Environmental Assessment Checklist

Project Name: Dillon DNRC Trust Land Encroachment Treatment Big Sheep Creek
Proposed Implementation Date: Spring 2024
Proponent: Dillon Unit, Central Land Office, Montana DNRC
County: Beaverhead

Type and Purpose of Action

Description of Proposed Action:

The Dillon Unit of the Montana Department of Natural Resources and Conservation (DNRC) received a request, to continue the work initiated in 2018, from Montana Fish, Wildlife and Parks (MTFW&P) for a conifer encroachment removal project in the Big Sheep Creek area (T13S R9W Sections 29, 30, 31 & 32), see **Exhibit A – Project Location Map**. The project would benefit up to 350 acres of primarily moose and mule deer winter range as well as a recently introduced bighorn sheep population through the removal of Douglas-fir, Rocky Mountain juniper, and limber pine in stands of mountain mahogany. The proposed work would be completed by contractors, MTFW&P employees, and willing volunteers as time allows.

Conifer encroachment has been identified as a considerable threat to sage grouse conservation (80 FR 59858, October 2, 2015), and reducing the prevalence of rangeland-invading trees has been identified as an important objective for this region of southwest Montana.

Objectives of the Project:

The objective of the work is to continue the removal of conifers, primarily Douglas fir and Rocky Mountain juniper, from the mahogany stands in the Big Sheep Creek area to:

1. Diminish water, sunlight, and nutrient competition,
2. Create a browse barrier to provide short-term protection to young or highly stressed mahogany plants so they can produce seeds and provide a stable source of browse, and
3. Positively influence nutritional resources on winter range heavily used by mule deer and other browsers.

Encroachment removal would occur within and up to 150 feet from existing mahogany stands. The majority of conifers would be lopped and scattered, while approximately 25% of conifers would be used whole or in larger pieces as a browse barrier to promote regeneration of mountain mahogany. FWP, the USFS and the BLM has had limited success with this technique in Scudder Creek and Black Mountain. The literature on mountain mahogany provides very little guidance on restoration techniques. Gruell et al. (1986) suggests cutting and/or low intensity prescribed fire are the only viable treatment options in mountain mahogany. MTFW&P does not view fire as a viable alternative within these stands as there is no fine fuel to carry a fire. MTFW&P does support prescribed fire in the habitats outside of the designated mahogany stands.

Gruell, G.E, Brown, J.K. and Bushey, C.L. Prescribed fire opportunities in grasslands invaded by Douglas-fir: state-of-the-art guidelines. General Technical Report INT-198.

Duration of Activities:

The project originally began in 2018, this next phase or continuation of the 2018 and 2019 treatments will begin in the spring/summer of 2024 and continue for up to 5 years.

Project Development

SCOPING AND PUBLIC INVOLVEMENT:
A specific project scoping notice was sent to individuals within a mile of the proposed projects and organizations likely to have an interest in the proposal and project area on March 3, 2018, in which the DNRC received no comments.

SUMMARY OF COMMENTS RECEIVED:
The DNRC did not receive comments on the project area in 2018.

In accordance with the Montana Environmental Policy Act, public concerns about the project and potential environmental impacts must be considered and analyzed prior to making the decision of whether to allow permission for this proposal to be approved.

Accommodations were made in 2018 for the public to submit comments electronically through the use of letters, phone calls and the email account jspooner@mt.gov

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

- **No other government permits are required for this proposal**.

ALTERNATIVES CONSIDERED:

During the development of this project, two distinct alternatives were considered, which include the Proposed Action Alternative and the No Action Alternative.

Proposed Action Alternative – Under the Action Alternative, DNRC would allow the MTFW&P, MDF, and TNC to implement conifer removal activities on State Trust Lands.

No Action Alternative – Under the No Action Alternative, the DNRC would not authorize the MTFW&P, MDF, and TNC to implement the project on State Trust Lands.

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:

The conifer encroachment in the project area was mapped using a combination of aerial photography and site inspections. The mountain mahogany stand is dominated by mahogany with scattered conifers. In the proposed treatment area, Montana FWP and Montana DNRC identified approximately 350 acres of encroachment for mountain mahogany treatment in addition to the approximately 223 acres treated in 2018 and 2019.

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														
Noxious Weeds	x													
Rare Plants	x													
Vegetative community	x				x				x				No	1.
Action														
Noxious Weeds	x				x				x					
Rare Plants	x				x				x				Yes	2.
Vegetative community		x			x				x				Yes	3.

Comments:
1. Under the No Action Alternative, conifer encroachment would continue into mountain mahogany-dominated vegetation community types. As no activities would occur or be possible under this alternative, no mitigations would be possible to reduce this occurrence.

2. An Environmental Summary Report obtained by the Montana Natural Heritage Program (MNHP) for the project (April 2024) to identify possible endangered, threatened, and sensitive plants in the proposed treatment area identified various plant and animal species, see **Exhibit B – MNHP Environmental Summary Report** for a list of those species.

3. Under the Action Alternative beneficial effects to native plant communities in the area would be expected from conifer removal treatments.

SOIL DISTURBANCE AND PRODUCTIVITY:

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														

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		
Physical Disturbance (Compaction and Displacement)	x				x				x					2.
Erosion	x				x				x					2.
Nutrient Cycling	x				x				x					2.
Slope Stability	x				x				x					2.
Soil Productivity	x				x				x					2.
Action														
Physical Disturbance (Compaction and Displacement)	x				x				x					3.
Erosion	x				x				x					3.
Nutrient Cycling	x				x				x					3.
Slope Stability	x				x				x					3.
Soil Productivity	x				x				x					3.

Comments:
1. The NRCS soil survey of the Big Sheep Creek project shows 10 different soil types in the treatment area, **see Exhibit C – Soil Map** for additional information.

2. No Action Alternative, there would be no activities to allow any impact to soil productivity or soil disturbance.

3. Action Alternative, would allow for the removal of conifers by single tree burning, low intensity prescribed burning and the use of chainsaws. This alternative would have no negative effects on the soil productivity or soil disturbance.

WATER QUALITY AND QUANTITY:

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					1.
Water Quantity	x				x				x					1.
Action														
Water Quality	x				x				x					2.
Water Quantity	x				x				x					2.

Comments:
1. No Action Alternative, there would be no new impacts to water quality or quantity.

2. Given the project requirements, measurable direct, indirect and cumulative negative impacts to water quality and water resources would not be expected.

FISHERIES:

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					**1.**
Flow Regimes	x				x				x					**1.**
Woody Debris	x				x				x					**1.**
Stream Shading	x				x				x					**1.**
Stream Temperature	x				x				x					**1.**
Connectivity	x				x				x					**1.**
Populations	x				x				x					**1.**
Action														
Sediment	x				x				x					**2.**
Flow Regimes	x				x				x					**2.**
Woody Debris	x				x				x					**2.**
Stream Shading	x				x				x					**2.**
Stream Temperature	x				x				x					**2.**
Connectivity	x				x				x					**2.**
Populations	x				x				x					**2.**

Comments:
1. No Action Alternative, there would be no new impacts to the fisheries.

2. Given the project requirements, measurable direct, indirect and cumulative negative impacts to fisheries would not be expected.

WILDLIFE:

Wildlife	Impact												Can Impact be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Species of Concern														
Pygmy Rabbit (*Brachylagus idahoensis)* Habitat: Big sagebrush and suitable soils for burrowing	x				x				x				**Yes**	**1.**
Little Brown Myotis (*Myotis lucifugus*)	x				x				x				**Yes**	**2.**

Wildlife	Impact												Can Impact be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Habitat: Variety of habitats across a large elevation gradient														
Wolverine (*Gulo gulo*) Habitat: Alpine tundra, and boreal and mountain forests	x				x				x				**Yes**	**3.**
Great Blue Heron (*Ardea herodias*) Habitat: Major rivers and lakes	x				x				x				**Yes**	**4.**
Clark's Nutcracker (*Nucifraga columbiana*) Habitat: Mature to old burned or beetle-infested forest	x				x				x				**Yes**	**5.**
Westslope Cutthroat Trout (*Oncorhynchus clarkia lewisi*) Habitat: Cold, gravely, pool and cover dominated streams	x				x				x				**Yes**	**6.**
Brewer's Sparrow (*Spizella breweri*) Habitat: Shrubsteppe habitats dominated by sagebrush	x					x				x			**Yes**	**7.**
Golden Eagle (*Aquila chrysaetos*) Habitat: Cliffs and large trees and hunt over prairie and open woodlands	x				x				x				**Yes**	**8.**
Green-tailed Towhee (*Pipilo chlorurus*) Habitat: Sagebrush and other shrub communities	x					x				x			**Yes**	**9.**
Veery (*Catharus fuscescens*)	x					x				x			**Yes**	**10.**

Wildlife	Impact												Can Impact be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Habitat: Willow thickets and cottonwoods along water bodies														
Long-billed Curlew (*Numenius americanus*) Habitat: Prairie and meadow habitats with mixed grasses and moist soils	x					x				x			**Yes**	**11.**
Peregrine falcon (*Falco peregrinus*) Habitat: Cliff features near open foraging areas and/or wetlands	x				x				x					
Pileated woodpecker (*Dryocopus pileatus*) Habitat: Late-successional ponderosa pine and larch-fir forest	x				x				x					
Greater Sage grouse (*Centrocercus urophasianus*) Habitat: sagebrush semi-desert	x					x				x			**Yes**	**12.**
Townsend's big-eared bat (*Plecotus townsendii*) Habitat: Caves, caverns, old mines	x				x				x					
Big Game Species														
Elk		x				x				x			Yes	13.
Whitetail		x				x				x			Yes	13.
Mule Deer		x				x				x			Yes	13.
Other		x				x				x			Yes	13.

Comments:
1. <u>Pygmy Rabbit</u> – The project area lies within a mile of a confirmed breeding area for the species. Habitats in Montana include shrub-grasslands on alluvial fans, floodplains, plateaus, high mountain valleys, and mountain slopes, where suitable sagebrush cover

and soils for burrowing are available." By removing encroaching conifers from the mountain mahogany communities the positive impact on the rabbit is greater than the negative impact. There is no negative impact expected.

2. Little Brown Myotis – The project area lies within a confirmed area of occupancy of the Little Brown Myotis. The species is found in a wide range of habitats across a large elevation gradient and is found to feed over bodies of water. The activities of this project are not expected to have a negative impact.

3. Wolverine – The project area falls within 6 miles of confirmed occupancy of wolverines, the Woverine is a species of concern. However, high elevation peaks and basins that possess late persistent snowpack in spring are not present in the project area. Given that preferred denning habitat for wolverines would not be treated under the proposed action, no direct, indirect, or cumulative effects to wolverines would be anticipated.

4. Great Blue Heron – The project area lies within 2 miles of a confirmed nesting area for the species. The primary habitat in Montana for the species is major rivers and lakes with nesting taking place in mainly the largest cottonwoods in the area. By removing encroaching conifers from the mountain mahogany communities there is no negative impact expected.

5. Clark's Nutcracker – The project area is in the range of the species but is not expected to have any impact because the Clark's Nutcracker's preferred habitat is conifer forests that are dominated by whitebark pine and limber pine at higher elevations. This project calls for the removal of Douglas-fir and juniper in the mountain mahogany community. There is no negative impact expected to the species.

6. Westslope Cutthroat Trout – The project area is within a mile of confirmed Westslope Cutthroat Trout habitat. The primary habitat for the species is cold, nutrient poor, gravel substrate in riffles and pool crests. By removing encroaching conifers from the mountain mohogany communities there will be no negative impact expected.

7. Brewer's Sparrow – The project area is within one mile of a confirmed Brewer's Sparrows breeding area. The sparrow typically inhabits shrubsteppe habitats dominated by sagebrush with nest averaging 16 inches high in sage brush. By removing encroaching conifers from the mountain mahogany communities the positive impact on the sparrow is greater than the negative impact. There is no negative impact expected.

8. Golden Eagle – The project area is within three miles of a confirmed nesting area of the Golden Eagle. The eagle typically inhabits cliffs and in large trees (occasionally on power poles) for nesting, and hunt over prairie and open woodlands. By removing encroaching conifers from the mountain mahogany communities there will be no negative impact expected.

9. Green-tailed Towhee – The project area is within one mile of a confirmed breeding area of the Green-tailed Towhee. The species "typically occurs along the ecotone, or edge, of

sagebrush communities and other mixed-species shrub communities such as Chokecherry, snowberry, serviceberry, and mountain mahogany" (Dobbs et al. 2012). By removing encroaching conifers from the mountain mahogany communities the positive impact on the sparrow is greater than the negative impact. There is no negative impact expected.

Green-tailed Towhee — Pipilo chlorurus. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on January 25, 2018, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=ABPBX74010

10. <u>Veery</u> – The project area lies within a mile of confirmed occupancy of the species. "In Montana, Veerys are often associated with willow thickets and cottonwood along streams and lakes in valleys and lower mountain canyons." By removing encroaching conifers from the deciduous communities the positive impact on the Veery is greater than the negative impact. There is no negative impact expected

11. <u>Long-billed Curlew</u> – The project area lies within 3 miles of a confirmed breeding area of the Curlew. The habitat associated with the species is in prairie and meadow habitats with mixed grasses and moist soils. By removing encroaching conifers from the mahogany communities there will be no negative impact expected.

12. <u>Greater Sage Grouse</u> – Conifer encroachment has been identified as a considerable threat to sage grouse conservation (80 FR 59858, October 2, 2015), and reducing the prevalence of rangeland-invading trees has been identified as an important objective for this region of Montana. Proposed treatments would be planned and implemented in a coordinated fashion with conifer removal efforts on nearby state land and private lands. The positive effect of treating the state land would be greater, given the treatments will be conducted concurrently with work conducted on other cooperating ownerships across the larger landscape. The project is based on the expansion of Douglas-fir and Rocky Mountain juniper into historical sagebrush habitats. The primary objectives of the treatments are to: 1) remove encroaching conifers from Phase 1 density class areas to maintain the acreage of healthy sagebrush-rangeland communities for sage grouse, and reduce the presence of potential perch sites for avian predators near known leks; 2) force back conifer seed walls near sagebrush community types for maintenance and reduce the source of conifer seed and its abundance in sagebrush/grassland areas approximately 350 acres of state trust lands proposed for treatment would temporarily (several decades) reduce the abundance and prevalence of Douglas-fir and juniper that is beginning to invade sagebrush rangelands in the area providing a longer-term cumulative benefit to the abundance and availability of sage grouse habitat.

13. <u>Other Terrestrial and Avian Wildlife Species</u> – Vegetation communities on the project area likely provide suitable habitat for numerous other terrestrial and avian wildlife species. Such species would likely include elk, deer, forest carnivores, small mammals, prairie and forest associated neotropical migrant birds, raptors, black bears, etc. Treatments could remove vegetative cover usable by some species, and during treatments, motorized disturbance treatment associated with conifer removal could disturb and displace wildlife in the area for up to two months.

<u>Linkage, Corridors, and Habitat Connectivity</u> – The project area is focused on edge habitat situated along a forest-grassland ecotone and in stands of mountain mahogany. As such, forest cover is patchy and likely occurred in a patchy fashion under historical conditions. The project area does not occur within any known linkage zones or corridors important for maintaining connectivity of populations or migration routes. However, the potential for both short and long term fragmentation and loss of mahogany, rangeland and sagebrush habitat would be reduced, providing benefits for associated species such as sage grouse.

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					1.
Dust	x				x				x					1.
Action														
Smoke		x			x				x					2.
Dust		x			x				x					2.

Comments:
1. No Action Alternative, there would be no impact to the air quality.

2. Action Alternative, there would be limited smoke and dust impact due to vehicle travel to and from the project areas, low intensity jackpot burning and single tree burning. The impacts would be low to the air quality and pose no risks.

OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA: *List other studies, plans or projects on this tract. 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.*

No other known environmental documents or federal actions are being examined within the project area.

ARCHAEOLOGICAL SITES / AESTHETICS / DEMANDS ON ENVIRONMENTAL RESOURCES:

Cultural resources include archaeological sites, historic sites, architectural properties, traditional cultural properties (TCPs), districts, landscapes, structures, features, or objects resulting from human activity. Cultural resources are nonrenewable and, for the region, reflect either pre-European contact and date from hundreds to thousands of years old, or historic and date from A.D. 1805 (for Montana) to approximately A.D. 1966. They are typically recognized as tangible manifestations of human behavior that are at least 50 years old.

The project locality is overlapped by three culture areas, the Great Plains east of the Continental Divide, the Columbia Plateau to the west, and the Great Basin to the south. Throughout the 20th Century, anthropologists and archaeologists defined and refined the Native Culture Areas of North America in which tribes share many common cultural traits.

Pre-European contact resources are further subdivided into broad time periods. The earliest time period is generally labeled as Early Prehistoric or Paleoindian period (probably the earliest ancestors of contemporary Native Americans) and is believed to begin ca. 12,000 radiocarbon years before present (BP) and extend to ca. 8,000 BP. The earliest occupants of North America, in part, hunted now extinct forms of giant fauna including mammoth, mastodon, and long-horned bison. It is currently believed that a warming and drying trend depleted the large continental glaciers that covered much of the northern hemisphere at that time. This theorized extended period of drought commenced shortly before, or after, the arrival of the first peoples to the Americas, and may have persisted until amelioration of climatic conditions around ca. 5,000 BP.

The Middle Prehistoric period or Archaic (ca. 8,000 to 1,000 BP), was a time when human populations increased (especially toward the end of the Middle Prehistoric period) and may have exploited a broader range of animals and plant resources to survive than did their Paleoindian counterparts. In some culture areas the Archaic lifeway persisted until European contact.

The Late Prehistoric period begins ca. 1,000 to B.P. to ca. A.D. 1750 and marks the transition from the atlatl and dart to the bow and arrow as the dominant weaponry system. It also marks abrupt changes in social order which, in part, can be seen in the large scale communal bison kills common to that time frame.

The Proto-historic period is marked by the arrival of horses of Spanish stock brought into the region by the Shoshone, and also the presence of metal and glass trade items (including firearms) initially distributed across the Canadian Plains from French and British traders. For the study area, the Proto-historic period gives way to the Historic Period with the presence of the Corps of Discovery in the region and the first known written records.

Precontact and Proto-historic site types for the region include trails, open-air campsites, cave or rockshelter occupation sites, human burials, vision quest sites, individual cairns (rock piles) and cairn lines, tipi ring sites, medicine wheels, stone effigies, animal kill and/or processing sites,

hunting blinds, lithic extraction and processing sites, plant processing sites, and pictograph or petroglyph (rock art) sites.

Following exploration of the region by the Corps of Discovery (A.D. 1803-1805), the Historic period is marked by U.S. government explorers and fur traders. These were later followed by missionaries, miners, ranchers/farmers, and other diversified commercial interests of industrialized society.

Typical Historic period site types in the region can be grouped into several categories:

> 1) exploration, overland migration, or commerce sites: trails (likely Native American in origin), river fords, wagon/stagecoach roads, railroads, automobile roads, geologic/geographic landmarks, and inscriptions in rock;

> 2) fur trade and military: forts, posts, encampments, cabins;

> 3) homesteading, ranching, and farming sites: residences (including foundations), outlying buildings, and structures (including fences, field/pasture patterns, stock ponds and dams, and irrigation structures;

> 4) mining: prospect pits and trenches, placer or hydraulic mine equipment or deposits, lode mining adits, shafts, waste rock, interior tramways, mills (various types), smelters, tailing piles, tailing ponds, and flumes;

> 5) timber industry: timber camps, trash dumps, skid trails, rail lines, sky-line cables, lumber mills, power plants, roads, donkey engines, big wheels, rail lines, log decks, flumes, and fire towers;

> 6) urban: abandoned town sites including foundations and trash dumps, and power plants.

Paleontological resources are fossilized plant and animal remains that are rare and have scientific research value. Nonrenewable paleontological and cultural resources provide

invaluable information about the behavior of past plant, animal, and human populations and their environments.

A Class I level review was conducted by the DNRC staff archaeologist for the areas of potential effect (APE) on state land. This entailed inspection of project maps, geologic maps, the DNRC's TLMS database, and General Land Office Survey Plats. The Class I search revealed that a few cultural resources have been identified in, or near, the APEs. Further, Class III level inventories have covered less than 20% of the APEs. The cultural resources identified consist of both historic and precontract items. Precontact items are limited to thin scatterings of chipped stone debitage, low-profile cairns, and tipi ring-size stone circles. Historic cultural resources consist of roads/trails and building remnants.

In general, the terrain within the state land portions of the APEs is steep (40+ percent slopes). Additionally, there are a lack of springs and a lack of geology that would suggest caves, rock shelters, or sources of tool stone. Because neither cultural nor paleontologic resources density is expected to be high on the state-owned portions of the APEs, no additional archaeological investigative work will be conducted. 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.

COMMENTS:

1. No Action Alternative, The project area is semi-arid, sagebrush covered steppe/foothills, and the topography is characteristically steep to moderately steep. Cultural and paleontologic resources within the project APEs will persist indefinitely in the rather dry and stable environment.

2. Action Alternative, The proposed action consists of two forms of treatment. The first form is lopping of young Douglas fir in localities where immature trees are typically spaced several feet or yards apart. This will entail one or more individuals using chainsaws, and walking from tree to tree. Trees will be cut near ground level and left to deteriorate in-place. This form of treatment has no potential to physically or visually impact any kind of cultural or paleontologic resource.

   The second form of treatment calls for controlled burning (low to moderate intensity) of densely growing stands of immature Douglas fir. Many studies concerning the effects of fire on cultural resources have been conducted (e.g., Connor and Cannon 1991, Picha et al. 1991). The results suggest that stone artifacts and stone features have little potential to be physically impacted or modified with wildland fires of low to moderate intensity. In contrast, above ground wooden structures would not tolerate any level of

burning. However, wooden cultural features are not known to exist in the project APEs on state land.

Because no cultural or paleontologic site has been identified on private land within the APEs, proposed conifer encroachment treatments will not impact these resources.

References Cited:

Connor, Melissa A. and Kenneth P. Cannon

1991   Forest Fires as a Site Formation Process in the Rocky Mountains of Northwestern Wyoming.

   Archaeology in Montana Vol 32(2): Pp. 1-14.

Picha, Paul , Stanley A. Ahler, Rodney D. Sayler, and Robert W. Seabloom

1991   Effects of Prairie Fire on Selected Artifact Classes. *Archaeology in Montana* Vol 32(2): Pp. 15-28.

Impacts on the Human Population

Evaluation of the impacts on the proposed action including <u>direct, secondary, and cumulative</u> 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					

Will Alternative result in potential impacts to:	Direct				Secondary				Cumulative				Can Impact Be Mitigated?	Comment Number
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Access To and Quality of Recreational and Wilderness Activities	x				x				x					
Density and Distribution of population and housing	x				x				x					
Social Structures and Mores	x				x				x					
Cultural Uniqueness and Diversity	x				x				x					
Action														
Health and Human Safety		x				x				x			Yes	1.
Industrial, Commercial and Agricultural Activities and Production	x				x				x					2.
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					3.
Density and Distribution of population and housing	x				x				x					
Social Structures and Mores	x				x				x					4.
Cultural Uniqueness and Diversity	x				x				x					

Comments:

1. Proposed tree slashing activities would require adequate safety measures to be in place to ensure the safety of workers. Safety requirements complying with OSHA standards and federal and state safety regulations would be required for all sawing operations.

2. The proposed treatments that would be conducted using project funding would not be expected to alter any existing traditional agricultural or ranching uses on the project area or surrounding lands.

3. Conifer removal along forest fringe areas would alter existing vegetation and have a minor, temporary effect for up to several decades on the visual appearance of the affected lands and associated landscape. Treatments along the forest-grassland ecotone would appear natural and would likely be almost non-discernable to most casual observers. Minor expected changes would be cumulative to other natural and man-caused disturbances across the landscape over time.

4. The proposed treatments that would be conducted using Mule Deer Foundation funding would not be expected to disturb or alter any native or traditional lifestyles or communities.

Does the proposed action involve potential risks or adverse effects that are uncertain but extremely harmful if they were to occur?

The proposed actions associated with this project will not involve potential risks or any adverse effects that are uncertain or extremely harmful if they were to occur.

Does the proposed action have impacts that are individually minor, but cumulatively significant or potentially significant?

The proposed actions associated with this project will not have any cumulative effects or potentially significant effects on the environment.

Environmental Assessment Checklist Prepared By:

    Name: Michaela Kalinowski
    Title: MT Forest Action Plan Forester
    Date: April 15, 2024

Finding

Alternative Selected

Proposed Action Alternative – Under the Action Alternative, DNRC would allow the MTFW&P, MDF, and TNC to implement conifer removal activities on State Trust Lands.

Significance of Potential Impacts
The potential positive impacts of this project are very high, with little negative impacts expected. Restoring sagebrush steppe is a high priority for maintaining greater sage grouse habitat and other sagebrush dependent species in Southwest Montana and is prescribed in the Montana Governors 2015 executive order No. 10-2014. The order states that the state agencies shall give priority to the maintenance and enhancement of sage grouse habitats in core and state, federal and private entities working collaboratively to maintain and enhance sage grouse habitats and populations. This work will be paid for through funding from the Mule Deer

Foundation and in-kind volunteer contributions from MT Fish Wildlife & Parks and will be administered through the DNRC and TNC.

Need for Further Environmental Analysis

| | EIS | | More Detailed EA | **X** | No Further Analysis |

**Environmental Assessment Checklist Approved By:**
 Name: Timothy Egan
 Title: Dillon Unit Manager
 Date: 04/16/2024
 Signature: /s/ Timothy Egan

Dillon DNRC Trust Land
Encroachment Treatment Big Sheep Creek
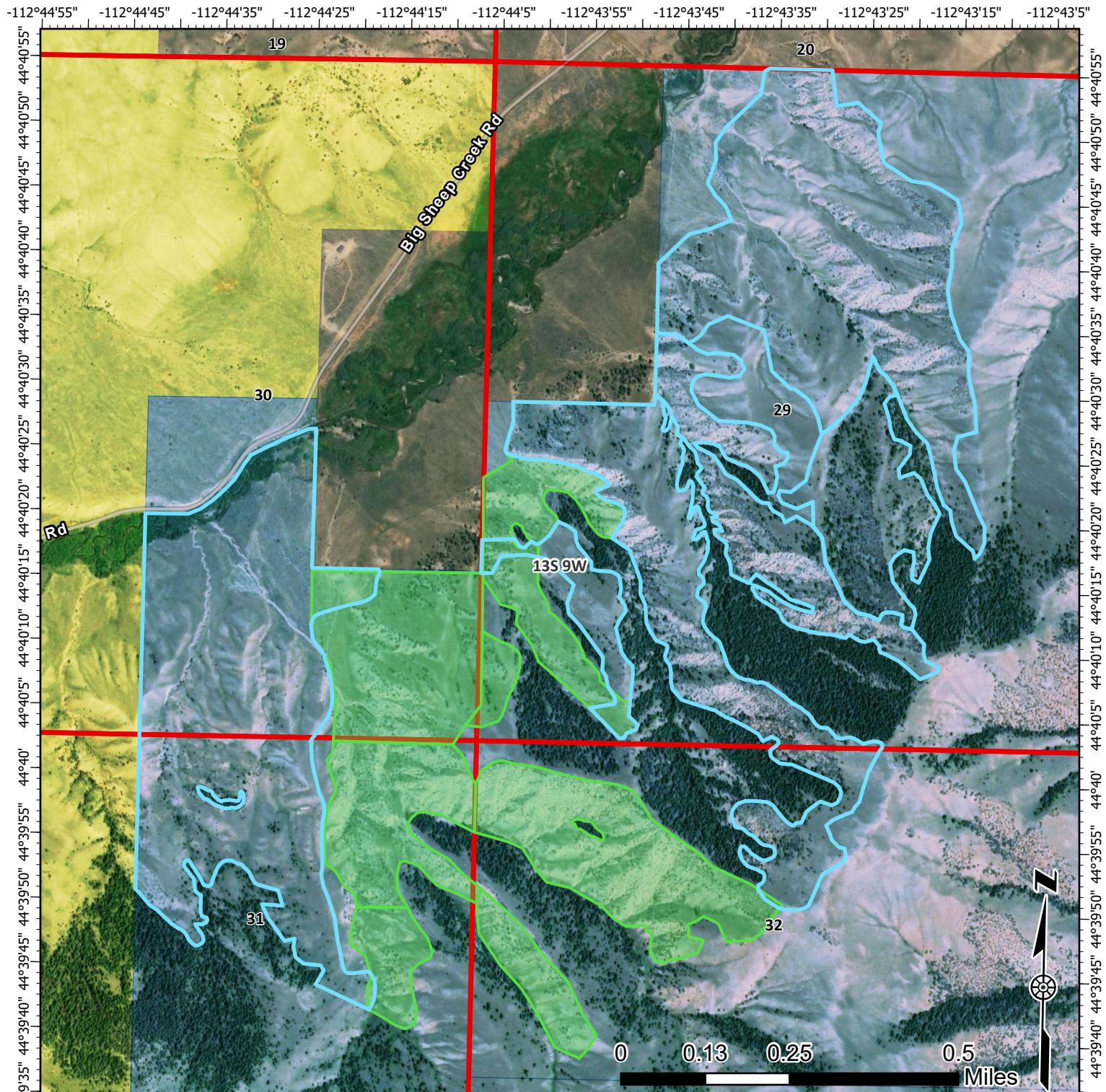
Legend:
- Proposed Conifer Removal
- Slashing Complete (2018 & 2019)
- DNRC Trust Lands
- US Bureau of Land Management

Exhibit A - Project Location

Year Proposed: 2024
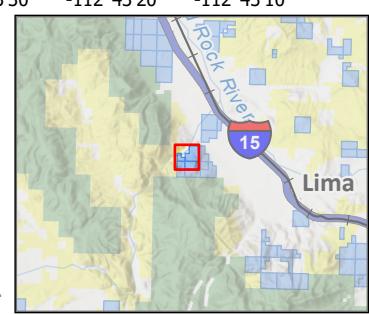
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Latitude	Longitude
44.65120	-112.71468
44.69827	-112.77489

Summarized by:
013S009W030
(Buffered PLSS Section)

Suggested Citation

Montana Natural Heritage Program. Environmental Summary Report.

for Latitude 44.65120 to 44.69827 and Longitude -112.71468 to -112.77489. Retrieved on 4/15/2024.

The Montana Natural Heritage Program is part of the Montana State Library's Natural Resource Information System. Since 1985, it has served as a neutral and non-regulatory provider of easily accessible information on Montana's species and biological communities to inform all stakeholders in environmental review, permitting, and planning processes. The program is part of the NatureServe network that is composed of over 60 member programs across North America that work to provide current and comprehensive distribution and status information on species and biological communities.

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NATURESERVE

Environmental Summary

Native Species

Summarized by: **013S009W030** *(Buffered PLSS Section)*

Filtered by:

Native Species reports are filtered for Species with MT Status = Species of Concern

Species Occurrences
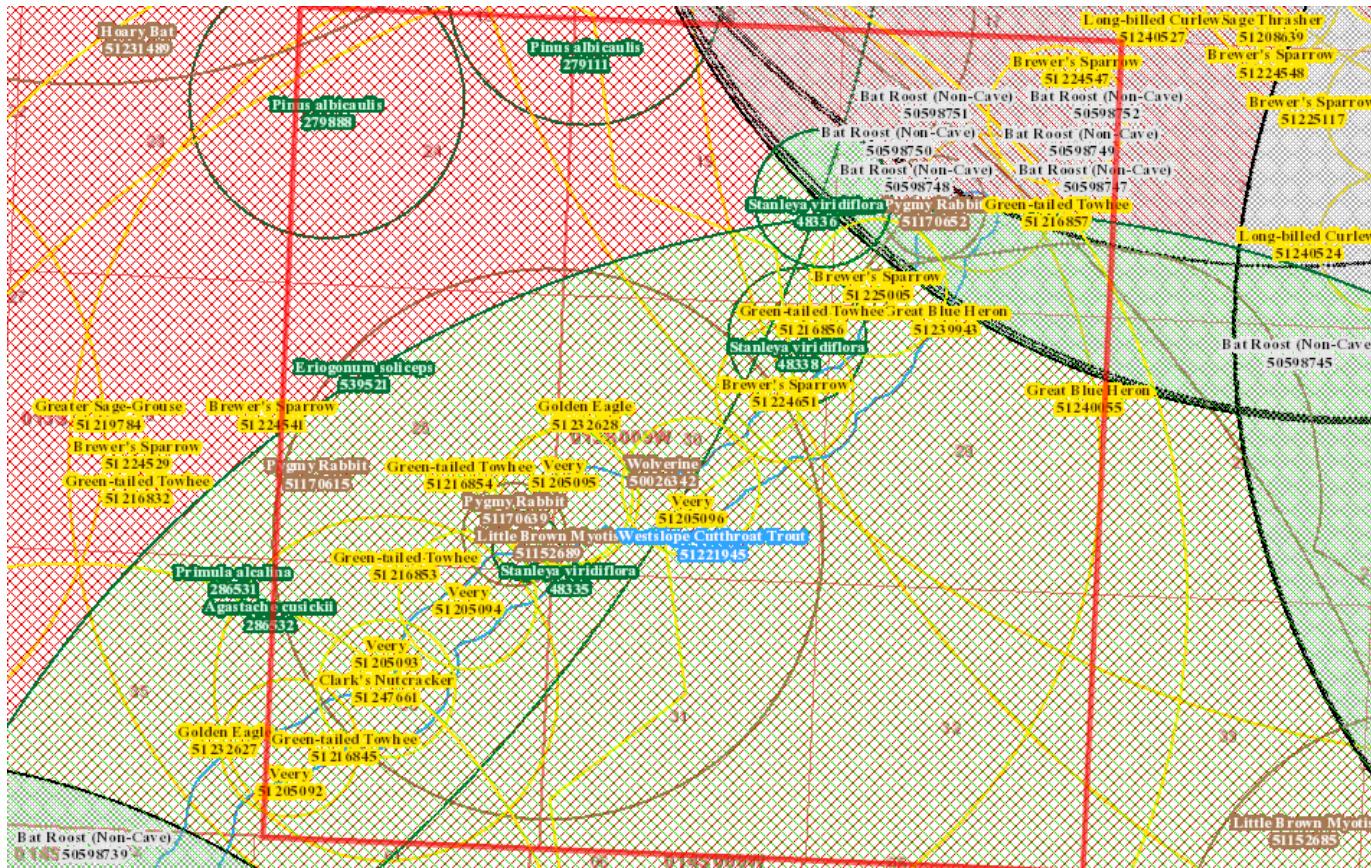
		USFWS Sec7	# SO	# Obs	Predicted Model	Range
F - Westslope Cutthroat Trout *(Oncorhynchus clarkii lewisi)* **SOC**			1	12		Y

View in Field Guide   **View Predicted Models**   **View Range Maps**

Species of Concern - Native/Non-native Species - (depends on location or taxa)   Global: **G5T4**   State: **S2**
USFS: **Sensitive - Known in Forests (BD, BRT, KOOT, LOLO)**
Species of Conservation Concern in Forests (CG, HLC)   BLM: **SENSITIVE**   FWP SWAP: **SGCN2**

Delineation Criteria   Stream reaches and standing water bodies where the species presence has been confirmed through direct capture or where they are believed to be present based on the professional judgement of a fisheries biologist due to confirmed presence in adjacent areas. In order to reflect the importance of adjacent terrestrial habitats to survival, stream reaches are buffered 100 meters, standing water bodies greater than 1 acre are buffered 50 meters, and standing water bodies less than 1 acre are buffered 30 meters into the terrestrial habitat based on PACFISH/INFISH Riparian Conservation Area standards. *(Last Updated: Mar 08, 2024)*

Predicted Models: N 52% Suitable (native range) (deductive)

		USFWS Sec7	# SO	# Obs	Predicted Model	Range
V - Agastache cusickii *(Cusick's Horsemint)* **SOC**			1			Y

View in Field Guide   **View Predicted Models**   **View Range Maps**

Species of Concern - Native Species   Global: **G3G4**   State: **S2S3**   USFS: **Sensitive - Known in Forests (BD)**   BLM: **SENSITIVE**   Plant Threat Score: **High - Medium**
CCVI: **Moderately Vulnerable**

Delineation Criteria   Individual occurrences are generally based upon a discretely mapped area provided by an observer and are not separated by any pre-defined distance. Individual clusters of plants mapped at fine spatial scales (separated by less than approximately 25-50 meters) may be grouped together into one occurrence if they are not separated by distinct areas of habitat or terrain features. Point observations are buffered to encompass any locational uncertainty associated with the observation. *(Last Updated: Jan 29, 2021)*

Predicted Models: O 22% Optimal (inductive), M 26% Moderate (inductive), L 46% Low (inductive)

		USFWS Sec7	# SO	# Obs	Predicted Model	Range
B - Green-tailed Towhee *(Pipilo chlorurus)* **SOC**			6	8		S M

View in Field Guide   **View Predicted Models**   **View Range Maps**

Species of Concern - Native Species   Global: **G5**   State: **S3B**   USFWS: **MBTA**   FWP SWAP: **SGCN3**   PIF: **3**

Delineation Criteria   Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 125 meters in order to encompass the breeding home range size reported for the species and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. *(Last Updated: Dec 28, 2023)*

Predicted Models: M 81% Moderate (inductive), L 19% Low (inductive)

B - Clark's Nutcracker *(Nucifraga columbiana)* SOC   1   3   Y

View in Field Guide   **View Predicted Models**   **View Range Maps**

Species of Concern - Native Species   Global: **G5**   State: **S3**   USFWS: **MBTA**   USFS: **Species of Conservation Concern in Forests (FLAT)**   FWP SWAP: **SGCN3**   PIF: **3**

Delineation Criteria   Observations with direct evidence of breeding activity or indirect evidence of breeding activity between early March and mid-July within forested habitats containing Whitebark Pine (Pinus albicaulis), Limber Pine (Pinus flexilis), or Ponderosa Pine (Pinus ponderosa). Observations are buffered by a minimum distance of 1,000 meters in order to encompass the spring/summer breeding territory size reported for the species or the locational uncertainty of the observation to a maximum distance of 10,000 meters. (Last Updated: Apr 03, 2024)

Predicted Models: M 58% Moderate (inductive), L 42% Low (inductive)

B - Golden Eagle *(Aquila chrysaetos)* SOC   2   1   Y

View in Field Guide   **View Predicted Models**   **View Range Maps**

Species of Concern - Native Species   Global: **G5**   State: **S3**   USFWS: **BGEPA; MBTA**   BLM: **SENSITIVE**   FWP SWAP: **SGCN3**

Delineation Criteria   Confirmed nesting area buffered by a minimum distance of 3,000 meters in order to be conservative about encompassing the entire breeding territory and area commonly used for renesting and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Mar 25, 2024)

Predicted Models: M 40% Moderate (inductive), L 60% Low (inductive)

V - Eriogonum soliceps *(Railroad Canyon Wild Buckwheat)* SOC   1   Y

View in Field Guide   **View Predicted Models**   **View Range Maps**

Species of Concern - Native Species   Global: **G3**   State: **S3**   BLM: **SENSITIVE**   Plant Threat Score: **No Known Threats**   CCVI: **Less Vulnerable**

Delineation Criteria   Individual occurrences are generally based upon a discretely mapped area provided by an observer and are not separated by any pre-defined distance. Individual clusters of plants mapped at fine spatial scales (separated by less than approximately 25-50 meters) may be grouped together into one occurrence if they are not separated by distinct areas of habitat or terrain features. Point observations are buffered to encompass any locational uncertainty associated with the observation. (Last Updated: Dec 01, 2023)

Predicted Models: M 28% Moderate (inductive), L 42% Low (inductive)

M - Little Brown Myotis *(Myotis lucifugus)* SOC   1   1   Y

View in Field Guide   **View Predicted Models**   **View Range Maps**

Species of Concern - Native Species   Global: **G3G4**   State: **S3**   USFS: **Sensitive - Known in Forests (BD, BRT, KOOT)**   FWP SWAP: **SGCN3**

Delineation Criteria   Confirmed area of occupancy based on the documented presence (mistnet captures, definitively identified acoustic recordings, or definitively identified roosting individuals) of adults or juveniles. Point observation location is buffered by a distance of 1,600 meters in order to encompass the greater than 1,500 meters foraging distance reported for the species in New Brunswick, Canada and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. When cave locations are involved, point observations are mapped in the center of a one-square mile hexagon to protect the exact location of the cave entrance as per the Federal Cave Resource Protection Act and associated regulations (U.S. Code Title 16 Chapter 63, Code of Federal Regulations Title 43 Subtitle A Part 37). The outer edges of the hexagon are then buffered by a distance of 1,600 meters and otherwise by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. All of the one-square mile hexagons intersecting this buffered area are presented as the Species Occurrence record. (Last Updated: Jul 06, 2023)

Predicted Models: M 22% Moderate (inductive), L 78% Low (inductive)

B - Brewer's Sparrow *(Spizella breweri)* SOC   5   6   S M

View in Field Guide   **View Predicted Models**   **View Range Maps**

Species of Concern - Native Species   Global: **G5**   State: **S3B**   USFWS: **MBTA**   BLM: **SENSITIVE**   FWP SWAP: **SGCN3**   PIF: **2**

Delineation Criteria   Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 100 meters in order to encompass the maximum territory size reported for the species and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Mar 21, 2024)

Predicted Models: M 17% Moderate (inductive), L 75% Low (inductive)

B - Veery *(Catharus fuscescens)* SOC   5   5   S M

View in Field Guide   **View Predicted Models**   **View Range Maps**

Species of Concern - Native Species   Global: **G5**   State: **S3B**   USFWS: **MBTA**   BLM: **SENSITIVE**   FWP SWAP: **SGCN3**   PIF: **2**

Delineation Criteria   Observations with evidence of breeding activity buffered by a minimum distance of 300 meters in order to be conservative about encompassing home ranges and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Dec 28, 2023)

Predicted Models: M 15% Moderate (inductive), L 84% Low (inductive)

V - Pinus albicaulis *(Whitebark Pine)* SOC   7   2   2   Y

View in Field Guide   **View Predicted Models**   **View Range Maps**

Species of Concern - Native Species   Global: **G3G4**   State: **S3**   USFWS: **LT**   USFS: **Sensitive - Known in Forests (LOLO)**   BLM: **THREATENED**   Plant Threat Score: **Unknown**   CCVI: **Highly Vulnerable**

Delineation Criteria   Point and/or polygonal observations are buffered by a minimum distance of 400 meters in order to account for stands instead of individual trees and to a maximum distance of 2,000 meters in order to encompass locational uncertainty associated with some common data sources for this species. (Last Updated: Mar 07, 2024)

Predicted Models: M 10% Moderate (inductive), L 27% Low (inductive)

V - Primula alcalina *(Alkali Primrose)* SOC   1   Y

View in Field Guide   **View Predicted Models**   **View Range Maps**

Species of Concern - Native Species   Global: **G2**   State: **S2**   USFS: **Sensitive - Known in Forests (BD)**   BLM: **SENSITIVE**   Plant Threat Score: **Very High**   CCVI: **Extremely Vulnerable**

Delineation Criteria   Individual occurrences are generally based upon a discretely mapped area provided by an observer and are not separated by any pre-defined distance. Individual clusters of plants mapped at fine spatial scales (separated by less than approximately 25-50 meters) may be grouped together into one occurrence if they are not separated by distinct areas of habitat or terrain features. Point observations are buffered to encompass any locational uncertainty associated with the observation. (Last Updated: Jul 23, 2018)

Predicted Models: M 1% Moderate (inductive)

M - Hoary Bat *(Lasiurus cinereus)* SOC   1   S M

View in Field Guide   **View Predicted Models**   **View Range Maps**

Species of Concern - Native Species   Global: **G3G4**   State: **S3B**   BLM: **SENSITIVE**   FWP SWAP: **SGCN3**

Delineation Criteria   Confirmed area of occupancy based on the documented presence (mistnet captures, definitively identified acoustic recordings, and definitively identified roosting individuals) of adults or juveniles during the active season. Point observation location is buffered by a minimum distance of 3,500 meters in order to be conservative about encompassing the maximum reported foraging distance for the congeneric Lasiurus borealis and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Mar 22, 2024)

Predicted Models: L 100% Low (inductive)

M - Pygmy Rabbit *(Sylvilagus idahoensis)* SOC   3   2   Y

View in Field Guide   **View Predicted Models**   **View Range Maps**

Species of Concern - Native Species   Global: **G4**   State: **S3**   BLM: **SENSITIVE**   FWP SWAP: **SGCN3**

Delineation Criteria   Confirmed breeding area based on the presence of a resident animal of any age or evidence for recent occupancy of a burrow system. Point observation location is buffered by a minimum distance of 300 meters in order to encompass the maximum home range size reported for the species and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Dec 21, 2023)

Predicted Models: L 40% Low (inductive)

⊟ B - Greater Sage-Grouse *(Centrocercus urophasianus)* SOC

View in Field Guide   **View Predicted Models**   **View Range Maps**

USFS: **Sensitive - Known in Forests (BD)**

Species of Concern - Native Species   Global: **G3G4**   State: **S2**   **Species of Conservation Concern in Forests (CG)**   BLM: **SENSITIVE**   FWP SWAP: **SGCN2**   PIF: **1**

Delineation Criteria   Confirmed breeding area based on the presence of a nest, chicks, juveniles, or adults on a lek. Point observations are mapped in the center of a one-square mile hexagon to protect the exact locations of leks. The outer edges of this hexagon are then buffered by a distance of 6,400 meters in order to encompass a body of research indicating that females typically nest within this distance of a lek and that lek numbers are negatively impacted by fossil fuel drilling activities within this distance of a lek. If the locational uncertainty associated with the observation is greater than this distance, it is buffered by the locational up to a maximum distance of 10,000 meters. All of the one-square mile hexagons intersecting this buffered area are presented as the Species Occurrence record. (Last Updated: Jan 05, 2024)

Predicted Models: L 21% Low (inductive)

⊟ B - Great Blue Heron *(Ardea herodias)* SOC

View in Field Guide   **View Predicted Models**   **View Range Maps**

Species of Concern - Native Species   Global: **G5**   State: **S3**   USFWS: **MBTA**   FWP SWAP: **SGCN3**

Delineation Criteria   Confirmed nesting area buffered by a minimum distance of 6,500 meters in order to be conservative about encompassing the areas commonly used for foraging near the breeding colony and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Apr 03, 2024)

Predicted Models: L 5% Low (inductive)

⊟ M - Wolverine *(Gulo gulo)* SOC

View in Field Guide   **View Predicted Models**   **View Range Maps**

Species of Concern - Native Species   Global: **G4**   State: **S3**   USFWS: **LT**   USFS: **Sensitive - Known in Forests (LOLO)**   BLM: **SENSITIVE**   FWP SWAP: **SGCN3**

Delineation Criteria   Confirmed area of occupancy supported by recent (post-1980), nearby (within 10 kilometers) observations of adults or juveniles. Tracking regions were defined by areas of primary habitat and adjacent female dispersal habitat as modeled by Inman et al. (2013). These regions were buffered by 1 kilometer in order to link smaller areas and account for potential inaccuracies in independent variables used in the model. (Last Updated: Dec 20, 2023)

Predicted Models: L 4% Low (inductive)

Native Species

Summarized by: **013S009W030** *(Buffered PLSS Section)*
Filtered by:
Native Species reports are filtered for Species with MT Status = Species of Concern

Other Observed Species

	USFWS Sec7	# Obs	Predicted Model	Range
⊟ **B - Loggerhead Shrike** *(Lanius ludovicianus)* **SOC**		1	Not Assessed	S M

View in Field Guide   **View Range Maps**

Species of Concern - Native Species   Global: **G4**   State: **S3B**   USFWS: **MBTA**   BLM: **SENSITIVE**   FWP SWAP: **SGCN3**   PIF: **2**

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Legend

Model Icons
- **N** Suitable (native range)
- **O** Optimal Suitability
- **M** Moderate Suitability
- **L** Low Suitability
- **I** Suitable (introduced range)

Habitat Icons
- **C** Common
- **O** Occasional

Range Icons
- **Y** Native / Year-round
- **S** Summer
- **W** Winter
- **M** Migratory
- **N** Non-native
- **H** Historical

Num Obs
Count of obs with 'good precision' (<=1000m)
+ indicates additional 'poor precision' obs (1001m-10,000m)

	Latitude	Longitude
	44.65120	-112.71468
	44.69827	-112.77489

Native Species

Summarized by: **013S009W030** *(Buffered PLSS Section)*

Filtered by:
Native Species reports are filtered for Species with MT Status = Species of Concern

Other Potential Species

			USFWS Sec7	Predicted Model	Range

V - Physaria pulchella *(Beautiful Bladderpod)* **SOC**

View in Field Guide   **View Predicted Models**   **View Range Maps**
Species of Concern - Native Species   Global: **G3G4T3** State: **S3** USFS: **Sensitive - Known in Forests (BD)** BLM: **SENSITIVE** Plant Threat Score: **Unknown**
CCVI: **Moderately Vulnerable**
Predicted Models: **O** 22% Optimal (inductive), **M** 69% Moderate (inductive), **L** 8% Low (inductive)

V - Erigeron asperugineus *(Idaho Fleabane)* **SOC**

View in Field Guide   **View Predicted Models**   **View Range Maps**
Species of Concern - Native Species   Global: **G4** State: **S2** USFS: **Sensitive - Known in Forests (BD, BRT)** Plant Threat Score: **No Known Threats**
CCVI: **Extremely Vulnerable**
Predicted Models: **O** 10% Optimal (inductive), **L** 44% Low (inductive)

V - Lomatium attenuatum *(Taper-tip Desert-parsley)* **SOC**

View in Field Guide   **View Predicted Models**   **View Range Maps**
Species of Concern - Native Species   Global: **G3** State: **S3** USFS: **Sensitive - Known in Forests (BRT)** BLM: **SENSITIVE** Plant Threat Score: **Unknown**
CCVI: **Moderately Vulnerable**
Predicted Models: **O** 5% Optimal (inductive), **M** 42% Moderate (inductive), **L** 49% Low (inductive)

V - Primula incana *(Mealy Primrose)* **SOC**

View in Field Guide   **View Predicted Models**   **View Range Maps**
Species of Concern - Native Species   Global: **G5** State: **S3** Plant Threat Score: **High** CCVI: **Highly Vulnerable**
Predicted Models: **O** 5% Optimal (inductive), **M** 11% Moderate (inductive), **L** 34% Low (inductive)

V - Phacelia incana *(Hoary Phacelia)* **SOC**

View in Field Guide   **View Predicted Models**   **View Range Maps**
Species of Concern - Native Species   Global: **G3G4** State: **S3** Plant Threat Score: **No Known Threats**
Predicted Models: **O** 4% Optimal (inductive), **M** 75% Moderate (inductive), **L** 16% Low (inductive)

V - Astragalus terminalis *(Railhead Milkvetch)* **SOC**

View in Field Guide   **View Predicted Models**   **View Range Maps**
Species of Concern - Native Species   Global: **G3** State: **S2S3** USFS: **Sensitive - Known in Forests (BRT)** BLM: **SENSITIVE** Plant Threat Score: **Unknown**
CCVI: **Moderately Vulnerable**
Predicted Models: **M** 100% Moderate (inductive)

V - Erigeron linearis *(Linear-leaf Fleabane)* **SOC**

View in Field Guide   **View Predicted Models**   **View Range Maps**
Species of Concern - Native Species   Global: **G5** State: **S2** Plant Threat Score: **Low** CCVI: **Less Vulnerable**
Predicted Models: **M** 100% Moderate (inductive)

M - Townsend's Big-eared Bat *(Corynorhinus townsendii)* **SOC**

View in Field Guide   **View Predicted Models**   **View Range Maps**
Species of Concern - Native Species   Global: **G4** State: **S3** USFS: **Sensitive - Known in Forests (LOLO)** BLM: **SENSITIVE** FWP SWAP: **SGCN3**
Predicted Models: **M** 95% Moderate (inductive), **L** 5% Low (inductive)

B - Cassin's Finch *(Haemorhous cassinii)* **SOC**

View in Field Guide   **View Predicted Models**   **View Range Maps**
Species of Concern - Native Species   Global: **G5** State: **S3** USFWS: **MBTA; BCC10** FWP SWAP: **SGCN3** PIF: **3**
Predicted Models: **M** 84% Moderate (inductive), **L** 15% Low (inductive)

V - Eriogonum caespitosum *(Mat Buckwheat)* **SOC**

View in Field Guide   **View Predicted Models**   **View Range Maps**
Species of Concern - Native Species   Global: **G5** State: **S2S3** Plant Threat Score: **No Known Threats**
Predicted Models: **M** 79% Moderate (inductive), **L** 21% Low (inductive)

M - Spotted Bat *(Euderma maculatum)* **SOC**

View in Field Guide   **View Predicted Models**   **View Range Maps**
Species of Concern - Native Species   Global: **G4** State: **S3** BLM: **SENSITIVE** FWP SWAP: **SGCN3, SGIN**
Predicted Models: **M** 78% Moderate (inductive), **L** 22% Low (inductive)

V - Erigeron parryi *(Parry's Fleabane)* **SOC**

View in Field Guide   **View Predicted Models**   **View Range Maps**
Species of Concern - Native Species   Global: **G2G3** State: **S2S3** USFS: **Sensitive - Known in Forests (BRT)** Plant Threat Score: **No Known Threats**
CCVI: **Moderately Vulnerable**
Predicted Models: **M** 72% Moderate (inductive), **L** 15% Low (inductive)

V - Pedicularis contorta var. ctenophora *(Pink Coil-beaked Lousewort)* SOC

View in Field Guide **View Predicted Models** **View Range Maps**

Species of Concern - Native Species Global: **G5T3** State: **S2S3** USFS: **Sensitive - Known in Forests (BD, BRT)** Plant Threat Score: **Low** CCVI: **Moderately Vulnerable**
Predicted Models: M 64% Moderate (inductive), L 31% Low (inductive)

V - Carex stenoptila *(Small-winged Sedge)* SOC

View in Field Guide **View Predicted Models** **View Range Maps**

Species of Concern - Native Species Global: **G3** State: **S2S3** Plant Threat Score: **No Known Threats** CCVI: **Less Vulnerable**
Predicted Models: M 61% Moderate (inductive), L 22% Low (inductive)

M - Preble's Shrew *(Sorex preblei)* SOC

View in Field Guide **View Predicted Models** **View Range Maps**

Species of Concern - Native Species Global: **G4** State: **S3** FWP SWAP: **SGCN3**
Predicted Models: M 59% Moderate (inductive), L 41% Low (inductive)

M - Long-legged Myotis *(Myotis volans)* SOC

View in Field Guide **View Predicted Models** **View Range Maps**

Species of Concern - Native Species Global: **G4G5** State: **S3**
Predicted Models: M 51% Moderate (inductive), L 49% Low (inductive)

M - Merriam's Shrew *(Sorex merriami)* SOC

View in Field Guide **View Predicted Models** **View Range Maps**

Species of Concern - Native Species Global: **G4** State: **S3** FWP SWAP: **SGCN3**
Predicted Models: M 51% Moderate (inductive), L 49% Low (inductive)

M - Long-eared Myotis *(Myotis evotis)* SOC

View in Field Guide **View Predicted Models** **View Range Maps**

Species of Concern - Native Species Global: **G5** State: **S3**
Predicted Models: M 44% Moderate (inductive), L 56% Low (inductive)

V - Aquilegia formosa *(Sitka Columbine)* SOC

View in Field Guide **View Predicted Models** **View Range Maps**

Species of Concern - Native Species Global: **G5** State: **S3** Plant Threat Score: **Low** CCVI: **Moderately Vulnerable**
Predicted Models: M 44% Moderate (inductive), L 45% Low (inductive)

V - Stellaria crassifolia *(Fleshy Stitchwort)* SOC

View in Field Guide **View Predicted Models** **View Range Maps**

Species of Concern - Native Species Global: **G5** State: **S2** Plant Threat Score: **No Known Threats**
Predicted Models: M 38% Moderate (inductive), L 34% Low (inductive)

L - Rhizoplaca haydenii *(Hayden's Rimmed Navel Lichen)* SOC

View in Field Guide **View Predicted Models** **View Range Maps**

Species of Concern - Native Species Global: **G2G3** State: **S1S2** USFS: **Sensitive - Known in Forests (BRT)**
Predicted Models: M 36% Moderate (inductive), L 57% Low (inductive)

V - Draba densifolia *(Dense-leaf Draba)* SOC

View in Field Guide **View Predicted Models** **View Range Maps**

USFS: **Sensitive - Known in Forests (BD, BRT)**
Species of Concern - Native Species Global: **G5** State: **S2** **Species of Conservation Concern in Forests (CG, HLC)** Plant Threat Score: **Low**
CCVI: **Moderately Vulnerable**
Predicted Models: M 34% Moderate (inductive), L 61% Low (inductive)

B - Sage Thrasher *(Oreoscoptes montanus)* SOC

View in Field Guide **View Predicted Models** **View Range Maps**

Species of Concern - Native Species Global: **G4** State: **S3B** USFWS: **MBTA** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **3**
Predicted Models: M 32% Moderate (inductive), L 46% Low (inductive)

V - Adoxa moschatellina *(Musk-root)* SOC

View in Field Guide **View Predicted Models** **View Range Maps**

USFS: **Sensitive - Known in Forests (BD, LOLO)**
Species of Concern - Native Species Global: **G5** State: **S3** **Species of Conservation Concern in Forests (CG, HLC)** Plant Threat Score: **Low** CCVI: **Highly Vulnerable**
Predicted Models: M 29% Moderate (inductive), L 35% Low (inductive)

V - Potentilla plattensis *(Platte Cinquefoil)* SOC

View in Field Guide **View Predicted Models** **View Range Maps**

Species of Concern - Native Species Global: **G4** State: **S3** Plant Threat Score: **No Known Threats** CCVI: **Highly Vulnerable**
Predicted Models: M 28% Moderate (inductive), L 41% Low (inductive)

I - Margaritifera falcata *(Western Pearlshell)* SOC

View in Field Guide **View Predicted Models** **View Range Maps**

USFS: **Sensitive - Known in Forests (BD, BRT, KOOT, LOLO)**
Species of Concern - Native Species Global: **G5** State: **S2** **Species of Conservation Concern in Forests (CG, HLC)** BLM: **SENSITIVE** FWP SWAP: **SGCN2**
Predicted Models: M 26% Moderate (inductive), L 54% Low (inductive)

V - Mimulus floribundus *(Floriferous Monkeyflower)* SOC

View in Field Guide **View Predicted Models** **View Range Maps**

Species of Concern - Native Species Global: **G5** State: **SH** Plant Threat Score: **No Known Threats** CCVI: **Highly Vulnerable**
Predicted Models: M 23% Moderate (inductive), L 71% Low (inductive)

V - Ageratina occidentalis *(Western Joepye-weed)* SOC

View in Field Guide   View Predicted Models   View Range Maps
USFS: **Sensitive - Known in Forests (BRT)**
Species of Concern - Native Species   Global: **G4** State: **S2** **Sensitive - Suspected in Forests (BD, LOLO)** Plant Threat Score: **Unknown** CCVI: **Less Vulnerable**
Predicted Models: M 23% Moderate (inductive), L 56% Low (inductive)

M - Fringed Myotis *(Myotis thysanodes)* SOC

View in Field Guide   View Predicted Models   View Range Maps
Species of Concern - Native Species   Global: **G4** State: **S3** BLM: **SENSITIVE** FWP SWAP: **SGCN3**
Predicted Models: M 22% Moderate (inductive), L 31% Low (inductive)

V - Stipa lettermanii *(Letterman's Needlegrass)* SOC

View in Field Guide   View Predicted Models   View Range Maps
Species of Concern - Native Species   Global: **G5** State: **S1S3** USFS: **Species of Conservation Concern in Forests (HLC)** Plant Threat Score: **No Known Threats**
Predicted Models: M 19% Moderate (inductive), L 44% Low (inductive)

B - Ferruginous Hawk *(Buteo regalis)* SOC

View in Field Guide   View Predicted Models   View Range Maps
Species of Concern - Native Species   Global: **G4** State: **S3B** USFWS: **MBTA; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**
Predicted Models: M 16% Moderate (inductive), L 71% Low (inductive)

V - Physaria carinata *(Keeled Bladderpod)* SOC

View in Field Guide   View Predicted Models   View Range Maps
Species of Concern - Native Species   Global: **G3G4TNR** State: **S1S2** USFS: **Sensitive - Known in Forests (BD)** BLM: **SENSITIVE** Plant Threat Score: **Medium**
CCVI: **Moderately Vulnerable**
Predicted Models: M 12% Moderate (inductive), L 71% Low (inductive)

M - Dwarf Shrew *(Sorex nanus)* SOC

View in Field Guide   View Predicted Models   View Range Maps
Species of Concern - Native Species   Global: **G4** State: **S2S3** FWP SWAP: **SGCN2-3**
Predicted Models: M 11% Moderate (inductive), L 59% Low (inductive)

V - Dichanthelium acuminatum *(Panic Grass)* SOC

View in Field Guide   View Predicted Models   View Range Maps
Species of Concern - Native Species   Global: **G5** State: **S2S3** Plant Threat Score: **Unknown**
Predicted Models: M 11% Moderate (inductive), L 58% Low (inductive)

V - Carex idahoa *(Idaho Sedge)* SOC

View in Field Guide   View Predicted Models   View Range Maps
Species of Concern - Native Species   Global: **G3** State: **S3** USFS: **Sensitive - Known in Forests (BD)** BLM: **SENSITIVE** Plant Threat Score: **High**
CCVI: **Highly Vulnerable**
Predicted Models: M 11% Moderate (inductive), L 44% Low (inductive)

B - American Goshawk *(Accipiter atricapillus)* SOC

View in Field Guide   View Predicted Models   View Range Maps
Species of Concern - Native Species   Global: **G5** State: **S3** USFWS: **MBTA** FWP SWAP: **SGCN3** PIF: **2**
Predicted Models: M 9% Moderate (inductive), L 91% Low (inductive)

V - Ranunculus pedatifidus *(Northern Buttercup)* SOC

View in Field Guide   View Predicted Models   View Range Maps
Species of Concern - Native Species   Global: **G5** State: **S3** USFS: **Species of Conservation Concern in Forests (HLC)** Plant Threat Score: **Unknown**
Predicted Models: M 7% Moderate (inductive), L 39% Low (inductive)

V - Sphaeromeria argentea *(Chicken-sage)* SOC

View in Field Guide   View Predicted Models   View Range Maps
Species of Concern - Native Species   Global: **G3G4** State: **S3** BLM: **SENSITIVE** Plant Threat Score: **No Known Threats** CCVI: **Highly Vulnerable**
Predicted Models: M 5% Moderate (inductive), L 12% Low (inductive)

M - Columbia Plateau Pocket Mouse *(Perognathus parvus)* SOC

View in Field Guide   View Predicted Models   View Range Maps
Species of Concern - Native Species   Global: **G5** State: **S3** FWP SWAP: **SGCN3, SGIN**
Predicted Models: M 5% Moderate (inductive)

B - Great Gray Owl *(Strix nebulosa)* SOC

View in Field Guide   View Predicted Models   View Range Maps
Species of Concern - Native Species   Global: **G5** State: **S3** USFWS: **MBTA** BLM: **SENSITIVE** FWP SWAP: **SGCN3, SGIN** PIF: **3**
Predicted Models: M 4% Moderate (inductive), L 86% Low (inductive)

V - Kobresia simpliciuscula *(Simple Kobresia)* SOC

View in Field Guide   View Predicted Models   View Range Maps
Species of Concern - Native Species   Global: **G5** State: **S3** Plant Threat Score: **Unknown**
Predicted Models: M 4% Moderate (inductive), L 84% Low (inductive)

I - Danaus plexippus *(Monarch)* SOC

View in Field Guide   View Predicted Models   View Range Maps
Species of Concern - Native Species   Global: **G4** State: **S2S3** USFWS: **C** USFS: **Sensitive - Migratory in Forests (BD, BRT, KOOT)**
Predicted Models: M 4% Moderate (inductive), L 12% Low (inductive)

V - Carex crawei *(Crawe's Sedge)* SOC

View in Field Guide   **View Predicted Models**   **View Range Maps**
Species of Concern - Native Species   Global: **G5** State: **S2S3** Plant Threat Score: **Low**
Predicted Models: M 4% Moderate (inductive), L 1% Low (inductive)

V - Physaria saximontana var. dentata *(Rocky Mountain Twinpod)* SOC

View in Field Guide   **View Predicted Models**   **View Range Maps**
Species of Concern - Native Species   Global: **G3T3** State: **S3** Plant Threat Score: **No Known Threats** CCVI: **Moderately Vulnerable**
Predicted Models: M 1% Moderate (inductive), L 35% Low (inductive)

M - Grizzly Bear *(Ursus arctos)* SOC

View in Field Guide   **View Predicted Models**   **View Range Maps**
Species of Concern - Native Species   Global: **G4** State: **S2S3** USFWS: **LT** BLM: **THREATENED** FWP SWAP: **SGCN2-3**
Predicted Models: L 95% Low (inductive)

V - Castilleja gracillima *(Slender Indian Paintbrush)* SOC

View in Field Guide   **View Predicted Models**   **View Range Maps**
Species of Concern - Native Species   Global: **G3G4** State: **S2** Plant Threat Score: **Low** CCVI: **Highly Vulnerable**
Predicted Models: L 81% Low (inductive)

I - Bombus suckleyi *(Suckley Cuckoo Bumble Bee)* SOC

View in Field Guide   **View Predicted Models**   **View Range Maps**
Species of Concern - Native Species   Global: **G2G3** State: **S1**
Predicted Models: L 68% Low (inductive)

V - Thalictrum alpinum *(Alpine Meadowrue)* SOC

View in Field Guide   **View Predicted Models**   **View Range Maps**
Species of Concern - Native Species   Global: **G5** State: **S2** USFS: **Sensitive - Known in Forests (BD, KOOT)** Plant Threat Score: **High - Medium**
CCVI: **Highly Vulnerable**
Predicted Models: L 67% Low (inductive)

V - Thelypodium sagittatum *(Slender Thelypody)* SOC

View in Field Guide   **View Predicted Models**   **View Range Maps**
Species of Concern - Native Species   Global: **G4** State: **S2** Plant Threat Score: **Unknown** CCVI: **Highly Vulnerable**
Predicted Models: L 64% Low (inductive)

B - Evening Grosbeak *(Coccothraustes vespertinus)* SOC

View in Field Guide   **View Predicted Models**   **View Range Maps**
Species of Concern - Native Species   Global: **G5** State: **S3** USFWS: **MBTA; BCC10** FWP SWAP: **SGCN3**
Predicted Models: L 54% Low (inductive)

A - Western Toad *(Anaxyrus boreas)* SOC

View in Field Guide   **View Predicted Models**   **View Range Maps**
Species of Concern - Native Species   Global: **G4** State: **S2** USFS: **Sensitive - Known in Forests (BD, BRT, KOOT, LOLO)** BLM: **SENSITIVE** FWP SWAP: **SGCN2**
Predicted Models: L 54% Low (inductive)

B - American White Pelican *(Pelecanus erythrorhynchos)* SOC

View in Field Guide   **View Predicted Models**   **View Range Maps**
Species of Concern - Native Species   Global: **G4** State: **S3B** USFWS: **MBTA** FWP SWAP: **SGCN3** PIF: **3**
Predicted Models: L 50% Low (inductive)

B - Flammulated Owl *(Psiloscops flammeolus)* SOC

View in Field Guide   **View Predicted Models**   **View Range Maps**
                                                                    USFS: **Sensitive - Known in Forests (LOLO)**
Species of Concern - Native Species   Global: **G4** State: **S3B** USFWS: **MBTA; BCC10** **Species of Conservation Concern in Forests (FLAT, HLC)** BLM: **SENSITIVE**
FWP SWAP: **SGCN3** PIF: **1**
Predicted Models: L 38% Low (inductive)

B - Trumpeter Swan *(Cygnus buccinator)* SOC

View in Field Guide   **View Predicted Models**   **View Range Maps**
Species of Concern - Native Species   Global: **G4** State: **S3** USFWS: **MBTA** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **1**
Predicted Models: L 28% Low (inductive)

V - Eleocharis rostellata *(Beaked Spikerush)* SOC

View in Field Guide   **View Predicted Models**   **View Range Maps**
Species of Concern - Native Species   Global: **G5** State: **S3** USFS: **Species of Conservation Concern in Forests (CG, FLAT, HLC)** Plant Threat Score: **Unknown**
CCVI: **Less Vulnerable**
Predicted Models: L 28% Low (inductive)

I - Leucotrichia notosa *(A Caddisfly)* SOC

View in Field Guide   **View Predicted Models**   **View Range Maps**
Species of Concern - Native Species   Global: **G2G4** State: **S3**
Predicted Models: L 26% Low (inductive)

B - Harlequin Duck *(Histrionicus histrionicus)* SOC

View in Field Guide   **View Predicted Models**   **View Range Maps**
                                                                    USFS: **Sensitive - Known in Forests (BD, KOOT, LOLO)**
Species of Concern - Native Species   Global: **G4** State: **S2B** USFWS: **MBTA** **Sensitive - Migratory in Forests (BRT)**   FWP SWAP: **SGCN2** PIF: **1**
Predicted Models: L 26% Low (inductive)

B - Brown Creeper *(Certhia americana)* SOC

View in Field Guide   **View Predicted Models**   **View Range Maps**

Species of Concern - Native Species   Global: **G5**   State: **S3**   USFWS: **MBTA**   FWP SWAP: **SGCN3**   PIF: **1**

Predicted Models: L 24% Low (inductive)

M - Canada Lynx *(Lynx canadensis)* SOC

View in Field Guide   **View Predicted Models**   **View Range Maps**

Species of Concern - Native Species   Global: **G5**   State: **S3**   USFWS: **LT; CH**   BLM: **THREATENED**   FWP SWAP: **SGCN3**

Predicted Models: L 4% Low (inductive)

V - Spiranthes diluvialis *(Ute Ladies'-tresses)* SOC

View in Field Guide   **View Range Maps**

Species of Concern - Native Species   Global: **G2G3**   State: **S1S2**   USFWS: **LT**   Plant Threat Score: **High**   CCVI: **Extremely Vulnerable**
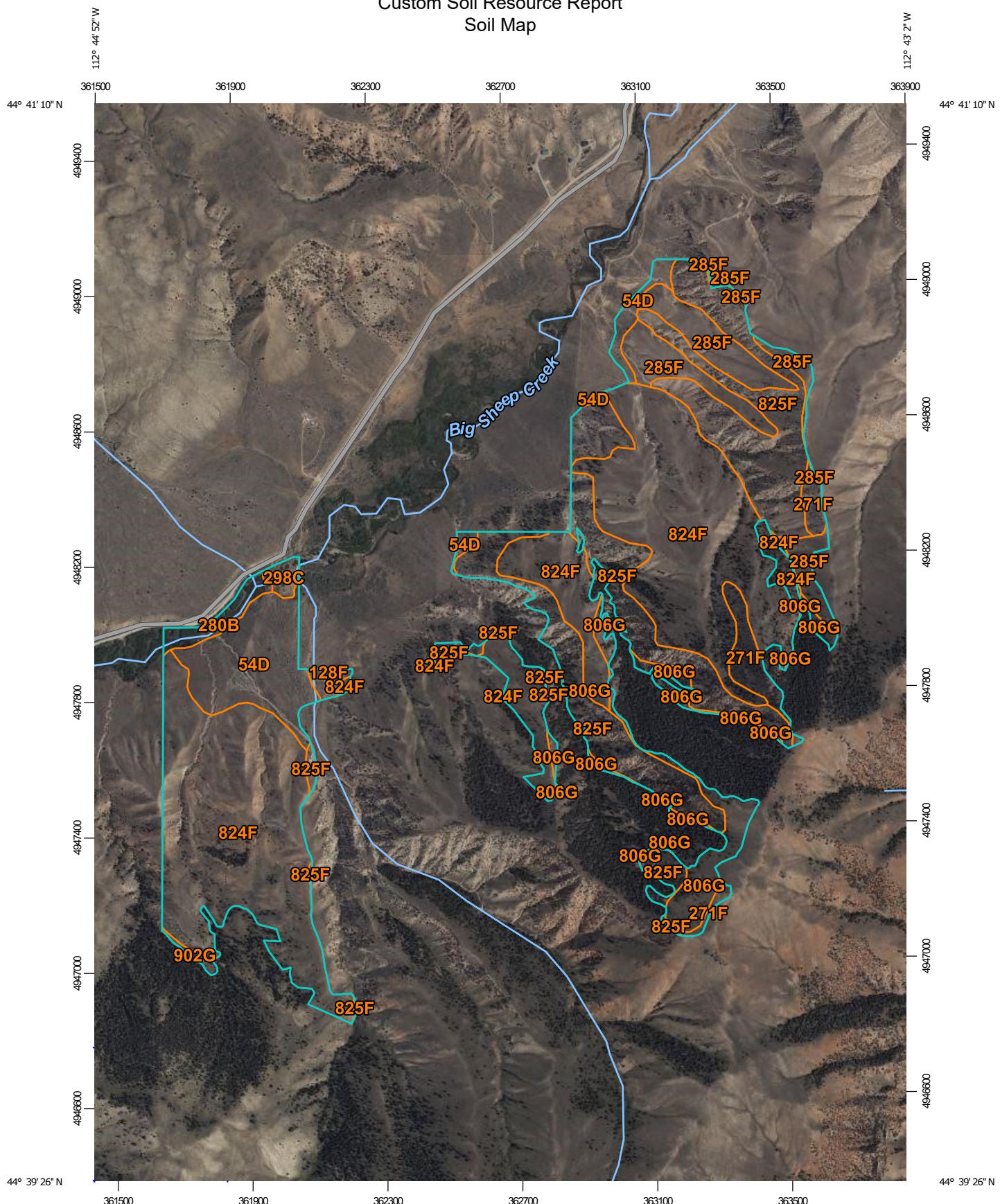
Map Scale: 1:15,500 if printed on A portrait (8.5" x 11") sheet.

Meters
0   200   400   800   1200

Feet
0   500   1000   2000   3000

Map projection: Web Mercator   Corner coordinates: WGS84   Edge tics: UTM Zone 12N WGS84

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
54D	Maciver cobbly loam, 4 to 15 percent slopes	30.2	8.2%
128F	Philipsburg, extremely stony-Levengood, extremely stony-Tropal, rubbly complex, 8 to 45 percent slopes, landslides	2.0	0.5%
271F	Henneberry, very stony-Rock outcrop-Hardhart, very stony complex, 25 to 60 percent slopes	10.0	2.7%
280B	Copperbasin, rarely flooded-Finn-Mooseflat, occasionally flooded complex, 1 to 4 percent slopes	4.8	1.3%
285F	Tibson-Rockisland-Philipsburg association, 15 to 50 percent slopes	26.7	7.3%
298C	Truaxcreek-Dutchhollow, frequently flooded complex, 1 to 8 percent slopes	2.2	0.6%
806G	Rooset-Sicklesteets complex, 35 to 70 percent slopes, very stony, landslides	17.9	4.9%
824F	Tibson, stony-Knep, very stony-Bridger complex, 15 to 60 percent slopes, landslides	177.5	48.5%
825F	Inabnit, extremely stony-Knep, very stony-Tibson, stony complex, 35 to 60 percent slopes, landslides	94.0	25.7%
902G	Tropal, extremely stony-Rock outcrop-Scudder, stony complex, 25 to 80 percent slopes	0.9	0.2%
Totals for Area of Interest		**366.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the