



# Montana Fish, Wildlife & Parks

Region 2 Headquarters  
3201 Spurgin Road  
Missoula, MT 59804  
Phone 406-542-5500

November 12, 2015

Dear Interested Citizen:

Enclosed you will find for your review the Draft Environmental Assessment (EA) for a Montana Fish, Wildlife & Parks (FWP) proposal to acquire fee title to 760 acres from The Nature Conservancy, as an addition to FWP's adjacent 740-acre Nevada Lake Wildlife Management Area (WMA), located southeast of Helmville in Powell County. This property would add to the elk and deer winter range of the WMA, increase access to surrounding public lands, and is a critical property for large-scale wildlife connectivity. A draft environmental assessment (EA) has been prepared describing this proposal.

FWP will hold a public hearing in Helmville on Thursday, November 19 at 6:30 p.m. at the Helmville Community Center (201 S Main St [Hwy 271], Helmville) to discuss the proposal, answer questions, and take public comment.

The EA may be obtained by mail from Region 2 FWP, 3201 Spurgin Rd., Missoula 59804; by phoning 406-542-5540; by emailing [shrose@mt.gov](mailto:shrose@mt.gov); or by viewing FWP's Internet website <http://fwp.mt.gov> ("Public Notices," beginning November 12).

Comments may be made on FWP's website (webpage above) or may be directed to Sharon Rose at the mail, phone or email addresses above. Comments must be received by FWP no later than December 11, 2015. (We have extended the original December 9<sup>th</sup> deadline due to delay in getting the EA posted on FWP's website.)

As part of the decision making process under MEPA, I expect to issue the Decision Notice for this EA soon after the end of the comment period. The Montana Fish and Wildlife Commission has the final decision-making authority for FWP land acquisition proposals, and the Commission will be asked to render its decision on this proposal at its January 2016 meeting in Helena. Approval will also be necessary from the Montana Board of Land Commissioners.

Sincerely,

*/s/ Randy Arnold*

Randy Arnold  
Regional Supervisor

RA/sr

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**Draft Environmental Assessment**  
**Proposed Clear Creek Addition**  
**to the Nevada Creek Wildlife Management Area**



**November 2015**



**Montana Fish,  
Wildlife & Parks**

*Region 2 Office*  
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## 1. PURPOSE AND NEED

### 1.1 Purposed Action and Need

Montana Fish, Wildlife & Parks (FWP) purposes to purchase in fee title, two parcels totaling 760 acres that are currently owned by The Nature Conservancy (TNC). The parcels, known as the (proposed) Clear Creek addition, are southeast of Helmville in Powell County and lie north of Nevada Creek Reservoir on the north side of Montana Highway 141. One parcel is directly adjacent to the west and the other is directly Clear Creek addition parcel is bisected by Chicken Creek (Figure 1).

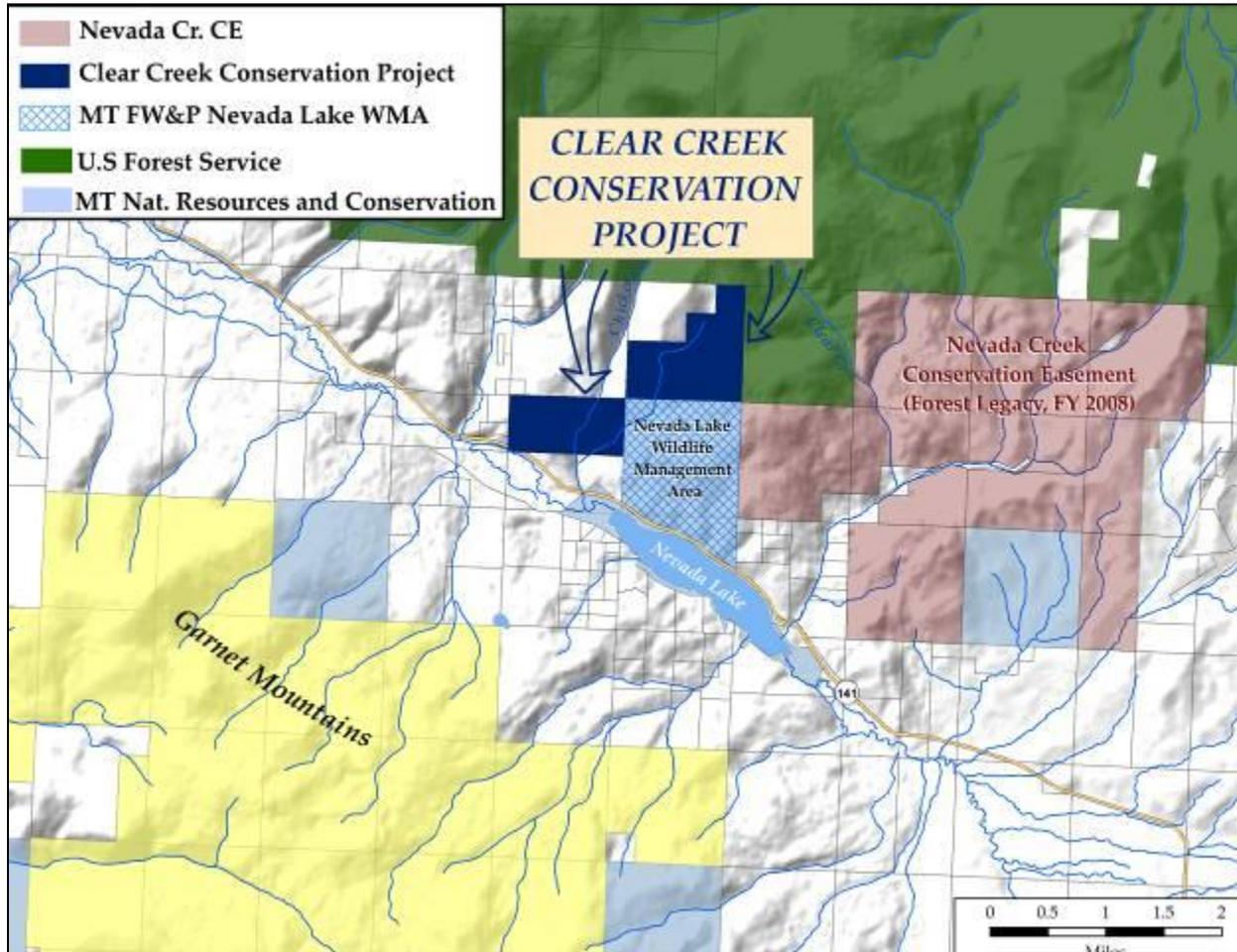


Figure 1. Location of the proposed Clear Creek addition (2 parcels) adjacent to the Nevada Lake WMA.

Wildlife habitat and fisheries values are abundant on the properties, and the area experiences high use from hunters during the general deer and elk season. The Clear Creek addition would conserve and expand critical winter range for deer and elk adjacent to the Nevada Lake WMA. Grizzly bears frequent the area, and Chicken Creek has been identified as a very important tributary for native westslope cutthroat trout.

The Clear Creek addition is situated in an area important for wintering deer and elk that lie within deer and elk Hunting District (HD) 293. Each year HD 293 experiences >20,000 elk hunter-days and >15,000 deer hunter-days.

Funding for this project has been secured through the Forest Legacy Program and matched by donation of land value from TNC and additional dollars from the Habitat Montana Conservation Program.

## 1.2 Objectives of the Proposed Action

- To protect and enhance critical habitat for sensitive wildlife species;
- To protect and enhance habitat for a wide variety of game species;
- To preserve terrestrial wildlife habitat and movement corridors between the Bob Marshall/Scapegoat wildland complexes and the East Garnet mountain range, for the benefit of game and nongame species;
- To protect and enhance cold, clean, connected and complex native salmonid habitat critical to westslope cutthroat trout and other important aquatic species within the Nevada Creek drainage of the Blackfoot River watershed;
- To provide managed public access to the property and adjacent state and federal lands for hunting, angling, hiking, camping, and other recreational activities; and
- To protect important forest areas that are threatened by potential conversion to non-forest uses, and therefore also protect scenic, cultural, fish, wildlife, and area recreation resources as well as riparian areas.

## 1.3 Location

The Clear Creek addition lies approximately 8 miles southeast of the community of Helmville, Montana.

### Legal Description (general terms):

Powell County: T12N, R10W, section 11: the northern half;

Section 1: the southern half, the southern half of the NE corner, and the NE corner of the NE corner.

## 1.4 Application to FWP Comprehensive Fish & Wildlife Management Strategy

The proposed Clear Creek addition lies within one of the aquatic conservation focus areas in greatest need of protection, as identified in FWP's Comprehensive Fish & Wildlife Conservation Strategy (CFWCS, FWP 2005<sup>1</sup>). The *Blackfoot River Focus Area* in the CFWCS begins at the junction of Beartrap and Anaconda creeks near the Continental Divide and flows 132 miles west to its mouth at Bonner, Montana. There are 23 aquatic species found within this focus area, including the federally listed bull trout (Threatened, under the US Endangered Species Act) and the Montana Species of Concern (SOC) westslope cutthroat trout (Tier 1) and western pearlshell mussel (Tier 2).

The Clear Creek addition is situated within the Nevada Creek drainage and north of Nevada Lake Reservoir. The landscape is characterized by ponderosa pine (*Pinus ponderosa*) and Douglas-fir (*Pseudotsuga menziesii*) forest with sagebrush (*Artemisia tridentata*) and rough fescue (*Festuca campestris*) native grasslands intermixed. Sagebrush and native grassland ecosystems serve as important winter range for deer and elk.

The unique diversity of these cover types provides habitats potentially supporting 183 wildlife species within the proposed WMA. Appendix A lists the CFWCS Tier 1 wildlife species and Species of Concern that are predicted to occur on or in the vicinity of the property. Evaluation of current habitat conditions

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<sup>1</sup> Available at <http://fwp.mt.gov/fishAndWildlife/conservationInAction/fullplan.html> Accessed 9 Nov 2015.

within the Nevada Lake WMA property and the probability of occurrence of sensitive species are noted under comments.

### **1.5 Authority**

FWP has the authority to purchase lands that are suitable for game, bird, fish or fur-bearing animal restoration, propagation or protection; for public hunting, fishing, or trapping areas; and for state parks and outdoor recreation per state statute section (§) 87-1-209, Montana Code Annotated (MCA).

Per state law, § 87-1-201(9) MCA, FWP is required to contribute to a special revenue account called the forest management account to be used to address fire mitigation, pine beetle infestation, and wildlife habitat enhancement, giving priority to forested lands in excess of 50 contiguous acres in any state park, fishing access site, or wildlife management area under the department's jurisdiction.

FWP is also required to establish a maintenance account for property acquisition involving more than 100 acres or \$100,000 in value (§§ 87-1-209 and 23-1-127(2), MCA). Such an account would be used for weed maintenance, fence installation or repair of existing fences, garbage removal, implementation of safety and health measures required by law to protect the public, erosion control, streambank stabilization, erection of barriers to preserve riparian vegetation and habitat, and planting of native trees, grasses, and shrubs for habitat stabilization. Such maintenance activities should be consistent with the good neighbor policy (§ 23-1-126, MCA).

Additionally, § 23-2-101, MCA, provides authority for the proposed purchase: "Montana is uniquely endowed with scenic landscapes and areas rich in recreational value. This outdoor heritage enriches the lives of citizens, attracts new residents and businesses to the state, and is of major significance to the expanding tourist industry. It is the purpose of this part to give authority to the department of fish, wildlife, and parks to plan and develop outdoor recreational resources in the state, which authority shall permit receiving and expending funds including federal grants for this purpose."

## **2. ALTERNATIVES**

### **2.1 Alternative A--Proposed Action: FWP would purchase the 760 acres of fee-title land from The Nature Conservancy, as the Clear Creek addition to the Nevada Lake WMA.**

FWP proposes to acquire 760 acres of fee title land from The Nature Conservancy for the protection and enhancement of valuable wildlife habitat for elk, deer, and other species. The Clear Creek property would be an addition to the existing Nevada Lake WMA and provide hunter access to surrounding public lands.

The property is currently owned by TNC which purchased this property in 2003 as part of the larger Blackfoot Community Project, with the intent to divest the property through sale to private and public conservation entities. FWP approached TNC with a desire to purchase the Clear Creek parcels to protect wildlife habitat and add to the WMA. Funding for the purchase was secured through the US Forest Service, Forest Legacy Program in 2014.

FWP has drafted an interim management plan for the Clear Creek addition, which is Attachment 1 to this EA. The interim management plan would direct FWP management of the WMA until habitat assessments, infrastructure inventories, and public scoping are completed. A comprehensive management plan would be drafted when more complete data are available. A forest stewardship plan for the Clear Creek addition has also been completed; it is Attachment 2 to this EA.

FWP has ordered an appraisal for the proposed Clear Creek Addition, but that information is not available as of the date of this EA. FWP would pay 75% of the appraised value, but no more than \$598,500 total. TNC has generously committed to donate the remainder of the appraisal price.

### **2.2 Alternative B--No Action: FWP would not purchase the Clear Creek addition**

Under the No Action Alternative, FWP would not acquire the 760-acre property. TNC would continue to search for an alternate private or public buyer for the land.

## **3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

### **3.1 Land Use**

Prior to the purchase of the property by TNC, the Clear Creek addition belonged to Plum Creek Timber Company (PCTC) and was actively logged on a rotational basis. PCTC's long-term intent was to sell the land as private and/or development real estate. TNC purchased the land as part of the Blackfoot Community Project with the intention of restoring the land and selling it to a conservation buyer.

Most timbered stands on the property have been actively managed for timber production over the past 50 years and are in some stage of regeneration. Most of the roads on the subject property, which were originally established for timber harvesting, are currently closed to public wheeled-motorized use.

Public recreation had been allowed on the property by PCTC for many years. TNC continued to allow the same public access and has managed the property with restoration as the goal. Weed management has been the main focus of management and timber harvest has ceased on the property. The predominant recreational activities include hunting, trapping, and hiking. Roads are the only permanent developments present on the property.

**Proposed Action:** The Clear Creek addition would be included in the adjacent Nevada Lake WMA and would be managed consistent with that of other WMAs owned and managed by FWP. Typical management goals include but are not be limited to: weed management, forest management and timber harvest, stream and riparian enhancement/restoration, and recreational use. Upon acquisition, FWP would conduct a detailed vegetation (including timber) assessment, and a roads and water control-structure inventory; FWP would also solicit public input regarding future recreational use management. Timber management activities would be conducted to maintain and restore forest health and improve upland wildlife habitat with an emphasis on recruiting mature multi-storied stands, where appropriate.

There are no active grazing leases on the property and FWP does not anticipate introducing livestock grazing. FWP would install appropriate informational signage at the main access points to the property to communicate WMA property boundaries, FWP regulations, and general site information.

**No Action:** Under the No Action Alternative, TNC would continue to pursue other interested parties; if sold to another party, there would be no guarantee the land would be open to the public. Depending upon a buyer's plans for the property, land uses might revert to timber harvest, change to cattle grazing or remain unchanged from its current uses.

### **3.2 Vegetation**

The Clear Creek lands are situated within the Nevada Creek drainage, north of Nevada Lake Reservoir. Elevations range between 4,000 and 4,800 feet. The landscape is characterized as a mosaic of forest and sagebrush-grasslands with ponderosa pine (*Pinus ponderosa*) and Douglas-fir (*Pseudotsuga menziesii*) forest and sagebrush (*Artemisia tridentata*) and rough fescue (*Festuca campestris*) grasslands intermixed. Stands of aspen (*Populus tremuloides*) and black cottonwood (*Populus trichocarpa*) are scattered

throughout the parcels. Rocky Mountain juniper (*Juniperus scopulorum*) is also intermixed within the forest and grasslands. However, due to the loss of fire on the landscape, juniper and Douglas-fir have encroached on the sagebrush fescue grasslands. Sagebrush grassland ecosystems serve as important winter range for deer and elk, as well as for several Montana SOC that occupy the Nevada Lake WMA.

**Proposed Action:** FWP acquisition of the Clear Creek addition and its subsequent inclusion in the adjacent Nevada Lake WMA would prevent impacts from timber harvest within riparian corridors; eliminate associated effects of sedimentation, runoff, and rises in water temperature from removal of riparian vegetation; and provide opportunity for future riparian-corridor restoration activities. Regionally, riparian corridors are most threatened by residential development and industrial timber harvest activities. In addition, sagebrush-fescue grasslands would be treated relative to the threat of tree/shrub encroachment and managed for retention of the grasslands.

Fire suppression on the addition would fall under the Montana Department of Natural Resources and Conservation's (DNRC) fire protection jurisdiction. Wildfires would be immediately suppressed upon detection. In an attempt to prevent human-caused ignitions, FWP may institute temporary measures (such as progressively restricting open campfires and public access to the property) if and as summer-fall fire danger intensifies in some years.

Areas within the parcels have infestations of spotted knapweed and hound's tongue. FWP has received Powell County's weed inspection, per § 7-22-2154(1), MCA, which requires nonfederal government agencies to obtain a weed inspection by the county weed district. FWP would be required to develop a weed management plan to ensure compliance with district noxious weed management programs. This weed management plan has not been completed, but in the interim FWP would implement its 2008 *Statewide Integrated Noxious Weed Management Plan*<sup>2</sup> on the Clear Creek addition.

FWP anticipates a decrease in noxious weeds and an improvement in overall habitat health following the plan's implementation. FWP would actively treat weeds through the use of herbicides and biological control agents. As an additional preventive measure, FWP would confine wheeled-motorized travel to the previously demarcated parking area for Nevada Lake WMA (Figure 2) and would otherwise avoid unnecessary disturbance of the soil surface.

**No Action:** If FWP does not purchase the property, critical aquatic and terrestrial habitat may not be conserved, the property may be sold privately and public access to and through the property may be lost, and the existing conifer forest and riparian areas could be disrupted by development or management activities. It is difficult to predict the extent new ownership would affect existing vegetation and wildlife habitat resources since potential future landowner activities are unknown, but FWP anticipates the land would not be managed for fish and wildlife habitat.

### 3.3 Wildlife Species

The Nevada Lake WMA provides habitat for more than 28 Montana Species of Concern (Appendix A) and over 184 other native species including elk, white-tailed and mule deer, moose, and a variety of nongame birds and mammals, as well as critical habitat for grizzly bear. The Clear Creek addition lies within a matrix of protected state and federal lands as well as some private lands with conservation easements, and it is within an important linkage zone for grizzly bear and Canada lynx.

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<sup>2</sup> Document available at (and accessed 9 Nov 2015) <http://fwp.mt.gov/fishAndWildlife/habitat/noxiousWeeds/>; click on "Montana Weed Management Plan."

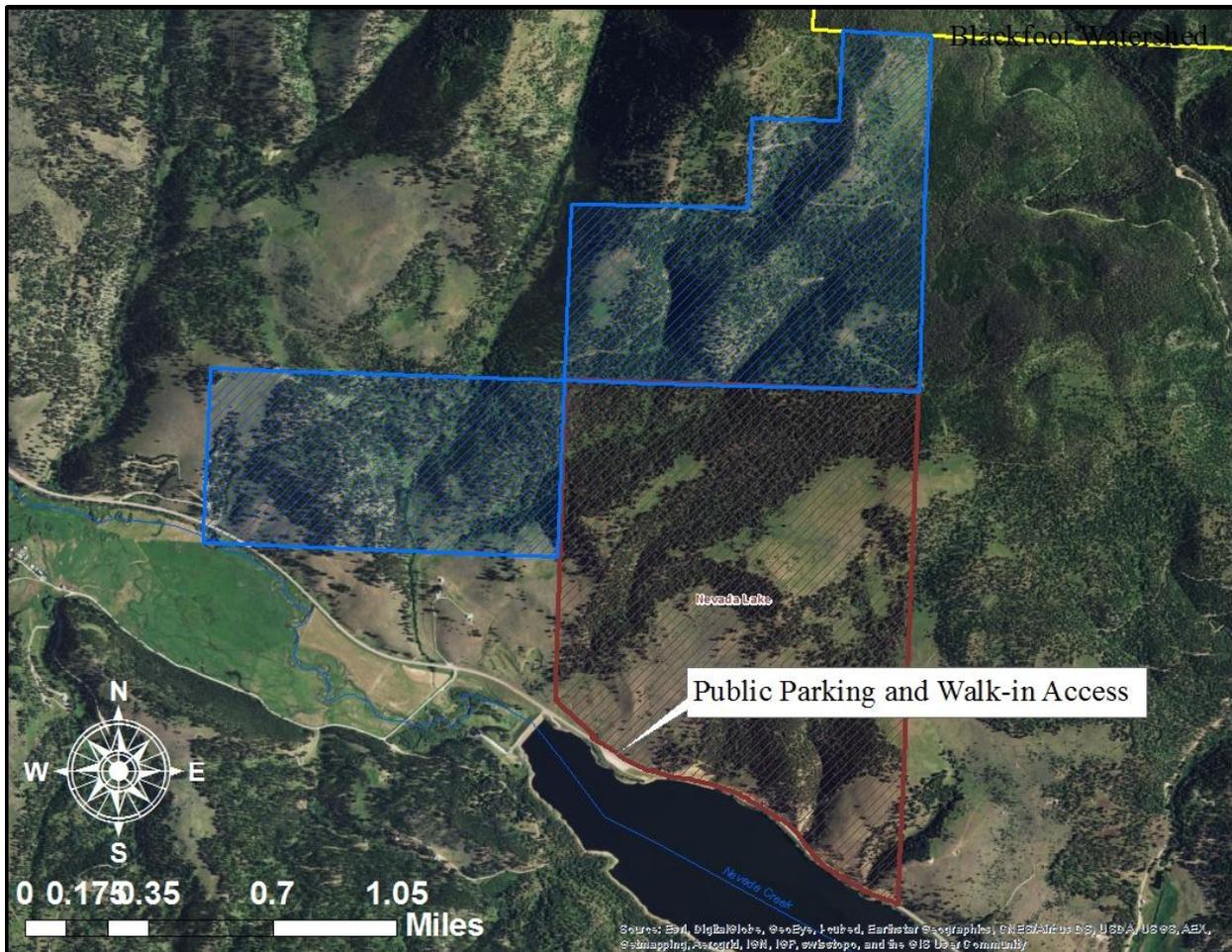


Figure 2. Location of the public parking area and main access point for Nevada Lake WMA.

**Game Species**

Elk use the proposed addition year-round, and it supports important populations of mule deer, white-tailed deer, moose, black bear, mountain lion, wolf, and mountain grouse. The property lies within deer/elk HD 293, which supports 15,000 to 20,000 hunter-days annually depending upon the ungulate species.

**Canada Lynx**

Prior to its listing as a federally Threatened species in 2000, very little was known about the US distribution and ecology of the Canada lynx. Over the last decade, the US Forest Service’s (USFS) Rocky Mountain Research Station has coordinated a Canada lynx research program intended to define the species’ distribution, collect ecological data, and develop predictive habitat models for the species. Research findings indicate that lynx in the Rocky Mountains now occur in only a few remaining areas. One of those areas is the Bob Marshall Wilderness complex and the Dalton and Nevada/Ogden Mountain ecosystem to the north of the subject property and to the immediate south within the Garnet Mountain Range (Figure 3).

**Grizzly Bear**

Much of the existing Nevada Lake WMA and proposed Clear Creek addition is within the Northern Continental Divide Ecosystem Grizzly Bear Recovery Area and Zone 1 of the Draft Grizzly Bear

Conservation Strategy. Grizzlies heavily use the subject parcel for foraging post-emergence through fall. FWP data indicate particularly high use of the project area's riparian corridors and abundant serviceberry, chokecherry, and hawthorn present in forest openings and regenerating harvest units. The parcels of interest lie within a recognized and highly important grizzly bear linkage zone (Figure 3).

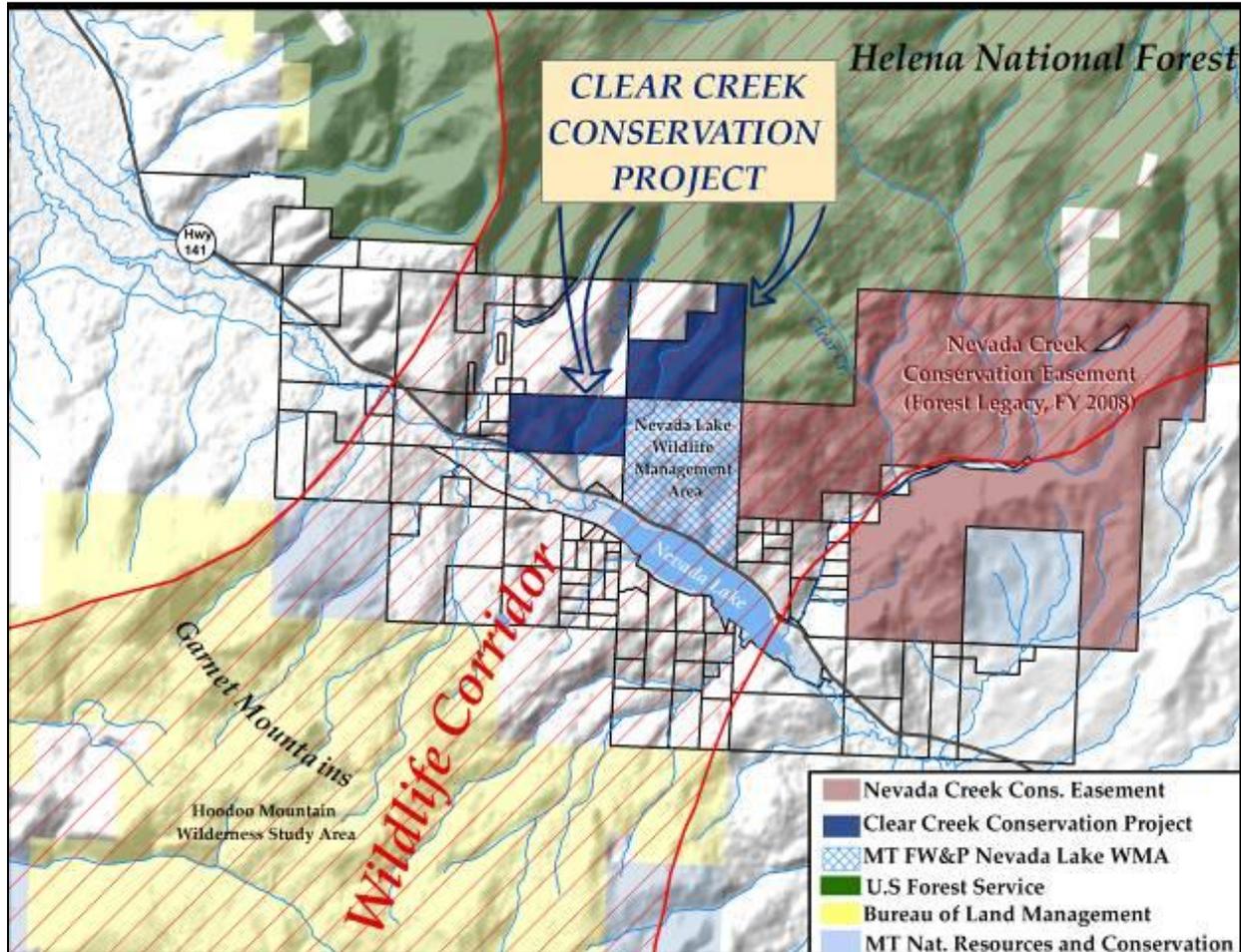


Figure 3. Wildlife corridor connecting the Bob Marshall/Scapegoat Wilderness Areas to the north and the Nevada/Ogden and Divide Roadless area to the near north of the proposed Clear Creek addition, with the Garnet Mountain Range and the BLM Hoodoo Mountain Wilderness Study Area.

### Other Species

Approximately 184 terrestrial wildlife species have been documented in or near the proposed addition, not including water birds associated with the nearby Nevada Reservoir (Appendix A). These include 3 amphibian, 131 bird, 47 mammal, and 3 reptile species. The large diversity of species for such a small area is due to the variety of habitats (riparian, conifer forest, grassland, sagebrush) within a small geographic area. Riparian habitats are especially important for supporting species diversity, relative to their rarity on the landscape. Additional species could potentially be detected with more extensive surveys. There are also a large variety of plant and invertebrate animal species potentially associated with the property, which are important components of the ecosystem.

Many wildlife species have been negatively impacted by human activities, especially from habitat fragmentation and loss of connectivity. The Clear Creek addition would help strengthen connectivity between the USFS lands and the existing WMA. Forest management of the property has been more intensive than adjacent and nearby USFS lands. Future management can include better coordination between FWP and the USFS, to help manage the area within the context of the larger landscape.

### **Species of Concern**

Species of Concern<sup>3</sup> (SOC) and Potential Species of Concern (PSOC) that have been documented in the vicinity of the property in similar habitats are listed in Table 1. Long-term management to maintain or improve certain habitats used by SOC and PSOC would help contribute to maintaining or enhancing these species' populations, with the goal of preventing population declines that could lead to Federal listing (as Endangered or Threatened species). SOC and PSOC include 11 mammal, 18 bird, and 1 amphibian species.

The property supports a variety of forest types, riparian and wetland habitats, and some sagebrush-grasslands. Long-term management strategies that would benefit several SOC and PSOC would include protecting existing snags and large-diameter live trees, managing forested habitats to protect and encourage growth of large-diameter trees, protection and enhancement of riparian habitats, and protecting the limited sagebrush-grasslands from conifer encroachment, fire, and weeds.

**Proposed Action:** FWP acquisition of the property would protect and enhance riparian corridors important to migratory songbirds, small mammals, amphibians, and fish (fish species are described in Section 3.4). Any anticipated forest management projects would be aimed at enhancing conditions for wildlife by mimicking natural disturbance regimes. These practices include retaining appropriate snag densities, maintaining intermountain grassland patches, and managing for long-term uneven-aged forest stands (Attachment 2). Furthermore, FWP would maintain current hunting, trapping, snowmobiling, and wildlife viewing opportunities. Because these activities have already been occurring, no new impacts to wildlife species are anticipated (Attachment 1).

This proposed addition would ensure the protection of important habitat that could contribute to the continued occupancy and recovery of several imperiled terrestrial wildlife species including wide-ranging native carnivores such as grizzly bear, Canada lynx, wolverine, and fisher. FWP acquisition of the property would help ensure connectivity and the biological effectiveness of the nearby Bob Marshall and Scapegoat Wilderness areas, and Garnet Mountain ranges. The property is also within a linkage zone identified as one of the crucial connections within the Yellowstone-to-Yukon corridor essential to maintaining the genetic viability of grizzly bears within and between the US and Canada.

**No Action:** If FWP does not purchase the Clear Creek addition, critical habitat for many game and nongame wildlife species could be diminished or lost, an important corridor between the Bob Marshall/Scapegoat and Garnet Mountain Range could be compromised, and the subject lands would be expected to be at greater long-term risk of subdivision or development.

If TNC were to sell the property to another buyer, risks of loss of habitat and public access are unknown; future resource management and the possible provision of public access would be dependent on the desires of the new property owner(s). Important wildlife habitat and public access would be expected to be diminished or lost.

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<sup>3</sup> A native animal breeding in Montana that is considered to be "at risk" due to declining population trends, threats to its habitats, and/or restricted distribution. The purpose of Montana's SOC listing is to highlight species in decline and encourage conservation efforts to reverse population declines and prevent the need for future listing as Threatened or Endangered Species under the Federal Endangered Species Act.

Table 1. Species of Concern and Potential Species of Concern documented in vicinity of the Clear Creek addition in similar habitats.

Species Group	Common Name	Scientific Name	Species of Concern*	Comments
Mammals	Canada Lynx	<i>Lynx canadensis</i>	SOC	Potential habitat, likely more transient on property
Mammals	Fisher	<i>Martes pennanti</i>	SOC	Old trapping records, 1990's-2001
Mammals	Fringed Myotis	<i>Myotis thysanodes</i>	SOC	Suitable habitat, likely present, open conifer forest & riparian habitat
Mammals	Grizzly Bear	<i>Ursus arctos</i>	SOC	Habitat generalist, documented sightings on property.
Mammals	Hoary Bat	<i>Lasiurus cinereus</i>	SOC	Suitable habitat, likely present
Mammals	Little Brown Myotis	<i>Myotis lucifugus</i>	SOC	Foraging & roosting habitat present, especially large snags
Mammals	Porcupine	<i>Erethizon dorsatum</i>	PSOC	Forested habitat
Mammals	Silver-haired Bat	<i>Lasionycteris noctivagans</i>	PSOC	Foraging & roosting habitat present, especially large snags
Mammals	Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>	SOC	Foraging habitat present, no known roosting habitat
Mammals	Wolverine	<i>Gulo gulo</i>	SOC	Potential habitat, likely more transient on property
Mammals	Yuma Myotis	<i>Myotis yumanensis</i>	PSOC	Potential roosting habitat in large trees
Birds	Bald Eagle	<i>Haliaeetus leucocephalus</i>	SSS	Potential roosting or nesting habitat in large trees
Birds	Black-backed Woodpecker	<i>Picoides arcticus</i>	SOC	May use bug-killed trees, in addition to burned trees
Birds	Brewer's Sparrow	<i>Spizella breweri</i>	SOC	Some sagebrush habitat on property, may or may not be suitable
Birds	Brown Creeper	<i>Certhia americana</i>	SOC	Mesic old-growth forest along drainages
Birds	Cassin's Finch	<i>Haemorhous cassinii</i>	SOC	Open ponderosa pine forests
Birds	Clark's Nutcracker	<i>Nucifraga columbiana</i>	SOC	Mixed conifer forest, property may be more suitable for foraging
Birds	Evening Grosbeak	<i>Coccothraustes vespertinus</i>	SOC	Mixed conifer and spruce-fir forest
Birds	Flammulated Owl	<i>Psiloscoops flammeolus</i>	SOC	Mature mixed conifer forest
Birds	Golden Eagle	<i>Aquila chrysaetos</i>	SOC	Conifer trees used for nesting, grasslands for foraging
Birds	Great Gray Owl	<i>Strix nebulosa</i>	SOC	Mixed conifer forest, especially with aspen stands
Birds	Lewis's Woodpecker	<i>Melanerpes lewis</i>	SOC	Open conifer and riparian forest, more likely to be transient on property
Birds	Long-billed Curlew	<i>Numenius americanus</i>	SOC	Grasslands, sagebrush-grasslands
Birds	Northern Goshawk	<i>Accipiter gentilis</i>	SOC	Mature mixed conifer forest
Birds	Pacific Wren	<i>Troglodytes pacificus</i>	SOC	Mature mixed conifer forest, especially along drainages
Birds	Pileated Woodpecker	<i>Dryocopus pileatus</i>	SOC	Mature mixed conifer forest
Birds	Rufous Hummingbird	<i>Selasphorus rufus</i>	PSOC	Second growth & mature forests, especially north-facing slopes in this area
Birds	Varied Thrush	<i>Ixoreus naevius</i>	SOC	Mesic old-growth forest along drainages
Birds	Veery	<i>Catharus fuscescens</i>	SOC	Riparian habitat, especially around springs
Amphibians	Western Toad	<i>Anaxyrus boreas</i>	SOC	Upland habitat available, no known breeding habitat on property.
Fish	Bull Trout	<i>Salvelinus confluentus</i>	SOC	Not present in the project lands but qualifies as potential habitat with significant populations downstream in Nevada Creek.
Fish	Westslope Cutthroat Trout	<i>Oncorhynchus clarkii lewisi</i>	SOC	Present in Chicken and Clear Creeks.
Invertebrates	Western Pearlshell	<i>Margaritifera falcata</i>	SOC	

\*Code definitions can be found at: <http://fieldguide.mt.gov/statusCodes.aspx#soc>

### 3.4 Fisheries and Aquatic Resources

The Nevada Creek reservoir, creek, and tributary system provides habitat for the complete life cycle of many native aquatic species, including self-sustaining populations of imperiled native westslope cutthroat trout (WSCT), a Montana SOC, and western pearlshell mussel, also an SOC.

Clear Creek is a 2<sup>nd</sup> order tributary entering Buffalo Gulch flowing through the Helena National Forest directly adjacent to the Clear Creek addition Lands. Clear Creek is described as moderately entrenched (B3 – B4-type) with gradients of 2-4%, supporting a Douglas-fir/Engelmann spruce forest above a red-osier/dogwood shrub layer with fern/moss undergrowth. Riparian communities appear healthy with communities of willow, hawthorn, and alder, with a bulrush, grass, and forb undergrowth. WSCT are present in all reaches of Clear Creek and exhibit a very high level of genetic purity (~ 97%).

Chicken Creek is a small 1<sup>st</sup> order tributary stream that enters Nevada Creek just below the Nevada Creek Reservoir (a.k.a., Nevada Lake). WSCT persist in all stretches of Chicken Creek at low to moderate levels. Riparian conditions are poor in the upper reaches of the stream, where the impacts of unregulated livestock grazing in the riparian zone are evident. Most of the vegetation is denuded and bank integrity is compromised as a result. Lower reaches are in moderate condition with degraded vegetation and limited habitat for WSCT.

#### **Western Pearlshell**

The western pearlshell is a native freshwater mussel species that inhabits coldwater streams on both sides of the continental divide. This species is typically found in trout streams and rivers, particularly in drainages where the WSCT (its native fish host) also occurs. The distribution and abundance of this species has declined dramatically in Montana over the past century, and it is a Species of Concern.

**Proposed Action:** FWP acquisition of the subject property would protect more than 0.5 miles of native fish-bearing water in Chicken Creek, a 1<sup>nd</sup> order tributary of Nevada Creek.

Acquisition would further leverage ongoing partners' work adjacent to subject lands. This acquisition would complement ongoing efforts to ensure WSCT persistence and recovery within the Blackfoot River watershed. FWP's purchase of the property would ensure no further degradation to fisheries habitat and riparian areas would occur. Two stock water rights (76F 116190 00, 76F 116191 00) exist with the property and would be transferred with the property to FWP.

**No Action:** If FWP does not purchase the property, it is unknown how fisheries and water resources (riparian areas, wetlands) would be affected by another buyer's future management after TNC sells the property.

Habitat fragmentation, alterations, and degradation associated with development and non-sustainable natural resource extraction are major threats to native salmonids. Potentially divergent, uncoordinated, and inconsistent management of fisheries and water resources could occur if the property were to be subdivided or developed; this would be expected to adversely impact the watershed's outstanding natural resource values and imperiled species, including native WSCT. Variable timber harvest practices, invasive species, new road construction, and culverts and stream crossings are examples of actions that could diminish riparian and coniferous vegetation and increase surface disturbance, resulting in elevated water temperatures, sedimentation, and runoff. It is possible numerous ongoing (and future) native trout restoration activities in Nevada Creek could be jeopardized if the property were sold to a non-conservation minded entity.

### 3.5 Aesthetics and Recreation Opportunities

TNC has historically allowed public access to lands subject to this proposal. Public recreational opportunities include but are not limited to fishing, hunting, bird watching, hiking, horseback riding, dog-sledding, and cross-country skiing.

Hunting is an especially important public use of the subject lands and is the primary means for balancing elk and deer herds with forage resources and landowner tolerance of those species. Elk hunting is of particular importance to the local economy through sales of lodging, equipment, and guide services. The land is within HD 293, which supports over 20,000 elk hunter-days and over 15,000 deer hunter-days annually.

Motorized use is not currently allowed on the Nevada Lake WMA.

**Proposed Action:** Under the proposed action, FWP would purchase the property and current public access and recreational opportunities would be maintained.

The parcels would remain open to public hunting and would continue to be managed under the standard deer/elk regulations for HD 293. No Nevada Lake WMA-specific permits or licenses are anticipated.

Camping would be permitted year-round but limited to a 14-day maximum stay, and fire restrictions may be implemented as wildfire risk dictates. Parking for camping or other recreation activities would be restricted to established parking area (Figure 2).

Recreation would be managed in accordance with applicable FWP rules and regulations, including FWP's Commercial Use Rules. Commercial outfitting would not be permitted on the addition, and it is not allowed on the existing WMA. FWP would install appropriate boundary and regulation signage and additional site information would be available via brochures and the FWP website to inform the public of the allowable activities within the WMA.

**No Action:** If FWP does not purchase this land and if it were sold to another buyer, free public access to and through the property for existing recreation activities could be restricted, altered or lost. Future public recreation opportunities under a different ownership are difficult to analyze, since future recreation management would be at the sole discretion of the owner(s).

### 3.6 Community and Taxes

In 2006, Powell County adopted an *Amended Growth Policy*<sup>4</sup>. Based on 2000 census results, the population size for the county was 7,180 with the town of Deer Lodge (3,421) accounting for 48% of the total population. However, Deer Lodge has experienced a decrease in overall growth (having 65% of the county's population in 1970, decreasing to 48% in 2000) while the rural portions of the county have experienced an increase in growth (35% in 1970, increasing to 52% in 2000). The most recent census in 2010 shows a slight decrease in county population size at 7,027 with an estimate for 2014 of 6,909.

In 2000, there were a total of 3,605 jobs across all industries within Powell County. Between 1980 and 2000 over 600 jobs were added to Powell County, with approximately one-third of those in government. Other sources of employment included agriculture and timber production, with an emphasis on natural resource related jobs.

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<sup>4</sup> Available at (accessed 9 Nov 2015) [http://www.powellcountymt.gov/janda/files/home/1352996723\\_GrowthPolicy102006.pdf](http://www.powellcountymt.gov/janda/files/home/1352996723_GrowthPolicy102006.pdf)

Timber markets are well established within the Clear Creek addition area with two local mills. Sun Mountain Lumber in Deerlodge (40 miles) employs 230 full-time workers and Pyramid Mountain Lumber in Seeley Lake (60 miles) has 110 full-time employees.

**Proposed Action:** Fee title purchase by FWP would help provide long-term protection of wildlife habitat in the Blackfoot watershed, maintain the open space and integrity of the land, enhance public recreation opportunities, and direct management of the property toward habitat improvement and recreational use. Because of the rural nature of Powell County's economy, no significant adverse effects are anticipated as a result of this purchase.

This purchase is not expected to reduce the tax revenues that Powell County collects on this property, under § 87-1-603, MCA. FWP is required by that statute to pay "to the county a sum equal to the amount of taxes that would be payable on county assessment of the property if it was taxable to a private citizen." The most recent taxes for 2014 on this property were \$762.00 per year based on the most recent assessment.

The potential social and economic implications of purchase of the TNC property are also considered in the Socio-Economic Assessment (Appendix C).

**No Action:** If FWP does not purchase the Clear Creek addition and if the property were sold and potentially subdivided or developed, tax revenues paid to the County could be higher than current levels. But such increased tax revenue could also be offset by increased County expenditures to provide services associated with development and subdivision in a rural area. Predicting the final use of the property and exact tax consequences if owned by another party(s) is difficult to assess.

#### **4. RESOURCE ISSUES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS**

The Montana Environmental Policy Act (MEPA) provides for the identification and elimination from detailed study of issues, which are not significant or which have been covered by a prior environmental review, narrowing the discussion of these issues to a brief presentation of why they would not have a significant effect on the physical or human environment or providing a reference to their coverage elsewhere (ARM 12.2.434(d)). While these resources are important, they were either unaffected or mildly affected by the proposed action, or the effects could be adequately mitigated.

A few issues were found not to be significant to the decision and were eliminated from further detailed analysis.

##### **4.1 Soils**

A query of the US Department of Agriculture's (USDA) Soil Survey database of the property identified several soil types within its boundaries ranging from various gravelly and clay loams. The predominant type was Danvers clay loam and Winkler gravelly loam. The remaining soil types are present in lesser amounts. Slopes are moderate.

No new soil disturbing activities are planned for the Clear Creek addition. Any existing mineral rights held by the current landowner will transfer to FWP. A minerals report was prepared and the development of minerals on the land is so remote as to be negligible.

#### **4.2 Air Quality**

Under either the Action or the No Action alternative, there are unlikely to be changes to the ambient air quality since FWP does not plan any construction or development activities that could affect particulate levels and air quality.

#### **4.3 Noise and Electrical Effects**

Since TNC has been managing the property as open for public recreation activities, and FWP would have a similar management approach, the potential for changes in noise levels is expected to be minimal. The potential for changes in noise levels would most likely depend on FWP approaches to managing type, timing, and location of recreation activities.

Existing electrical structures and easements would not be affected by either alternative.

#### **4.4 Risk and Health Hazards**

As part of FWP's due diligence, the Department would complete a hazardous materials survey prior to the property's acquisition.

#### **4.5 Cultural and Historical Resources**

Per § 22-3-433, MCA, all state agencies are required to consult with the Montana State Historic Preservation Office (SHPO) on the identification and location of heritage properties on lands owned by the state that may be adversely impacted by a proposed action. SHPO has completed a cultural resource file search for the property and reported that there are "few previously conducted cultural inventories done in the [Clear Creek addition] areas" (Appendix B). SHPO further indicated that "as long as there will be no disturbance or alteration to structures over fifty years of age we feel that there is a low likelihood cultural properties will be impacted" and a "recommendation for a cultural resource inventory is unwarranted at this time."

**Proposed Action:** FWP's proposed acquisition would not directly affect any known cultural or historical resources, since the proposed action at this time is acquisition, which involves no disturbance or alteration to land. If future FWP actions were to be planned for the Clear Creek addition (e.g., timber harvest), FWP would then contact SHPO for guidance and possible site investigation.

**No Action:** If FWP does not purchase the Clear Creek addition, then potential sale and development of the property could diminish the cultural and historic character of lands, depending on the actions of the new owner(s).

#### **4.6 Cumulative Impacts**

**Proposed Action:** FWP would manage the property in perpetuity for the benefit of terrestrial and aquatic species and manage its forested landscape such that riparian corridors are enhanced, native grasslands are protected, forests are diversified for increased habitat values, and noxious weeds are controlled.

The proposed FWP purchase would permanently protect and conserve significant forested habitat in the Clearwater Valley and would help ensure the continued function of important wildlife movement corridors for wide-ranging wildlife such as Canada lynx, grizzly bear, and wolverine between the Bob Marshall/Scapagoat Wildernesses and the Garnet Range. Such connectivity is essential for the recovery

of threatened, endangered, and sensitive species and maintaining viability of numerous other species such as elk, black bear, and a myriad of nongame species.

Similarly, the long-term protection of a portion of Chicken Creek and its tributaries would contribute to the perpetuation of native trout populations in Nevada Creek and the larger Blackfoot River watershed. Any future fisheries restoration activities initiated by FWP to improve water quality and riparian areas for native trout population would have positive benefits for all aquatic species, as well as terrestrial species.

Maintaining year-round public access to the subject lands would continue to provide recreational opportunities (hunting, fishing, hiking, etc.) for the general public. Furthermore, preserving public access to and through the property would allow the public the opportunity to enjoy and recreate on adjacent state and federal lands.

Although FWP purchase of the property would reduce some potential for development or residential subdivision near Nevada Lake (Nevada Creek reservoir), this reduction would be minimal since other private property is still available in the area.

Appropriate management of timber would provide long-term benefits for riparian and grassland vegetation communities, fish and wildlife, and reduce the potential for severe or catastrophic wildfire on the property.

**No Action:** If FWP does not purchase the Clear Creek addition (i.e., no action taken), then critical habitat important for maintaining native wildlife and fish populations in the Nevada Creek drainage would be vulnerable to subdivision and residential development. Habitat fragmentation, alterations and degradation associated with development, and non-sustainable natural resource extraction are major threats to native wildlife and salmonids. Crucial habitat and wildlife movement corridors for threatened, endangered, and sensitive fish and wildlife species could be at risk or compromised under this alternative.

If the property were to be subdivided or developed, then potentially divergent, uncoordinated, or inconsistent management of water resources could result in impacts to the watershed's outstanding natural resource values. Variable timber harvest practices, dispersed residential septic systems, invasive species, new road construction, and culverts and stream crossings could diminish riparian and coniferous vegetation and increase surface disturbance, resulting in elevated water temperatures, sedimentation, and runoff, which could have long-term negative impacts on fishery populations and recruitment rates of native species.

The loss of public access to the property would be a considerable loss of public recreational opportunity and reduce the potential for active wildlife population management by FWP (e.g., by hunting) if new owners chose to reduce or prohibit historic recreational activities (e.g., hunting, hiking, camping, etc.). Traditional uses of adjacent public lands could be impacted as well, if new landowners were to close the properties to the public.

## **5.0 NEED FOR AN ENVIRONMENTAL IMPACT STATEMENT**

Based on the significance criteria evaluated in this EA, is an EIS required? No. Based upon the above assessment, which has identified few minor impacts from the proposed acquisition and subsequent management of the property by FWP, an EIS is not required and an environmental assessment is the appropriate level of review.

## 6.0 PUBLIC PARTICIPATION

### 6.1 PUBLIC INVOLVEMENT

The public would be notified in the following manners to comment on this current EA, the proposed action and alternatives:

- Legal notice will be published twice each in these newspapers: *Blackfoot Valley Dispatch* (Lincoln), *Independent Record* (Helena), *Missoulian*, *Seeley Swan Pathfinder*, and *Silver State Post* (Deer Lodge).
- Public notice will be posted on FWP's webpage <http://fwp.mt.gov> ("News," then "Recent Public Notices"); the Draft EA will also be available on this webpage, along with the opportunity to submit comments online.
- A news release will be prepared and distributed to a standard list of media outlets interested in FWP Region 2 issues; this news release will also be posted on FWP's website <http://fwp.mt.gov> ("News," then "News Releases").
- Direct mailing or email notification to adjacent landowners and other interested parties (individuals, groups, agencies).

Copies of this draft EA may be obtained by mail from Region 2 FWP, 3201 Spurgin Rd., Missoula 59804; by phoning 406-542-5540; by emailing [shrose@mt.gov](mailto:shrose@mt.gov); or by viewing FWP's Internet website <http://fwp.mt.gov> ("Public Notices," beginning November 12, 2015).

*A public hearing to explain the proposal, answer questions and take public comment will be held by FWP on November 19 at 6:30 p.m. in the Helmville Community Center (201 S Main St [Hwy 271], Helmville).*

This level of public notice and participation is appropriate for a project of this scope with no significant physical or human impacts and only minor impacts that can be mitigated.

### 6.2 Offices/Programs contacted or contributing to this document:

Montana Fish, Wildlife & Parks:

Wildlife Division, Fisheries Division, Lands Unit, Legal Unit, Strategic Planning & Data Services

Montana Natural Heritage Program

Montana State Historic Preservation Office

USDA Natural Resources Conservation Service

Powell County Offices

### 6.3 Duration of Comment Period

The public comment period would extend for thirty (30) days beginning November 12, 2015. *Comments must be received no later than December 11, 2015* (not Dec. 9<sup>th</sup> as previously announced) and can be mailed to:

Region 2 FWP

Attn: Sharon Rose

3201 Spurgin Rd.

Missoula, MT 59804

Or phoned to 406-542-5540

Or emailed to: [shrose@mt.gov](mailto:shrose@mt.gov)

#### **6.4 Anticipated Timeline of Events**

Submission of Project to the FWP Commission	January 2016
Submission of Project to the Land Board	January 2016
Property Closing if Approved	Early 2016

#### **7.0 EA PREPARATION**

Scott Eggeman, FWP Wildlife Biologist, Ovando, MT  
Ron Peirce, Regional Fisheries Biologist, Missoula, MT  
Kristi Dubois, FWP Regional Non-game Wildlife Biologist, Missoula, MT  
Mike Thompson, FWP Regional Wildlife Manager, Missoula, MT  
Rebecca Cooper, FWP Technology Program Coordinator, Helena, MT

#### **APPENDICES**

- A. CFWCS Tier 1 Wildlife Species
- B. SHPO Letter
- C. Socio-Economic Assessment

#### **ATTACHMENTS** (*see separate document files*)

1. Draft Management Plan for Proposed Clear Creek Addition to the Nevada Lake WMA
2. Forest Stewardship Plan for the Clear Creek Conservation Project

**Appendix A.** CFWCS<sup>5</sup> Tier 1 wildlife species documented in the vicinity of the property in similar habitats.

Species Group	Common Name	Scientific Name	Global Rank	State Rank	Species of Concern
Amphibians	Long-toed Salamander	<i>Ambystoma macrodactylum</i>	G5	S4	
Amphibians	Western Toad	<i>Anaxyrus boreas</i>	G4	S2	SOC
Amphibians	Columbia Spotted Frog	<i>Rana luteiventris</i>	G4	S4	
Birds	Turkey Vulture	<i>Cathartes aura</i>	G5	S4B	
Birds	Bald Eagle	<i>Haliaeetus leucocephalus</i>	G5	S4	SSS
Birds	Northern Harrier	<i>Circus cyaneus</i>	G5	S4B	
Birds	Sharp-shinned Hawk	<i>Accipiter striatus</i>	G5	S4B	
Birds	Cooper's Hawk	<i>Accipiter cooperii</i>	G5	S4B	
Birds	Northern Goshawk	<i>Accipiter gentilis</i>	G5	S3	SOC
Birds	Red-tailed Hawk	<i>Buteo jamaicensis</i>	G5	S5B	
Birds	Rough-legged Hawk	<i>Buteo lagopus</i>	G5	S5N	
Birds	Golden Eagle	<i>Aquila chrysaetos</i>	G5	S3	SOC
Birds	American Kestrel	<i>Falco sparverius</i>	G5	S5	
Birds	Merlin	<i>Falco columbarius</i>	G5	S4	
Birds	Peregrine Falcon	<i>Falco peregrinus</i>	G4	S3	SOC
Birds	Prairie Falcon	<i>Falco mexicanus</i>	G5	S4	
Birds	Spruce Grouse	<i>Falcapennis canadensis</i>	G5	S4	
Birds	Dusky Grouse	<i>Dendragapus obscurus</i>	G5	S4	
Birds	Ruffed Grouse	<i>Bonasa umbellus</i>	G5	S4	
Birds	Wild Turkey	<i>Meleagris gallopavo</i>	G5	SNA	
Birds	Long-billed Curlew	<i>Numenius americanus</i>	G5	S3B	SOC
Birds	Wilson's Snipe	<i>Gallinago delicata</i>	G5	S5	
Birds	Rock Pigeon	<i>Columba livia</i>	G5	SNA	
Birds	Mourning Dove	<i>Zenaida macroura</i>	G5	S5B	
Birds	Flammulated Owl	<i>Psilosops flammeolus</i>	G4	S3B	SOC
Birds	Great Horned Owl	<i>Bubo virginianus</i>	G5	S5	
Birds	Northern Pygmy-Owl	<i>Glaucidium gnoma</i>	G4G5	S4	
Birds	Barred Owl	<i>Strix varia</i>	G5	S4	
Birds	Great Gray Owl	<i>Strix nebulosa</i>	G5	S3	SOC
Birds	Northern Saw-whet Owl	<i>Aegolius acadicus</i>	G5	S4	
Birds	Common Nighthawk	<i>Chordeiles minor</i>	G5	S5B	
Birds	Vaux's Swift	<i>Chaetura vauxi</i>	G5	S4B	
Birds	Calliope Hummingbird	<i>Selasphorus calliope</i>	G5	S5B	
Birds	Rufous Hummingbird	<i>Selasphorus rufus</i>	G5	S4B	PSOC
Birds	Belted Kingfisher	<i>Megaceryle alcyon</i>	G5	S5B	

<sup>5</sup> Montana's 2005 Comprehensive Fish & Wildlife Conservation Strategy. Available at (and accessed 9 Nov 2015): <http://fwp.mt.gov/fishAndWildlife/conservationInAction/fullplan.html>

Species Group	Common Name	Scientific Name	Global Rank	State Rank	Species of Concern
Birds	Lewis's Woodpecker	<i>Melanerpes lewis</i>	G4	S2B	SOC
Birds	Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	G5	S4B	
Birds	Red-naped Sapsucker	<i>Sphyrapicus nuchalis</i>	G5	S4B	
Birds	Downy Woodpecker	<i>Picoides pubescens</i>	G5	S5	
Birds	Hairy Woodpecker	<i>Picoides villosus</i>	G5	S5	
Birds	Black-backed Woodpecker	<i>Picoides arcticus</i>	G5	S3	SOC
Birds	American Three-toed Woodpecker	<i>Picoides dorsalis</i>	G5	S4	
Birds	Northern Flicker	<i>Colaptes auratus</i>	G5	S5	
Birds	Pileated Woodpecker	<i>Dryocopus pileatus</i>	G5	S3	SOC
Birds	Olive-sided Flycatcher	<i>Contopus cooperi</i>	G4	S4B	
Birds	Western Wood-Pewee	<i>Contopus sordidulus</i>	G5	S5B	
Birds	Willow Flycatcher	<i>Empidonax traillii</i>	G5	S4B	
Birds	Least Flycatcher	<i>Empidonax minimus</i>	G5	S5B	
Birds	Hammond's Flycatcher	<i>Empidonax hammondi</i>	G5	S4B	
Birds	Dusky Flycatcher	<i>Empidonax oberholseri</i>	G5	S5B	
Birds	Cordilleran Flycatcher	<i>Empidonax occidentalis</i>	G5	S4B	
Birds	Eastern Kingbird	<i>Tyrannus tyrannus</i>	G5	S5B	
Birds	Tree Swallow	<i>Tachycineta bicolor</i>	G5	S5B	
Birds	Violet-green Swallow	<i>Tachycineta thalassina</i>	G5	S5B	
Birds	Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	G5	S5B	
Birds	Bank Swallow	<i>Riparia riparia</i>	G5	S5B	
Birds	Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	G5	S5B	
Birds	Barn Swallow	<i>Hirundo rustica</i>	G5	S5B	
Birds	Gray Jay	<i>Perisoreus canadensis</i>	G5	S5	
Birds	Steller's Jay	<i>Cyanocitta stelleri</i>	G5	S5	
Birds	Clark's Nutcracker	<i>Nucifraga columbiana</i>	G5	S3	SOC
Birds	Black-billed Magpie	<i>Pica hudsonia</i>	G5	S5	
Birds	American Crow	<i>Corvus brachyrhynchos</i>	G5	S5B	
Birds	Common Raven	<i>Corvus corax</i>	G5	S5	
Birds	Black-capped Chickadee	<i>Poecile atricapillus</i>	G5	S5	
Birds	Mountain Chickadee	<i>Poecile gambeli</i>	G5	S5	
Birds	Red-breasted Nuthatch	<i>Sitta canadensis</i>	G5	S5	
Birds	White-breasted Nuthatch	<i>Sitta carolinensis</i>	G5	S4	
Birds	Pygmy Nuthatch	<i>Sitta pygmaea</i>	G5	S4	
Birds	Brown Creeper	<i>Certhia americana</i>	G5	S3	SOC
Birds	Rock Wren	<i>Salpinctes obsoletus</i>	G5	S5B	
Birds	House Wren	<i>Troglodytes aedon</i>	G5	S5B	
Birds	Pacific Wren	<i>Troglodytes pacificus</i>	G5	S3	SOC
Birds	Golden-crowned Kinglet	<i>Regulus satrapa</i>	G5	S5	

Species Group	Common Name	Scientific Name	Global Rank	State Rank	Species of Concern
Birds	Ruby-crowned Kinglet	<i>Regulus calendula</i>	G5	S5B	
Birds	Western Bluebird	<i>Sialia mexicana</i>	G5	S4B	
Birds	Mountain Bluebird	<i>Sialia currucoides</i>	G5	S5B	
Birds	Townsend's Solitaire	<i>Myadestes townsendi</i>	G5	S5	
Birds	Veery	<i>Catharus fuscescens</i>	G5	S3B	SOC
Birds	Swainson's Thrush	<i>Catharus ustulatus</i>	G5	S5B	
Birds	Hermit Thrush	<i>Catharus guttatus</i>	G5	S5B	
Birds	American Robin	<i>Turdus migratorius</i>	G5	S5B	
Birds	Varied Thrush	<i>Ixoreus naevius</i>	G5	S3B	SOC
Birds	Gray Catbird	<i>Dumetella carolinensis</i>	G5	S5B	
Birds	American Pipit	<i>Anthus rubescens</i>	G5	S4B	
Birds	Bohemian Waxwing	<i>Bombycilla garrulus</i>	G5	S5N	
Birds	Cedar Waxwing	<i>Bombycilla cedrorum</i>	G5	S5B	
Birds	Northern Shrike	<i>Lanius excubitor</i>	G5	S5N	
Birds	European Starling	<i>Sturnus vulgaris</i>	G5	SNA	
Birds	Warbling Vireo	<i>Vireo gilvus</i>	G5	S5B	
Birds	Red-eyed Vireo	<i>Vireo olivaceus</i>	G5	S4B	
Birds	Cassin's Vireo	<i>Vireo cassinii</i>	G5	S4B	
Birds	Orange-crowned Warbler	<i>Oreothlypis celata</i>	G5	S5B	
Birds	Yellow Warbler	<i>Setophaga petechia</i>	G5	S5B	
Birds	Yellow-rumped Warbler	<i>Setophaga coronata</i>	G5	S5B	
Birds	Townsend's Warbler	<i>Setophaga townsendi</i>	G5	S5B	
Birds	American Redstart	<i>Setophaga ruticilla</i>	G5	S5B	
Birds	Northern Waterthrush	<i>Parkesia noveboracensis</i>	G5	S5B	
Birds	MacGillivray's Warbler	<i>Geothlypis tolmiei</i>	G5	S5B	
Birds	Wilson's Warbler	<i>Cardellina pusilla</i>	G5	S5B	
Birds	Western Tanager	<i>Piranga ludoviciana</i>	G5	S5B	
Birds	Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>	G5	S5B	
Birds	Lazuli Bunting	<i>Passerina amoena</i>	G5	S4B	
Birds	Spotted Towhee	<i>Pipilo maculatus</i>	G5	S5B	
Birds	American Tree Sparrow	<i>Spizella arborea</i>	G5	SUN	
Birds	Chipping Sparrow	<i>Spizella passerina</i>	G5	S5B	
Birds	Clay-colored Sparrow	<i>Spizella pallida</i>	G5	S4B	
Birds	Brewer's Sparrow	<i>Spizella breweri</i>	G5	S3B	SOC
Birds	Vesper Sparrow	<i>Poocetes gramineus</i>	G5	S5B	
Birds	Lark Sparrow	<i>Chondestes grammacus</i>	G5	S5B	
Birds	Grasshopper Sparrow	<i>Ammodramus savannarum</i>	G5	S4B	
Birds	Fox Sparrow	<i>Passerella iliaca</i>	G5	S5B	
Birds	Song Sparrow	<i>Melospiza melodia</i>	G5	S5B	

Species Group	Common Name	Scientific Name	Global Rank	State Rank	Species of Concern
Birds	Lincoln's Sparrow	<i>Melospiza lincolnii</i>	G5	S5B	
Birds	White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	G5	S5B	
Birds	Dark-eyed Junco	<i>Junco hyemalis</i>	G5	S5B	
Birds	Snow Bunting	<i>Plectrophenax nivalis</i>	G5	S5N	
Birds	Red-winged Blackbird	<i>Agelaius phoeniceus</i>	G5	S5B	
Birds	Western Meadowlark	<i>Sturnella neglecta</i>	G5	S5B	
Birds	Brewer's Blackbird	<i>Euphagus cyanocephalus</i>	G5	S5B	
Birds	Common Grackle	<i>Quiscalus quiscula</i>	G5	S5B	
Birds	Brown-headed Cowbird	<i>Molothrus ater</i>	G5	S5B	
Birds	Bullock's Oriole	<i>Icterus bullockii</i>	G5	S5B	
Birds	Northern Oriole	<i>Icterus galbula</i>	G5	SNR	
Birds	Pine Grosbeak	<i>Pinicola enucleator</i>	G5	S5	
Birds	Cassin's Finch	<i>Haemorhous cassinii</i>	G5	S3	SOC
Birds	House Finch	<i>Haemorhous mexicanus</i>	G5	S5	
Birds	Red Crossbill	<i>Loxia curvirostra</i>	G5	S5	
Birds	White-winged Crossbill	<i>Loxia leucoptera</i>	G5	S4	
Birds	Common Redpoll	<i>Acanthis flammea</i>	G5	S5N	
Birds	Hoary Redpoll	<i>Acanthis hornemanni</i>	G5	SNA	
Birds	Pine Siskin	<i>Spinus pinus</i>	G5	S5	
Birds	American Goldfinch	<i>Spinus tristis</i>	G5	S5B	
Birds	Evening Grosbeak	<i>Coccothraustes vespertinus</i>	G5	S3	SOC
Mammals	Masked Shrew	<i>Sorex cinereus</i>	G5	S5	
Mammals	Vagrant Shrew	<i>Sorex vagrans</i>	G5	S4	
Mammals	Dusky or Montane Shrew	<i>Sorex monticolus</i>	G5	S5	
Mammals	Little Brown Myotis	<i>Myotis lucifugus</i>	G3	S3	SOC
Mammals	Yuma Myotis	<i>Myotis yumanensis</i>	G5	S3S4	PSOC
Mammals	Long-eared Myotis	<i>Myotis evotis</i>	G5	S4	
Mammals	Fringed Myotis	<i>Myotis thysanodes</i>	G4	S3	SOC
Mammals	Long-legged Myotis	<i>Myotis volans</i>	G5	S4	
Mammals	Western Small-footed Myotis	<i>Myotis ciliolabrum</i>	G5	S4	
Mammals	Silver-haired Bat	<i>Lasiorycteris noctivagans</i>	G5	S4	PSOC
Mammals	Big Brown Bat	<i>Eptesicus fuscus</i>	G5	S4	
Mammals	Hoary Bat	<i>Lasiurus cinereus</i>	G5	S3	SOC
Mammals	Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>	G3G4	S3	SOC
Mammals	Mountain Cottontail	<i>Sylvilagus nuttallii</i>	G5	S4	
Mammals	Snowshoe Hare	<i>Lepus americanus</i>	G5	S4	
Mammals	Yellow-pine Chipmunk	<i>Tamias amoenus</i>	G5	S5	
Mammals	Red-tailed Chipmunk	<i>Tamias ruficaudus</i>	G5	S4	
Mammals	Yellow-bellied Marmot	<i>Marmota flaviventris</i>	G5	S4	

Species Group	Common Name	Scientific Name	Global Rank	State Rank	Species of Concern
Mammals	Columbian Ground Squirrel	<i>Urocitellus columbianus</i>	G5	S5	
Mammals	Golden-mantled Ground Squirrel	<i>Callospermophilus lateralis</i>	G5	S4	
Mammals	Red Squirrel	<i>Tamiasciurus hudsonicus</i>	G5	S5	
Mammals	Deer Mouse	<i>Peromyscus maniculatus</i>	G5	S5	
Mammals	Southern Red-backed Vole	<i>Myodes gapperi</i>	G5	S4	
Mammals	Meadow Vole	<i>Microtus pennsylvanicus</i>	G5	S5	
Mammals	Montane Vole	<i>Microtus montanus</i>	G5	S5	
Mammals	Long-tailed Vole	<i>Microtus longicaudus</i>	G5	S4	
Mammals	Western Jumping Mouse	<i>Zapus princeps</i>	G5	S4	
Mammals	Porcupine	<i>Erethizon dorsatum</i>	G5	S4	PSOC
Mammals	Coyote	<i>Canis latrans</i>	G5	S5	
Mammals	Gray Wolf	<i>Canis lupus</i>	G4	S4	
Mammals	Red Fox	<i>Vulpes vulpes</i>	G5	S5	
Mammals	Black Bear	<i>Ursus americanus</i>	G5	S5	
Mammals	Grizzly Bear	<i>Ursus arctos</i>	G4	S2S3	SOC
Mammals	Raccoon	<i>Procyon lotor</i>	G5	S5	
Mammals	Marten	<i>Martes americana</i>	G5	S4	
Mammals	Fisher	<i>Martes pennanti</i>	G5	S3	SOC
Mammals	Long-tailed Weasel	<i>Mustela frenata</i>	G5	S5	
Mammals	American Mink	<i>Mustela vison</i>	G5	S5	
Mammals	Wolverine	<i>Gulo gulo</i>	G4	S3	SOC
Mammals	Striped Skunk	<i>Mephitis mephitis</i>	G5	S5	
Mammals	Canada Lynx	<i>Lynx canadensis</i>	G5	S3	SOC
Mammals	Bobcat	<i>Lynx rufus</i>	G5	S5	
Mammals	Mountain Lion	<i>Puma concolor</i>	G5	S4	
Mammals	Elk	<i>Cervus canadensis</i>	G5	S5	
Mammals	Mule Deer	<i>Odocoileus hemionus</i>	G5	S5	
Mammals	White-tailed Deer	<i>Odocoileus virginianus</i>	G5	S5	
Mammals	Moose	<i>Alces americanus</i>	G5	S4	
Reptiles	Northern Rubber Boa	<i>Charina bottae</i>	G5	S4	
Reptiles	Terrestrial Gartersnake	<i>Thamnophis elegans</i>	G5	S5	
Reptiles	Common Gartersnake	<i>Thamnophis sirtalis</i>	G5	S4	

**Appendix B.** State Historic Preservation Office (SHPO) Letter



June 22, 2015

Scott Eggeman  
MT FWP  
311 Dearborn Ave  
Missoula MT 59801

RE: CLEAR CREEK FEE ACQUISITION, 760 ACRES TNC LAND, NEVADA LAKE  
WMA.  
SHPO Project #: 2015062203

Dear Scott:

I have conducted a cultural resource file search for the above-cited project located in Sections 1, 11, T12N R10W. According to our records there have been two previously recorded sites within the designated search locales. In addition to the sites there have been a few previously conducted cultural resource inventories done in the areas. I've attached a list of these sites and reports. If you would like any further information regarding these sites or reports you may contact me at the number listed below.

It is SHPO's position that any structure over fifty years of age is considered historic and is potentially eligible for listing on the National Register of Historic Places. If any structures are to be altered and are over fifty years old we would recommend that they be recorded and a determination of their eligibility be made.

As long as there will be no disturbance or alteration to structures over fifty years of age we feel that there is a low likelihood cultural properties will be impacted. We, therefore, feel that a recommendation for a cultural resource inventory is unwarranted at this time. However, should structures need to be altered or if cultural materials be inadvertently discovered during this project we would ask that our office be contacted and the site investigated.

If you have any further questions or comments you may contact me at (406) 444-7767 or by e-mail at [dmurdo@mt.gov](mailto:dmurdo@mt.gov). I have attached an invoice for the file search. Thank you for consulting with us.

Sincerely,

Damon Murdo  
Cultural Records Manager  
State Historic Preservation Office

## **Appendix C. Socio-Economic Assessment**

### **Clear Creek Addition to the Nevada Lake Wildlife Management Area: Socio-Economic Assessment**

Montana Fish, Wildlife & Parks  
Prepared by Darlene Edge, FWP Lands Unit; July 21, 2015

#### **I. INTRODUCTION**

House Bill 526, passed by the 1987 Legislature and encoded in Sections 87-1-241 and 87-1-242, Montana Code Annotated (MCA), established policies and funding for the Habitat Montana program through which Montana Fish, Wildlife and Parks (FWP) acquires interests in land to secure, develop and maintain wildlife habitat. Acquisitions can be by fee title, conservation easement, or lease. In 1989, the Montana legislature passed House Bill 720, requiring that FWP prepare a socioeconomic assessment for Habitat Montana acquisitions. The purpose of the socioeconomic assessment is to evaluate any “significant potential social and economic impacts” of the acquisition on local governments, employment, schools, and local businesses.

This socioeconomic assessment addresses Montana Fish, Wildlife and Parks’ proposed purchase of approximately 760 acres in Powell County, Montana, to be managed as an addition to and consistent with the Nevada Lake Wildlife Management Area.

#### **II. PHYSICAL AND INSTITUTIONAL SETTING**

##### **Property Description:**

The proposed addition to the Nevada Lake Wildlife Management Area (WMA) is located about 7 miles southeast of Helmville in Powell County. The parcel is 760 acres of intermountain forest adjacent to the Nevada Lake Wildlife Management Area in west-central Montana’s Blackfoot Valley.

The property borders the Nevada Lake WMA and the Clear Creek parcel lies within a critical forested habitat corridor in the southeastern Blackfoot watershed. The parcel comprises 760 acres and > 90% of which are forested. The parcel is former industrial timberlands currently owned by The Nature Conservancy (TNC).

##### **Current Use:**

The Clear Creek addition is used for open space at the present time. FWP has not been apprised of any grazing leases on the property, and the landowner has expressed an interest in keeping this land in open space for wildlife habitat and recreation.

Property improvements consist only of limited fencing, and there are no residences or other buildings on the proposed WMA.

#### **III. SOCIAL AND ECONOMIC IMPACTS**

##### **Land Management and Government Services:**

The proposed land acquisition will place approximately 760 acres in ownership of the Montana Department of Fish, Wildlife and Parks. This acreage is currently managed as undeveloped habitat, forested land, with no fee hunting or other economic return. Under FWP management, this acreage will

be managed as a part of the Nevada Lake WMA. Thus, no change in local government services is anticipated for the property.

FWP has a weed management agreement in place with the Powell County Weed District, specifying respective roles in control efforts for noxious weeds on FWP lands in the county. FWP has an active weed control program for its public recreation sites throughout Montana.

As a requirement under the Forest Legacy Program, FWP has developed a forest stewardship plan and intends to actively manage the Clear Creek addition's forests. Forest management would target forest health improvements and restoration with an eye for enhancing wildlife habitat.

**Economic Activity:**

The financial impacts to local businesses (i.e., income and employment) are addressed by looking at the change in expenditures associated with the activities this property currently provides, compared to the activities that would occur under FWP's proposed land acquisition.

FWP acquisition of these 760 acres will make this currently private land available for public recreation, thus increasing opportunities for hunting, wildlife viewing, and camping. These uses can be expected to provide a minor boost to regional economic activity (such as food/lodging and sporting equipment sales) associated with hunting and other outdoor recreation.

Future forest management and restoration has the potential to generate revenue for area mills through timber sales, in addition to providing work for local logging contractors. The result would be a minor but potentially consistent revenue source to the regional economy.

The land is not currently used for other economic activity.

In sum, while FWP's management will generally continue the status quo, public ownership of the property could have a minimally positive impact on local economic activity through improved public recreational opportunities, forest management, and the resulting effect on local businesses that provide related goods and services. The FWP land will require no additional public services, except annual weed control efforts.

**Property Taxes:**

The sale of the fee title land and subsequent title transfer to FWP will not change the tax revenue that Powell County currently collects on this property because, under Section 87-1-603, MCA, FWP is required to pay "to the county a sum equal to the amount of taxes which would be payable on county assessment of the property were it taxable to a private citizen." Current property taxes on the 760 acres are estimated to be about \$1,000 annually, and FWP will continue to make these payments, based on the assessment provided by Powell County.

**IV. FINDINGS AND CONCLUSIONS**

Montana Fish, Wildlife and Parks' fee title acquisition of approximately 760 acres for an addition to the Nevada Lake Wildlife Management Area will provide long term protection of wildlife habitat, continue managing the land as a working forest, and provide additional public recreation opportunities. Placing this land in FWP ownership will not require any additional local government services. The acquisition will not have any "significant potential social and economic impacts."

## **Draft Management Plan: Proposed Clear Creek Addition to the Nevada Lake Wildlife Management Area**

### **INTRODUCTION**

Montana Fish, Wildlife & Parks (FWP) purposes to purchase in fee title, the 760-acre parcels currently owned by The Nature Conservancy (TNC). The properties of interest lie directly north of the Nevada Creek Reservoir on the north side of Montana Highway 141 and directly west and north of the existing Nevada Lake Wildlife Management Area (WMA). The western portion of the Clear Creek properties is bisected by Chicken Creek with the main access road paralleling the creek (Figure 1).

The objectives for purchase of the Clear Creek Addition are:

- To protect and enhance critical elk winter range
- To protect and enhance other seasonal habitats for a diversity of fish and wildlife
- To establish and maintain public access and outdoor recreation opportunities
- To facilitate and complement management of the existing Nevada Lake WMA

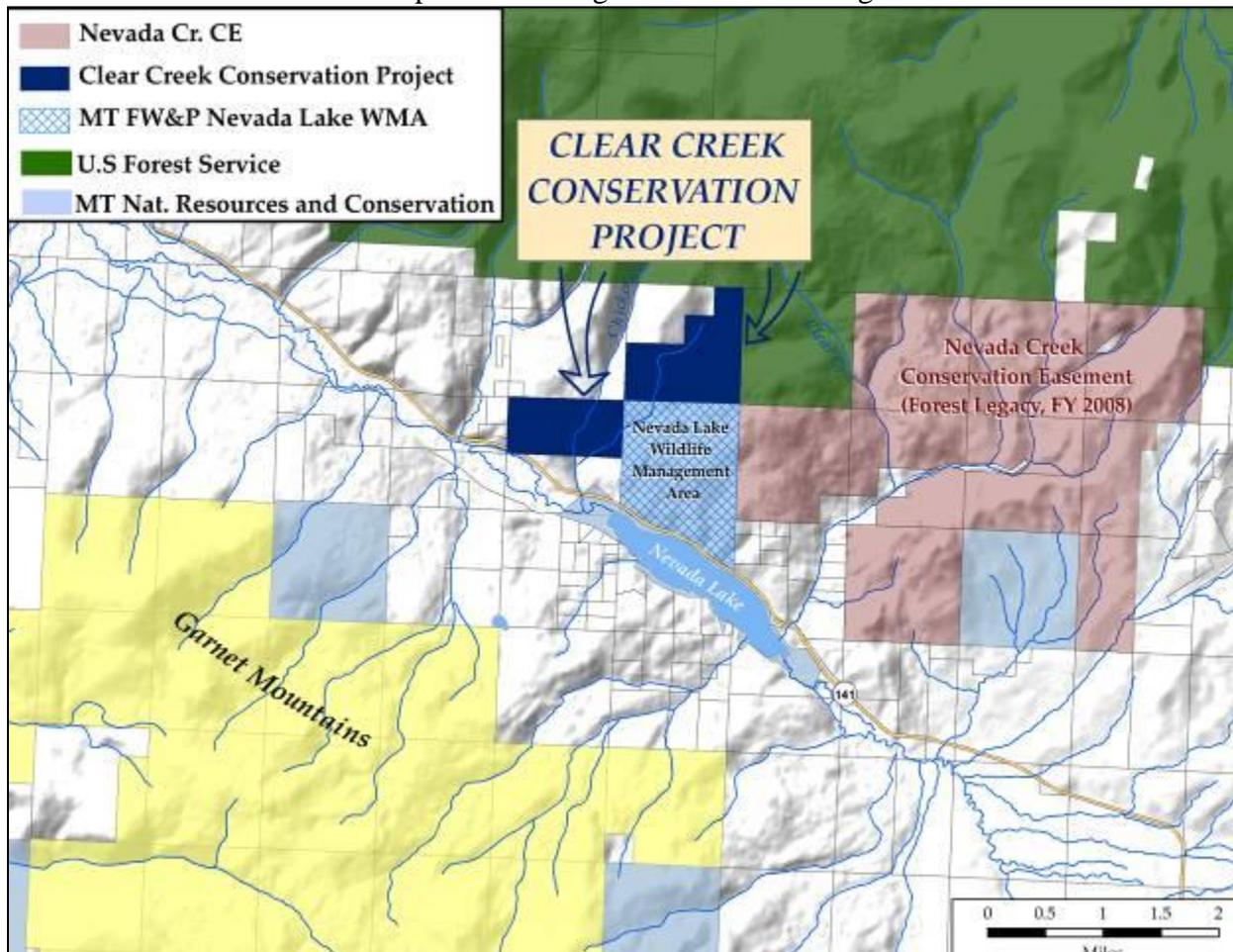


Figure 1. Location of the Clear Creek Addition lands adjacent to the Nevada Lake WMA.

### **I. Acquisition Date**

Pending public review, Commission approval, and approval of the State Land Board, FWP plans to acquire the property in the fall of 2015.

### **II. Chain of Ownership**

The current owner is The Nature Conservancy (TNC). TNC purchased the property in 2003 as part of the Blackfoot Community Project. FWP would acquire fee-title to the Clear Creek Addition and all water and mineral rights associated with it.

### **III. Property Description.**

The Clear Creek Addition lies approximately 8 miles to the southeast of the community of Helmville, Montana.

#### Legal Description (general terms):

Powell County: T12N, R10W, section 11: the northern half;  
Section 1: the southern half, the southern half of the NE corner,  
and the NE corner of the NE corner.

### **IV. Landscape**

The proposed addition adjoins the Nevada Lake WMA (740 acres) to the east and south. Thousands of acres of the Helena National Forest to the immediate north with the Scapegoat and Bob Marshall Wilderness further to the north. To the south lies the East Garnet Mountain Range and Hoodoo Mountain Wilderness Study Area.

### **V. Natural Resources**

#### **Wildlife**

The Nevada Lake WMA provides critical habitat for grizzly bears, as well as habitat for more than 28 Montana Species of Concern and over 184 other native species including elk, white-tailed and mule deer, moose, and a variety of nongame birds and mammals. The subject property lies within a matrix of protected State and federal lands as well as some private ownership and is within an important linkage zone for grizzly bears and Canada lynx.

Grasslands and mixed conifer forest provide critical elk winter range for a large portion of the elk wintering within HD293 and HD298. The majority of section 1 is upland comprised of previously harvested timber, with riparian, and some sagebrush shrubland (Figure 2). The Northern half of section 11 is considered lower-montane foothill and valley grasslands, sagebrush steppe, ponderosa pine-woodland savanna, and to a lesser extent riparian and upper-montane grassland.

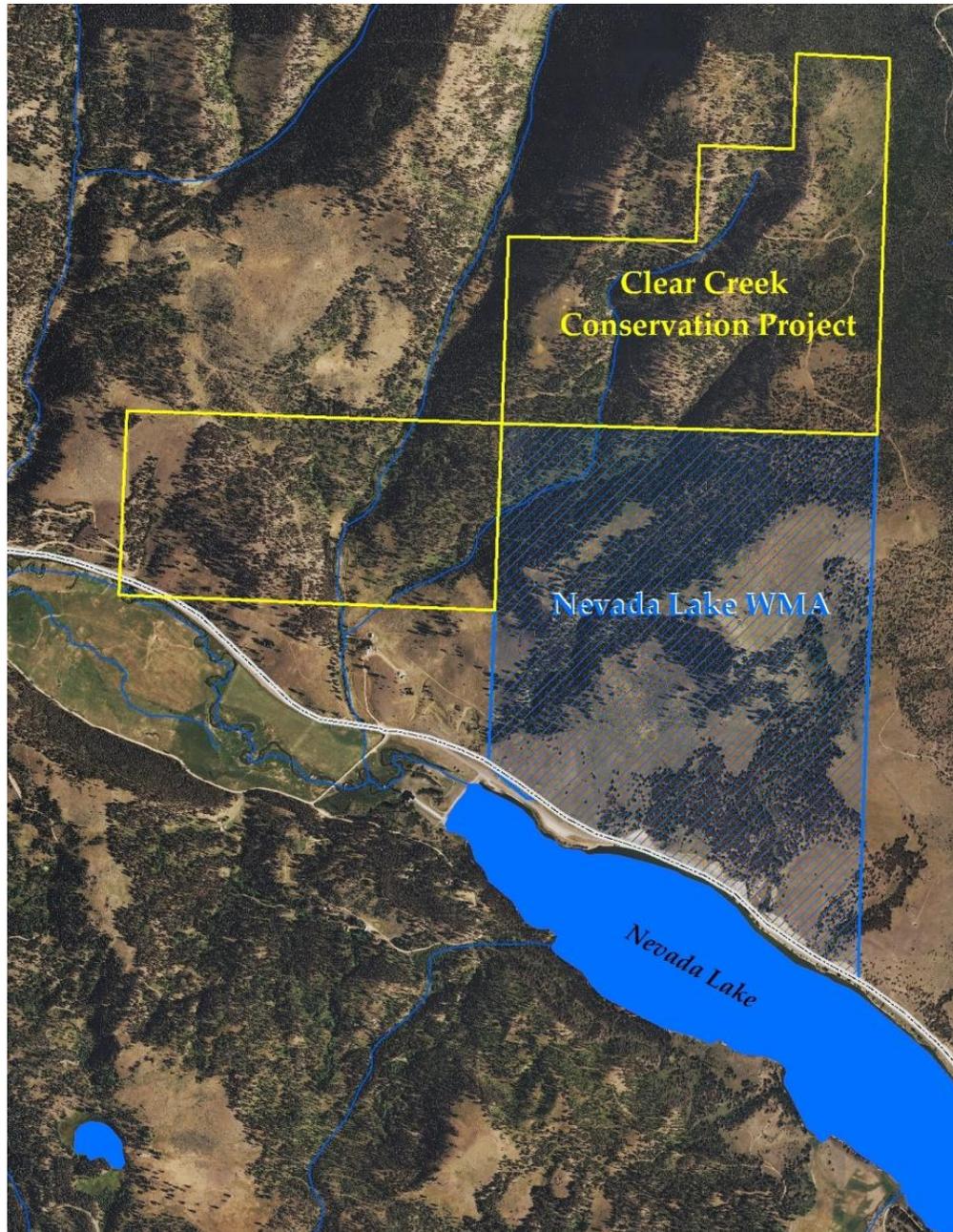


Figure 2. Aerial Map of Clear Creek Addition and adjacent Nevada Lake WMA.

### **Fisheries**

Chicken Creek is a small 1<sup>st</sup> order tributary stream that enters Nevada Creek just below the Nevada Creek Reservoir. A population of 98% genetically pure Westslope cutthroat trout persists in all stretches of Chicken Creek at low to moderate levels. Riparian conditions are poor in the upper reaches of the stream due to overgrazing and overuse from livestock. Most of the vegetation is denuded and bank integrity is compromised as a result. Lower reaches are in moderate condition with limited habitat for WSCT and degraded vegetation.

## MANAGEMENT OVERVIEW

### Introduction

FWP would manage the Clear Creek Addition to maximize its value for wildlife while providing for seasonal, non-motorized recreational access. Conservation and enhancement of native grasslands and mixed conifer stands for wintering elk would take precedence over recreational opportunity. The Clear Creek Addition would be managed consistent with rules and regulations on nearby WMAs. Vegetation management would occur when there is opportunity to enhance habitat. FWP would act as a good neighbor to adjoining land owners by cooperating with fence maintenance, treating noxious weeds, providing road access consistent with existing easements or to facilitate management, or otherwise lending a hand.

### I. Public Access

The public would have access to the Clear Creek Addition for hunting, fishing, trapping, hiking, wildlife watching, horseback riding, and other non motorized recreational pursuits from May 15 to December 1. (Trapping opportunity would be marginal as the only furbearers open to harvest in November are beaver, mink, muskrat, and otter and these species may not be found onsite). The property closure from December 2 through May 14 to would be to protect wintering elk. Rules and regulations would be consistent with those on the existing Nevada Lake WMA.

- ✓ *The Clear Creek Addition would be open to public use from noon on May 15 through December 1 for non-motorized travel and recreation.*
- ✓ *The WMA would be closed to mountain lion hunting during the winter and spring.*
- ✓ *Hunting would be allowed as per statewide regulations and regulations for Deer/Elk Hunting District 293, Moose Hunting District 293, and Black Bear Management Unit 290 (fall season and May 15 through June 15).*
- ✓ *Trapping would be allowed when the WMA is open to public recreation.*
- ✓ *There would be no roads open to motorized travel.*
- ✓ *Camping would be allowed.*
- ✓ *No firewood cutting or open fires would be allowed.*
- ✓ *Permits would be required for groups of more than 15 people.*
- ✓ *Pack in, pack out garbage, and litter would be mandated.*
- ✓ *Outfitting would be prohibited within the WMA.*
- ✓ *Commercial activities would be prohibited, except as authorized by permit, as specified by FWP's commercial use policy.*

### Access Issues:

- The property is remotely located with access off a MT Hwy 141 and sits directly adjacent to Helena National Forest Lands. As a result, FWP anticipates a marginal increase in public use and potential for violation of travel rules from adjacent lands and nearby forest roads.
- Interest in yearlong recreation. Residents may have an interest in using the Clear Creek Addition when it is closed to pursue winter sports, trapping, lion hunting, or antler shed hunting. Public education regarding access rules and enforcement would be necessary.
- Illegal off-road vehicle travel may occur. FWP would have to place a gate between the neighboring Harrison property and the Clear Creek Addition to control motorized travel. Enforcement would be necessary, resulting in additional expenditures by FWP.
- Hunting season displacement of big game. There is potential for elk and deer to be pushed off the property in hunting season due to high hunter use.
- Signage boundary and rules. It would be necessary to sign the property's boundaries and clearly post rules at the primary access point off MT Hwy 141.
- Information on the Clear Creek Addition would have to be available to the public onsite and online. FWP would post a map and rules online. An interpretive sign with a map of the Clear Creek Addition and rules would be located just inside of the fence along MT Hwy 141. Signage along the road would identify it as FWP property.

## **II. Habitat Management**

### **Forest Management**

FWP does anticipate future timber management projects to occur within the first 3 years of ownership and currently has a developed forest stewardship plan. The management goals would target forest restoration and wildlife habitat enhancement projects. Forest insects and disease are present in many of the forest stands and because of previous timber management practices pre-commercial and commercial thinning projects would be necessary to restore grassland openings and mixed-age forest structure.

### **Livestock Grazing**

Lease of the uplands of the Clear Creek Addition for livestock grazing is not anticipated. The Clear Creek Addition is relatively small with critical value for wintering elk. Provision of forage for elk and retaining them on the property are essential. There is not currently any grazing on Nevada Lake WMA.

#### Habitat Management Issues:

- FWP would remove existing fences between the current Nevada Lake WMA and the Clear Creek Addition to enhance wildlife movement between the properties.
- There is potential for heavy grazing pressure by elk. Monitoring would be necessary to assure that elk grazing is not adversely impacting range conditions. If elk populations exceed objective FWP will liberalize hunting regulations to reduce populations and impacts to range.
- Grasslands are vulnerable to conifer encroachment and forest thinning project may need to be implemented to maintain grassland openings and overstocking of Douglas fir.

### III. Noxious Weed Management

In compliance with 7-22-2151, MCA, FWP is required by state statute to develop a noxious weed management plan, have the plan approved by the county weed board, and provide a biennial report on weed management activities. FWP has developed a noxious weed management plan (Appendix C of Environmental Assessment), that has been approved by the county, in which we have committed to Integrated Pest Management (IPM). Spotted knapweed is present along with houndstongue to lesser degree.

FWPs' approach to weed management on the Clear Creek Addition would be to treat patches of noxious weeds using herbicides (Milestone, Tordon and Escort XP), evaluate the outcome, re-treat as necessary, and then use appropriate insects as biological controls to keep noxious weeds at low densities. The *Larinus* seed head weevil and *Cyphocleonus* root weevil have been released on spotted knapweed and would require continued monitoring of effectiveness.

#### Issues:

- Weed infestations are present with spotted knapweed predominant. FWP would treat these patches with herbicides in the spring of 2015.
- Coordination with neighboring private land-owners will be necessary to most effectively treat weeds across the area. As a good neighbor FWP will work with neighbors to control weeds.

### IV. Fire Suppression

Fire suppression on the Clear Creek Addition would be covered under existing cooperative agreements with the Department of Natural Resources.

## **V. Good Neighbor**

Maintaining positive and productive relationships with neighboring landowners is a core concern for FWP. FWP would cooperate with neighbors by honoring existing easements, allowing vehicle passage as necessary to facilitate management, repairing and constructing fence as needed, and controlling weeds.

## **VI. Maintenance and Budget**

The Clear Creek Addition has no structures or other improvements.

Estimated start up and annual maintenance costs are:

- Annual Fence maintenance= \$700
  - Parking Area for 8 vehicles= \$7,500
  - Annual Weed Maintenance= \$3,000
  - Gates \$250 each for 2 gates= \$500
  - Interpretive sign and boundary signs = \$1,800
- Total Estimated Start Up Costs= \$13,500

These initial expenditures made during the first 5 years of FWP ownership would cover the most significant costs associated with purchase of the property and providing for public use. Future expenditures to spot spray weeds, bring in additional insects for biological control, repair fences, and sign the property would be necessary to manage the property to the satisfaction of FWP, our neighbors, and the public whom we serve.



Figure 3. Clear Creek Addition looking northwest towards the Helmville Valley.

**Forest Stewardship Plan**  
for the  
**Clear Creek Conservation Project**



**PLAN PREPARED BY**



**Luke Fehlig**  
**Northwest Management, Inc.**  
**1417 Orange Avenue • Helena, MT 59601**  
**(406) 442-7555**  
**[fehlig@nmi2.com](mailto:fehlig@nmi2.com)**

**January 15, 2015**

## **SIGNATURE PAGE**

This Forest Stewardship Management Plan meets all Forest Stewardship Forest Management Planning Standards as developed by the U.S. Department of Agriculture, Forest Service, State and Private Forestry's Forest Stewardship Program.

Biological, economic, social, and political constraints which help to shape this stewardship plan are constantly changing and create a dynamic environment. In the event that these constraints undergo change which affects the plan, it will be modified accordingly. All management practices implemented through this plan will reflect a dedication by the landowner to good forest stewardship.

### **Approval Signature:**

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Representative:  
Montana Department of Natural Resources and Conservation,  
Forestry Division

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Date:

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## **Property Location**

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The Clear Creek Conservation Project (CCCP) is located in Powell County, Montana, approximately 8 miles southeast of Helmville, Montana. The Property is situated in the Nevada Creek Valley drainage in the Blackfoot River watershed. The Nature Conservancy currently owns and manages the subject property but plans to transfer ownership of the property in the near future to the Montana Department of Fish, Wildlife & Parks.

**Table 1: Legal Description of Clear Creek Conservation Project**

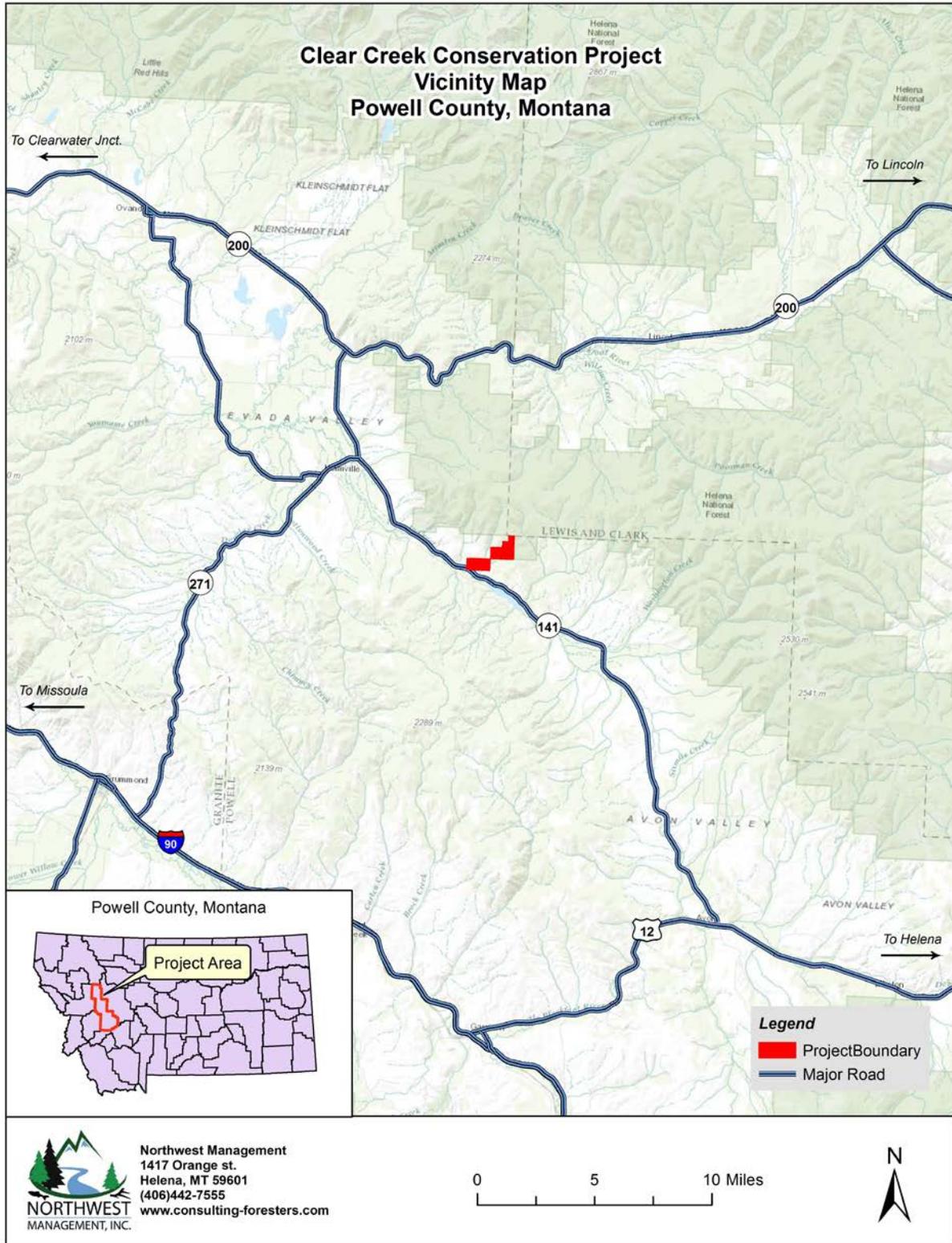
<b>PLSS Township &amp; Range</b>	<b>Section</b>	<b>Clear Creek Conservation Project Lands</b>	<b>Total Parcel Acreage</b>
T 12 North, R 10 West	1	S ½ and portions of NE ¼	440.03
T 12 North, R 10 West	11	N ½	320.00

## **Surrounding Land Use**

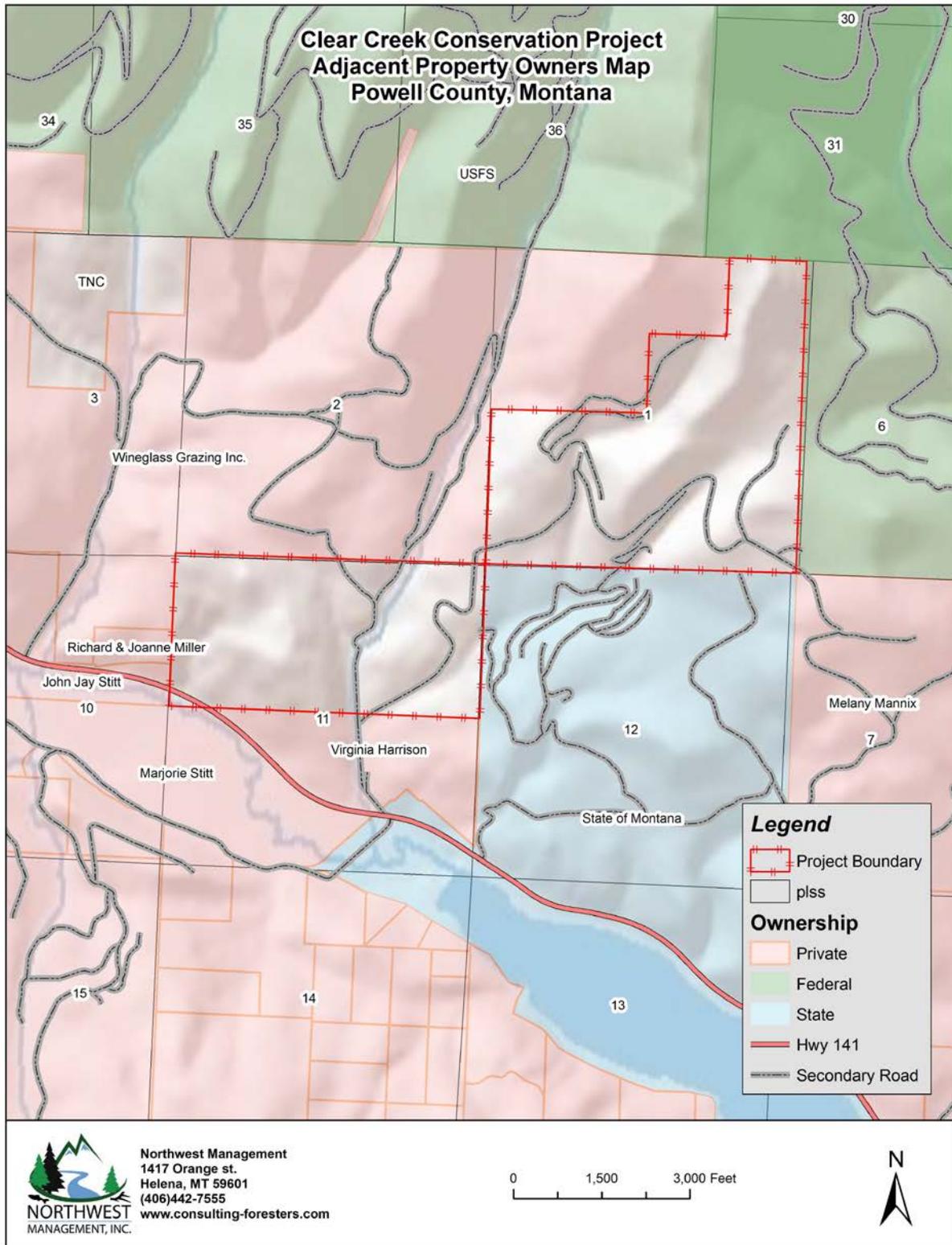
Lands in Section 1 are bordered to the north by private land owned by Wineglass Grazing, Inc., and the Lewis and Clark National Forest. The east boundary adjoins the Lewis and Clark National Forest. The property is bounded to the south by the Nevada Lake Wildlife Management Area administered by the Montana Department of Fish, Wildlife & Parks (MTFWP). The west boundary is adjoined by private ranchland owned by Wineglass Grazing, Inc. Adjoining lands are primarily managed for timber production, livestock grazing and wildlife habitat.

CCCP land in Section 11 is bordered to the north by private land owned by Wineglass Grazing, Inc. which is used primarily for livestock grazing and timber production. The west and south boundaries are bordered by privately owned tracts of land used for rural residential and recreational purposes. The east boundary is bordered by the Nevada Lake Wildlife Management Area administered by the Montana Department of Fish, Wildlife & Parks (MTFWP). The Nevada Lake WMA is managed for wildlife habitat –specifically to maintain and enhance winter range for elk and mule deer.

**CCCP Project Vicinity Map**



**CCCP Adjacent Ownership Map**



## Property Description

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### Topography

The CCCP is located on foothills along the interface between the mountains to the north and the Nevada Creek valley floor to the south. The property encompasses several steep draws which converge in the main Chicken Creek drainage in the southern portion of the CCCP property in Section 11. The property is moderately to steeply-sloped with a predominately southern aspect. Elevation ranges from a low of 4550 feet above sea level in the bottom of the Chicken Creek drainage to 6360 feet above sea level at the at the highest point of the property in the northeast corner of Section 1.

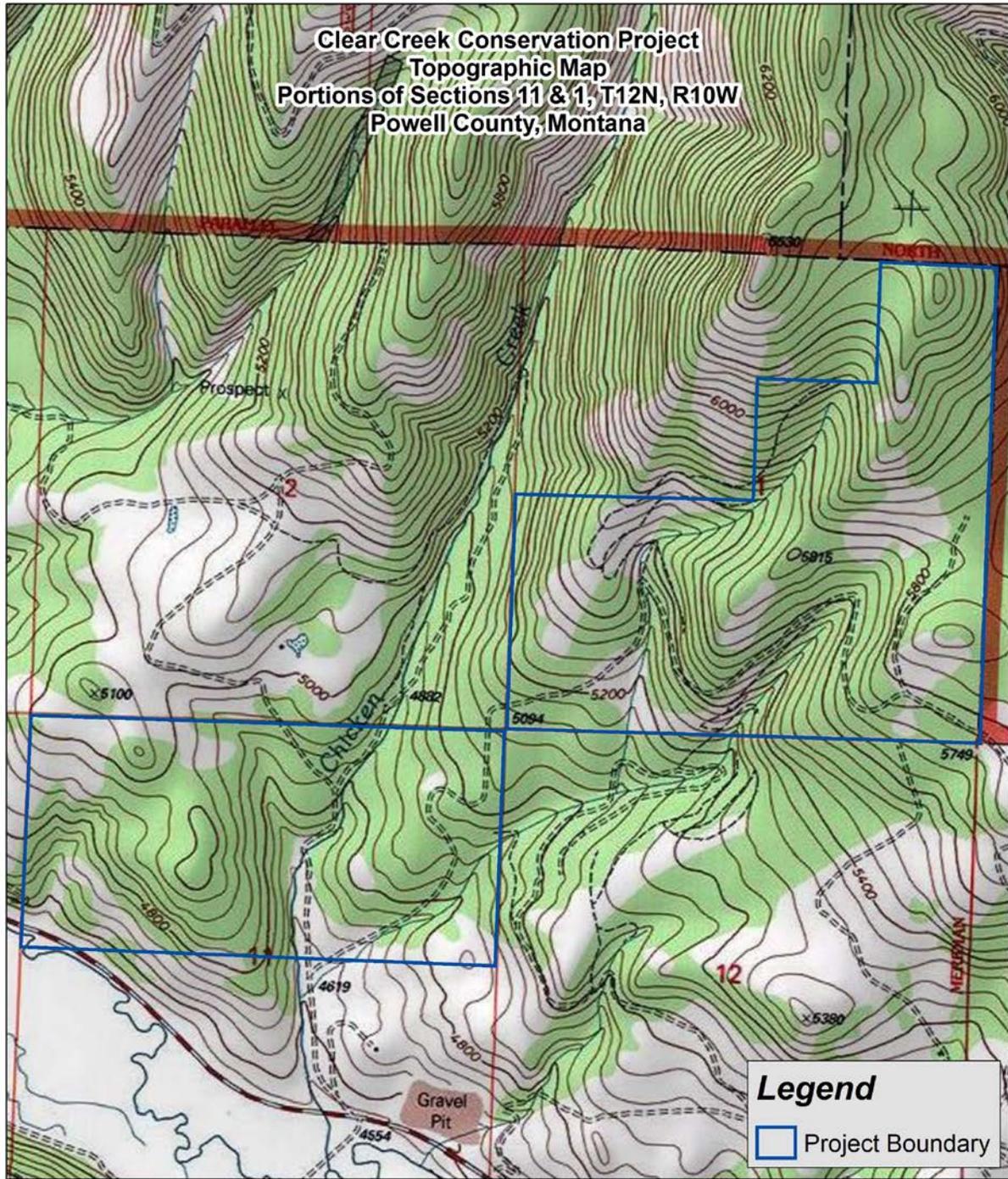
### Weather

Western Regional Climate Center data for Ovando, MT is shown below. Ovando is 20 miles air miles to the northwest of the CCCP and is the closest reporting station. The climate station's elevation is similar to the lowest elevation within the CCCP property.

**Table 2: Monthly Climate Summary**

<b>OVANDO, MONTANA (246304)</b>													
<b>Period of Record Monthly Climate Summary</b>													
<b>Period of Record : 8/ 5/1976 to 2/28/2011</b>													
	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Annual</b>
<b>Average Max. Temperature (F)</b>	29.3	33.9	43.8	54.4	63.1	71	80.3	80.1	69.5	56.1	39.4	28.7	<b>54.1</b>
<b>Average Min. Temperature (F)</b>	5.8	8.4	18.6	24.9	32	38.8	41.6	39.5	31.5	22.5	15.4	5.9	<b>23.7</b>
<b>Average Total Precipitation (in.)</b>	0.84	0.58	0.57	0.84	1.76	1.83	1.1	1.11	1.06	0.81	0.96	0.92	<b>12.37</b>
<b>Average Total Snow Fall (in.)</b>	8.6	5.3	4.2	1.5	0.3	0.1	0	0.1	0.4	1.6	5.3	9.6	<b>36.9</b>
<b>Average Snow Depth (in.)</b>	5	5	1	0	0	0	0	0	0	0	1	3	<b>1</b>

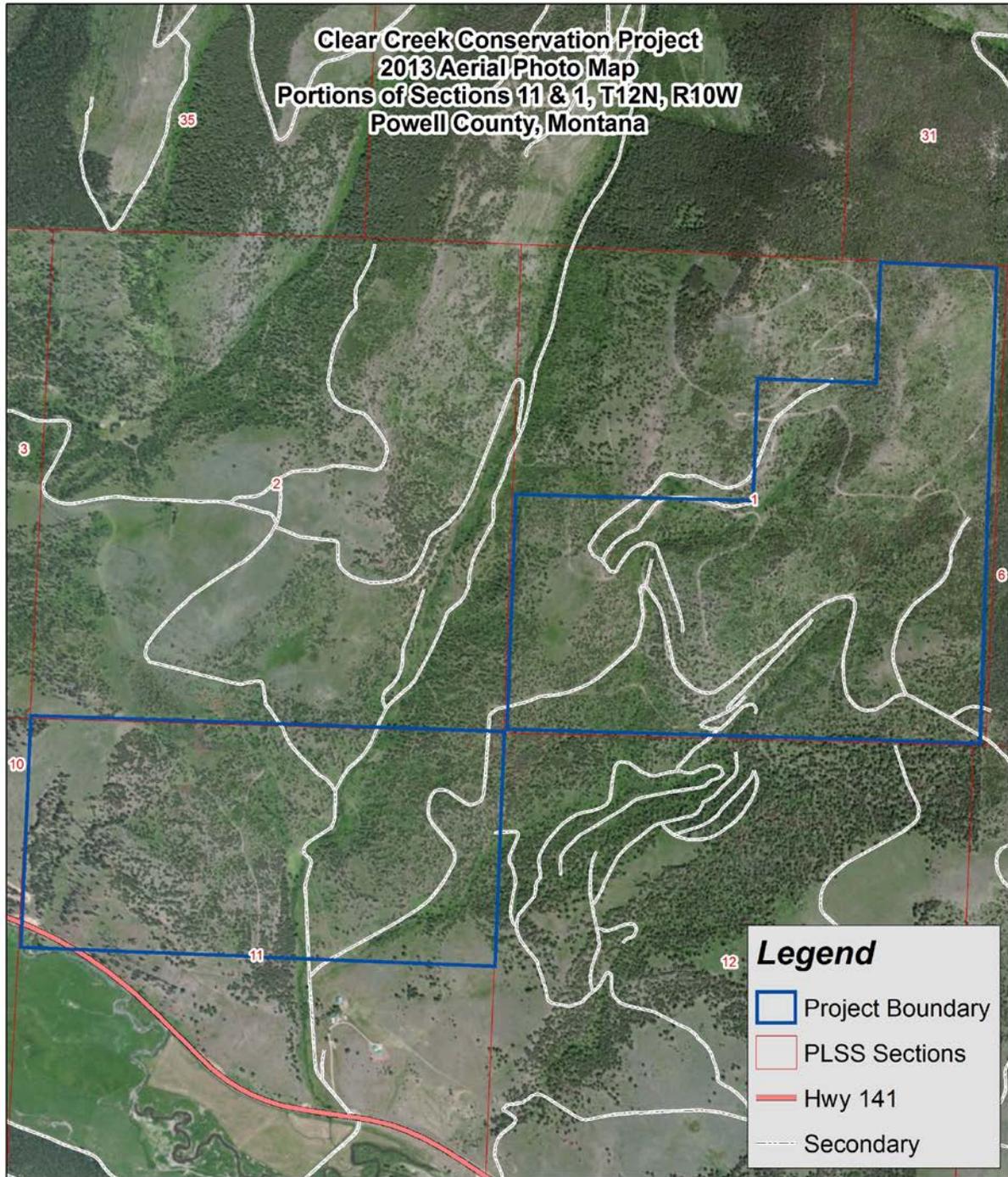
**CCCP Topographic Map**



Northwest Management  
1417 Orange st.  
Helena, MT 59601  
(406)442-7555  
www.consulting-foresters.com



**CCCP 2013 Aerial Photo Map**



Northwest Management  
1417 Orange st.  
Helena, MT 59601  
(406)442-7555  
[www.consulting-foresters.com](http://www.consulting-foresters.com)



2013 Imagery

## **Forest Management Goals**

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This Forest Stewardship Plan will address forest management goals for the Clear Creek Conservation Project Area. The primary goals of this plan are listed below.

1. Improve and maintain winter range for elk and mule deer.
2. Improve and maintain upland and riparian wildlife habitat for a diversity of native wildlife species.
3. Improve and maintain forest health by reducing the potential for catastrophic wildfires and outbreaks of forest insects and diseases.
4. Create and maintain diversity of forest structure, tree age classes and tree species with an emphasis on maintaining old-growth trees.
5. Provide recreational opportunities for the public.
6. Reduce abundance of noxious weeds and minimize their spread.

### **Goals Discussion**

The forest management goals listed above will receive primary consideration during the development of forest management recommendations. Forest management recommendations are provided for each forest stand type identified on the property. Specific forest stand type recommendations are designed to be realistic and achievable for the landowner based upon the physical limitations of the specific site (topography, soils, elevation, access, and aspect), financial considerations, and biological constraints. It may not be possible to achieve every goal on every acre but stand recommendations will identify where significant potential exists to achieve one or more ownership goals.

## **Resource Category I: Forests**

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### **Forest Health**

Forest health can be defined in numerous ways; a proper definition is dependent upon the objectives and management philosophy of the landowner or agency administering the land. A landowner seeking maximum timber production might define a healthy forest as fast-growing, disease-free and fully occupied with trees of desirable species. A landowner seeking to maintain forested wildlife habitat for as many wildlife species as possible may wish to have some dead, dying and diseased trees in their forest, as well as older, slow-growing trees. These trees can provide important wildlife habitat and contribute to a more biologically and structurally diverse forest ecosystem.

For purposes of the Clear Creek Conservation Project's forest stewardship plan, a healthy forest is defined as being biologically and structurally diverse, fire-tolerant, and comprised of healthy, vigorously growing trees as well as healthy, slow-growing mature trees with long-term viability. A healthy forest will have a lower potential for catastrophic damage from wildfire, drought, forest insect infestation and disease.

There are some general principles to consider when evaluating the health a forest. It is generally desirable to have a mix of tree species and age classes. The appropriate mix of adapted tree species will vary by forest type. Forest areas that are dominated by a single species and are mostly of the same age are more vulnerable to insect and disease infestations. If all the trees in a forest are of a susceptible species, age, size or condition for a particular forest insect or disease, the entire forest may be damaged or killed rather than a single component. Having trees of different species and different ages increases diversity thereby increasing the overall resilience and resistance of the forest to damage by insects and disease. Diversity within a forest also contributes to its overall ability to withstand other ecological disturbances such as wildfire and climate-related stress. Having a mix of trees with fire-adapted characteristics such as ponderosa pine and trees capable of surviving in a wide range of environments such as Douglas-fir contributes to the long-term viability of a forest. This biological and structural diversity, in turn, creates more robust and dynamic habitat for wildlife.

Diversity at the forest level is a key consideration of forest health on the Clear Creek property; however, forest management also needs to focus on forest health at the individual tree level. Trees compete with each other for essential resources and therefore need adequate growing space to be healthy. Dense thickets can provide cover and habitat diversity for wildlife and can be an important component of a healthy forest. However, they are not necessarily conducive to growing healthy trees. Healthy trees grow faster and are more capable of surviving a wildfire and withstanding insect and disease damage. Managing tree density through creating and maintaining proper tree spacing is important for increasing the health and vigor of individual trees and is therefore important for maintaining a healthy forest.

Several forest health issues pertinent to forest on Clear Creek Conservation Project land are presented in the following sections and discussed in greater detail.

## **Protect Healthy, Large-Diameter Trees**

Due to multiple logging entries over the course of past ownership of the Clear Creek Conservation Project (CCCP) property, large trees are scarce in most areas –particularly in Section 1. The primary threat to the health of the mature, large-diameter Douglas-fir and ponderosa pine that currently remain on CCCP lands is overcrowding by young trees.

Overcrowding creates competition between trees for vital resources needed for healthy tree growth. In the arid environment of the CCCP the most limiting resource is water in the form of soil moisture. Light is also a limiting resource as increasing crown competition gradually deprives trees of the solar radiation they need to photosynthesize. Excessive competition between trees stresses individual trees. Stress decreases a tree's growth rate and increases its susceptibility to forest insects and diseases.

Thinning reduces competition between trees. It helps to maintain adequate soil moisture and light availability for remaining trees thereby increasing their vigor. To reduce overcrowding of mature trees, young trees should be cleared for a distance of 25-50 feet away from larger trees. For smaller trees (less than 15 inches in diameter), there should be a minimum of 10 feet of distance between the trees outermost branches and the branches of the closest neighboring tree. This can be accomplished by both pre-commercial and commercial thinning. Steep slopes may preclude the use of ground-based machinery to complete commercial thinning on some of CCCP land in Section 1.

## **Promote A Fire-Tolerant Forest**

In addition to competition, forest overcrowding also leads to excessive fuel loading, ladder fuels and tightly spaced tree crowns. High fuel loads produces conditions which are conducive to high-intensity wildfires. Continuous fuel sources from the forest floor up to tree crown level serve as ladder fuels which ground fires can climb to become more destructive crown fires. The horizontal crown continuity of tightly spaced trees creates the potential for a running crown fire. While ground fires can be manageable for firefighting personnel and cause limited tree mortality, a running crown fire is lethal to trees and extremely difficult to combat. As a forest becomes overcrowded it becomes less and less capable of withstanding a wildfire.

Once again, thinning is a good option as a management activity to address this forest health issue. It is the most practical means of modifying a forest to increase its tolerance to wildfire. Clearing small trees adjacent to and beneath large trees removes ladder fuels. Thinning breaks up crown continuity and decreases the overall amount of fuel available to wildfire.

Strategically placed fuel breaks are also an effective tool to proactively minimize the risk of a large-scale catastrophic wildfire. On CCCP land, where wildlife forage is a key consideration, fuel breaks could serve the dual purposes of increasing rangeland while breaking up trees as a continuous fuel sources.

## Encourage Tree Species Diversity

Thinning also provides a method of maintaining or modifying the tree species composition and structure of forests on the CCCP. Douglas-fir is a generalist tree species that can grow in a wide array of conditions. It is tolerant of understory conditions, and, in the absence of disturbance, it eventually outcompetes and overtops less understory-tolerant tree species. Currently, it is the dominant tree species in nearly all forested portions of the CCCP property. However, in certain areas, site conditions are favorable for other tree species such as ponderosa pine and lodgepole pine. These species are currently underrepresented as a result of past logging, inter-tree competition and high levels of mortality from a recent mountain pine beetle epidemic. Where possible, these pine species should be preferentially retained in order to bolster their representation within the forest. This will create a more diverse composition of tree species and maximize the specific ecological services that each species contributes to the forest ecosystem as a whole.

## Forest Insects and Diseases Common to CCCP Conifer Tree Species

Conifer tree species of commercial importance present on the property include Douglas-fir, ponderosa pine and lodgepole pine. Aspen is the primary deciduous tree species present on the CCCP property. It is mostly limited to riparian areas. Reducing the risk of severe insect and disease epidemics can be achieved with appropriate forest management. Forest insect and disease problems that potentially impact tree species present on the property are described below.

Douglas-fir is vulnerable to defoliation, stem decay and mortality from a variety of forest insects, diseases, and fungi. Significant insect pests common to the area include Douglas-fir beetle (*Dendroctonus pседotsugae*) and western spruce budworm (*Choristoneura occidentalis*). Red ring rot fungus (*Phellinus pini* and *Phellinus schweinitzii*) and butt rot are common causes of stem decay. Western spruce budworm has been active in CCCP forestlands over the past decade. Pockets of Douglas-fir in Section 1 have experienced high levels of mortality; however, for the most part damage has been limited to survivable levels of defoliation. Budworm defoliation currently appears to be in decline in the area. *See the photo log in the appendix for Spruce budworm damage documented at photo points 12 and 13.*

Ponderosa pine is vulnerable to defoliation, stem decay and mortality from a variety of forest insects, diseases, and fungi. Significant insect pests potentially significant to the area include western pine beetle (*Dendroctonus brevicomis*), mountain pine beetle (*Dendroctonus ponderosae*), and pine engraver beetle (*Ips pini*). Red ring rot fungus (*Phellinus pini*) is a common cause of stem decay. Stem and branch damage is often the result of Western gall rust (*Endocronartium harknessi*) and Comandra blister rust (*Cronartium comandre*). Mountain pine beetle has also been active in the vicinity of the CCCP property over the past decade. Beetle-killed ponderosa pine are scattered throughout sections 1 and 11. The most affected area is a pocket of large-diameter, beetle-killed ponderosa located where the corners of Sections 1 and 11 intersect. *See the photo log in the appendix for mountain pine beetle-killed ponderosa documented at photo point 18.*

Lodgepole pine is vulnerable to defoliation, stem decay and mortality from a variety of forest insects, diseases, and fungi. Significant insect pests common to the area include mountain pine beetle (*Dendroctonus ponderosae*) and pine engraver beetle (*Ips pini*). Stem and branch damage

is often the result of Western gall rust (*Endocronartium harknessi*) and Comandra blister rust (*Cronartium comandre*). Needle damage is often the result of Lodgepole pine needle cast (*Lophodermella concolor*). Red ring rot fungus (*Phellinus pini*) is a cause of stem decay. Mountain pine beetle activity in the past decade has resulted in extensive lodgepole pine mortality –particularly in the eastern portion of section 1. *See the photo log in the appendix for lodgepole pine mortality from beetle activity in section 1 documented at photo point 11.*

As discussed in the beginning of the forest health section, thinning is a viable management option for reducing the potential for insect and disease damage in the forests of the Clear Creek Conservation Project property. There are many other management activities which can be carried out to counteract forest pests. These options are typically specific to a particular damage-causing agent. Spruce budworm and mountain pine beetle are currently primary forest pests on CCCP lands. The following is an in-depth description of these insects as well as descriptions of management activities specific to their control.

### *Western Spruce Budworm*

Western spruce budworm has been active in the CCCP property and surrounding forested lands over the past decade and defoliation is evident in the crowns of many Douglas-fir. Larvae consume needles and buds of Douglas-fir, subalpine fir, and Engelmann spruce trees. Most outbreaks of this insect are cyclical in nature and last only a few years; however, budworm infestations are becoming increasingly longer in Montana.



**Western spruce budworm defoliation of Douglas-fir**

Healthy Douglas-fir trees will typically survive repeated years of light infestations. When severe infestations occur over a several year period, stressed trees can be killed. Western spruce budworm larvae, which develop in the tops of trees, will often drop down onto smaller trees in the forest understory and cause severe defoliation. Where mature trees are heavily defoliated, it is likely that young trees below have been killed.

### Identification

During July reddish brown branch tips will give trees a scorched appearance. The upper portion of the tree crown may appear bare or thin. Budworm larvae feed in buds and foliage from May-July. Older larvae have dark heads and an olive-brown body with whitish spots. Pupae cases are attached to damaged shoots. Orange to gray-brown moths less than an inch across are abundant in late July and August during an outbreak.

### Recommendations to Reduce Risk of Defoliation by Western Spruce Budworm

Management practices recommended for controlling budworm infestations focus on encouraging a mixture of non-host tree species in a stand; thus, avoiding pure monocultures of a single host species. Silvicultural practices include maintaining or increasing tree diversity in vulnerable stands, thinning from below to create single story forest stand structures, and thinning to reduce inter-competition between trees to increase the vigor of retention trees. During thinning operations it is important to identify, protect and retain individual trees that exhibit resistance to defoliation, as these trees may have genetic traits to help them survive the effects of western spruce budworm.

### Aerial Application of the Bt

The microbial insecticide *Bacillus thuringiensis* (Bt) is an organic product that can be aerially sprayed on forest areas to control western spruce budworm populations during outbreaks. Bt is a naturally occurring bacterium that must be consumed by the budworm larvae to cause mortality. The bacteria enter the blood of the insect causing full-scale infection and death of the insect within 3-5 days.

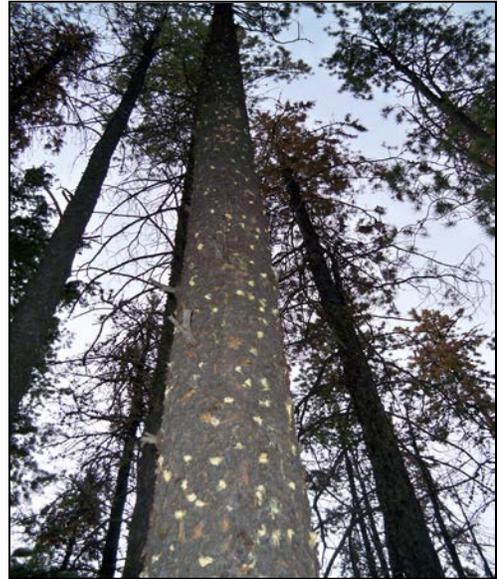


**Aerial spraying for Spruce Budworm Control**

Aerial application can be accomplished with fixed-wing aircraft or helicopters. The application must be timed with the emergence of new foliage and presence of feeding larvae to be effective. Generally, results are a decreased level of defoliation but not complete elimination. Reapplication of biological treatments will likely be required during the duration of the spruce budworm outbreak. Cost of aerial treatment can vary significantly but generally range from \$60-\$80 per acre.

## *Mountain Pine Beetle*

Approximately a decade ago a severe epidemic of mountain pine beetle swept across the area of the CCCP. Many susceptible ponderosa pine and nearly all susceptible lodgepole pine on the property were killed as a result. The magnitude of the outbreak caused the beetles to eat themselves out of a host food source in a short period of time. Current mountain pine beetle populations are relatively low. However, mountain pine beetles remain as an endemic insect pest with mortality still occurring. As pine stands mature to susceptible size and density, the risk of an outbreak remains. Mountain pine beetle attacks all species of pine, including ponderosa, lodgepole, whitebark, and limber.



**Lodgepole pine with pitch tubes**

### Identification

Adult beetles are about the size of a piece of rice and spend almost their entire life underneath the bark of a host tree. Beetles tunnel through the bark causing the tree to exude copious amounts of pitch. The resulting pitch tubes are telltale indication of a beetle attack. Needles of successfully attacked trees typically fade from green to yellow or red within 6-12 months.

### Recommendations to Reduce Risk of Additional Mountain Pine Beetle Infestation

The best long-term approaches to reducing beetle caused mortality are to manage forest conditions to provide environments less attractive to mountain pine beetles. Thinning is beneficial. Beetles tend to avoid open forests that are warm and bright with more air movement. Maintaining lodgepole pine stands at basal areas of less 100 ft<sup>2</sup> of basal area per acre will reduce risk of severe infestation in stands with trees greater than 8 inches in diameter at breast height.

### Removal of Trees Currently Infested with Mountain Pine Beetle (MPB)

Infested trees with green or yellowing foliage should be cut and properly disposed of before mid-May. Proper disposal methods would include removal from the property, burning, chipping and burying.

### Deployment of Verbenone Pouches

Verbenone is a synthetic pheromone treatment that replicates the anti-aggregate pheromone that sends a message to other beetles that the tree is full and the food supply is insufficient to support additional beetles. Active MPB infestations may be mitigated for a period of time with the use of verbenone if the infestation is light and treatment is timely. Verbenone is not recommended if more than 20% of the forest stand is infested. Verbenone dispensers (pouches) can be deployed on individual trees or throughout a forest area on a grid pattern. Pouches are good for one season and must be reapplied each year. An even distribution of pouches throughout an area will blanket the area in a plume of repulsive pheromone. This is most often done with pouches set out in a grid pattern or along parallel lines. It is not absolutely necessary to have each pouch on a tree as vertical surfaces and non-host trees may be used to sustain the grid. Recommended density is 30-40 pouches per acre (30-45 foot spacing between pouches).

## **Silvicultural Approaches to Forest Management**

### **Purpose and Scope**

The management goals for this property can be achieved by the implementation of recommended silvicultural practices. This section introduces and describes the silvicultural approaches to forest management recommended for forest stand types present on the CCCP property. Potential limitations associated with various silvicultural approaches are also described.

### **Uneven-Aged Management**

Natural plant communities develop through known successional pathways following disturbances. Disturbances such as catastrophic wildfire or timber harvest often set a large area of a forest plant community back to an early successional state. Less severe and more common disturbances, such as insect or disease infestation may affect only a single tree or a small group of trees, altering succession to a lesser degree. This process is often referred to as “Gap Succession”. Gap succession creates small openings in the forest canopy that provide space for a new age class of young trees to develop. This process increases complexity in forest stands by creating conditions that favor multiple tree species and multi-layered forest structures.

Ecologically, uneven-aged silviculture reflects a land manager’s effort to imitate naturally occurring patterns of plant succession and natural forest disturbance. The advantages of uneven-aged silviculture are that the stand’s structure, productivity, and cover are maintained over time.

Opportunities to simulate stand structures resulting from mountain pine beetle, western pine beetle and Douglas-fir beetle attacks exist in Douglas-fir stands which include a component of mature trees. Group selection harvesting is used to approximate intensive small-scale disturbances that create larger openings within a stand. Natural examples include localized insect infestation, windthrow, or flare-up of a surface fire.

Single tree selection harvesting mimics the smallest scale of succession such as when a single tree falls or dies. Causes of mortality may include lightning, disease, insects, and windthrow. In small gaps, the opening in the forest canopy may fill before regeneration can fully develop. This regeneration in the forest understory may stagnate and persist with little growth and will eventually become suppressed and die.

Gap size in the forest canopy is a critical link to successful regeneration of desirable tree species. Larger gaps favor species intolerant of shade such as lodgepole pine. Harvest unit layout can be done in a manner to vary opening size, shape, density and orientation to provide more natural landscape patterns in the forest. Residual basal areas of 40-90 square feet per acre after timber harvest will encourage conifer regeneration and limit vulnerability to insect and disease pests. Retention trees must be of sufficient size and maturity to be reliable seed bearers. Marking of designated leave trees in harvest units is recommended to ensure multiple age classes, variable tree sizes and healthy seed trees are well represented in treated stands.

### **Limitations**

Steep slopes (greater than 40%) are a special challenge given the potential for mechanical damage to the residual stand during repeated harvest entries. Stands where canopy layers are stratified with intolerant species in the overstory and tolerant species in the understory require

intensive management to ensure adequate regeneration of shade-intolerant species. Dense, uneven-aged forest structures dominated by a single tree species can be vulnerable to western spruce budworm and dwarf mistletoe. Multiple stand entries in conifer stands where root disease is present can create conditions favorable for the spread of disease.

### **Even-Aged Forest Management**

Montana's forest areas are subjected to many different fire regimes as the result of climate, topography and vegetation. The fire regime is specific to each area in regards to frequency, size and severity. Even-aged management is often recommended for forest types that experience mixed to high-severity fires. These regimes are most common at higher elevations where fires are less frequent and fuels build up over time. An even-aged harvest prescription is generally recommended for lodgepole pine stands in order to replicate historical conditions.

High elevation lodgepole pine/subalpine fir forests in the Rocky Mountains experience stand replacing fires at intervals of 75–300 years. These fires are less frequent but are often more severe, resulting in complete or nearly complete mortality in the stand. The outcome is the development of even-aged stands spread out in a mosaic pattern across the landscape.

Even-aged harvest methods may also be recommended to control insect and disease outbreaks, manage suppressed stands comprised of predominately low-vigor trees, create diversity in otherwise homogenous forest landscapes, and treat stands on moderately steep slopes which are prone to damage from multiple harvest entries. The method can also be used to salvage merchantable timber following a wildfire.

An even-aged silvicultural system is a planned sequence of treatments designed to maintain and regenerate a stand with one age class. Once tree regeneration is well established, intermediate treatments like tree thinning may be used to control stand stocking and species composition several times over the length of the rotation. Thinning is intended to stimulate the growth and vigor of trees by reducing the competition for light, water and nutrients. Thinning is most beneficial in young vigorous stands but may be used in areas with trees that have reached merchantable size.

The rotation length is the period of years required to grow a crop of timber to specified condition of economic or biologic maturity. There are three regeneration harvest methods used in even-aged systems: clear-cut, shelterwood and seed tree harvests. These methods vary by the residual stand left after harvesting and the purpose of these residual trees. Each method is designed to regenerate a new stand of shade intolerant tree species.

Clearcuts are a method of regenerating an even-aged stand in which a new age class develops in a fully exposed micro-environment after removal of all trees in the previous stand in a single cutting. Regeneration can be from natural seeding, direct seeding, planted seedlings and/or advance reproduction.

For a shelterwood harvest prescription, one or more cuttings are made to begin the development of a new age class before the old stand is completely removed. Partial shade from the residual

overstory provides protection to newly developing seedlings. This method is commonly used to encourage regeneration of Douglas-fir and ponderosa pine on drier sites and south aspects.

A seed-tree harvest is an even-age management system where only a few widely-spaced residual trees are maintained on site as seed sources. The seed-tree method is very similar to the shelterwood method, differing only in the amount of residual stocking left during harvest and the purpose of the residual overstory trees. In the seed-tree method, fewer trees are left on site and these residual trees serve only as a seed source (seed-trees). Foresters normally use the seed-tree method with light-seeded, wind-disseminated, shade-intolerant species such as western larch.

The choice of even-aged regeneration method will depend on both landowner objectives and the forest type under management.

### Limitations

Clearcuts produce the most drastic changes to microclimate, wildlife habitat and aesthetics, and therefore may not be an attractive choice for areas where non-timber forest commodities are emphasized. If not properly planned, clearcuts can increase erosion, landslide and rapid runoff of water. The risk of this type of damage is greatest on steep slopes. Avoiding the use of clearcuts on erosive soils and utilizing appropriate harvest technologies such as cable and mechanical cut-to-length harvesting will protect soils and mitigate potential negative impacts. Historically, foresters have used shelterwood and seed-tree methods to provide alternatives to clear cutting. Most even-aged regeneration systems rely on natural regeneration, but in some cases artificial regeneration (planting or direct seeding) is used as a primary or supplemental source of regeneration.

### **Tree Thinning**

Cutting of trees in a forest stand for the purpose of stimulating the growth and vigor of residual trees is known as tree thinning. Trees cut in a *pre-commercial thinning* have no commercial value and normally none of the felled trees are harvested. Trees cut in a *commercial thinning* have commercial value and are harvested for utilization as a wood product.

Tree thinning can be used to accomplish management objectives other than production of merchantable timber. Thinning can increase water yield from watersheds, enhance the development of forest understory vegetation for wildlife or livestock, improve aesthetics of forest stands, reduce fire hazard and improve tree growth rates, and improve resistance to insect and disease.

Thinning is the primary means by which the productivity of overstocked forest stands can be improved. Trees in dense stands struggle for existence and have reduced growth and vigor due to competition for light, water and nutrients. Reducing the number of trees per acre by removal of less desirable trees allocates available light, water and nutrient resources to the most vigorous trees on a site. Vigorous trees tend to occupy superior positions in the forest canopy and have more fully developed crowns. The position of a tree's crown in the forest canopy is an important criterion when deciding whether it should be cut or retained. Reducing competition for space in the forest canopy is significant since the tree's foliage produces the energy on which the tree

depends. Retention of vigorous dominant and co-dominant trees is generally recommended because these trees have crowns that receive sunlight from above and/or from the side.

Species composition is controlled when desirable tree species in good health are retained and less desirable species removed. Desirable tree species will be adapted to the growing conditions on the site and most capable of utilizing available resources. Determination of which tree species are most desirable on given sites will depend on several variables. These variables include insect and disease resistance, fire resistance, drought tolerance, shade tolerance, soils, and local markets for wood products. Where saw-timber production is the primary objective, the focus of tree thinning is to ensure that crop trees develop vigorous crowns and straight stems with smaller branches.

The selection of trees to be favored and of those to be cut is based not only on the relative position and condition of the crown, but also on the health of the tree, genetic attributes of the tree, and condition and quality of the tree bole. Removal of genetically inferior trees will improve the genetics in a forest over time. Undesirable tree species can be targeted for removal from stands during thinning operations and the composition of species within a stand can be controlled to meet various forest management objectives.

Reductions in stand density accomplished by thinning usually encourage faster tree diameter growth and increase the proportion of stem wood large enough for profitable use over time. It may take a period of several decades following a thinning for the stand to reach full occupancy of the site. The beneficial effects of thinning are especially significant in areas where soil moisture is limited during the growing season.

If live crown ratios of potential crop trees within a stand begin to fall below 30-40% thinning is recommended to prevent a reduction in tree growth rate and tree vigor. Pre-commercial thinning is especially important in very dense young stands. These stands are likely to stagnate without early treatment. The ability of trees to release in stagnated stands decreases with age. Every effort should be made to thin dense stands of young trees at an early age.

Typically, pre-commercial thinning can occur once differentiation of crown classes has occurred. Basal area targets can be developed for stands that are predominately comprised of merchantable-sized trees. Basal area is a measure of stand density expressed as square feet per acre of tree stem cross sections measured at a point 4.5 feet from the ground. Basal area per acre is easily measured with a timber cruise or field inventory. Once a stand exceeds a recommended upper limit of basal area per acre, a reduction in basal area is likely required to improve or maintain growth rates of residual trees. The basal area of the stand can be reduced to a pre-designated lower basal area per acre limit and then allowed to grow back over time to the upper limit or threshold value. Once the upper basal area limit is achieved, the stand can be re-evaluated for harvest or repeated thinning.

The range of optimum tree stocking rates and basal area for a stand will vary by site, stand age, tree size class distribution, and tree species composition. Low productivity sites will have a lower optimum tree stocking rate than moderate to high productivity sites.

The advantages of tree thinning are less pronounced in stands comprised of mature trees. The sudden exposure of trees in dense stands can make them vulnerable to windthrow. Trees in dense stands may have poorly developed root systems. Shallow rooted species such as lodgepole pine and Engelmann spruce are especially vulnerable to windthrow in heavily thinned areas.

Several thinning methods can be utilized to accomplish different management objectives. Late summer and fall are generally the best time to implement tree thinning. Trees are less susceptible to bark damage at this time, and slash generated from the thinning has less potential to attract bark beetles.

## **CCCP Forest Stand Type Classifications and Management Recommendations**

Forests on the CCCP ownership were delineated into forest stands utilizing 2013 National Agriculture Imagery Program (NAIP) aerial photography. Forest stand boundaries were verified and adjusted during field reconnaissance conducted in October of 2014. Forest stands are delineated to stratify the forest ownership for management purposes. The CCCP property's wide elevation span, variety of slope aspects, long history of logging and recent insect outbreaks combine to create a highly variable mosaic of forest stand types. Stands are described by dominant tree species, dominant size class present in the overstory, and stocking levels. The following ID codes are used to develop stand type descriptions for the subject property.

### ***ID Code      Dominant Species***

DF	Douglas-fir
PP	ponderosa pine
LP	lodgepole pine

*In stands which contain multiple dominate species, the more prevalent is shown first ex. LP/DF.*

### ***ID Code      Dominant Overstory Size Class***

1	Seedling/Sapling
2	Pole
3	Saw timber

*For purposes of forest stand classification seedlings are defined as trees between 1 and 4.5 feet in height. Saplings are trees greater than 4.5 feet in height and less than 5 inches in diameter. Poles are trees with a diameter at breast height (DBH) of 5 to 8 inches. Sawlogs have a DBH of 8 inches and greater. Forest stands with less than 1.0 mbf per acre are classified as either seedling/sapling or pole stands.*

### ***ID Code      Tree Stocking Rates***

#### **Seedling/Sapling Stands**

L	0-150 seedlings/saplings per acre
M	150-400 seedlings/saplings per acre
W	400 or greater seedlings/saplings per acre

#### **Pole Stands**

L	1-74 poles per acre
M	75- 150 poles per acre
W	Greater than 150 poles per acre

#### **Sawlog Stands(mbf = one thousand board feet)**

L	1.0-2.5 net mbf per acre
M	2.5-4.0 net mbf per acre
W	greater than 4.0 net mbf per acre

*Stands with less than 1.0 mbf per acre are classified as either seedling/sapling or pole stands*

## Stand Classification Examples

**DF/3/L** = Douglas-fir stand, sawlog-sized timber, 1.0 to 2.5 mbf per acre (low net volume)

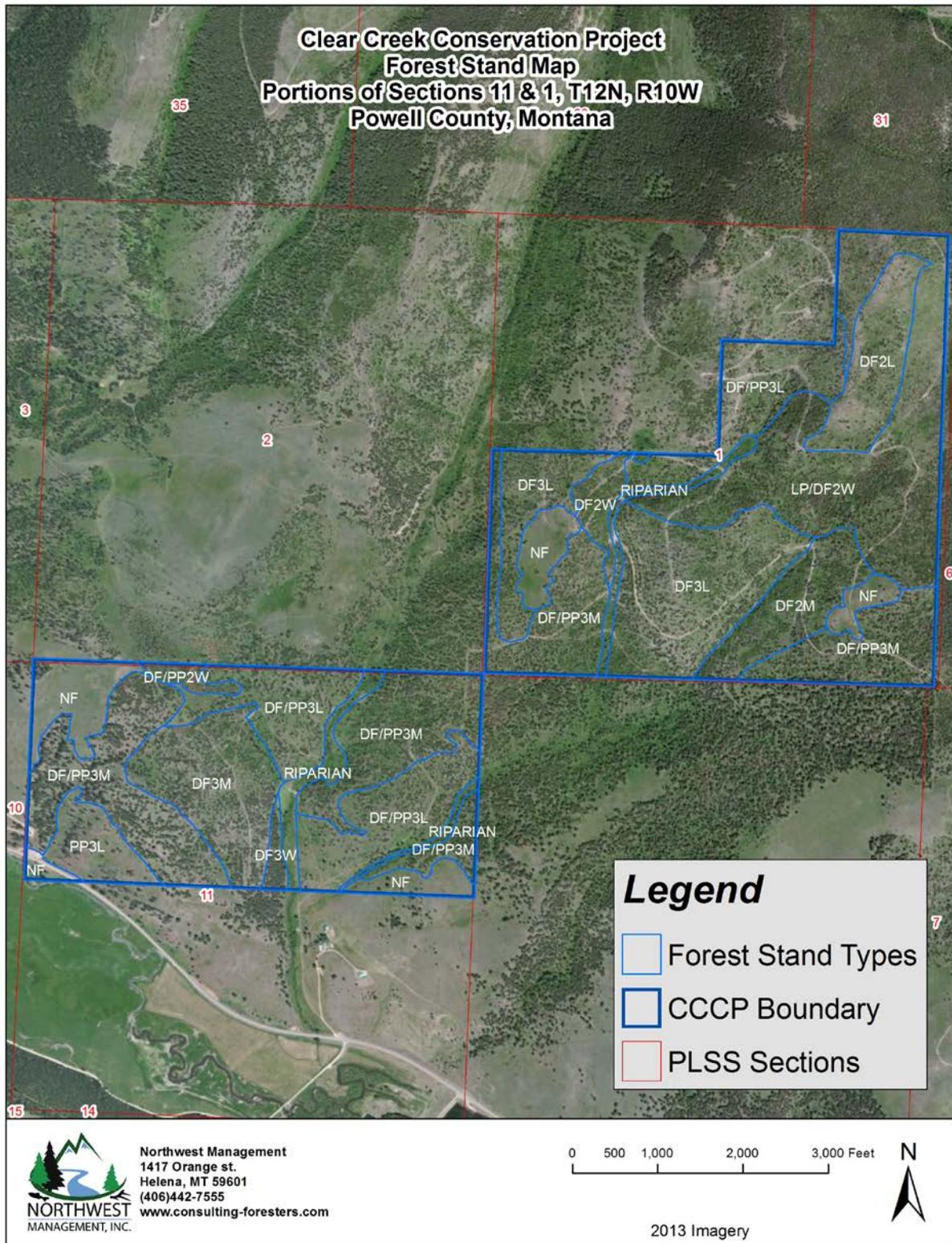
**DF/2/W** = Douglas-fir stand, pole-sized timber, well stocked (greater than 150 poles per acre)

*Stand Description and associated acreage is identified in the following table.*

**Table 3: Total Acres by Stand Type**

Stand Type	Total Acres
DF3W	4.3
DF3M	51.6
DF3L	99.7
DF2W	10.7
DF2M	33.3
DF2L	33.5
DF/PP3M	186.6
DF/PP3L	115.7
DF/PP2W	5.4
PP3L	19.1
LP/DF2W	124.5
Non-Forested (NF)	53.2
Riparian	23.4

# CCCP Forest Stand Type Map



## **General Description of Forest Stands**

Douglas-fir is the dominant tree species across most of the CCCP ownership. Ponderosa pine is present in most stands but is rarely the dominant tree species. On higher elevation, wetter sites present in Section 1, lodgepole pine supersedes Douglas-fir as the dominant tree species. Quaking aspen is also present in riparian drainage bottoms but is limited in abundance.

Characteristic forest understory vegetation includes common snowberry, pinegrass, elk sedge, heartleaf arnica, white spirea, Rocky Mountain Maple, Oregon grape, serviceberry, wild rose and native grasses. Common forest habitat types are Douglas fir/snowberry, Douglas fir/twinflower, and Douglas fir/ pine grass. These habitat types tend to be moderately productive for timber production.

Extensive commercial timber harvesting has occurred across the property over the past several decades. Past harvest methods included clear cutting, commercial thinning and shelterwood cuts. These harvests removed mature sawlog-sized trees with ground-based mechanical logging machinery on moderate slopes and cable based logging systems on steep slopes. Old growth, large-diameter, ponderosa pine and Douglas-fir are very scarce. Contiguous areas of mature closed canopy forest are mostly absent. Forest stands generally include open overstories of second growth Douglas-fir with understories of sapling, seedling and pole-sized Douglas-fir or even-aged stands of conifer regeneration in old clear cut areas. Ample conifer regeneration is present in most areas.

## **Forest Stand Type Descriptions and Management Recommendations**

**DF/3/W** = Douglas-fir stand, sawlog-sized timber, greater than 4.0 net mbf per acre.

### Stand Description

Due to a history of repeated logging entries on the CCCP property, well stocked, sawlog stands of this type are very uncommon. This designation only exists on a single, 4.3-acre stand in Section 11. It is likely that the only reason logging was limited in this stand is because of the physical limitations of the site. It is situated on a steep, 35%-50% eastern-facing slope. Chicken Creek lies at the immediate toe of the slope, so any harvesting would require either crossing the stream or adversely hauling logs uphill.

This stand is composed of sawlog and pole-sized Douglas-fir with a minor component of ponderosa pine. Douglas-fir is in fair to poor condition due to spruce budworm defoliation and competition due to overcrowding. There are also indications of root disease in some Douglas-fir on the southern end of this stand. The ponderosa pine component of this stand is only in fair to moderate condition as it is losing out in resource competition with the more understory-tolerant Douglas-fir. Some snags are present as well as moderate amounts of down woody debris on the forest floor.

### Management Recommendations

No immediate action is particularly necessary or feasible in this stand. Spruce budworm, which has been damaging Douglas-fir in the upper canopy, currently seems to be in decline and stem exclusion in the lower canopy strata is naturally killing off some of the overstocked and suppressed pole-sized trees. A commercial thinning is recommended to occur within the next 20 years. The harvest prescription should focus on removing diseased or low-vigor trees, creating a multi-layer canopy structure, maintaining ponderosa pine and retaining all snags for wildlife habitat.

**DF/3/M** = Douglas-fir stand, sawlog-sized timber, 2.5-4.0 net mbf per acre.

#### Stand Description

This forest stand type is represented by a single, 51.6-acre stand in Section 11. Slopes are relatively steep, ranging from 30% to 60%; with predominately east and northeast aspects. On these slope aspects, which are relative cooler and wetter than most aspects on the CCCP property, shade-tolerant Douglas-fir dominates the site. Ponderosa pine is minimally represented. The condition of stumps and age of regenerating trees indicates that commercial logging, which has shaped the current structure of the stand, occurred within the past 25 years. Presently, the stand is composed of a scattered overstory of Douglas-fir sawlogs and poles in fair biological condition. Large-diameter trees are mostly absent from the stand. Spatially, the stand has a patchy structure with small 1/10<sup>th</sup> to 1/100<sup>th</sup> acre gaps interspersed throughout. These small openings often contain grass as well as thickets of sapling-size regeneration and dense patches of ninebark and snowberry.

#### Management Recommendations

No immediate management actions are recommended for this stand. The current structure provides sufficient growing space for overstory Douglas-fir. Thickets of regenerating trees, although overstocked in places, provided valuable forage and cover for wildlife as well contributing to the mosaic of habitat available to wildlife on the CCCP property.

In 20-30 years, a commercial/non-commercial thinning project should be undertaken. In addition to providing revenue from the sale of timber, the project should aim to promote large-diameter trees, encourage ponderosa pine, maintain small gaps and openings and favor an open, multi-layered forest structure. Large, mature trees should be selected and marked for retention with ladder fuels and competing tree crowns reduced and removed based on these trees. Sapling and pole-sized regeneration should be thinned to a density of not more than 300 trees per acre. All harvesting and cutting should focus on retaining high-vigor trees in good biological condition, which represent a variety of size and canopy classes. Preferential retention of ponderosa pine in this stand will increase overall tree species diversity.

**DF/3/L** = Douglas-fir stand, sawlog-sized timber, 1.0-2.5 net mbf per acre.

#### Stand Description

This stand type occurs on steep, 40%-60% slopes with thin, rocky soils on portions of Section 1. Overstory trees are widely scattered and in poor biological condition. The current condition of this stand type is attributable to past timber harvest activities which likely occurred more than 30 years ago. These stands were heavily logged with little consideration for the retention of trees in good biological condition and with favorable genetic traits. Tree regeneration is limited, but where it is present, it is in good condition. This stand currently offers little hiding or thermal cover for wildlife. However, understory plant communities do provide wildlife with good sources of forage and browse. On eastern and western-facing slopes, shrubs such as Rocky Mountain maple are growing amongst regenerating Douglas-fir in the understory. On southerly slopes a more range-like understory exists. In these areas bluebunch wheatgrass, Idaho fescue, rough fescue and sagebrush provided potential food sources for grazing wildlife. Likely encouraged by the wide-spread ground disturbance from logging on this steep ground, spotted knapweed is also pervasive in these stands. These stands also have a relatively high road density as a result of logging; spotted knapweed is well established along these roads.

### Management Recommendations

Little can or should be done for the forest component of this stand at this time. Overstory trees are of low merchantable value and are amply spaced to avoid inter-tree resource competition. Tree regeneration is occurring but at densities low enough that a pre-commercial thinning or other treatment likely would not be necessary for several decades.

A management recommendation for the understory in this stand is to manage knapweed and hound's tongue in heavily disturbed areas with herbicide applications. Treatment areas should include roadsides and any other areas where excessive soil disturbance has occurred. This would decrease further spread of these weeds by wildlife and people and increase the health and abundance of native grasses and forbs.

**DF/2/W** = Douglas-fir stand, pole-sized timber, Greater than 150 poles per acre.

### Stand Description

This stand type is represented by a single, 10.7-acre stand in Section 1. It is situated on an east to south-east facing aspect with slopes of approximately 40%. The stand appears to have been clearcut 25 to 30 years ago. Old logging roads are still in usable condition and provide good access to all portions of this stand.

Past logging initiated the establishment of the present cohort of trees on the site. Currently the stand is densely overstocked with sapling and pole-sized Douglas-fir in good biological condition. There is also a very sparse representation of ponderosa pine within the stand.

### Management Recommendations

There are only a few stands within the CCCP property that would benefit from immediate forest management activities; this stand is one of them. The densely spaced trees in this stand are healthy and vigorous. However, they are reaching a point at which inter-tree resource competition is beginning to have a deleterious effect on tree growth and overall stand health.

A pre-commercial thinning project is recommended for this stand. Trees in this stand are still small enough that a hand crew could be utilized for the thinning and slash from the project could simply be lopped and scattered on site. Thinning guidelines should achieve a spacing of 12 to 15 feet between trees (approximately 200 to 300 trees per acre) and should favor the retention of the healthiest trees in dominant crown classes. Any ponderosa pine should also be retained in order to maximize tree species diversity within the stand. With forester supervision, a thinning project of this nature would cost approximately \$450 to \$500 per acre to complete.

**DF/2/M** = Douglas-fir stand, pole-sized timber, 75- 150 poles per acre.

### Stand Description

This stand type occurs on a 33.3-acre stand in Section 1 with 40% to 60% slopes on a northwest-facing aspect. It is very similar to stand type DF/3/L in that it is a relatively poor growing site with thin, rocky soils and has a current stand structure which is a result of past logging activities which removed mature, overstory trees. Unlike stand type DF/3/L, this stand lacks enough sawlog-sized trees to meet the minimum timber volume threshold for a sawlog stand designation. It is composed of a patchy overstory of pole-sized Douglas-fir in poor biological condition. The

understory consists of shrubs, pinegrass and scattered thickets of 2 to 5 foot tall Douglas-fir regeneration in good biological condition.

#### Management Recommendations

No active forest management is recommended for this stand at this time. Western spruce budworm and other potential damage-causing, forest insects should be monitored to ensure that regenerating trees continue to grow and successfully establish within this stand. In 20 to 30 years, when regenerating tree density necessitates it, a pre-commercial thinning project should be undertaken to thin pole-sized trees to a spacing of at least 15 to 20 feet between trees to maintain tree vigor and ensure the recruitment of a health cohort to occupy the overstory in the future

**DF/2/L** = Douglas-fir stand, pole-sized timber, 1-74 poles per acre.

#### Stand Description

This stand type exists on a 33.5-acre stand in northeastern portion of Section 1. It is situated on 40% - 50%, south and southeast-facing slopes and encompasses the highest elevations on the CCCP property. Soils are thin and rocky; it is a relatively poor site for tree growth. Stumps indicate that large-diameter Douglas-fir were once found throughout this stand. However, following a clearcut harvest, the stand is now occupied by scattered pole and sapling-sized Douglas-fir in fair biological condition. Due to the relatively harsh growing conditions, lack of an overstory seed source and an understory dominated by well established beargrass, conifer regeneration is scarce. Road access is limited to this stand, and it is situated on the most remotely located portion of the CCCP property.

#### Management Recommendations

No active forest management is recommended for this stand at the time.

**DF/PP/3/M** = Douglas-fir/ponderosa pine stand, sawlog-sized timber, 2.5-4.0 net mbf per acre.

#### Stand Description

This stand type is present on 186.6 acres of the CCCP's forested lands making it the most well represented stand type on the property. Typically slopes are relatively gentle and range from 10% to 35%. These stands are generally situated on more southern-facing slopes that favor the increased representation of ponderosa pine which is well suited to grow on hotter, drier exposures. As with most other areas of the CCCP, past logging activities are the major driver of the current stand structure. Currently these stands are composed of an open overstory of sawlog-sized Douglas-fir and ponderosa pine. High grading during previous logging entries and recent spruce budworm defoliation has left Douglas-fir in the overstory in only fair biological condition. With the exception of a pocket of mountain pine beetle mortality in the northeast portion of Section 11 and southwest portion of Section 1, overstory ponderosa pine is generally in good biological condition.

Understory vegetation in this forest type varies greatly by site. The DF/PP3M stand type in the western portion of Section 11 is considerably drier than similar stands in Section 1 and the eastern portion of Section 11. This is driven primarily by aspect and elevation. On drier sites,

tree regeneration is very limited and the understory is composed mostly of native grasses. On wetter sites, regeneration is well stocked, vigorously growing and in good biological condition.

#### Management Recommendations

On the drier DF/PP3M stand type in western portion of Section 11, no immediate management action is necessary. Past logging entries effectively thinned the overstory trees to a desirable spacing while maintaining occupancy of the site. Where grass dominates the understory, regenerating trees are not overstocked and thinning projects should not be necessary.

On the wetter DF/PP3M stand types overstory conditions are similar and require no immediate attention. Understory conditions, however, are beginning to reach the point where a pre-commercial thinning project would be beneficial for maintaining both individual tree vigor and the over health of the younger age class cohort. On this ground thinning could be accomplished through the use of a hand crew or mechanical mastication. In order to minimize inter-tree competition, horizontal crown continuity and ladder fuels, target spacing should be at least 12 to 15 feet between regenerating trees with at least 25 feet of clearance from overstory trees. Leave-tree selection should also focus on increasing the relative abundance of regenerating ponderosa pine in the understory.

**DF/PP/3/L** = Douglas-fir/ponderosa pine stand, sawlog-sized timber, 1.0-2.5 net mbf per acre

#### Stand Description

The forest stand type is represented by two separate stands in Section 11. These stands are situated on gentle slopes averaging 20% to 30% along dry, south-facing aspects. Their structure is the result of past logging entries which removed significant portion of the large-diameter trees from the overstory. The result is an open, mixed-species, multi-layered stand. The overstory is comprised of sawlog-sized Douglas-fir in fair to good biological condition and ponderosa pine in good biological condition. Healthy, pole and sapling-sized regeneration make up the lower layer of the open forest canopy. This regeneration is clumpy, and in many areas the understory is composed of only grasses and shrubs such as snowberry. Spotted knapweed is present throughout this stand type. Spruce budworm defoliation is light within this stand and appears to be in decline. There is an adequate amount of woody debris on the forest floor and many fire-charred snags scattered throughout this stand. In general this forest stand type is in good condition.

#### Management Recommendations

The only immediate management activity recommended is herbicide application to control spotted knapweed within the understory and curtail its spread in to uninfested areas of the CCCP property.

In 20 to 40 years, a commercial thinning operation should be undertaken on the trees which are currently pole and sapling-sized regeneration. The silvicultural prescription for a commercial thinning should maintain an open structure in the stand by creating small, ¼ to ½ acre openings in which understory vegetation and new tree regeneration can establish. Ponderosa pine should be favored as fire-adapted species that is well suited to this site. To the extent safe operations permit, large-diameter snags should protected during any harvesting operations.

**DF/PP/2/W** = Douglas-fir/ponderosa pine stand, pole-sized timber, Greater than 150 poles per acre.

#### Stand Description

This stand type is represented by a single 5.4-acre stand on the northern boundary of Section 11. The slope is gentle to flat with an overall southeast-facing aspect. This stand is comprised of a dense thicket of 3 to 5 inch DBH, 10 to 15 foot-tall Douglas-fir and ponderosa pine poles and saplings. There has been substantial mountain pine beetle mortality in ponderosa pine component of this stand, but, in general, the surviving trees are in good biological condition. The understory plant community is composed of native grasses and sagebrush. Antler rubs, deer and elk droppings as well as evidence of bedding areas were observed on the site visit and provided evidence that this stand is frequently used by wildlife.

#### Management Recommendations

From strictly a forestry standpoint, this stand is overstocked and is a good candidate for a pre-commercial thinning project. However, with wildlife habitat as a key management consideration, this stand serves the management objective of the CCCP property well in its current condition. Overcrowding will cause increasingly high levels of inter-tree competition and some tree mortality within this stand. In its current condition it will continue to provide valuable thermal and hiding cover for elk and deer and contribute to the diversity of habitat on the property.

**PP/3/L** = Ponderosa pine stand, sawlog-sized timber, 1.0-2.5 net mbf per acre.

#### Stand Description

This is the driest forest stand type found on the CCCP property. It is represented by a single, 19.1-acre stand in the western portion of Section 11. It is situated on 20% to 35% slopes on a south-facing aspect at the toe of the foothills just above the valley floor. This stand contains scattered, large-diameter ponderosa pine in good biological condition. The understory consists of primarily native bunchgrass, fescue and sagebrush. Regeneration is scarce and sporadically dispersed throughout the stand. Spotted knapweed is established throughout the stand and hound's tongue is present along disturbed roadsides.

The grassland plant community provides grazing opportunities for elk and deer in their winter range. Mature, large-diameter ponderosa pine provide important wildlife habitat both as live trees and as sources of future wildlife snags.

#### Management Recommendations

This stand should be managed for its range component as well as its forest component. Herbicide treatment to eradicate hound's tongue and reduce the abundance of spotted knapweed is recommended to improve and conserve the rangeland resources of this stand. It is also recommended that tree regeneration be controlled through periodic cutting. This regeneration is considered forest encroachment onto rangeland. Periodically removing it emulates the frequent, low-intensity disturbance regime that would naturally maintain this stand in an open ponderosa pine savannah.

**LP/DF /2/W** = Lodgepole pine/Douglas-fir, pole-sized timber, Greater than 150 poles per acre.

### Stand Description

This stand type covers 124.5 acres and represents a large portion of the wetter aspects at higher elevations in Section 1. Slopes vary from flat to relatively steep at 40% to 50%. Unlike most of the ground on the CCCP property the slope aspect of this stand type is predominately north-facing. Twinflower grows in the understory of this stand and is a key indicator species of the moister environment which is capable of supporting lodgepole pine as a dominant tree species. The even-aged structure of the stand and stump evidence suggests that much of this forest type in its current condition is a result of clear cutting in the past. Clearcuts, as a form of even-aged forest management, can be an appropriate and effective management regime for lodgepole pine forests. It emulates the natural, stand-replacing fire disturbance regime to which lodgepole pine are adapted. Indeed, the trees within this stand seemed to have responded well to past logging and are currently in good biological condition and growing vigorously. The exception to this is the pockets of lodgepole pine mortality resulting from the recent mountain pine beetle outbreak in the area. However, when compared to adjacent, uncut lodgepole pine stands to the east the mortality is relatively light.

Nearly all portions of this stand are adequately stocked with pole-sized regeneration. Some areas, particularly along the central eastern boundary of Section 1, are overstocked. Lodgepole pine and Douglas-fir are well represented and ponderosa pine is interspersed throughout.

### Management Recommendations

There is insufficient merchantable tree volume to support any commercial thinning or harvesting operations at this time. The immediate goal for this stand should be to continue establishing a healthy cohort of trees with a diverse representation of tree species. This should be accomplished by pre-commercial thinning projects being undertaken in the overstocked portions of this stand. Trees should be thinned to a minimum spacing of 12 to 15 feet with an emphasis on retaining trees with full, dominant crowns from all tree species present on the site.

The long-term goal for this stand should be to create a mixed-species, multi-aged forest through commercial harvesting and thinning in future.

## **Resource Category II: Wildlife Habitat**

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Wildlife habitat concerns are often best addressed by emulating the natural disturbance regimes that have shaped forest habitats over the past several centuries. It is important to understand the habitat requirements of specific wildlife species and manage for conditions that provide the necessary critical habitat components. In some instances forest management practices must be modified to achieve wildlife related objectives. Especially important forest wildlife habitat components include large diameter, dead, standing and down trees; riparian shrubs, aspen stands and native bunchgrasses and shrubs. Availability of hiding and thermal cover should be considered at both the landscape and stand level. Multi-layered forest structures generally provide habitat for the widest array of wildlife species. However, some species will favor dense single stand structures. Forest landscapes, which provide an assortment of vegetation types, will attract the greatest array of wildlife species.

Improving and maintaining winter range for elk and mule deer is a primary management goal for the CCCP. Understory shrubs and accessible Douglas-fir branches with needles and lichen provide browsing mule deer a food source during harsh winter months. Maintain and improving rangeland production of the intermountain grasslands found throughout the CCCP will ensure the persistence of a critical food source for elk and deer in their winter range.

### **Wildlife Habitat Management Considerations for Upland Forests**

#### **Snags**

About one-third of forest wildlife species are dependent on snags (standing dead trees) and coarse woody debris (down logs and trees). More than 60 of these species use cavities (holes excavated in trees) created primarily by woodpeckers for denning, nesting, and shelter. Most cavity nesters prefer the harder and larger diameter snags; those that are in the earlier stages of decay. The taller and larger diameter snags benefit more species, for a longer period of time, than the smaller snags. However, small diameter and shorter snags (including stumps at least 3 feet in height) are also utilized for feeding and cover. Snag dependent wildlife also use live trees with substantial amounts of decay. This includes broken tops, large dead and/or broken branches, cracked or damaged boles, heart rot, and mistletoe and rust brooms. Brooms (clumps of deformed branches) caused by these pathogens are readily used by platform nesters such as hawks, owls, eagles, and ospreys and as shelter for mammals such as squirrels and pine martens. Most wildlife species that use snags will use trees with substantial decay. Many of these defective trees will last for long periods of time and although they have little economic value, they have excellent value to snag-dependent wildlife.

Maintenance or creation of 5-15 snags per acre (dead, standing trees) will increase the use of the forested portion of the property by a number of wildlife species. Snags are utilized by wildlife for nesting, denning, perching, roosting, resting and feeding.

Snags and snag recruits should be identified and marked prior to timber harvests. Trees with low economic value that contain obvious defect should be retained wherever possible snag recruits. Snags can be created from conifers by girdling at the point of desired breakage, with a chainsaw, or with a mechanical harvester at time of tree harvest. Snag replacements should be as large in diameter and height and possible. A range of diameters is desirable, with a minimum size of ten

inches diameter at breast height (DBH). Snags that exceed 20 inches DBH are highly desirable. A mix of species will diversify use and stagger retention time. Retention of recruitment snags (dead or dying trees), will ensure a consistent, long-term supply of snags on the property.

Tree species preferred for snag retention or replacement include (most preferred listed first):

- 1) Quaking aspen
- 2) Douglas-fir
- 3) Ponderosa pine

### Coarse Woody Debris

Coarse woody debris (down logs) goes through a similar decay cycle and use pattern as snags. The larger diameter and longer length hard logs last longer and are used by more wildlife species than the smaller and softer pieces of coarse woody debris. Ideally, these two components should be scattered throughout forested stands. Management practices that retain dead and dying large diameter trees are encouraged, especially near riparian areas.

Retaining at least 15 tons per acre of downed logs (coarse woody debris) throughout the forest unit will increase wildlife use. Species present on the property likely to use the downed logs include bears, woodpeckers, squirrels, voles, reptiles and amphibians. Follow the same basic guidelines for species, lengths and diameters as those listed above for snags.

Large treetops and butt ends that are bucked during harvest can be retained for coarse woody debris. This component can also be created from poor quality trees that are at least 20 feet long and at least 10 inches in diameter at the small end. When small amounts of blowdown occur between harvests, consider leaving a portion of the individual tree or large pieces of trees for wildlife.

### Understory Vegetation

Understory vegetation consists primarily of grasses and forbs in sunnier locations, shrubs increase in abundance where sufficient soil moisture and sunlight are present. Some conifer regeneration is also included this habitat category. Many bird species utilize understory vegetation for nesting, foraging and cover. Maintenance of tall shrubs and grasses in forest stands and near riparian areas will improve bird habitat. Mammals use this habitat feature for food, shelter, and cover. Grasses and forbs provide cover and food for small mammals such as mice and voles. Bunchgrasses, many forb species and several shrub species are preferred forage for elk and deer. Tall shrubs provide valuable wildlife habitat and should be retained where possible by maintaining the forest openings in which they tend to be located. Understory vegetation will tend to decrease in abundance where the forest canopy cover exceeds 40%.

### Forest Openings

Forest openings provide habitat features not found throughout dense forest stands. Forest tree canopies provide deep shade, catch and divert rainwater, intercept snow and deposit branch and leaf litter on the forest floor, acidifying soils. These and other factors can inhibit grass, forb and shrub production.

Creating and maintaining forest openings reduces competition for sunlight and increases in on-site rainfall, provide growing conditions that favor grasses, forbs and shrubs. In addition, the

partial shade found in these openings tends to moderate temperatures and retains soil moisture on site. Seed production is generally increased and insect populations thrive, providing food for small mammals and birds. The edges created by the contrast between the forested area and the opening provide additional habitat for a diverse array of wildlife species.

During thinning operations use of a variable density-thinning pattern can be utilized to mimic natural disturbance patterns. Some patches (at least 50 feet in diameter) can be thinned to a wider spacing to favor development of shrubs and ground cover. Other areas or patches (also at least 50 feet in diameter) can be thinned very lightly or not at all to retain shelter and cover for wildlife. These variable density units can be scattered throughout the landscape. Standing dead trees (snags) that do not pose safety problems should also be retained to the extent possible for the benefit of wildlife.

#### Uneven-aged Forest Management

Uneven-aged forest management is encouraged over the long term to develop and maintain diverse forest structures that include multiple tree age classes and increase the abundance of large diameter trees. Multi-layered forest stand structures are desirable in areas containing old growth large diameter trees. Uneven distribution of the overstory trees will lead to a diversity of understory plant species, providing a wide variety of potential sources of food for wildlife. These stands can be maintained over the long term with selective thinning treatments.

#### **Management Recommendations for Wildlife Habitat in Upland Forests**

- Create and maintain forest openings
- Maintain snags
- Retain downed logs
- Maintain or improve native understory vegetation
- Encourage multi-layered forest structures with uneven-aged management

## **Wildlife Habitat Management Considerations for Riparian Areas**

Wildlife habitat management is especially significant in and near riparian areas and wetlands due to the dependence of many wildlife species on these habitats. Timing of management actions should be considered to reduce impacts to wildlife at critical times of the year such as breeding, nesting and birthing seasons and winter months when animals may be stressed. Riparian and wetland areas typically occupy a small percentage (less than 5%) of the landscape but are important islands of biological diversity and are ecologically significant. Healthy riparian and wetland sites provide critical habitat for many wildlife species. Elk wallows and scraped alder were observed in abundance at the head of the riparian zone in Section 1 during the field visit.

Riparian vegetation also shades streams and keeps water temperatures cool improving habitat for fish and aquatic invertebrates. Riparian vegetation provides a vast majority of the organic matter necessary to support aquatic communities. Management of riparian/wetland plant communities requires special planning to address all the resource values associated with riparian and wetland plant communities.

## **Management Recommendations for Wildlife Habitat in Riparian Areas**

- Maintain shrubs in riparian areas. Shrubs provide food and cover for numerous wildlife species. Shrubs species provide excellent erosion control along streams.
- Maintain a healthy buffer strip of riparian vegetation adjacent to streams and wetlands. Buffer strips reduce sedimentation, stabilize streambanks, and slow flood waters.
- Retain snags and broken top trees for cavity nesting wildlife where they do not present a safety hazard.
- Avoid locating structures and roads in riparian and wetland areas.
- Retain streamside trees and shrubs for thermal cover, debris recruitment, and streambank stability.
- Adhere to Streamside Management Zone Law and implement Forestry Best Management Practices when conducting commercial timber harvest operations.

## **Wildlife Habitat Management Considerations for Intermountain Grasslands**

There are several non-forested, grassy parks in Sections 1 and 11 of the CCCP. These are known as intermountain grasslands. As is well known by elk hunters and enthusiasts in Montana, these areas are hot spots for elk activity. Elk congregate and graze in these areas. During rut, bulls use intermountain grasslands to herd their harems together, and they are often the site of antler-locking confrontations between rival bulls. During winter these areas provide a critical winter range food source. During a second field visit in December a herd of over 50 elk was observed in an intermountain grassland on the Nevada Lake WMA which abuts the CCCP to the southeast.

Intermountain grasslands are ecosystems typically composed of a four above-ground layers. The uppermost is the shrub layer. This layer is not always present. Where it is present in the CCCP grasslands, it composed mostly of sage brush. The next layer is composed of tall bunchgrasses and herbaceous forbs. Common in this layer on the CCCP are native bunchgrasses such as bluebunch wheatgrass, rough fescue and Idaho fescue as well as forbs such as yarrow and lupine. Spotted knapweed is present in this layer and is established in most CCCP grasslands. Below this layer is a third layer composed of shorter bunchgrass and an even wider variety of forbs including a multitude of native wildflowers. This plant layer is susceptible to the establishment of invasive cheatgrass in disturbed grasslands. The lowest and final layer is the mat of lichens, mosses and algae which form a biotic crust over the soil. It is also know as a cryptogamic crust. This layer is perhaps the most sensitive, functional and irreplaceable component of an intermountain grassland. The biotic crust holds soil together between bunchgrass stools, locks in soil moisture, protects against surface erosion and, by virtue of firmly occupying the growing space between plants, provides a barrier against the establishment of invasive weeds. This layer contains a vast assemblage of species and forms over the course of centuries. It is sensitive; trampling by humans, livestock or wildlife can break the barrier created by the biotic crust and greatly diminish its ecological function. Heavier disturbance by vehicles, equipment or road construction can destroy it entirely. Unlike the other layers of intermountain grassland ecosystems which can recover with proper management, once this layer is lost it will not recover on a timescale appreciable to land management activities.

Conifer encroachment also threatens the long-term viability of these grasslands. Climatic changes and the absence of frequent, low-intensity fire are allowing trees to grow where they historically have not. Unchecked, this could eventually cause grasslands to convert to forest.

## **Management Recommendations for Wildlife Habitat in Intermountain Grasslands**

- Restrict any road building or other construction within intermountain grasslands.
- Prohibit off-road vehicle use and minimize equipment use with intermountain grasslands.
- Do not locate logging slash piles within intermountain grasslands.
- Counteract conifer encroachment with periodic removal of trees infringing in to grasslands.
- Prevent unauthorized livestock grazing by periodically checking fence lines abutting private property.
- Develop a long-term weed strategy of chemical or biological controls to reduce the abundance and prevent the further spread of noxious weeds.

### Resource Category III: Soils

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Numerous soil types are present on the subject property. A summary of each soil type and its corresponding attributes are described in the table below. Soils descriptions and reports were obtained from the USDA Natural Resource Conservation Service Web Soil Survey website. Characteristics described for each soil include Preferred Tree Species to Manage, Soil Rutting Hazard, and Normal Year Dry Weight Forage Production. These descriptions should be reviewed during planning of all forest stewardship management activities to assess site potential and limitations.

*Preferred Tree Species to Manage* – Species are listed in order of potential productivity for each soil type. The first species listed is the species for which the best growth rates are anticipated. The following species are also well suited to the soil type but may grow at slower rates. These species may not all be currently present on the soil type but management activities can be structured to favor the species indicated. For example if ponderosa pine is listed and a preferred species but is not currently present on the site the owner may consider planting following harvest to improve species diversity. Thinning operations should strive to maintain a mix of all species suited to the soil type.

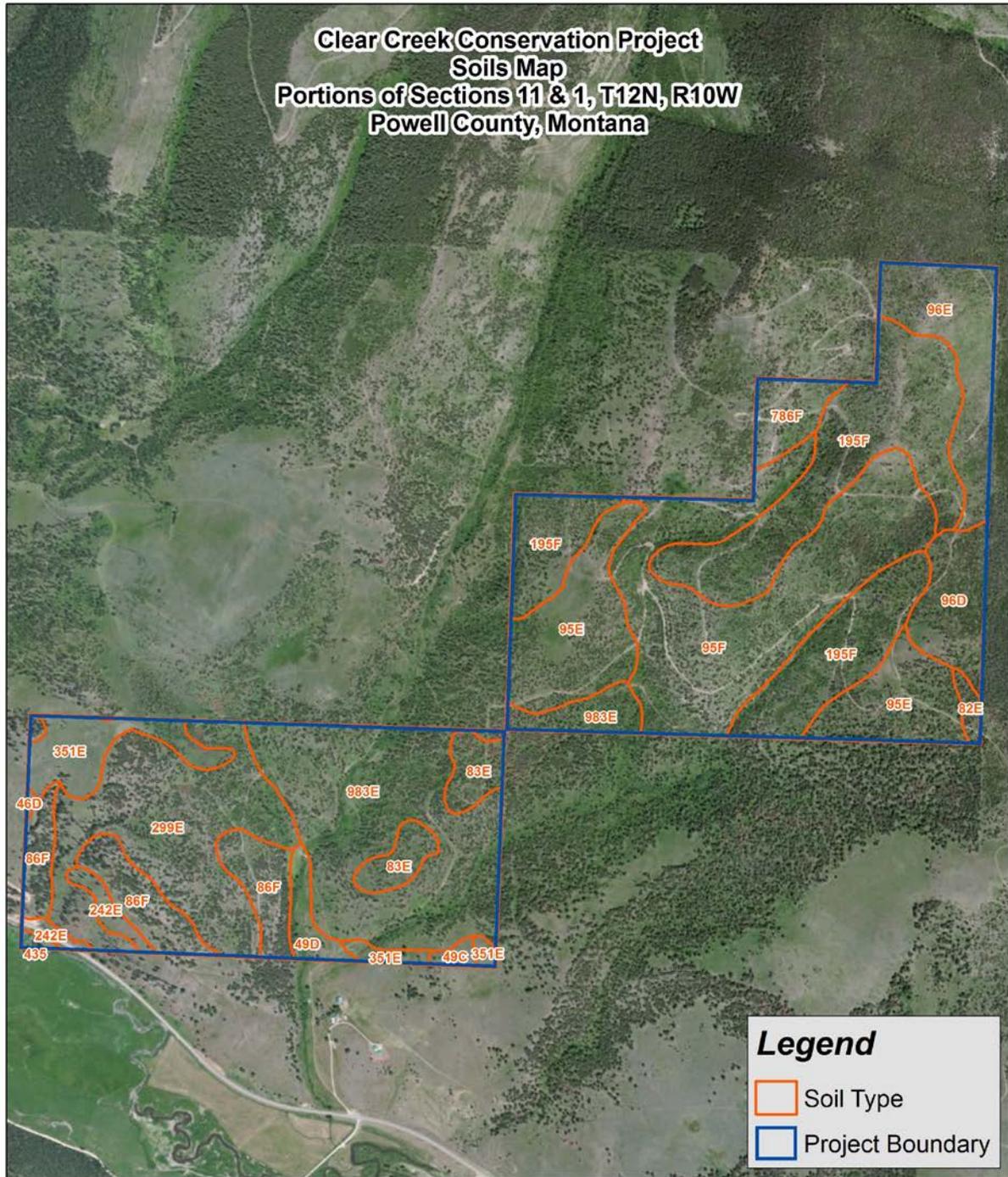
*Soil Rutting Hazard* – Numerous soil types on the property are vulnerable to soil rutting. On these soil types equipment operation should be limited to dry or frozen ground to reduce the potential for soil damage. Roads constructed on vulnerable soils are also prone to rutting and may require additional maintenance. Road use may need to be restricted during wet periods of the year to avoid damage to the road bed and potential for erosion associated with ruts in the road surface. Road drainage features should be installed and maintained in these soil types.

*Normal Year Dry Weigh Forage Production* – These figures represent potential forage production during years with normal precipitation and temperatures. The figures are probably most useful in determining which soil types have the greatest relative potential for forage production under an appropriate range management program.

**Table 3: Soil Type Description**

Soil Type	Preferred Tree Species to Manage	Soil Rutting Hazard	Normal Year Dry Weight Forage Production (lbs/ac)	Acres in Project Area
<b>195F</b> - Yreka gravelly loam, cool, 35 to 60 percent slopes	Douglas-fir, Ponderosa Pine	Slight	500	144.0
<b>95F</b> - Yreka gravelly loam, 35 to 60 percent slopes	Douglas-fir, Ponderosa Pine	Slight	1000	125.0
<b>983E</b> - Crow-Bignell complex, 15 to 35 percent slopes	Ponderosa Pine, Western Larch, Douglas-fir	Severe	400	124.0
<b>299E</b> - Bignell, dry-Yreka, cool, complex, 15 to 35 percent slopes	Ponderosa Pine, Western Larch, Douglas-fir	Severe	350	92.0
<b>95E</b> - Yreka gravelly loam, 15 to 35 percent slopes	Douglas-fir, Ponderosa Pine	Slight	1000	75.4
<b>86F</b> - Winkler gravelly loam, 35 to 60 percent slopes	Ponderosa Pine, Douglas-fir	Slight	350	44.0
<b>96E</b> - Worock gravelly loam, cool, 15 to 35 percent slopes	Douglas-fir, Ponderosa Pine	Severe	300	41.5
<b>351E</b> - Roy-Shawmut-Danvers complex, 15 to 35 percent slopes	Grass	Severe	1100	28.6
<b>96D</b> - Worock gravelly loam, cool, 8 to 15 percent slopes	Douglas-fir, Ponderosa Pine	Severe	300	25.1
<b>83E</b> - Crow clay loam, 15 to 35 percent slopes	Ponderosa Pine, Western Larch, Douglas-fir	Severe	400	19.1
<b>786F</b> - Winkler gravelly loam, cool, 35 to 60 percent slopes	Ponderosa Pine, Douglas-fir	Slight	500	14.8
<b>49D</b> - Danvers clay loam, 8 to 15 percent slopes	Grass	Severe	1400	9.1
<b>242E</b> - Braziel gravelly loam, 15 to 35 percent slopes	Grass	Severe	1200	8.4
<b>82E</b> - Elve gravelly loam, 15 to 35 percent slopes	Lodgepole Pine	Severe	300	3.4
<b>49C</b> - Danvers clay loam, 4 to 8 percent slopes	Grass	Severe	1400	2.6
<b>435</b> - Saypo loam, cool, 0 to 4 percent slopes	Grass	Severe	2500	1.5
<b>46D</b> - Roy loam, 8 to 15 percent slopes	Grass	Severe	1200	0.7

**CCCP Soils Map**



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2013 Imagery

## **Resource Category IV: Aesthetics and Recreation**

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Maintenance of an aesthetically pleasing forest landscape is a forest management objective for the CCCP ownership as it provides recreational opportunities and is well used by the public during hunting season. Potential impacts to aesthetic quality associated with forest management activities are typically associated with timber harvests, wildfires, and forest roads. These potential impacts are a management concern across the ownership. Maintaining scenic quality of the ownership maintains real estate values and a public perception that lands are “well managed”. Tourism is an important component of the local economy and many visitors to the area value the opportunity to view and recreate in open spaces and relatively natural landscapes.

Visual impacts associated with timber harvests can be mitigated in a number of ways. Replicating patterns of natural disturbances in the design of harvest units maintains a “natural” appearing landscape. Selection harvests along roadways and highly visual areas can be modified to maintain a higher degree of crown cover. This is especially important on steep slopes that are most visible. Development of uneven-aged forest structures in visually significant areas can reduce the need to significantly reduce tree crown cover during a harvest entry. It also provides an opportunity to retain large diameter old growth trees and “character trees” that appeal to a public that values a natural appearing landscape.

Utilizing harvest technology that minimizes soil disturbance also can reduce visual impacts. Where forest road construction is necessary roads can be located to minimize visual impacts. Avoiding road construction on steep slopes minimizes potential exposure of cut and fill slopes. Developing cooperative road use agreements with neighboring ownerships can reduce the need for new road construction. Maintaining a higher degree of forest cover adjacent to roads can help to screen them. Avoiding use of ground based harvest equipment of slopes that exceed 45% will limit visual impacts associated with rutting, skid trail construction and soil disturbance.

Forest management practices that reduce fuel loading will decrease the risk of catastrophic fire. The visual and environmental effects of high intensity fires can remain on the landscape for decades and are generally viewed as undesirable by the public.

Implementing forest management practices that reduce the risk of insect and disease infestation can minimize the extent of impacted areas and reduce the necessity of treating large forested areas that have been severely impacted in a short period of time.

## **Resource Category V: Threatened and Endangered Species**

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### **Species of Concern**

The Montana Natural Heritage Program compiles and maintains existing inventory data for biological diversity in Montana. This inventory includes plant and animal species, unique plant communities or other biological features that are rare and potentially threatened by extinction in Montana. A query of the Montana Natural Resource Information System determined that there are several animal Species of Concern whose ranges occur within the vicinity of the subject property. No plant Species of Concern were reported.

Identified animal Species of Concern include the Canada lynx. The lynx is listed as a threatened species by the U.S. Fish and Wildlife Service. A description of the lynx, as well as management recommendations for the species, is listed in the Appendix. Also included in the Appendix is the Species of Concern Report and Map prepared by the Montana Natural Heritage Program for the subject property.

## **Resource Category VI: Forest Road Management**

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### **Benefits and Potential Impacts of Forest Roads**

Forest road systems provide numerous benefits such as providing access for timber harvesting, recreation, fire control, game retrieval, and land management. The harvest of forest products usually depends on road access, and decreased road densities can result in increased timber harvesting costs. Roads provide access that can increase the efficiency of fire suppression and can act as linear firebreaks that reduce fire spread.

Potential detrimental effects associated with roads include sedimentation, habitat fragmentation, loss in soil productivity, invasion by noxious and exotic weeds, use conflicts and destructive human actions such as trash dumping, illegal hunting and wildfires. Weed species that disperse along roadsides can spread to adjacent native plant communities. Actively controlling access, when and how people are permitted to use roads is important if detrimental effects are to be mitigated.

Increased road access can accelerate rates of wildlife harassment and poaching. Several wildlife species have been shown to be adversely affected by encounters with people on roads. Other road related consequences to wildlife can include removal of snags near roadsides by firewood cutters. Removal of snags eliminates habitat for many cavity-nesting birds and mammals.

Surface erosion from road surfaces, cut banks, and ditches can be a significant source of sediment in streams. Rates of sediment delivery are highest in the first five years following road construction and can be closely related to traffic volume on unpaved roads. Surface erosion problems are worse where roads are constructed on highly erodible soils. Lack of road maintenance or poorly timed maintenance can contribute to increases on sediment production on existing roads. Implementing improved road construction standards and actively maintaining roads will reduce road related surface erosion. Road location, design, construction and maintenance are especially critical near streams. Placement of surfacing material, installing

proper drainage structures and prompt establishment of vegetation on road surfaces are actions that will reduce sediment production from road surfaces.

Active road system management will enhance benefits received from the existence of a road system. Many of the detrimental effects associated with roads can be mitigated through planning, access control, maintenance and restricting how and when roads are utilized by people and vehicles. Roads with chronic sedimentation or erosion problems can be rehabilitated, relocated or decommissioned.

### **Resource Category VII: Cultural Resources**

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The subject property has no known historical building structures and no cultural resources were observed during forest inventory work conducted on the property for the purposes of this report.

## APPENDIX

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Species of Concern Report and Map

Photographic Point Location Map with Road Locations

Photo Point Coordinates

Photos of Subject Property

Glossary of Terms

References and Sources





# Species of Concern Data Report

Report Date:  
Wednesday, October 15, 2014

Visit <http://mtnhp.org> for additional information.

## Haliaeetus leucocephalus [View Species in MT Field Guide](#)

**Common Name:** Bald Eagle **General Habitat:** Riparian forest

**Description:** Birds

**Mapping Delineation:**

Confirmed nesting area buffered by a minimum distance of 2,000 meters in order to be conservative about encompassing the breeding territory and area commonly used for re-nesting and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

**Species Status**

[Click Status for Explanations](#)

**Natural Heritage Ranks:**

**Federal Agency Status:**

**State:** S4  
**Global:** G5

**U.S. Fish & Wildlife Service:** DM; BGEPA; MBTA; BCC

**U.S. Forest Service:** SENSITIVE

**FWP CFWCS Tier:** 1

**U.S. Bureau of Land Management:** SENSITIVE

**MT PIF Code:** 2

**Species Occurrences**

<b>Species Occurrence Map Label:</b>	10084530		
<b>First Observation Date:</b>	03/01/1985	<b>SO Number:</b>	
<b>Last Observation Date:</b>	09/01/2008	<b>Acreage:</b>	3,105

## Psiloscops flammeolus [View Species in MT Field Guide](#)

**Common Name:** Flammulated Owl **General Habitat:** Dry conifer forest

**Description:** Birds

**Mapping Delineation:**

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 300 meters in order to encompass the maximum breeding 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.

**Species Status**

[Click Status for Explanations](#)

**Natural Heritage Ranks:**

**Federal Agency Status:**

**State:** S3B  
**Global:** G4

**U.S. Fish & Wildlife Service:** SENSITIVE

**U.S. Forest Service:** SENSITIVE

**FWP CFWCS Tier:** 1

**U.S. Bureau of Land Management:** SENSITIVE

**MT PIF Code:** 1

**Species Occurrences**

<b>Species Occurrence Map Label:</b>	10080995		
<b>First Observation Date:</b>	08/16/2005	<b>SO Number:</b>	
<b>Last Observation Date:</b>	08/16/2005	<b>Acreage:</b>	70



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## Species of Concern Data Report

Visit <http://mtnhp.org> for additional information.

Report Date:  
**Wednesday, October 15, 2014**

### Species Occurrences

Species Occurrence Map Label:	10080994		
First Observation Date:	08/21/1995	SO Number:	
Last Observation Date:	08/21/1995	Acreage:	70

### Strix nebulosa [View Species in MT Field Guide](#)

**Common Name:** Great Gray Owl **General Habitat:** Conifer forest near open meadows  
**Description:** Birds  
**Mapping Delineation:**  
 Confirmed nesting area buffered by a minimum distance of 3,200 meters in order to encompass the known foraging distance and area likely to be used for re-nesting and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

**Species Status** [Click Status for Explanations](#)

#### Natural Heritage Ranks:

State: S3  
Global: G5

FWP CFWCS Tier: 2

MT PIF Code: 3

#### Federal Agency Status:

U.S. Fish & Wildlife Service:

U.S. Forest Service:

U.S. Bureau of Land Management: SENSITIVE

### Species Occurrences

Species Occurrence Map Label:	10081366		
First Observation Date:	08/25/2001	SO Number:	
Last Observation Date:	08/25/2001	Acreage:	7,949

### Dryocopus pileatus [View Species in MT Field Guide](#)

**Common Name:** Pileated Woodpecker **General Habitat:** Moist conifer forests  
**Description:** Birds  
**Mapping Delineation:**  
 Observations with evidence of breeding activity buffered by a minimum distance of 1,500 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.

**Species Status** [Click Status for Explanations](#)

#### Natural Heritage Ranks:

State: S3  
Global: G5

FWP CFWCS Tier: 2

MT PIF Code: 2

#### Federal Agency Status:

U.S. Fish & Wildlife Service:

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## Species of Concern Data Report

Visit <http://mtnhp.org> for additional information.

Report Date:  
 Wednesday, October 15, 2014

### Species Occurrences

Species Occurrence Map Label:	10081847		
First Observation Date:	05/31/2010	SO Number:	
Last Observation Date:	06/20/2010	Acreage:	1,747

### Nucifraga columbiana [View Species in MT Field Guide](#)

**Common Name:** Clark's Nutcracker **General Habitat:** Conifer forest

**Description:** Birds

**Mapping Delineation:**

Observations with evidence of breeding activity buffered by a minimum distance of 1,000 meters in order to be conservative about encompassing the spring/summer breeding territories of family groups and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

### Species Status

[Click Status for Explanations](#)

**Natural Heritage Ranks:**

[State:](#) S3  
[Global:](#) G5

[FWP CFWCS Tier:](#) 3

[MT PIF Code:](#) 3

**Federal Agency Status:**

[U.S. Fish & Wildlife Service:](#)

[U.S. Forest Service:](#)

[U.S. Bureau of Land Management:](#)

### Species Occurrences

Species Occurrence Map Label:	10090912		
First Observation Date:	06/21/1995	SO Number:	
Last Observation Date:	06/21/1995	Acreage:	776

Species Occurrence Map Label:	10090914		
First Observation Date:	06/21/1995	SO Number:	
Last Observation Date:	06/21/1995	Acreage:	776

Species Occurrence Map Label:	10090901		
First Observation Date:	06/21/1995	SO Number:	
Last Observation Date:	06/27/1996	Acreage:	776

### Haemorhous cassinii [View Species in MT Field Guide](#)

**Common Name:** Cassin's Finch **General Habitat:** Drier conifer forest

**Description:** Birds

**Mapping Delineation:**

Observations with evidence of breeding activity buffered by a minimum distance of 300 meters in order to be conservative about encompassing the courtship and foraging distance from nesting areas and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.



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## Species of Concern Data Report

Visit <http://mtnhp.org> for additional information.

Report Date:  
 Wednesday, October 15, 2014

### Species Status

[Click Status for Explanations](#)

#### Natural Heritage Ranks:

State: S3  
 Global: G5

FWP CFWCS Tier: 3

MT PIF Code: 3

#### Federal Agency Status:

[U.S. Fish & Wildlife Service:](#)

[U.S. Forest Service:](#)

[U.S. Bureau of Land Management:](#)

### Species Occurrences

Species Occurrence Map Label:	10070518	SO Number:	
First Observation Date:	06/21/1995	Acreage:	70
Last Observation Date:	06/21/1995		

### Oncorhynchus clarkii lewisi

[View Species in MT Field Guide](#)

Common Name: Westslope Cutthroat Trout

General Habitat: Mountain streams, rivers, lakes

Description: Fish

#### Mapping Delineation:

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 30 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.

### Species Status

[Click Status for Explanations](#)

#### Natural Heritage Ranks:

State: S2  
 Global: G4T3

FWP CFWCS Tier: 1

MT PIF Code:

#### Federal Agency Status:

[U.S. Fish & Wildlife Service:](#)

[U.S. Forest Service:](#) SENSITIVE

[U.S. Bureau of Land Management:](#) SENSITIVE

### Species Occurrences

Species Occurrence Map Label:	10041301	SO Number:	
First Observation Date:		Acreage:	261
Last Observation Date:			

Species Occurrence Map Label:	10041281	SO Number:	
First Observation Date:		Acreage:	289
Last Observation Date:			



## Species of Concern Data Report

Visit <http://mtnhp.org> for additional information.

Report Date:  
Wednesday, October 15, 2014

### Species Occurrences

Species Occurrence Map Label:	10041220	SO Number:	
First Observation Date:		Acreage:	308
Last Observation Date:			
Species Occurrence Map Label:	10041303	SO Number:	
First Observation Date:		Acreage:	352
Last Observation Date:			
Species Occurrence Map Label:	10045906	SO Number:	
First Observation Date:		Acreage:	427
Last Observation Date:			
Species Occurrence Map Label:	10041514	SO Number:	
First Observation Date:		Acreage:	2,115
Last Observation Date:			

### Salvelinus confluentus

[View Species in MT Field Guide](#)

**Common Name:** Bull Trout  
**Description:** Fish  
**Mapping Delineation:**  
 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 30 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.

**General Habitat:** Mountain streams, rivers, lakes

### Species Status

[Click Status for Explanations](#)

#### Natural Heritage Ranks:

**State:** S2  
**Global:** G4

**FWP CEWCS Tier:** 1

**MT PIE Code:**

#### Federal Agency Status:

**U.S. Fish & Wildlife Service:** LT  
**U.S. Forest Service:** THREATENED  
**U.S. Bureau of Land Management:** SPECIAL STATUS

### Species Occurrences

Species Occurrence Map Label:	10041511	SO Number:	
First Observation Date:		Acreage:	1,499
Last Observation Date:			



## Species of Concern Data Report

Visit <http://mtnhp.org> for additional information.

Report Date:  
Wednesday, October 15, 2014

### Martes pennanti

[View Species in MT Field Guide](#)

Common Name: Fisher

General Habitat: Mixed conifer forests

Description: Mammals

**Mapping Delineation:**

Confirmed area of occupancy based on the documented presence of adults or juveniles within tracking regions containing core habitat for the species. Outer boundaries of tracking regions are defined by areas of forest cover on individual mountain ranges or clusters of adjacent mountain ranges with continuous forest cover.

**Species Status**

[Click Status for Explanations](#)

**Natural Heritage Ranks:**

State: S3  
Global: G5

FWP CFWCS Tier: 2

MT PIF Code:

**Federal Agency Status:**

U.S. Fish & Wildlife Service:

U.S. Forest Service: SENSITIVE

U.S. Bureau of Land Management: SENSITIVE

**Species Occurrences**

Species Occurrence Map Label:	10032922		
First Observation Date:	11/24/1980	SO Number:	2
Last Observation Date:	03/22/2011	Acreage:	6,723,069

### Gulo gulo

[View Species in MT Field Guide](#)

Common Name: Wolverine

General Habitat: Boreal Forest and Alpine Habitats

Description: Mammals

**Mapping Delineation:**

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.

**Species Status**

[Click Status for Explanations](#)

**Natural Heritage Ranks:**

State: S3  
Global: G4

FWP CFWCS Tier: 2

MT PIF Code:

**Federal Agency Status:**

U.S. Fish & Wildlife Service: C

U.S. Forest Service: SENSITIVE

U.S. Bureau of Land Management: SENSITIVE

**Species Occurrences**

Species Occurrence Map Label:	10000031		
First Observation Date:	03/01/1958	SO Number:	
Last Observation Date:	03/15/2013	Acreage:	1,326,340



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## Species of Concern Data Report

Visit <http://mtnhp.org> for additional information.

Report Date:  
 Wednesday, October 15, 2014

### Species Occurrences

Species Occurrence Map Label:	10095747		
First Observation Date:	12/01/1978	SO Number:	
Last Observation Date:	02/15/1993	Acreage:	287,085

### Lynx canadensis [View Species in MT Field Guide](#)

**Common Name:** Canada Lynx **General Habitat:** Subalpine conifer forest  
**Description:** Mammals  
**Mapping Delineation:**  
 Areas designated as Critical Habitat for the species by the U.S. Fish and Wildlife Service on February 23, 2009 because they currently contain physical and biological features (e.g. boreal forests with snowshoe hare) essential to the conservation of the species.

### Species Status

[Click Status for Explanations](#)

#### Natural Heritage Ranks:

State: S3  
Global: G5

FWP CFWCS Tier: 1

MT PIF Code:

#### Federal Agency Status:

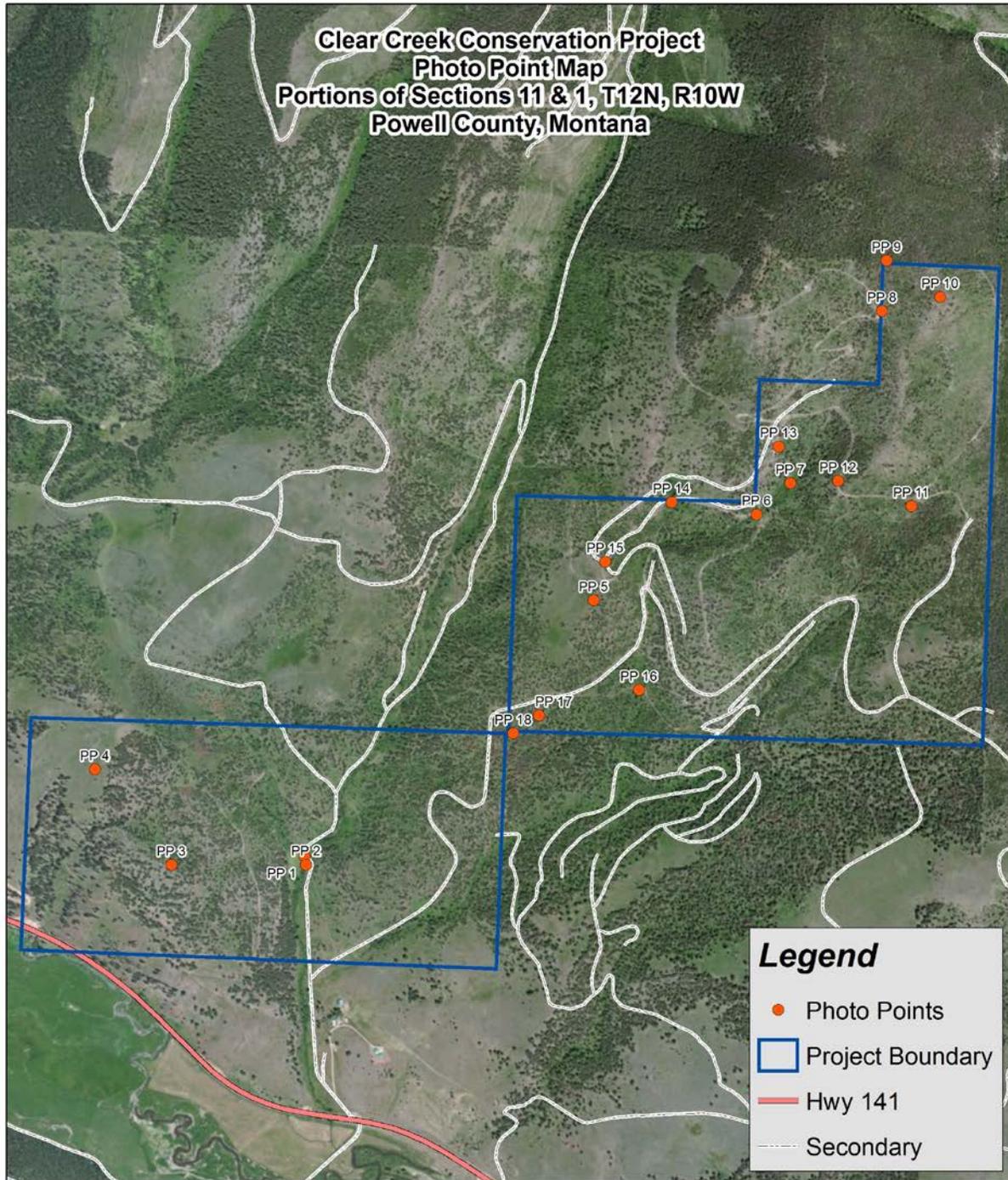
U.S. Fish & Wildlife Service: LT  
U.S. Forest Service: THREATENED  
U.S. Bureau of Land Management: SPECIAL STATUS

### Species Occurrences

Species Occurrence Map Label:	10026333		
First Observation Date:		SO Number:	8
Last Observation Date:		Acreage:	80,913

Species Occurrence Map Label:	10026337		
First Observation Date:	01/01/1895	SO Number:	6
Last Observation Date:	03/23/2010	Acreage:	4,334,628

CCCP Photo Point Map



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**Table 4: Photo Point Coordinates**

Photo	Latitude	Longitude
1	46.812853	-112.818238
2	46.812603	-112.818146
3	46.812425	-112.824105
4	46.81522	-112.827654
5	46.820999	-112.805927
6	46.823816	-112.798884
7	46.824809	-112.797454
8	46.830151	-112.793725
9	46.831689	-112.793613
10	46.830652	-112.791164
11	46.824268	-112.79206
12	46.824939	-112.795335
13	46.825904	-112.798024
14	46.824075	-112.802666
15	46.822182	-112.805488
16	46.818335	-112.803762
17	46.817435	-112.808141
18	46.816858	-112.809227

**CCCP Photos**



Photo Point 1: Armored Ford  
Azimuth: 090°



Photo Point 2: Perennial Stream  
Azimuth: 180°



Photo Point 3: DF/PP 3M Forest Stand Type  
Azimuth: 000°



Photo Point 4: Elk Rub in Intermountain Grassland  
Azimuth: 195°



Photo Point 5: View of Section 11 from Section 1  
Azimuth: 200°



Photo Point 6: Stream Crossing  
Azimuth: 225°



Photo Point 7: Spring/ Head of Stream  
Azimuth: 180°



Photo Point 8: LP/DF 2M Forest Stand Type  
Azimuth: 015°



Photo Point 9: Fence Line Along CCCP  
Boundary  
Azimuth: 090°



Photo Point 10: High Point of Section 1  
Azimuth: 170°



Photo Point 11: Beetle-killed Lodgepole Pine  
Azimuth: 165°



Photo Point 12: Western Spruce Budworm Mortality  
Azimuth: 270°



Photo Point 13: Spruce Budworm Defoliation  
Azimuth: 090°



Photo Point 14: Spring Infested with Houndstongue  
Azimuth: 090°



Photo Point 15: Spotted Knapweed in  
Intermountain Grassland  
Azimuth: 225°



Photo Point 16: Seasonally Dry Stream  
Azimuth: 180°



Photo Point 17: Snag/ Mixed Age Stand  
Azimuth: 090°



Photo Point 18: Beetle-Killed Ponderosa Pine/  
Property Corner  
Azimuth: 225°

## Glossary of Terms

**EVEN-AGED STAND:**--A stand is generally considered even-aged if the difference between the oldest and youngest tree does not exceed 20% of the length of the rotation.

**CLEARCUT:**--Removal of the entire stand in one cutting.

**REGENERATION:**--Obtained by planting or natural seeding from adjacent stands.

**SEED TREE:**--Removal of the mature timber in one cutting, except for a small number of seed trees left singly or in groups.

**UNEVEN-AGED MANAGEMENT:**--An uneven-aged stand contains at least three age classes intermingled on the same area. A balanced uneven-aged stand consists of 3 or more different age classes each occupying an approximately equal area.

**SINGLE TREE SELECTION:**--Removal of single mature individuals or very small groups of mature trees. This favors the development of shade tolerant species in most cases. Logging by this method is usually difficult and expensive.

**GROUP SELECTION:**--Removal of all mature timber in a small area, usually less than one acre but up to three acres in size. This creates an aggregation or mosaic of even-aged clumps, with clumps of differing ages. This modification is more readily adapted to a wide variety of conditions than any other. The ecological requirements of most species can be met within its framework. It is also easier to create the kinds of environmental conditions necessary for reproduction. The openings can be allowed to seed in naturally or can be planted if particular species are desired and their establishment is expected to be difficult.

**OVERSTORY REMOVAL:**--Removal of all material over a certain size (usually 9" DBH) where a manageable understory is present. The understory should be uniform, healthy, vigorous and composed of desirable species. This technique often leaves suppressed and poorly formed trees as part of the residual stand.

**COMMERCIAL THIN:**--Can be applied to even or uneven-aged stands. Commonly used to describe operations that are designed to control stocking, improve spacing between trees or remove trees of poor vigor or form. Harvested trees are large enough to be sold as wood products, including sawlogs, chip-and-saw or small sawlogs, pulp and fiberwood.

**SANITATION/SALVAGE:**--Removal of dead, dying, diseased or high risk trees. Typically a light harvest, this technique sometimes treats the symptoms rather than the problems.

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