-	-	13.9	1.9	-	-
South Fork Upper Coal Creek	9.2	9.2	-	-	6.4	-	-	-
Stillwater River Headwaters	13.7	13.7	-	5.0	20.5	-	-	-
Swift Creek-Antice Creek	3.1	-	3.1	0.1	8.2	1.3	-	-
Swift Creek-Hemlock Creek	13.3	-	13.3	0.7	34.3	5.0	-	-
Thompson Lakes	-	-	-	-	35.2	-	-	-
Trail Creek	11.2	8.2	-	1.0	31.3	2.0	-	-
Upper Bitteroot River-Sickler Creek	-	-	-	-	1.2	0.5	-	-
Upper Coal Creek	12.5	10.1	-	-	10.0	0.5	-	-
Upper Lake Creek	9.2	-	6.9		46.3	-	12.0	0.0
Upper Middle Swan Creek	6.1	-	6.1	0.3	6.1	0.5	-	-
Upper Pleasant Valley Fisher River	-	-	-	-	6.2	-	-	-
Upper Stillwater River-Hellroaring Creek	14.0	14.0	-	-	10.1	0.3	-	-
Upper Stillwater River-Lower Stillwater Lake	9.1	-	-	-	0.9	-	-	-
Upper Union Creek	-	-	-	-	10.0	-	-	-
Weeksville Creek	-	-	-	-	3.2	-	-	-
Woodward Creek	10.1	6.6	-	-	9.1	-	-	-

Table FS-2: Riparian management zone timber stand characteristics in project area watersheds.

Watershed Name (6th Code HUC)	Acres				Current RMZ Stocking			
		DNRC Ownership						
	Watershed	Watershed	Project Area	Proposed Thinning Acres	Acres Non-stock or Seedling-Sapling	Acres Pole- or Saw-Timber	Total RMZ Acres	Proposed RMZ Treatment Acres
Ashby Creek	15,871	9,523	4,036	781	0.2	139.0	139.2	6.0
Bigfork Dam	44,447	5,778	823	31	20.7	221.3	242.1	23.5
Cramer Creek	16,924	7,108	4,122	533	3.6	34.6	38.2	23.4
Cyclone Creek	8,373	4,270	1,395	44	44.3	176.5	220.8	0.0
Dog Creek	8,561	8,304	5,783	497	25.7	458.1	483.8	3.7
Flathead River-Rose Creek	32,961	1,978	397	35	0.0	40.8	40.8	0.0
Goat Creek	23,185	9,274	1,735	368	0.0	272.6	272.6	3.0
Hay Creek	27,341	2,187	1,372	261	14.9	192.1	207.0	0.8
Kishenehn Creek	31,608	948	276	65	6.9	50.8	57.7	1.0
Lower Coal Creek	17,340	5,375	1,774	122	145.2	257.6	402.8	2.3
Lower Good Creek	25,404	1,778	620	65	0.6	90.8	91.4	0.1
Lower Lake Creek	25,722	1,029	439	237	6.1	16.0	22.1	2.3
Lower Monture Creek	13,772	413	402	255	0.0	23.0	23.0	5.5
Lower Union Creek	33,603	13,441	2,509	696	1.0	138.8	139.8	34.8
Lunch Creek	31,506	3,466	642	95	0.0	44.5	44.5	0.0
McGregor Creek	19,886	795	212	120	2.0	0.0	2.0	0.0
Meadow Creek	17,495	601	601	71	1.4	49.2	50.7	0.3
Middle Middle Swan River	26,729	19,245	2,470	118	41.2	1058.8	1099.9	0.2
Mount Creek	31,072	2,175	1,271	255	14.1	51.7	65.7	5.0
North Fork Flathead River-Ford Creek	37,714	754	483	181	1.2	45.5	46.7	0.2
Peterson Creek	19,914	1,195	222	35	0.5	11.8	12.3	0.0
Pleasant Valley Fisher River-Loon Lake	30,342	1,214	638	180	0.0	3.2	3.2	0.0
Sixmile Creek	14,795	740	739	307	0.0	24.8	24.8	0.6
South Fork Upper Coal Creek	11,840	829	340	13	0.4	74.4	74.8	0.0
Stillwater River Headwaters	21,128	14,367	5,690	242	21.8	744.3	766.1	11.1
Swift Creek-Antice Creek	6,829	6,829	1,864	110	31.4	597.5	628.9	0.5
Swift Creek-Hemlock Creek	18,248	12,044	4,153	535	57.6	1326.7	1384.3	6.7
Thompson Lakes	40,134	2,809	106	36	0.2	55.1	55.3	0.1
Trail Creek	26,227	262	157	116	28.8	0.0	28.8	8.7
Upper Bitteroot River-Sickler Creek	36,584	2,561	1,176	240	0.0	6.2	6.2	0.6
Upper Coal Creek	14,950	1,047	813	28	4.6	66.3	71.0	2.9
Upper Lake Creek	38,143	1,144	202	69	0.0	33.7	33.7	0.0
Upper Middle Swan Creek	9,215	3,133	1,762	56	2.9	144.9	147.8	0.1
Upper Stillwater River-Hellroaring Creek	22,672	14,057	2,563	39	15.1	606.7	621.8	0.8
Upper Stillwater River-Lower Stillwater Lake	17,511	11,207	4,121	289	26.6	266.4	293.1	0.0
Upper Union Creek	14,827	2,521	732	99	4.2	66.3	70.5	0.0
Weeksville Creek	14,795	1,923	563	124	22.8	16.6	39.4	5.0
Woodward Creek	16,089	11,745	2,244	737	32.1	575.2	607.2	31.5

Attachment E – Wildlife

Table W-2: Open and total road densities within portions of the Wildlife Analysis Area.

TRS or Area	Open Road Miles	Open Road Density	Total Road Miles	Total Road Density
Swan LMA	24.7	0.3	460.3	5.2
Coal Creek LMA	39.7	1.7	55.7	2.4
Stillwater East LMA	75.2	1.3	160.5	2.8
Stillwater West LMA	71.2	1.2	152.4	2.5
12N 15W 10	2.2	8.9	2.2	8.9
12N 15W 16	1.9	1.9	8.5	8.5
12N 15W 17	0.0	0.0	7.1	8.0
12N 15W 19	0.0	0.0	10.0	9.2
12N 15W 20	2.0	4.5	3.9	8.8
12N 15W 21	1.4	1.4	8.5	8.5
12N 15W 29	0.8	0.8	9.9	9.9
12N 15W 3	4.2	5.5	8.2	10.8
12N 15W 4	4.5	6.0	5.5	7.2
12N 15W 5	2.7	2.7	6.3	6.2
12N 16W 1	0.0	0.0	9.2	8.0
12N 16W 13	1.4	1.4	6.3	6.3
12N 16W 14	0.5	0.5	10.8	10.9
12N 16W 15	0.0	0.0	6.3	6.4
12N 16W 22	0.0	0.0	4.5	4.6
12N 16W 23	0.0	0.0	3.5	3.5
12N 16W 4	0.4	0.4	7.1	6.4
13N 15W 33	2.4	3.2	4.6	6.2
13N 16W 33	0.0	0.0	6.1	6.2
13N 16W 34	0.3	0.4	4.0	6.7
15N 22W 12	1.9	1.9	6.5	6.5
15N 22W 14	0.3	2.5	0.3	2.5
16N 13W 36	0.0	0.0	4.7	7.4
21N 26W 14	3.0	3.0	8.6	8.5
21N 26W 16	0.0	0.0	6.2	7.1
26N 23W 16	6.6	6.7	6.6	6.7
26N 23W 26	1.2	1.2	6.4	6.4
26N 25W 16	3.7	4.4	6.1	7.2
26N 27W 22	0.0	0.2	0.0	0.2
26N 27W 24	0.0	0.0	1.0	8.1
27N 19W 3	1.1	1.2	3.4	3.7
27N 24W 36	6.2	6.2	7.1	7.1
27N 25W 36	0.0	0.0	4.1	4.1
27N 28W 16	3.7	3.7	4.8	4.8
28N 19W 34	0.7	0.7	4.5	4.5
29N 24W 36	2.3	2.3	8.4	8.4
30N 33W 16	2.0	2.0	4.0	4.0

32N 23W 19	1.3	1.5	4.2	4.5
32N 23W 31	0.3	0.4	3.1	3.2
34N 20W 33	0.3	2.4	0.3	2.4
34N 26W 16	1.6	1.6	4.3	4.3
35N 21W 16	0.2	0.4	0.8	1.5
37N 22W 36	0.0	0.0	2.6	3.6
6N 8W 16	0.6	1.2	3.2	6.3

Table W-3: Anticipated changes to existing lynx habitat within the Wildlife Analysis Area (WAA) under the precommercial thinning (PCT) action alternative.

Lynx Habitat Category	Existing	Post-PCT
Other Suitable	18,078.2 (12.8%)	19,662.6 (13.9%)
Summer Forage	25,084.3 (17.7%)	23,499.9 (16.6%)
Temporary Nonsuitable	24,775.5 (17.5%)	24,775.5 (17.5%)
Winter Forage	73,704.5 (52%)	73,704.5 (52%)
Grand Total: Suitable Lynx Habitat	116,867.0 (82.5%)	116,867.0 (82.5%)

Table W-4: Precommercial thinning acres proposed in DNRC Lynx Management Areas (LMA) and corresponding mitigation deferral acres.

LMA	Treatment Acres	Mitigation Deferral Acres	Deferral Percent
Coal Creek	595.1	120.4	20.2
Stillwater East	645.2	131.8	20.4
Stillwater West	980.8	199.3	20.3
Swan	1279.7	258.4	20.2