SILOS Recreation Area Master Plan

Environmental Scan

Technical Memorandum

Prepared for:
Broadwater County

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US Bureau of Reclamation

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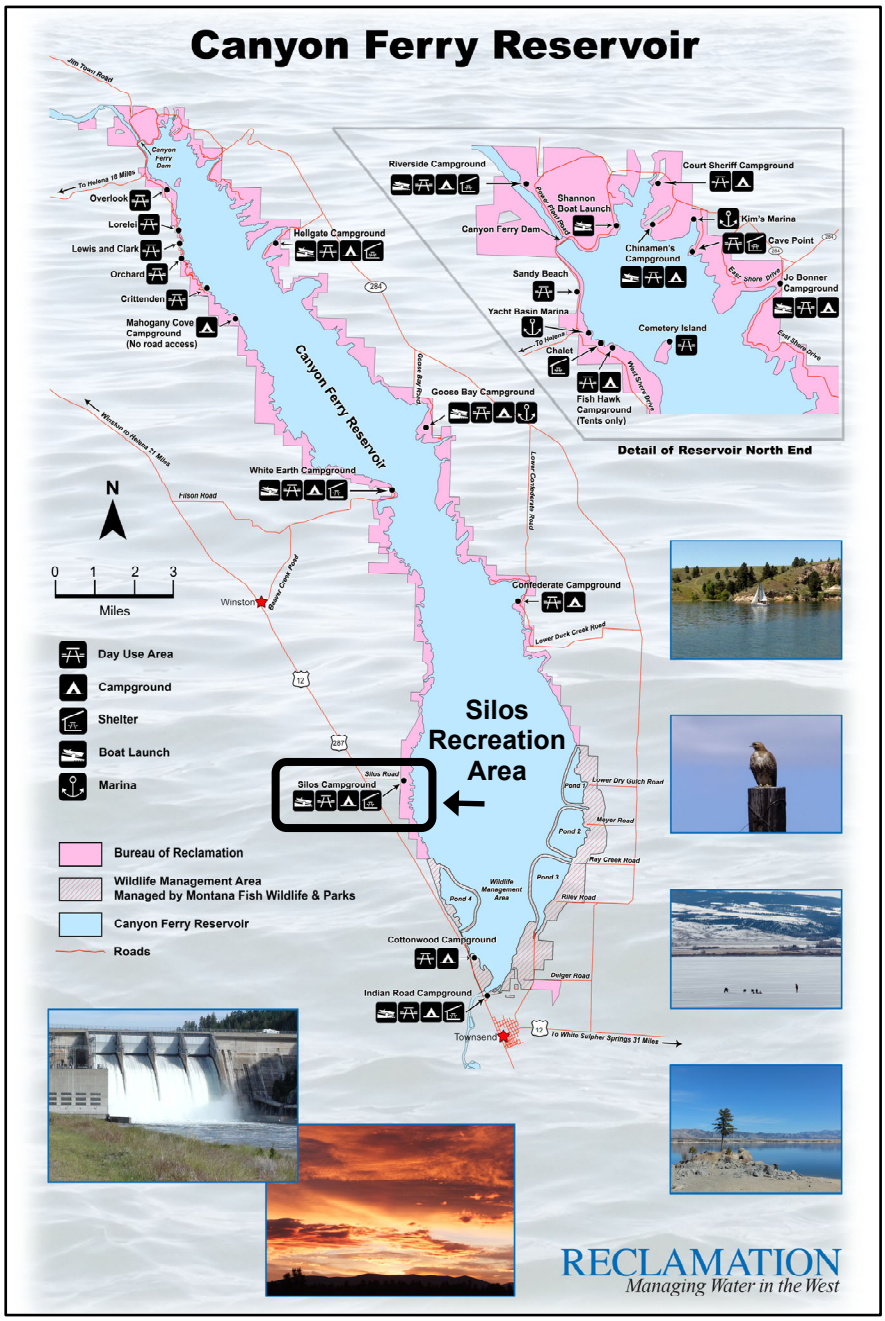
1.0. INTRODUCTION

The Silos Recreation Area (SRA) is located on the southwestern shore of Canyon Ferry Reservoir in Broadwater County, Montana, on federal lands owned by the Bureau of Reclamation (BOR) and managed by Broadwater County. BOR constructed the reservoir on the Missouri River in 1953 as a unit of its Pick-Sloan Missouri River Program. **Figure 1.1** shows the location of the SRA relative to the entire Canyon Ferry Reservoir management area.



Source: BOR, https://www.usbr.gov/gp/mtao/canyonferry/, accessed March 2020.

Figure 1.1: Canyon Ferry Reservoir

The SRA has seen limited capital improvements over its life. Many of the facilities are undersized and do not meet current demands or are nearing the end of their useful life and need to be rehabilitated or replaced. A major excavation of Broadwater Bay and development of a new and expanded boat launch facility were completed in 2006 with later additions of boat slips and courtesy docks. This development has proven to be a successful addition to serve the SRA and its users. To address remaining site and user needs, Broadwater County, in cooperation with the BOR, has initiated a *Master Plan* for the site. The *Master Plan* will evaluate development alternatives and identify a recommended alternative for improvements to site amenities and infrastructure.

This *Environmental Scan* provides a planning-level overview of resources and environmental considerations that may influence the development of the SRA. This scan is based on readily available environmental information for the study area. If improvements identified in the *Master Plan* advance into project development, an analysis for compliance with the National Environmental Policy Act (NEPA) and other applicable federal and state regulations will be completed as part of the project development process. Information provided in this report is intended to help support a future NEPA compliance process undertaken by the BOR.

1.1. Study Area

The study area for this *Environmental Scan* generally consists of the western land portions of Sections 26 and Section 35, Township 8 North, Range 1 East in Broadwater County (see **Figure 1.2**). The study area does not include adjoining Bureau of Land Management (BLM) lands, the Canyon Ferry Airport, or privately owned lands within the Silos Subdivision located immediately west of the recreation area. However, environmental conditions on these adjoining lands will be discussed as appropriate in various sections of the *Environmental Scan*.

Figure 1.2: Study Area

1.2. Background

The SRA is located about 7.5 miles northwest of Townsend and 23 miles southeast of Helena. The site serves as a statewide recreational facility, although most visitors come from within a 120-mile radius of the reservoir, including the cities of Great Falls, Helena, Butte, Missoula, and Bozeman. The SRA is open all year supporting camping, boating, fishing, ice fishing, ice boating, swimming, picnicking, and other day use activities.

Camping is limited to the developed campground areas between Seaman's Bay and Shields Bay, which are depicted in **Figure 1.3**. The areas north of Seaman's Bay, south of Shields Bay, and west of the main access road are currently limited to day use activities and have no amenity features such as restrooms.

Figure 1.3: Enlargement of Silos Recreation Area

The SRA is owned by the BOR but managed by Broadwater County through Agreement Number 03AG01760. This 10-year agreement permits Broadwater County to manage, operate and maintain the area for public recreation uses. Under the agreement Broadwater County can add new facilities, charge and retain fees for use of the facilities, and develop commercial services while the BOR retains primary jurisdiction over the area. Broadwater County has contracted with JSJ, Inc. (doing business as Townsend Canyon Ferry Lake KOA, referenced as Site Manager), a concessionaire, who provides day-to-day management and maintenance at the site.

Roadway access to the recreation area is provided from US Highway 287 by traveling about 1 mile east on Silos Road. The Silos Subdivision, consisting of numerous rural residences, is separated from the recreation area by the Canyon Ferry Airport. Several businesses including the Silos KOA Campground and Silos Boat Loft and Storage are also located within the subdivision. The Elkhorn Mountains and adjoining lands in the Helena National Forest are located about 4 miles west of the SRA.

1.3. Information Sources

Reference documents including the *Broadwater County 2020 Growth Policy Update*, the *Canyon Ferry Reservoir Silos Recreation Area Framework Plan* (2018), and numerous BOR planning and management documents were reviewed for the *Environmental Scan*. In addition, the preparers of this document researched and incorporated relevant publicly available environmental data from federal, state, and local agencies to provide the information presented in the following sections. The information includes the most recently available data as of April 2020. As changes occur over time, it may be appropriate to review and update this information during future environmental analyses completed for projects that may improve the SRA.

2.0. PHYSICAL ENVIRONMENT

2.1. Geology and Topography

The study area occurs in the Townsend Basin, a northwest-southeast trending valley between the Big Belt and Elkhorn Mountains. The Townsend Basin lies in a structural depression formed by the down warping of pre-Cambrian and Cambrian sedimentary formations. Four major geological units are found in the Canyon Ferry Reservoir area: Tertiary lakebeds, igneous formations, Quaternary alluvium, and sedimentary formations.

Tertiary lakebed deposits cover most of the northeast and southwest portions of the Canyon Ferry area, including the gently sloping plains along the western shore below the Spokane Hills and Elkhorn Mountains where the SRA has been developed. These deposits overlie eroded surfaces of folded and faulted older rocks and underlie most of the younger sediments in the Townsend Valley. Tertiary lakebed deposits range in thickness from 4,000 to 6,000 feet.

Ground surface elevations are generally about 3,800 feet above sea level in the recreation area. Gentle slopes of less than 5 percent exist on lands west of the reservoir although areas of steeper slopes exist along the shoreline of the reservoir and in the numerous bays within the recreation area.

2.2. Soils

2.2.1. Soil Types Found in the Study Area

Information for this section was obtained from the Soil Survey of Broadwater County Area, Montana (Natural Resources Conservation Service, April 1977, formerly the Soil Conservation Service). **Appendix 1** illustrates soils in the study area. A soil association is a landscape that has a distinctive proportional pattern of soils. Each association normally consists of one or more major soils and at least one minor soil and is named for the major soil that is present.

Soils in the study area consist almost entirely of Radersburg very cobbly loam. A small area of Musselshell-Crago channery loams, 15 to 35 percent slopes exists along the shore of the reservoir in the extreme northeastern portion of the recreation area. Radersburg very cobbly loam soils are typically found on river terraces and alluvial fans with slopes ranging from 2 to 5 percent. The soil is typically well drained and is not overly susceptible to erosion by wind or water. The Radersburg soil is considered to be in Hydrological Soil Group C suggesting the soils have a slow infiltration rate.

The Musselshell-Crago soils are typically found on relatively steep slopes adjoining the shore of the reservoir. This soil are more susceptible to erosion than Radersburg very cobbly loam soil. The soil is moderately deep and well drained and have a slow infiltration rate.

2.2.2. Important Farmland

The Farmland Policy Protection Act (FPPA) (7 U.S.C. 4201 et. seq.) requires deliberate analysis for potential farmland impacts of projects with federal involvement. The FPPA defines the term farmland only as prime farmland, unique farmland, and farmland of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. The FPPA does not apply to lands already in or committed to urban development but does stipulate that federal programs be compatible with state, local and private efforts to protect farmland

The US Department of Agriculture Natural Resources Conservation Service (NRCS) determines where prime farmland exists and maintains mapping resources and information to support the FPPA. Prime farmland soils are those that have the best combination of physical and chemical characteristics

for producing food, feed, and forage; the area must also be available for these uses. Prime farmland can be either non-irrigated or lands that would be considered prime if irrigated. Farmland of statewide importance is land, in addition to prime and unique farmlands, that is of statewide importance for the production of food, feed, fiber, forage, and oilseed crops.

The NRCS does not classify Radersburg very cobbly loam or Musselshell-Crago channery loams, 15- to 35 percent slopes soils as prime, unique, or important farmland. For this reason, the FPPA does not apply and there is no need to coordinate further with the NRCS about potential impacts to farmland.

2.3. Water Resources

2.3.1. Surface Waters

The study area lies entirely within the Upper Missouri River Basin (Hydrologic Unit Code 10030101) as delineated by the United States Geological Survey (USGS). Portions of the recreation area lie within the Upper Canyon Ferry Lake-Missouri River (HUC 1003010110) and Middle Canyon Ferry Lake-Missouri River (HUC 1003010111) watersheds. The Upper Missouri River Basin includes the Missouri River and tributaries from the confluence of the Jefferson, Madison, and Gallatin rivers (near the town of Three Forks), downstream 110 river miles to Holter Dam.

The only named stream within the study area is Whitehorse Creek, a 9.5-mile-long stream originating in the Elkhorn Mountains to the west. Whitehorse Creek joins Canyon Ferry Reservoir just south of the SRA. USGS Quad Maps and aerial photographs suggest ephemeral drainages flow towards each bay within the recreation area.

2.3.2. Canyon Ferry Reservoir

Canyon Ferry Dam impounds the Missouri River forming Canyon Ferry Reservoir in Montana. The dam and roughly one-quarter of the reservoir are located in Lewis and Clark County, with the remainder of the reservoir located in Broadwater County. The reservoir has 33,500 water surface acres at elevation 3,797 feet, extending upstream about 19 miles from the dam to the point the Missouri River enters the reservoir.[1] Additionally, there are 9,360 acres of lands and 96 miles of shoreline along the reservoir under the jurisdiction of the BOR.

The Missouri River is the primary source of inflow to Canyon Ferry, although other perennial streams also provide inflow to the reservoir. Elevation levels in Canyon Ferry vary seasonally, with the highest water levels typically occurring in June and July and the lowest levels occurring in early spring to prepare for runoff within the Upper Missouri River drainage.

2.3.3. Surface Water Quality

Water quality in the reservoir is generally suitable for the propagation of cold-water fish species, safe for water sports, and potable after adequate filtration and treatment. The water flowing into the reservoir is a productive, calcium bicarbonate type (hard and nutrient rich), and has a high phosphorous level. The pH, dissolved oxygen content, and water temperatures produce conditions favorable to cold-water fisheries. The salinity of the water is low and aside from arsenic, heavy metals are not problematic given their low concentrations and the high alkalinity of the reservoir water.

Canyon Ferry Reservoir is considered to be an impaired water according to the Montana Department of Environmental Quality (MDEQ) Water Quality Division's *2018 Montana Water Quality Report and List of Impaired Surface Waters, (305(b) and 303(d) Integrated Report*. This designation was made due to impairments by the presence of algae (blooms), ammonia, arsenic, and thallium that do not fully support beneficial uses including agriculture, aquatic life, drinking water, and some types of recreation.

Some of these impairments are naturally occurring in soils or are present due to ongoing and past activities within the Upper Missouri Basin. Designating a body of water as impaired requires MDEQ to set a priority for determining the total maximum daily load (TMDL) of a pollutant that the water body can receive and still meet water quality standards set for the designated uses of the water body. The MDEQ has designated the Canyon Ferry TMDL Planning Area (TPA) which includes the lake and river areas downstream from Canyon Ferry Dam; however, TMDLs have not yet been established.

2.3.4. Groundwater

A large, confined aquifer composed of Quaternary and Tertiary deposits lies beneath the Townsend Valley. The aquifer supplies water primarily for domestic and irrigation uses within the valley. Deep percolation from rainfall and snowmelt recharges the aquifer in the mountain ranges surrounding the valley. Perennial streams and irrigation facilities also recharge the groundwater in the valley.

The Montana Bureau of Mines and Geology, Ground Water Information Center (GWIC) was consulted to identify wells in the vicinity of the recreation area. This review showed 4 wells within the recreation area, all with static water levels ranging from 9 to 32 feet below the ground surface with yields of 20 to 30 gallons per minute.

2.3.5. Public Water Supplies

The listing of Public Water Systems in Broadwater County maintained by the MDEQ Public Water Supply Program was reviewed to identify any potential drinking water sources in the project area. The database showed public water systems at the SRA (MT0040693) and at the nearby Silos RV Park and Store (MT0003074). The SRA system, classified as a non-community water system (NC) by MDEQ, relies on groundwater from three wells for its water supply. NC water systems regularly serve at least 25 non-residential individuals during 60 or more days per year. The wells for the recreation area require monthly testing when open for public use. Similarly, the Silos RV Park and Store system is considered to be a NC water system.

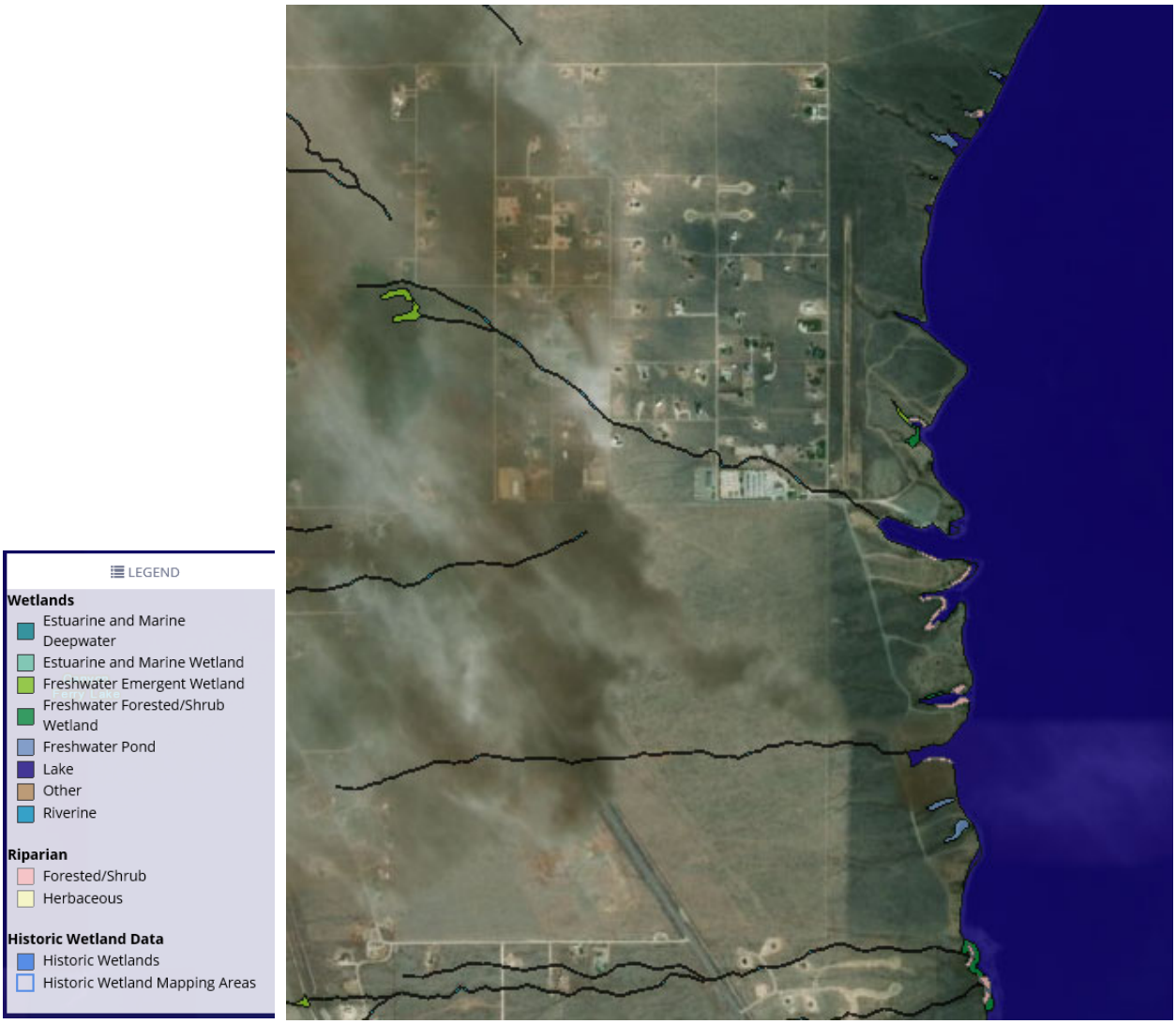
2.4. Wetlands

Wetlands are lands that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The repeated or prolonged presence of water at or near the soil surface is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface. Wetlands can typically be identified by the existence of three environmental parameters: a dominance of hydrophytic vegetation, hydric soils, and prolonged periods of inundation or saturation resulting in sufficient hydrology to support wetland development. Examples of types of wetlands include marshes, bogs, the shallow portions and shorelines of lakes, ponds, and reservoirs, seasonal wet meadows, and the floodplain and shoreline of streams.

The US Fish and Wildlife Service (USFWS) is the principal federal agency that provides information to the public on the extent and status of the nation's wetlands. The USFWS has compiled mapping to show wetlands and deepwater habitats in the US including many parts of Montana and has made this mapping available through access to the National Wetland Inventory (NWI). NWI wetlands are identified in general accordance with USFWS’s publication Classification of Wetlands and Deepwater Habitats of the United States. NWI maps do not define wetlands for regulatory purposes since the wetlands are identified through aerial photo interpretation. The NWI definition of wetlands requires one or more of the three attributes of wetlands (wetland hydrology, vegetation, or soils) be present to be a wetland.

NWI mapping for the study area is presented in **Figure 2.1**. The NWI mapping shows a variety of riparian and wetland habitats occur at the SRA including lake habitat, riverine habitat, forested/shrub riparian habitat, freshwater emergent wetland habitat, freshwater pond habitat, and freshwater forested/shrub wetland habitat.

Field-based wetland delineations would be required during project development if improvements in the recreation area could potentially affect wetlands.



Source: US Fish and Wildlife Service, National Wetland Inventory, accessed March 2020.

Figure 2.1: NWI Wetland Mapping for Silos Recreation Area

2.5. Floodplains

Executive Order (EO) 11988, *Floodplain Management*, requires efforts be taken to reduce the risk of flood loss; minimize the impacts of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial values served by floodplains. The natural and beneficial values of floodplains include providing habitat for fish, wildlife, plants, open space, natural flood moderation, water quality maintenance, and groundwater recharge. EO 11988 requires projects undertaken or

funded by federal agencies to avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative.

Compliance with EO 11988 requires an evaluation to determine the effects of any encroachments on the "base" floodplain. The base floodplain is the area covered by water from the 100-year flood and is a regulatory standard used by federal agencies and states to administer floodplain management programs. The 100-year flood represents a flood event that has a 1 percent chance of being equaled or exceeded in any given year.

Floodplains in the vicinity of the SRA are shown on Flood Insurance Rate Map (FIRM) Panel 30007C0350C (Effective Date August 18, 2014) developed by the Federal Emergency Management Agency (FEMA) (**Appendix 2**). Canyon Ferry Lake is considered a Special Flood Hazard Area and FEMA has designated the lake as Zone A (no base flood elevations determined) according to the FIRM. Zone A areas extend into the various bays within the SRA.

Broadwater County adopted Floodplain Regulations in 2019. Coordination with the County floodplain administrator would be necessary if any improvements at the SRA encroach on the regulated flood hazard area.

2.6. Air Quality

The *Clean Air Act* of 1970, as amended, is the basis for air pollution control programs. In accordance with the Act, the Environmental Protection Agency (EPA) established National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: ozone, carbon monoxide, particulate matter (PM-2.5 and PM-10), lead, sulfur dioxide, or nitrogen dioxide. The NAAQS are health-based standards to protect human health and public welfare and set allowable concentrations and exposure limits for each criteria pollutant.

Montana has also established air quality standards for criteria pollutants, as well as for settleable particulates and visibility. The Montana Ambient Air Quality Standards (MAAQS) – found in the Administrative Rules of Montana 17.8.210-17.8.230 – establish statewide targets for acceptable levels of ambient air pollutants.

The EPA and the Montana Department of Environmental Quality (MDEQ) are charged with regulating air quality and may designate areas as attainment or nonattainment based on their history of meeting the NAAQS or MAAQS for pollutants of concern. Areas where air pollution levels do not exceed the air pollution thresholds established in the NAAQS are designated as “attainment” areas. “Nonattainment areas" are localities where air pollution levels persistently exceed the NAAQS or MAAQS, or that contribute to ambient air quality in a nearby area that fails to meet standards.

Broadwater County is currently considered an attainment area for all pollutants. Minor and temporary sources of air pollution in the area may include dust from vehicular traffic or plowed fields and particulates associated with home heating or seasonal wildfires.

2.7. Climate

Based on information provided by the Western Regional Climate Center[2], the climate of the SRA is described as a Modified Continental type influenced by Pacific Ocean air masses, drainage of cool air from the surrounding mountains, and protection by mountains in all directions. These modifiers make temperature changes less dramatic than those of a true continental climate. According to the Western Regional Climate Center, the temperature in the area varies greatly from summer (average 64 degrees Fahrenheit [° F]) to winter (average 25° F). The extreme temperatures are 105° F to -39° F. Average

annual precipitation in the Townsend area is about 11 inches, with the extremes ranging from a low of about 7 inches to a high of nearly 17 inches. Most of the precipitation comes from March through August in the form of rain. The area typically sees about 23 inches of snow each year. Prevailing winds are typically from the west.

3.0. BIOLOGICAL ENVIRONMENT

3.1. Vegetation

The SRA consists mainly of grasslands with scattered groupings of trees and shrubs. The foothill and valley grasslands at the recreation area are typified by cool-season perennial bunch grasses and forbs with sparse shrub cover. Dominant species include fescues, bluebunch wheatgrass, and Western wheatgrass. Prickly pear cactus is a common ground cover in many areas of the SRA, which can pose a safety issue. Cottonwoods, quaking aspen, Russian olive, willows, and cattails and rushes are species seen within the recreation area and along the adjacent shoreline. Russian olive is listed as a Priority 3 Regulated Plant, with the potential for significant negative impacts and a recommendation to minimize spread, although it is not a Montana Listed Noxious Weed.

Noxious weeds that could potentially occur in the vicinity of the SRA include Russian knapweed, whitetop, spotted knapweed, Canada thistle, field bindweed, leafy spurge, Common Hound's tongue, perennial pepperweed, and dalmation toadflax. A complete listing of invasive and pest species is included in the *Environmental Summary Report* for the study area compiled by the Montana Natural Heritage Program (MTNHP) found in **Appendix 3**.

3.2. Fish and Wildlife

3.2.1. Fish

The Missouri River drainage contains fish species common to southwestern Montana. The native species found here include westslope cutthroat trout, mountain whitefish, mountain sucker, longnose dace, longnose sucker, Rocky Mountain sculpin, stonecat, and white sucker. Nonnative species include rainbow trout, brown trout, brook trout, northern pike, smallmouth bass, largemouth bass, yellow perch, walleye, and common carp. Hybrids of rainbow trout and westslope cutthroat trout are also found in the drainage.

Canyon Ferry has consistently been one of the most heavily fished waters in Montana. A variety of important fish species are present within the reservoir system. Rainbow trout, kokanee salmon, yellow perch, brown trout, burbot (ling), and walleye are among the species of greatest interest to the public. The SRA is one of many developed sites along the reservoir providing fishing access.

3.2.2. Wildlife

The Canyon Ferry Reservoir and the surrounding lands provide a wide variety of habitats for an array of species. Commonly seen mammals in the vicinity of the SRA include white-tailed deer, mule deer, antelope, several bat species, and occasionally elk or moose. Wolf and black bear have been occasional visitors to the SRA. Nongame species include smaller animals such as a variety of migratory songbirds, porcupines, raccoons, fox, and jack rabbits. The general area also provides habitat for game birds such as grouse, ducks, geese, and pheasants. Gopher snakes, garter snakes, and Northern leopard frogs are reptile and amphibian species occurring in the vicinity of the recreation area.

3.2.3. Canyon Ferry Wildlife Management Area

Montana Fish, Wildlife and Parks (MFWP) manages more than 5,000 acres at the south end of Canyon Ferry as a Wildlife Management Area (WMA). The reservoir, dikes/ponds, islands, river bottom, and upland communities associated with the WMA provide habitat for a wide variety of birds and mammals. The WMA is managed to provide and improve habitat for ducks, geese, and non-game species and to provide wildlife viewing and hunting opportunities for white-tailed deer, pheasants, ducks and Canada geese. Commonly seen mammals include white-tailed deer, beaver, raccoon, mink, coyote, and red fox. River otters, black bear, and moose are seen infrequently in the WMA. The northern boundary of the WMA is located about 1 mile south of the SRA.

3.3. Threatened and Endangered Species

Section 7(a)(2) of the Endangered Species Act of 1973 (ESA), as amended, requires federal agencies to review actions they authorize, fund, or carry out, and to ensure such actions do not jeopardize the continued existence of federally listed species, or result in the destruction or adverse modification of designated critical habitat.

The USFWS Ecological Services Montana Field Office online summary of listed species by county (as of December 12, 2019)[3] shows three threatened species (grizzly bear, Canada lynx, and Ute ladies' tresses), one proposed threatened species (wolverine), and one candidate species (whitebark pine) as occurring in Broadwater County. No critical habitat for any USFWS-listed species has been designated within the county. **Table 3.1** shows the ESA listed species for Broadwater County and summarizes their typical habitats.

Table 3.1: Threatened and Endangered Species – Broadwater County

Species	Federal Status	Typical Habitat
Canada Lynx (*Lynx canadensis*)	**Listed as Threatened**	The Canada lynx is an elusive forest-dwelling cat of northern latitudes. The Canada lynx are closely associated with moist, cool, boreal spruce-fir forests, and landscapes with high densities of snowshoe hares. Suitable habitat includes subalpine forests at elevations ranging between 4,000 and 7,000 feet above sea level. Lynx also need persistent deep, powdery snow, which limits competition from other predators.
Grizzly Bear (*Ursus arctos*)	**Listed as Threatened**	In Montana, grizzly bears primarily use meadows, seeps, riparian zones, mixed shrub fields, closed timber, open timber, sidehill parks, snow chutes, and alpine slabrock habitats. Habitat use is highly variable between areas, seasons, local populations, and individuals. As grizzly bear numbers continue to increase in the western half of Montana from the Greater Yellowstone Ecosystem in the southwest to the Northern Continental Divide population, their range is expanding. For this reason, it is possible for grizzlies to be found anywhere in the western half of Montana.
Ute Ladies' Tresses *(Spirantes diluvalis)*	**Listed as Threatened**	Ute ladies' tresses is a perennial, terrestrial orchid that occurs in alkaline wetlands, swales, and old meander channels often on the edge of the wetland or in areas that are dry by midsummer. Habitat is limited to areas within major river drainages in southwest and south-central Montana. This species is restricted to a highly specialized and limited habitat and is typically dependent upon unaltered, high-quality habitat, typically moist streambanks, wet meadows, and abandoned stream channels.

Species	Federal Status	Typical Habitat
Wolverine *(Gulo gulo)*	**Proposed for Listing as Threatened**	In North America, wolverines occur within a wide variety of habitats, primarily high elevation boreal forests, tundra, and western mountains throughout Alaska and Canada; however, the southern portion of the range extends into the contiguous United States, including Montana. South of the Canadian border, wolverines are restricted to areas in high mountains, near the tree-line, where conditions are cold year-round and snow cover persists well into the month of May. When inactive, wolverines occupy dens in caves, rock crevices, under fallen trees, in thickets, or similar sites.
Whitebark Pine *(Pinus albicaulis)*	**Candidate for Listing**	Whitebark pine is a non-commercial conifer occurring primarily on federally owned or managed lands in the United States. Whitebark pine is typically found in cold, windy, high elevation or high latitude sites in western North America and as a result, many stands are geographically isolated.

Source: USFWS Ecological Services Montana Field Office, online summary of listed species by county as of December 12, 2019.

A USFWS Information for Planning and Consultation (IPaC) report[4] covering lands in the study area indicates grizzly bears, Canada lynx, Ute ladies' tresses, and wolverines may potentially occur near the SRA. In general, the lands within the recreation area do not include habitat components typically used by grizzly bears, Canada lynx, or wolverines. Ute ladies' tresses is known to occur in the Missouri River drainage. The MTNHP Map Viewer was consulted to determine if observations of these species have been recorded in the general vicinity of the SRA. The MTNHP showed no observations of the listed wildlife or plant species in the area.

3.4. Montana Species of Concern

The MTNHP maintains a database of Species of Concern (SOC) in Montana[5]. SOC are native animals or plants that are at risk due to declining population trends, threats to their habitats, and restricted distribution, among other factors. Designation as a SOC is based on the Montana Status Rank and is not a statutory or regulatory classification. Rather, these designations provide information that helps resource managers make proactive decisions regarding species conservation and data collection priorities.

Federal status is designated by three entities: USFWS, BLM, and the US Forest Service (USFS). USFWS status reflected the ESA listings as well as those species protected under or included in the Migratory Bird Treaty Act (MBTA), Birds of Conservation Concern (BCC), or Bald and Golden Eagle Protection Act (BGEPA) listings. The BLM designates species listed in three ways: as threatened or endangered under the ESA or as sensitive on BLM lands. The USFS has six designations: endangered, threatened, proposed, or candidate on the ESA; sensitive species on USFS lands; or a Species of Conservation Concern (SCC). A SCC is a species that is not recognized by the ESA, but available data indicates substantial concern about the species' capability to persist over the long-term in the area.

Montana employs a standardized ranking system to denote state status. Species are assigned numeric ranks ranging from 1 (highest risk, greatest concern) to 5 (demonstrably secure), reflecting the relative degree of risk to the species' viability, based upon available information.

Table 3.2 presents species occurrence records for lands at and immediately adjacent to the SRA, their federal status, and state status and rank. A species occurrence is an area of land or water in which a species is, or was, present. Species observations are reviewed by MTNHP for evidence of sustained presence (for example, breeding evidence) and species occurrences are created from those

that meet established criteria for species. Additionally, MTNHP occurrence data indicates a non-cave natural bat roost exists in the general vicinity of the recreation area.

Other species have been observed in the vicinity of the SRA (see the *Environmental Summary Report* for the study area, **Appendix 3**) but have not been documented as a species occurrence within the study area by the MTNHP. The appendix includes lists of other observed species and other potential species that may occur near the study area. Many of these species are considered SOC in Montana and/or have been assigned management categories by federal agencies.

Table 3.2: Montana Species of Concern – Species Occurrence in Study Area

Species		USFWS Status	BLM Status	USFS Status	State Status / Rank
Mammals	**Little Brown Myotis** *(Myotis lucifugus)*	None	None	None	SOC / 3
	Hoary Bat *(Lasiurus cinereus)*	None	None	None	SOC / 3
	Townsend's Big-eared Bat *(Corynorhinus townsendii)*	None	Sensitive	Sensitive	SOC / 3
Birds	**Clark's Nutcracker** *(Nucifraga columbiana)*	MBTA	None	Species of Concern on Forests	SOC / 3
	Long-billed Curlew *(Numenius americanus)*	MBTA / BCC	Sensitive	Sensitive	SOC / 3
	Great Blue Heron *(Ardea herodias)*	MBTA	None	None	SOC / 3
	McCown's Longspur *(Rhynchophanes mccownii)*	MBTA/BCC	Sensitive	None	SOC / 3
	Evening Grosbeak *(Coccothraustes vespertinus)*	MBTA	None	None	SOC / 3

Source: MTNHP SOC database, accessed March 2020.

4.0. SOCIAL AND CULTURAL ENVIRONMENT

4.1. Socioeconomics

4.1.1. Historical Population Growth

Between 1970 and 2018, Broadwater County experienced steady population growth seeing a 140 percent increase in population over that time span. This long-term growth translates to an annual percentage (straight line) population growth rate of 2.93% in Broadwater County over the 48-year period.

According to the US Census Bureau, the County's population in 2010 was approximately 5,612 people and grew to an estimated 6,085 persons by 2018. This represents an annual percentage growth rate of 1.05% over the 2010-2018 period. For comparison, the City of Townsend and State of Montana saw annual percentage population growth rates of 1.46% and 0.92%, respectively, over the same 8-year period.

4.1.2. Demographic Characteristics

NEPA directs federal agencies to assess potential social and economic impacts anticipated from proposed actions. Guidance recommends consideration of impacts to neighborhoods and community

cohesion, social groups including minority populations, local and/or regional economies, as well as growth and development that may be induced by federal actions. Demographic and economic information presented in this section is intended to assist in identifying populations that might be affected by improvements in the study area. **Table 4.1** summarizes recent population and demographic data for the City of Townsend, The Silos Census Designated Place (CDP), Broadwater County, and Montana obtained from the 2014 to 2018 American Community Survey (ACS) 5-Year Estimates[6]. A CDP is a concentration of population defined by the United States Census Bureau for statistical purposes only. The Silos CDP generally includes the concentrations of rural residences northwest of Townsend along both sides of US 12/287 surrounding the SRA.

In general, the population composition of Broadwater County is primarily white. Broadwater County and the City of Townsend exhibit some racial and ethnic diversity, but the ACS estimates suggest a homogeneous population resides in The Silos CDP. Persons identifying as Hispanic or Latino make up about 5.3% of the population in the City of Townsend and about 2.8% of the County's population. The percentages of the population identifying as Black or African American, American Indian or Alaska Native, or Asian are all well below those seen for Montana as a whole.

Broadwater County's population is notably older than seen for the State of Montana. The median ages of residents of the County, City of Townsend, and The Silos CDP are all well above that seen for the State. County geographies show about the same percentages of residents less than 18 years of age as the State, but Broadwater County has a higher percentage of residents 65 years and older than the State.

Median household income for residents in The Silos CDP and Broadwater County as a whole is higher than state median values. The median income for residents of the City of Townsend is below that seen for the other geographies reviewed in the ACS report. The median income for residents of The Silos CDP is about 22% more than households in Montana and 8% more than households in the county. The unemployment rate for residents of The Silos CDP and the City of Townsend was below that seen for Broadwater County as a whole and for the State. The percent of the population below poverty level for Broadwater County residents was below that seen for all State of Montana residents. However, the City of Townsend showed notably more residents living below the poverty line than in either The Silos CDP or the County as a whole.

Table 4.1: Demographic and Economic Characteristics

		City of Townsend	The Silos CDP	Broadwater County	Montana
Estimated Population		2,069	682	5,834	1,041,732
Race/Ethnic Characteristics	**White (not Hispanic or Latino)**	98.3%	100.0%	96.1%	88.9%
	Hispanic or Latino	5.3%	0.0%	2.8%	3.7%
	Black or African American	0.1%	0.0%	0.1%	0.4%
	American Indian or Alaska Native	0.9%	0.0%	1.2%	6.5%
	Asian	0.0%	0.0%	0.0%	0.8%
	Native Hawaiian and Other Pacific Islander	0.0%	0.0%	0.0%	0.1%
	Some Other Race	0.4%	0.0%	0.3%	0.6%
	Two or more races	0.3%	0.0%	2.3%	2.8%
Age Characteristics	**Median Age**	47.5	45.5	46.9	39.8
	Under 18 Years of Age	22.2%	23.9%	19.7%	21.8%
	65 Years and Older	24.2%	23.4%	23.8%	16.8%

		City of Townsend	The Silos CDP	Broadwater County	Montana
Economic Characteristics	**Median Household Income**	$50,341	$61,607	$56,469	$52,559
	Per Capita Income	$23,859	$29,612	$32,362	$29,765
	Persons below poverty level	11.4%	6.0%	6.9%	13.7%
	Unemployment rate	3.1%	3.4%	6.1%	4.2%

Source: 2014 to 2018 American Community Survey (ACS) 5-Year Estimates.

4.1.3. Environmental Justice

Title VI of the United States Civil Rights Act of 1964 prohibits recipients of federal financial assistance (states, grantees, etc.) from discriminating based on race, color, or national origin in any program or activity. In 1994, EO 12898 was issued to direct federal agencies to incorporate achieving environmental justice into their mission. Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

The data presented in the *ACS Profile Report: 2014-2018* indicates that minority and/or low-income populations are unlikely to be adversely or disproportionately affected by improvements made at the SRA. This conclusion is supported by the fact that most demographic and economic indicator values for the Broadwater County geographies examined are below comparable values for the State of Montana.

4.1.4. Economic Conditions

Broadwater County has a relatively diversified economy. The industry sectors with the largest number of jobs in the County have traditionally included agriculture, manufacturing (including forest products), construction, retail trade and services. Tourism is an important component to the County's economy given the abundant recreational opportunities that exist at Canyon Ferry, on the Missouri River, and on surrounding mountains and public lands. Mining has also been a notable component of the County's economy as GrayMont Western US, Inc. has operated a lime mining and lime processing plant in the Elkhorn Mountains west of Townsend. Timber harvesting and processing have been important to the County's economy. However, RY Timber which operated a sawmill located just north of Townsend for many years announced the closure of its Townsend mill in early 2020.

4.2. Land Use

As illustrated in **Figure 4.1**, lands adjoining the west side of the SRA include a large parcel of grazing land owned by the BLM, the Silos Subdivision, and Canyon Ferry Airport. Privately owned lands to the south of the recreation area are subdivided for rural residential development. Private lands north of the recreation area are used for livestock grazing.

Figure 4.1: Land Ownership

The Silos Subdivision contains more than 120 developed homesites and several commercial enterprises. Major commercial uses within the Silos Subdivision include the Canyon Ferry Lake KOA Campground, RV Park & Store, the Silos Boat Loft and Storage, Lakeside Boat & RV Storage, and Broadwater Storage. Additionally, the Silos Junction Bar & Grill is located near the intersection of US Highway 12 and Silos Road.

BOR lands adjoining the SRA are classified as "Undeveloped/Limited Access Areas" according to the BOR's *Canyon Ferry Reservoir Shoreline Management Plan.*[7] Undeveloped areas provide dispersed recreational opportunities and provide valuable riparian and upland habitat for antelope, deer, waterfowl, non-game birds, and many other species. Some undeveloped areas are accessed by established roads. However, motorized access is prohibited in most undeveloped areas to reduce user conflicts and protect natural resources. Hunting and trapping are allowed in these areas as permitted or regulated by MFWP.

The Canyon Ferry Airstrip, owned by Broadwater County, is located adjacent to the northwest edge of SRA. The Aeronautics Division of the Montana Department of Transportation is permitted to conduct public airport activities at the air strip. The Runway Protection Zone (RPZ) at the south end of the landing strip extends a significant distance into the SRA. This is notable because development within the RPZ is typically limited for aviation safety reasons.

4.3. Recreation

The Canyon Ferry Reservoir complex provides access for many types of recreationists, including boaters, anglers, and campers. The BOR, Broadwater County, and private marinas provide access to Canyon Ferry Reservoir throughout its length. The BOR manages multiple recreational areas, including campgrounds, boat ramps, and day-use areas around the reservoir.

The SRA is open all year providing camping, boating, lake fishing, ice fishing, ice boating, swimming, picnicking, and other day use activities. Camping is limited to the developed campground areas between Seaman's Bay and Shields Bay. The areas north of Seaman's Bay, south of Shields Bay and west of the main site road are currently limited to day use activities. Additional information about

recreational features and amenities is provided in the *Existing and Projected Conditions Report* for the SRA.

4.4. Visual Resources

The visual resources of an area include the features of its landforms, vegetation, water surfaces, and cultural modifications (physical changes caused by human activities) that give the landscape its visual character and aesthetic qualities. Landscape features, natural appearing or otherwise, form the overall impression of an area. Visual resources are typically assessed based on landscape character (what is seen), visual sensitivity (human preferences and values regarding what is seen), scenic integrity (degree of intactness and wholeness in landscape character), and landscape visibility (relative distance of seen areas) of a geographically defined view shed.

Views to the east from the SRA are dominated by the undulating shoreline and the expanse of Canyon Ferry Lake and more distant views of the foothills leading to the Big Belt Mountains. To the west, views from the recreation area are dominated by open gently sloping terrain leading to the Elkhorn Mountains and residential and limited commercial development in the Silos Subdivision. Within the SRA, the most apparent manmade features include camping, picnicking, and boating facilities and circulation roadways.

4.5. Heritage Resources

Section 106 of the National Historic Preservation Act (36 CFR 800) establishes requirements for considering the effects of proposed federal, federally assisted, or federally licensed undertakings on any district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places (NRHP). The implementing regulations of Section 106 require agencies to seek ways of avoiding, minimizing, or mitigating any adverse effects on historic and archaeological properties. Additionally, Section 106 requires consultations with the Indian Tribes that may have current or traditional interests in the project area.

Other federal and State of Montana directives impose additional requirements that must be addressed regarding effects of proposed undertakings on historic and archaeological resources and paleontological sites. Federal directives addressing historic and archaeological resource issues include the Archaeological Resources Protection Act and the Native American Graves Protection and Repatriation Act. State of Montana directives addressing historic and archaeological resource issues include the Montana Antiquities Act (which also addresses paleontological resources) and the Montana Human Skeletal Remains and Burial Site Protection Act. Federal agencies consult with the Montana State Historic Preservation Office (SHPO) or the appropriate Tribal Historic Preservation Office (THPO) to ensure compliance with Section 106 and other directives regarding cultural resources.

4.5.1. Historical and Archaeological Properties

Prior to construction of Canyon Ferry Dam and Reservoir, the River Basin Survey of the Smithsonian Institution conducted heritage work at the reservoir. In addition, the University of Montana and the National Park Service (NPS) conducted reconnaissance-level archeological surveys for the proposed location of the reservoir. After the reconnaissance surveys, Montana State University tested and/or excavated sites that would eventually be flooded by the reservoir. Additionally, during the 1980s, several surveys for prehistoric and paleontological resources sponsored by the NPS and BOR were conducted at the reservoir. Numerous historic, prehistoric, and paleontological sites were recorded around the reservoir, many of which are now inundated. Research suggests the Blackfeet, Gros Ventre, and Shoshone Indians used the Canyon Ferry area during the historic period.

To support the Silos Recreation Area *Master Plan*, a file search of Sections 26 and 35 of Township 8 North, Range 1 East was conducted by the Montana SHPO in March 2020 (**Appendix 4**). The SHPO file search identified several cultural resource investigations specific to the SRA that have been conducted since 2002. These studies include two studies in 2002 by William B. Vincent for work within the recreation area, a 2003 inventory of the Silos Airport by Adam M. Nickels, and a Class III cultural resource inventory of the SRA completed in January 2006 by William B. Vincent.

The SHPO file search identified 9 previously recorded cultural properties in the study area. **Table 4.2** lists the site numbers, locations, site types, ownership, and NRHP eligibility determinations for the previously recorded cultural sites in the study area. Based on the location information obtained from the SHPO file search, sites 24BW0040 and 24BW0044 are likely inundated by the reservoir. Other previously recorded sites listed in the table may also be inundated at this time.

Table 4.2: Previously Recorded Historic Sites in the General Study Area

Site #	Township, Range, Section	Site Type	Ownership	NRHP Status
24BW0040	T8N R1E, NE ¼ Section 35	Lithic Material Concentration	No Data	Undetermined
24BW0044	T8N R1E, SE ¼ Section 26	Lithic Material Concentration	No Data	Undetermined
24BW0045	T8N R1E, NW ¼ Section 26	Lithic Material Concentration	No Data	Undetermined
24BW0046	T8N R1E, SW ¼ Section 35	Lithic Material Concentration	No Data	Undetermined
24BW0047	T8N R1E, NW ¼ Section 26	Tipi Ring	No Data	Unresolved
24BW0952	T8N R1E, Section 26	Historic Political/Government	BOR	Undetermined
24BW0965	T8N R1E, Section 35	Historic Building Foundation	BOR	Ineligible
24BW1163	T8N R1E, NW ¼ Section 26	Rock Cairn(s)	BOR	Undetermined
24BW1164	T8N R1E, NW ¼ Section 35	Historic Political/Government	BOR	Undetermined

Source: Montana SHPO, March 2020.

If improvements are implemented at the SRA in the future, it may be necessary to undertake a cultural resource survey for unrecorded historic and archaeological properties within the Area of Potential Effect (APE). The survey would help identify the significance of any newly discovered properties and determine the potential for impacts to any properties that may be on or eligible for the NRHP.

5.0. SUMMARY

This *Environmental Scan* provides a planning-level overview of environmental resources and considerations that may influence the development of the SRA. **Table 5.1** summarizes known resources occurring within and near the site. If improvements identified in the *Master Plan* advance into project development, an analysis for compliance with the National Environmental Policy Act (NEPA) and other applicable federal and state regulations will be completed as part of the project development process to determine specific impacts and any required mitigation actions.

Table 5.1: Resource Summary

Resource		Description
Physical Environment	**Geology and Topography**	• Tertiary lakebed deposits ranging in thickness from 4,000 to 6,000 feet cover the SRA. • Ground surface elevations are generally 3,800 feet above sea level. • Gentle slopes are primarily less than 5 percent, with areas of 15 to 35 percent slopes along the reservoir shoreline and bays.
	Soils	• Soils mostly consist of Radersburg very cobbly loam, which is typically well drained, not overly susceptible to erosion by wind or water, with a slow infiltration rate. • A small area of Musselshell-Crago channery loams occur, which are more susceptible to erosion, moderately deep and well drained, with a slow infiltration rate. • Site soils are not classified as prime, unique, or important farmland.
	Water Resources	• The recreation area borders Canyon Ferry Reservoir, with ephemeral drainages flowing toward the reservoir bays. • Water quality in the reservoir is generally suitable for the propagation of cold-water fish species, safe for water sports, and potable after adequate filtration and treatment. • Canyon Ferry Reservoir is considered to be an impaired water. Total maximum daily loads (TMDLs) have not been set. • A large, confined aquifer lies beneath the Townsend Valley, supplying water for domestic and irrigation uses. • Four wells occur within the recreation area, with static water levels from 9 to 32 feet below the ground surface and yields of 20 to 30 gallons per minute.
	Wetlands	• Lake, riverine, forested/shrub riparian, freshwater emergent wetland, freshwater pond, and freshwater forested/shrub wetland habitats occur at the SRA.
	Floodplains	• Canyon Ferry Lake is considered a Special Flood Hazard Area. • The lake is designated as Zone A, indicating no base flood elevations determined. Zone A areas extend into the bays at the SRA.
	Air Quality	• Broadwater County is an attainment area for all air pollutants. • Minor and temporary sources of air pollution may include dust from vehicular traffic or plowed fields and particulates associated with home heating or seasonal wildfires.
	Climate	• Temperature in the area varies greatly from summer (average 64° F) to winter (average 25° F). • Average annual precipitation in the Townsend area is about 11 inches, mostly occurring from March through August in the form of rain. The area typically sees about 23 inches of snow each year. • Prevailing winds are typically from the west.

Resource		Description
Biological Environment	Vegetation	• The SRA consists mainly of grasslands with scattered groupings of trees and shrubs and potential for noxious weeds.
	Fish and Wildlife	• Native species in the Missouri River drainage include westslope cutthroat trout, mountain whitefish, mountain sucker, longnose dace, longnose sucker, Rocky Mountain sculpin, stonecat, and white sucker. Nonnative species include rainbow trout, brown trout, brook trout, northern pike, smallmouth bass, largemouth bass, yellow perch, walleye, and common carp. • Canyon Ferry also supports rainbow trout, kokanee salmon, yellow perch, brown trout, burbot (ling), and walleye, with fishing access provided at the SRA. • Surrounding lands provide habitat for white-tailed deer, antelope, elk, moose, bats, migratory songbirds, porcupines, raccoons, fox, jack rabbits, and game birds such as grouse, ducks, geese, and pheasants. Gopher snakes, garter snakes, and Northern leopard frogs also occur in the vicinity.
	Threatened Endangered & MT SOC	• Federally listed, proposed, and candidate species occurring in Broadwater County include grizzly bear, Canada lynx, Ute ladies' tresses, wolverine, and whitebark pine. • Montana Species of Concern in the area include three bat species and five bird species.
Social and Cultural Environment	Socio-economics	• The population composition of Broadwater County is primarily white and is older than the State of Montana average. • Median household income for residents in The Silos CDP and Broadwater County as a whole is higher than state median values. • Minority and/or low-income populations are unlikely to be adversely or disproportionately affected by improvements made at the SRA. • Important industries in the County include agriculture, manufacturing (including forest products), construction, retail trade and services, tourism, and mining.
	Land Use	• Lands to the west of the SRA include a large parcel of grazing land owned by the BLM, the Silos Subdivision, and Canyon Ferry Airport. • Privately owned lands south of the recreation area are subdivided for rural residential development. Private lands north of the recreation area are used for livestock grazing.
	Recreation	• The SRA is open all year providing camping, boating, lake fishing, ice fishing, ice boating, swimming, picnicking, and other day use activities. • Camping is limited to the developed areas between Seaman's Bay and Shields Bay. • Areas north of Seaman's Bay, south of Shields Bay and west of the main site road are currently limited to day use activities.
	Visual Resources	• Views to the east are dominated by the undulating shoreline and the expanse of Canyon Ferry Lake and more distant views of the foothills leading to the Big Belt Mountains. • To the west, views are dominated by open gently sloping terrain leading to the Elkhorn Mountains and residential and limited commercial development in the Silos Subdivision.
	Heritage Resources	• Nine previously recorded cultural properties occur in the area, including lithic material, a tipi ring, historic buildings and government features, and a rock cairn.

REFERENCES

[1] US Department of the Interior, Bureau of Reclamation, Great Plains Region, Montana Area Office, Final Environmental Assessment Goose Bay Marina Modernization and Long Term Concession Contract, May 2014.

[2] Western Regional Climate Center, Montana Climate Summaries available at https://wrcc.dri.edu/summary/climsmmt.html; accessed March 2020.

[3] United States Fish and Wildlife Service Ecological Services Montana Field Office, online summary of listed species by county available at https://www.fws.gov/montanafieldoffice/Endangered_Species/Listed_Species/countylist.pdf; December 12, 2019.

[4] United States Fish and Wildlife Service Ecological Services, Information for Planning and Consultation (IPaC) report, February 6, 2020.

[5] Montana Natural Heritage Program, database of Species of Concern available at http://mtnhp.org/SpeciesOfConcern/?AorP=a and http://mtnhp.org/SpeciesOfConcern/?AorP=p, accessed March 2020.

[6] United States Census Bureau, American Community Survey, 5-Year Estimates 2014-2018, City of Townsend, The Silos CDP, Broadwater County, and State of Montana.

[7] US Department of the Interior, Bureau of Reclamation, Canyon Ferry Reservoir Shoreline Management Plan, June 2012.

Appendix 1:

NRCS Soil Survey Mapping

SILOS
Recreation Area
Master Plan

Map Scale: 1:21,500 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 300 600 1200 1800

Feet: 0 1000 2000 4000 6000

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

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Broadwater County Area, Montana
Survey Area Data: Version 18, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 10, 2012—Feb 15, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
MvB	Musselshell gravelly loam, 2 to 5 percent slopes	16.3	1.5%
MwE	Musselshell-Crago channery loams, 15 to 35 percent slopes	36.7	3.4%
MxE	Musselshell-Crago cobbly loams, 8 to 20 percent slopes	14.4	1.3%
Ra	Radersburg very cobbly loam	650.6	60.1%
W	Water	365.4	33.7%
Totals for Area of Interest		**1,083.3**	**100.0%**

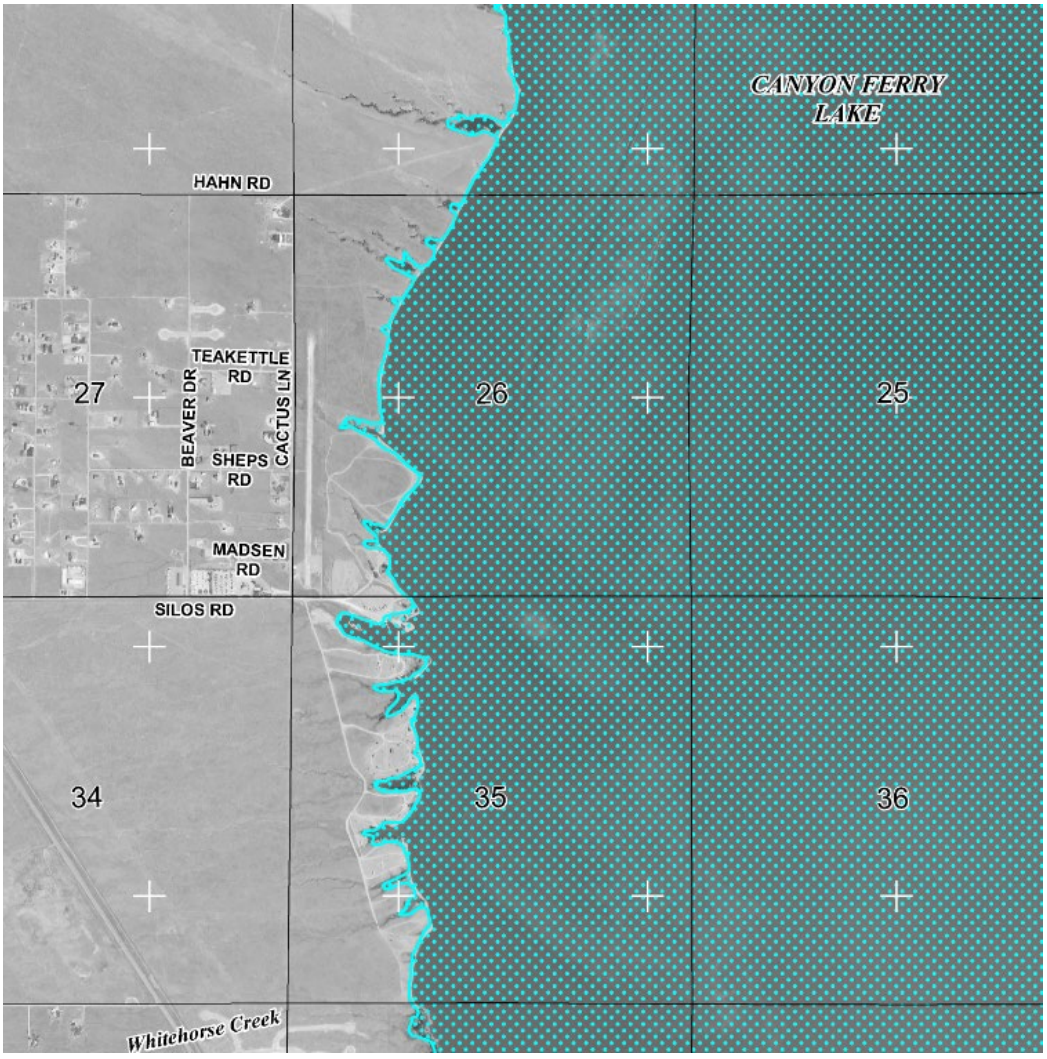
Appendix 2:

FEMA Floodplain Map

SILOS
Recreation Area
Master Plan

Silos Recreation Area – Floodplain Map

FIRM Panel 30007C0350C (Effective Date August 18, 2014)



SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

Source: FEMA Flood Map Service Center available at: https://msc.fema.gov/portal/home; Accessed March 2020.

Appendix 3:

MTNHP Environmental Summary Report

SILOS
Recreation Area
Master Plan

Environmental Summary

MONTANA
Natural Heritage Program

1515 East 6th Avenue
Helena, MT 59620
(406) 444-5363
mtnhp.org

Latitude	Longitude
46.37045	-111.52685
46.45796	-111.61733

Summarized by:
20MTCO0004
(Custom Area of Interest)

Suggested Citation
Montana Natural Heritage Program. Environmental Summary Report.
for Latitude 46.37045 to 46.45796 and Longitude -111.52685 to -111.61733. Retrieved on 3/16/2020.

The Montana Natural Heritage Program is a program of the Montana State Library's Natural Resource Information System. It is operated as a special program under the Office of the Vice President for Research and Creative Scholarship at the University of Montana, Missoula.

The Montana Natural Heritage Program is part of NatureServe – a network of over 80 similar programs in states, provinces and nations throughout the Western Hemisphere, working to provide comprehensive status and distribution information for species and ecosystems.

Montana Natural Heritage Program · Montana State Library · University of Montana · NatureServe

Table of Contents

Introduction to Environmental Summary Report

The Environmental Summary report for your area of interest consists of introductory and related materials in this PDF and an Excel workbook with worksheets summarizing information managed in the Montana Natural Heritage Program's (MTNHP) databases for: (1) species occurrences; (2) other observed species without Species Occurrences; (3) other species potentially present based on their range, presence of associated habitats, or predictive distribution model output if available; (4) structured surveys (organized efforts following a protocol capable of detecting one or more species); (5) land cover mapped as ecological systems; (6) wetland and riparian mapping; (7) land management categories; and (8) biological reports associated with plant and animal observations. In order to do this in a consistent manner across Montana and allow for rapid delivery of summaries, we have intersected this information with a uniform grid of hexagons that have been used for planning efforts across the western United States (e.g. Western Association of Fish and Wildlife Agencies - Crucial Habitat Assessment Tool). Each hexagon is one square mile in area and approximately one kilometer in length on each side. Summary information for each data layer is then stored with each hexagon and those summaries are added up to an overall summary for the report area you have requested. Users should be aware that summaries do not correspond to the exact boundaries of the polygon they have specified, but instead are a summary across all hexagons intersected by the polygon they specified.

In presenting this information, MTNHP is working towards assisting the user with rapidly assessing the known or potential species and biological communities, land management categories, and biological reports associated with the report area. We remind users that this information is likely incomplete and may be inaccurate as surveys to document species are lacking in many areas of the state, species' range polygons often include regions of unsuitable habitat, methods of predicting the presence of species or communities are constantly improving, and information is constantly being added and updated in our databases. **Field verification by professional biologists of the absence or presence of species and biological communities in a report area will always be an important obligation of users of our data. Users are encouraged to only use this environmental summary report as a starting point for more in depth analyses and are encouraged to contact state, federal, and tribal resource management agencies for additional data or management guidelines relevant to your efforts. Please see the Appendix for introductory materials to each section of the report, additional information resources, and a list of relevant agency contacts.**

MONTANA Natural Heritage Program

Aprogram of the **Montana State Library's Natural Resource Information System** operated by the **University of Montana**.

Legend

Model Icons	Habitat Icons	Range Icons	Num Obs
N Suitable (native range)	C Common	I Introduced	Count of obs with 'good precision' (<=1000m)
O Optimal Suitability	O Occasional	Y Year-round	+ indicates additional 'poor precision' obs (1001m-10,000m)
M Moderate Suitability		S Summer	
L Low Suitability		W Winter	
I Suitable (introduced range)		M Migratory	
		H Historic	

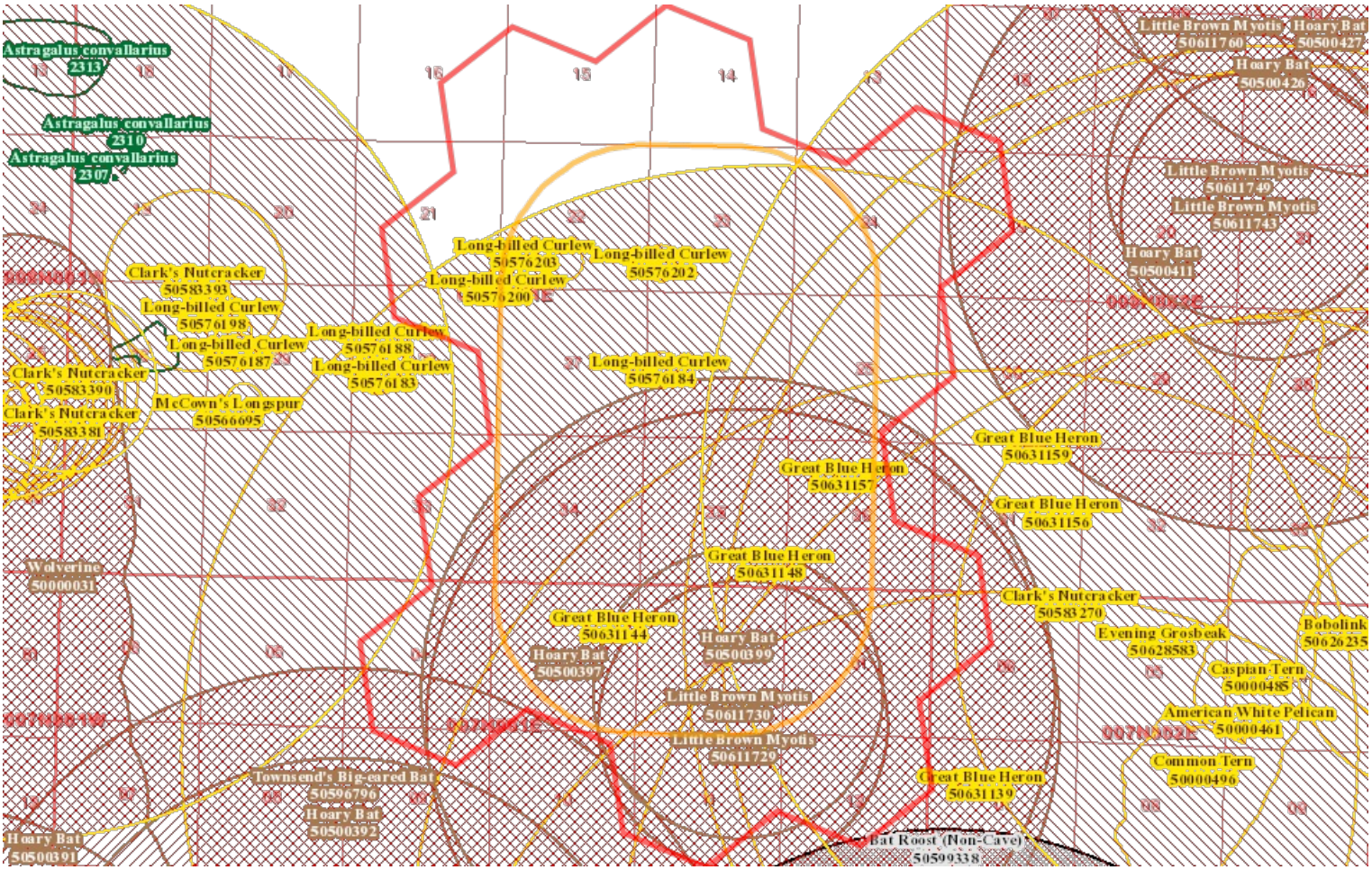
Latitude	Longitude
46.37045	-111.52685
46.45796	-111.61733

Native Species

Summarized by: **20MTCO0004** *(Custom Area of Interest)*

Filtered by:

MT_Status='Species of Concern', 'Special Status', 'Important Animal Habitat', 'Potential SOC'



Species Occurrences

	USFWS Sec7	# SO	# Obs	Predictive Model	Associated Habitat	Range
M - Hoary Bat *(Lasiurus cinereus)* SOC		3	2			S M

View in Field Guide | View Predicted Models | View Associated Habitat | View Range Maps

Species of Concern - Native Species Global: **G3G4** State: **S3** FWP SWAP: **SGCN3**

Delineation Criteria Confirmed area of occupancy based on the documented presence (mistnet captures, definitively identified acoustic recordings, and definitively identified roosting individuals) of adults or juveniles during the active season. Point observation location is buffered by a minimum distance of 3,500 meters in order to be conservative about encompassing the maximum reported foraging distance for the congeneric Lasiurus borealis and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: May 14, 2019)

Predictive Models: M 89% Moderate (inductive), L 11% Low (inductive) **Associated Habitats:** C 89% Common, O 10% Occasional

M - Little Brown Myotis *(Myotis lucifugus)* SOC		2	2			Y

View in Field Guide | View Predicted Models | View Associated Habitat | View Range Maps

Species of Concern - Native Species Global: **G3** State: **S3** FWP SWAP: **SGCN3**

Delineation Criteria Confirmed area of occupancy based on the documented presence (mistnet captures, definitively identified acoustic recordings, or definitively identified roosting individuals) of adults or juveniles. Point observation location is buffered by a distance of 1,600 meters in order to encompass the greater than 1,500 meters foraging distance reported for the species in New Brunswick, Canada and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. When cave locations are involved, point observations are mapped in the center of a one-square mile hexagon to protect the exact location of the cave entrance as per the Federal Cave Resource Protection Act and associated regulations (U.S. Code Title 16 Chapter 63, Code of Federal Regulations Title 43 Subtitle A Part 37). The outer edges of the hexagon are then buffered by a distance of 1,600 meters and otherwise by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. All of the one-square mile hexagons intersecting this buffered area are presented as the Species Occurrence record. (Last Updated: Jan 03, 2020)

Predictive Models: M 78% Moderate (inductive), L 22% Low (inductive) **Associated Habitats:** C 95% Common, O 5% Occasional

B - Long-billed Curlew *(Numenius americanus)* **SOC** 4 6 + S M

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

Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA; BCC10; BCC11; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**

Delineation Criteria Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 200 meters in order to approximate the breeding territory size reported for the species in Idaho and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Sep 24, 2019)

Predictive Models: M 56% Moderate (inductive), L 44% Low (inductive) **Associated Habitats:** C 40% Common, O 6% Occasional

M - Townsend's Big-eared Bat *(Corynorhinus townsendii)* **SOC** 1 Y

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

Species of Concern - Native Species Global: **G4** State: **S3** USFS: **Sensitive - Known on Forests (BD, BRT, CG, HLC, KOOT, LOLO)** BLM: **SENSITIVE** FWP SWAP: **SGCN3**

Delineation Criteria Confirmed area of occupancy based on the documented presence (mistnet captures, definitively identified acoustic recordings, and definitively identified roosting individuals) of adults or juveniles. Point observation location is buffered by a distance of 4,500 meters in order to encompass the 95% confidence interval for nightly foraging distance reported for the species in California and otherwise by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. When cave locations are involved, point observations are mapped in the center of a one-square mile hexagon to protect the exact location of the cave entrance as per the Federal Cave Resource Protection Act and associated regulations (U.S. Code Title 16 Chapter 63, Code of Federal Regulations Title 43 Subtitle A Part 37). The outer edges of the hexagon are then buffered by a distance of 4,500 meters and otherwise by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. All of the one-square mile hexagons intersecting this buffered area are presented as the Species Occurrence record. (Last Updated: Sep 26, 2019)

Predictive Models: M 44% Moderate (inductive), L 56% Low (inductive) **Associated Habitats:** C 88% Common, O 6% Occasional

B - Great Blue Heron *(Ardea herodias)* **SOC** 6 2 + Y S M

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

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

Delineation Criteria Confirmed nesting area buffered by a minimum distance of 6,500 meters in order to be conservative about encompassing the areas commonly used for foraging near the breeding colony and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Jan 29, 2020)

Predictive Models: M 39% Moderate (inductive), L 56% Low (inductive) **Associated Habitats:** C 1% Common

B - McCown's Longspur *(Rhynchophanes mccownii)* **SOC** 1 + S M

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

Species of Concern - Native Species Global: **G4** State: **S3B** USFWS: **MBTA; BCC10; BCC11; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**

Delineation Criteria Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 100 meters in order to encompass the maximum 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. (Last Updated: Aug 07, 2019)

Predictive Models: M 22% Moderate (inductive), L 78% Low (inductive) **Associated Habitats:** O 47% Occasional

B - Evening Grosbeak *(Coccothraustes vespertinus)* **SOC** 1 + Not Available Y WM

View in Field Guide **View Associated Habitat** **View Range Maps**

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

Delineation Criteria Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 1,000 meters in order to encompass the maximum foraging distance from nests reported for the species and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Jan 03, 2020)

Associated Habitats: C 7% Common, O 1% Occasional

B - Clark's Nutcracker *(Nucifraga columbiana)* **SOC** 1 + Not Available Y

View in Field Guide **View Associated Habitat** **View Range Maps**

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

Delineation Criteria Observations with direct evidence of breeding activity or indirect evidence of breeding activity between early March and mid-July within forested habitats containing Whitebark Pine (Pinus albicaulis), Limber Pine (Pinus flexilis), or Ponderosa Pine (Pinus ponderosa). Observations are buffered by a minimum distance of 1,000 meters in order to encompass the spring/summer breeding territory size reported for the species or the locational uncertainty of the observation to a maximum distance of 10,000 meters. (Last Updated: Sep 25, 2019)

Associated Habitats: C 1% Common

O - Bat Roost (Non-Cave) *(Bat Roost (Non-Cave))* **IAH** 1 Not Available Not Assigned

View in Field Guide

Important Animal Habitat - Native Species Global: **GNR** State: **SNR**

Delineation Criteria Confirmed area of occupancy based on the documented presence of adults or juveniles of any bat species at non-cave natural roost sites (e.g. rock outcrops, trees), below ground human created roost sites (e.g. mines), and above ground human created roost sites (e.g., bridges, buildings). Point observation locations are buffered by a distance of 4,500 meters in order to encompass the 95% confidence interval for nightly foraging distance reported for Townsendâ€™s Big-eared Bat (a resident Montana bat Species of Concern) and otherwise by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Oct 22, 2019)

Legend

Model Icons	Habitat Icons	Range Icons	Num Obs
N Suitable (native range)	C Common	I Introduced	Count of obs with 'good precision' (<=1000m)
O Optimal Suitability	O Occasional	Y Year-round	+ indicates additional 'poor precision' obs (1001m-10,000m)
M Moderate Suitability		S Summer	
L Low Suitability		W Winter	
I Suitable (introduced range)		M Migratory	
		H Historic	

Latitude	Longitude
46.37045	-111.52685
46.45796	-111.61733

Native Species

Summarized by: **20MTCO0004** *(Custom Area of Interest)*
Filtered by:
MT_Status='Species of Concern', 'Special Status', 'Important Animal Habitat', 'Potential SOC'

Other Observed Species

	USFWS Sec7	# Obs	Predictive Model	Associated Habitat	Range
F - Burbot *(Lota lota)* PSOC		+		Not Assigned	Y
B - Common Tern *(Sterna hirundo)* SOC		+			S M
B - Golden Eagle *(Aquila chrysaetos)* SOC		+			Y
B - Mountain Plover *(Charadrius montanus)* SOC		1			S M
B - Brewer's Sparrow *(Spizella breweri)* SOC		+			S M
M - Silver-haired Bat *(Lasionycteris noctivagans)* PSOC		2			Y
A - Northern Leopard Frog *(Lithobates pipiens)* SOC		1 +			Y
B - Bald Eagle *(Haliaeetus leucocephalus)* SSS		+			Y
B - Black Tern *(Chlidonias niger)* SOC		+			S M
B - Ferruginous Hawk *(Buteo regalis)* SOC		+			S M
B - Barrow's Goldeneye *(Bucephala islandica)* PSOC		+			Y W M

F - Burbot *(Lota lota)* PSOC

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

Potential Species of Concern - Native Species Global: **G5** State: **S4**

Predictive Models: N 61% Suitable (native range) (deductive)

B - Common Tern *(Sterna hirundo)* SOC

View in Field Guide | View Predicted Models | View Associated Habitat | View Range Maps

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

Predictive Models: O 44% Optimal (inductive), M 6% Moderate (inductive), L 17% Low (inductive) **Associated Habitats:** C 44% Common

B - Golden Eagle *(Aquila chrysaetos)* SOC

View in Field Guide | View Predicted Models | View Associated Habitat | View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3** USFWS: **BGEPA; MBTA; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3**

Predictive Models: M 100% Moderate (inductive) **Associated Habitats:** C 46% Common, O 2% Occasional

B - Mountain Plover *(Charadrius montanus)* SOC

View in Field Guide | View Predicted Models | View Associated Habitat | View Range Maps

Species of Concern - Native Species Global: **G3** State: **S2B** USFWS: **MBTA; BCC11; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN2** PIF: **1**

Predictive Models: M 67% Moderate (inductive), L 33% Low (inductive) **Associated Habitats:** C 5% Common, O 40% Occasional

B - Brewer's Sparrow *(Spizella breweri)* SOC

View in Field Guide | View Predicted Models | View Associated Habitat | View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA; BCC10; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**

Predictive Models: M 56% Moderate (inductive), L 44% Low (inductive) **Associated Habitats:** C 5% Common

M - Silver-haired Bat *(Lasionycteris noctivagans)* PSOC

View in Field Guide | View Predicted Models | View Associated Habitat | View Range Maps

Potential Species of Concern - Native Species Global: **G3G4** State: **S4**

Predictive Models: M 39% Moderate (inductive), L 61% Low (inductive) **Associated Habitats:** C 89% Common, O 8% Occasional

A - Northern Leopard Frog *(Lithobates pipiens)* SOC

View in Field Guide | View Predicted Models | View Associated Habitat | View Range Maps

Species of Concern - Native Species Global: **G5** State: **S1,S4** USFS: **Sensitive - Known on Forests (CG, HLC, KOOT) Sensitive - Suspected on Forests (BRT, LOLO)** BLM: **SENSITIVE** FWP SWAP: **SGCN1**

Predictive Models: M 39% Moderate (inductive), L 61% Low (inductive) **Associated Habitats:** C 43% Common, O 1% Occasional

B - Bald Eagle *(Haliaeetus leucocephalus)* SSS

View in Field Guide | View Predicted Models | View Associated Habitat | View Range Maps

Special Status Species - Native Species Global: **G5** State: **S4** USFWS: **DM; BGEPA; MBTA; BCC10; BCC11; BCC17** USFS: **Sensitive - Known on Forests (BD, BRT, CG, HLC, KOOT, LOLO)** BLM: **SENSITIVE** PIF: **2**

Predictive Models: M 39% Moderate (inductive), L 44% Low (inductive) **Associated Habitats:** C 44% Common, O 40% Occasional

B - Black Tern *(Chlidonias niger)* SOC

View in Field Guide | View Predicted Models | View Associated Habitat | View Range Maps

Species of Concern - Native Species Global: **G4G5** State: **S3B** USFWS: **MBTA; BCC11** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**

Predictive Models: M 28% Moderate (inductive), L 33% Low (inductive) **Associated Habitats:** C 43% Common, O 1% Occasional

B - Ferruginous Hawk *(Buteo regalis)* SOC

View in Field Guide | View Predicted Models | View Associated Habitat | View Range Maps

Species of Concern - Native Species Global: **G4** State: **S3B** USFWS: **MBTA; BCC10; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**

Predictive Models: M 22% Moderate (inductive), L 78% Low (inductive) **Associated Habitats:** C 44% Common, O 1% Occasional

B - Barrow's Goldeneye *(Bucephala islandica)* PSOC

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S4** USFWS: **MBTA** FWP SWAP: **SGIN** PIF: **2**
Predictive Models: M 11% Moderate (inductive), L 44% Low (inductive) **Associated Habitats:** C 44% Common

B - Greater Sage-Grouse *(Centrocercus urophasianus)* SOC + Y

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G3G4** State: **S2** USFS: **Sensitive - Known on Forests (BD)** **Sensitive - Suspected on Forests (CG, HLC)** BLM: **SENSITIVE** FWP SWAP: **SGCN2** PIF: **1**
Predictive Models: L 100% Low (inductive) **Associated Habitats:** C 5% Common

B - Sprague's Pipit *(Anthus spragueii)* SOC 7 + S M

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G3G4** State: **S3B** USFWS: **MBTA; BCC11; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **1**
Predictive Models: L 67% Low (inductive) **Associated Habitats:** O 40% Occasional

B - Green-tailed Towhee *(Pipilo chlorurus)* SOC + S M

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA** FWP SWAP: **SGCN3** PIF: **3**
Predictive Models: L 28% Low (inductive) **Associated Habitats:** C 46% Common, O 1% Occasional

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

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**
Predictive Models: L 22% Low (inductive) **Associated Habitats:** C 1% Common

B - Hooded Merganser *(Lophodytes cucullatus)* PSOC + Y M

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S4** USFWS: **MBTA** FWP SWAP: **SGIN** PIF: **2**
Predictive Models: L 11% Low (inductive) **Associated Habitats:** C 44% Common

F - Yellowstone Cutthroat Trout *(Oncorhynchus clarkii bouvieri)* SOC + Not Assigned I

View in Field Guide View Predicted Models View Range Maps
Species of Concern - Native Species Global: **G5T4** State: **S2** USFS: **Sensitive - Known on Forests (CG)** BLM: **SENSITIVE** FWP SWAP: **SGCN2**
Predictive Models: I 61% Suitable (introduced range) (deductive)

B - Peregrine Falcon *(Falco peregrinus)* SOC + Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G4** State: **S3** USFWS: **DM; MBTA; BCC10; BCC11; BCC17**
USFS: **Sensitive - Known on Forests (BD, BRT, CG, HLC, KOOT, LOLO)** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**
Associated Habitats: C 83% Common, O 1% Occasional

B - Rufous Hummingbird *(Selasphorus rufus)* PSOC + Not Available S M

View in Field Guide View Associated Habitat View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S4B** USFWS: **MBTA** PIF: **3**
Associated Habitats: C 47% Common, O 1% Occasional

B - White-faced Ibis *(Plegadis chihi)* SOC + Not Available S M

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**
Associated Habitats: C 44% Common

B - Trumpeter Swan *(Cygnus buccinator)* SOC + Not Available M

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G4** State: **S3** USFWS: **MBTA** USFS: **Sensitive - Known on Forests (BD, CG)** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **1**
Associated Habitats: C 44% Common

B - Chestnut-collared Longspur *(Calcarius ornatus)* SOC + Not Available

View in Field Guide View Associated Habitat
Species of Concern - Native Species Global: **G5** State: **S2B** USFWS: **MBTA; BCC11; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN2** PIF: **2**
Associated Habitats: O 44% Occasional

B - Franklin's Gull *(Leucophaeus pipixcan)* SOC + Not Available M

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**
Associated Habitats: C 43% Common, O 2% Occasional

I - Libellula saturata *(Flame Skimmer)* PSOC 1 Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S2S4**
Associated Habitats: C 43% Common, O 1% Occasional

B - Caspian Tern *(Hydroprogne caspia)* SOC 1 + Not Available S M

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **S2B** USFWS: **MBTA** BLM: **SENSITIVE** FWP SWAP: **SGCN2** PIF: **2**
Associated Habitats: C 43% Common, O 1% Occasional

B - Forster's Tern *(Sterna forsteri)* **SOC** + Not Available S M

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**
Associated Habitats: C 43% Common, O 1% Occasional

B - Black-necked Stilt *(Himantopus mexicanus)* **SOC** + Not Available M

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA** FWP SWAP: **SGCN3** PIF: **3**
Associated Habitats: C 43% Common, O 1% Occasional

B - American White Pelican *(Pelecanus erythrorhynchos)* **SOC** 7 + Not Available S M

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G4** State: **S3B** USFWS: **MBTA** FWP SWAP: **SGCN3** PIF: **3**
Associated Habitats: C 43% Common

B - Clark's Grebe *(Aechmophorus clarkii)* **SOC** + Not Available M

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA** FWP SWAP: **SGCN3** PIF: **3**
Associated Habitats: C 43% Common

B - Common Loon *(Gavia immer)* **SOC** 1 + Not Available M

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA** USFS: **Sensitive - Known on Forests (KOOT, LOLO)**
FWP SWAP: **SGCN3** PIF: **1**
Associated Habitats: C 43% Common

B - Horned Grebe *(Podiceps auritus)* **SOC** + Not Available M

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA; BCC11; BCC17** FWP SWAP: **SGCN3** PIF: **2**
Associated Habitats: C 43% Common

B - Harlequin Duck *(Histrionicus histrionicus)* **SOC** + Not Available S M

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G4** State: **S2B** USFWS: **MBTA** USFS: **Sensitive - Known on Forests (BD, CG, HLC, KOOT, LOLO)**
FWP SWAP: **SGCN2** PIF: **1**
Associated Habitats: C 1% Common, O 43% Occasional

B - Northern Goshawk *(Accipiter gentilis)* **SOC** + Not Available Y WM

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3** USFWS: **MBTA** FWP SWAP: **SGCN3** PIF: **2**
Associated Habitats: C 1% Common, O 1% Occasional

F - Westslope Cutthroat Trout *(Oncorhynchus clarkii lewisi)* **SOC** + Not Available Not Assigned Y

View in Field Guide View Range Maps
Species of Concern - Native Species Global: **G5T4** State: **S2** USFS: **Sensitive - Known on Forests (BD, BRT, CG, HLC, KOOT, LOLO)**
BLM: **SENSITIVE** FWP SWAP: **SGCN2**

MONTANA Natural Heritage Program

A program of the **Montana State Library's Natural Resource Information System** operated by the **University of Montana**.

Legend

Model Icons	Habitat Icons	Range Icons	Num Obs
N Suitable (native range)	C Common	I Introduced	Count of obs with 'good precision' (<=1000m)
O Optimal Suitability	O Occasional	Y Year-round	+ indicates additional 'poor precision' obs (1001m-10,000m)
M Moderate Suitability		S Summer	
L Low Suitability		W Winter	
I Suitable (introduced range)		M Migratory	
		H Historic	

Latitude	Longitude
46.37045	-111.52685
46.45796	-111.61733

Native Species

Summarized by: **20MTCO0004** *(Custom Area of Interest)*
Filtered by:
MT_Status='Species of Concern', 'Special Status', 'Important Animal Habitat', 'Potential SOC'

Other Potential Species

	USFWS Sec7	Predictive Model	Associated Habitat	Range
V - Elodea bifoliata *(Long-sheath Waterweed)* **SOC**				Y
M - Spotted Bat *(Euderma maculatum)* **SOC**				S M
B - Sage Thrasher *(Oreoscoptes montanus)* **SOC**				S M
V - Physaria ludoviciana *(Silver Bladderpod)* **SOC**			Not Assigned	Y
B - Pinyon Jay *(Gymnorhinus cyanocephalus)* **SOC**				Y
M - Preble's Shrew *(Sorex preblei)* **SOC**				Y
V - Eleocharis rostellata *(Beaked Spikerush)* **SOC**			Not Assigned	Y
R - Greater Short-horned Lizard *(Phrynosoma hernandesi)* **SOC**				Y
M - Porcupine *(Erethizon dorsatum)* **PSOC**				Y
M - Dwarf Shrew *(Sorex nanus)* **SOC**				Y
B - Short-eared Owl *(Asio flammeus)* **PSOC**				Y

View in Field Guide **View Predicted Models** **View Associated Habitat** **View Range Maps**
Species of Concern - Native Species Global: **G4G5** State: **S2?** MNPS: **3**
Predictive Models: O 44% Optimal (inductive), M 6% Moderate (inductive), L 50% Low (inductive) **Associated Habitats:** C 43% Common

View in Field Guide **View Predicted Models** **View Associated Habitat** **View Range Maps**
Species of Concern - Native Species Global: **G4** State: **S3** USFS: **Sensitive - Known on Forests (BD, CG)** BLM: **SENSITIVE**
FWP SWAP: **SGCN3, SGIN**
Predictive Models: O 6% Optimal (inductive), M 67% Moderate (inductive), L 27% Low (inductive)
Associated Habitats: C 88% Common, O 7% Occasional

View in Field Guide **View Predicted Models** **View Associated Habitat** **View Range Maps**
Species of Concern - Native Species Global: **G4** State: **S3B** USFWS: **MBTA; BCC10; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **3**
Predictive Models: M 100% Moderate (inductive) **Associated Habitats:** C 5% Common

View in Field Guide **View Predicted Models** **View Range Maps**
Species of Concern - Native Species Global: **G5** State: **S2S3**
Predictive Models: M 94% Moderate (inductive), L 6% Low (inductive)

View in Field Guide **View Predicted Models** **View Associated Habitat** **View Range Maps**
Species of Concern - Native Species Global: **G3** State: **S3** USFWS: **MBTA; BCC17** FWP SWAP: **SGCN3**
Predictive Models: M 89% Moderate (inductive), L 11% Low (inductive) **Associated Habitats:** C 1% Common, O 6% Occasional

View in Field Guide **View Predicted Models** **View Associated Habitat** **View Range Maps**
Species of Concern - Native Species Global: **G4** State: **S3** FWP SWAP: **SGCN3**
Predictive Models: M 83% Moderate (inductive), L 17% Low (inductive) **Associated Habitats:** C 51% Common

View in Field Guide **View Predicted Models** **View Range Maps**
USFS: **Sensitive - Known on Forests (BD, CG, HLC)**
Species of Concern - Native Species Global: **G5** State: **S3** **Species of Conservation Concern on Forests (FLAT)** MNPS: **3**
Predictive Models: M 72% Moderate (inductive), L 28% Low (inductive)

View in Field Guide **View Predicted Models** **View Associated Habitat** **View Range Maps**
USFS: **Sensitive - Known on Forests (CG)**
Species of Concern - Native Species Global: **G5** State: **S3** **Sensitive - Suspected on Forests (HLC)** BLM: **SENSITIVE**
FWP SWAP: **SGCN3, SGIN**
Predictive Models: M 61% Moderate (inductive), L 39% Low (inductive) **Associated Habitats:** C 44% Common, O 1% Occasional

View in Field Guide **View Predicted Models** **View Associated Habitat** **View Range Maps**
Potential Species of Concern - Native Species Global: **G5** State: **S4** FWP SWAP: **SGIN**
Predictive Models: M 56% Moderate (inductive), L 44% Low (inductive) **Associated Habitats:** C 52% Common

View in Field Guide **View Predicted Models** **View Associated Habitat** **View Range Maps**
Species of Concern - Native Species Global: **G4** State: **S2S3** FWP SWAP: **SGCN2-3**
Predictive Models: M 50% Moderate (inductive), L 28% Low (inductive) **Associated Habitats:** C 5% Common, O 44% Occasional

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S4** USFWS: **MBTA; BCC11; BCC17** PIF: **3**
Predictive Models: M 33% Moderate (inductive), L 67% Low (inductive) **Associated Habitats:** C 47% Common, O 4% Occasional

V - Spiranthes diluvialis *(Ute ladies'-tresses)* **SOC** 7 Not Assigned Y

View in Field Guide View Predicted Models View Range Maps
Species of Concern - Native Species Global: **G2G3** State: **S1S2** USFWS: **LT** MNPS: **2**
Predictive Models: M 33% Moderate (inductive)

V - Carex crawei *(Crawe's Sedge)* **SOC** Not Assigned Y

View in Field Guide View Predicted Models View Range Maps
Species of Concern - Native Species Global: **G5** State: **S2S3** MNPS: **2**
Predictive Models: M 28% Moderate (inductive), L 67% Low (inductive)

M - Western Spotted Skunk *(Spilogale gracilis)* **PSOC** Y

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **SNR** FWP SWAP: **SGIN**
Predictive Models: M 28% Moderate (inductive), L 22% Low (inductive) **Associated Habitats:** C 45% Common, O 6% Occasional

V - Carex scoparia *(Pointed Broom Sedge)* **SOC** Not Assigned Y

View in Field Guide View Predicted Models View Range Maps
Species of Concern - Native Species Global: **G5** State: **S1S2**
Predictive Models: M 28% Moderate (inductive), L 17% Low (inductive)

B - Burrowing Owl *(Athene cunicularia)* **SOC** S M

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G4** State: **S3B** USFWS: **MBTA; BCC17** USFS: **Sensitive - Known on Forests (CG) Sensitive - Suspected on Forests (HLC)** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **1**
Predictive Models: M 11% Moderate (inductive), L 67% Low (inductive) **Associated Habitats:** C 5% Common, O 44% Occasional

M - Fringed Myotis *(Myotis thysanodes)* **SOC** Y

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G4** State: **S3** BLM: **SENSITIVE** FWP SWAP: **SGCN3**
Predictive Models: M 11% Moderate (inductive), L 28% Low (inductive) **Associated Habitats:** C 88% Common, O 9% Occasional

B - Western Screech-Owl *(Megascops kennicottii)* **PSOC** Y

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Potential Species of Concern - Native Species Global: **G4G5** State: **S3S4** USFWS: **MBTA** FWP SWAP: **SGIN** PIF: **3**
Predictive Models: M 11% Moderate (inductive), L 28% Low (inductive) **Associated Habitats:** C 41% Common

B - Sagebrush Sparrow *(Artemisiospiza nevadensis)* **SOC** S M

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA; BCC10; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3**
Predictive Models: M 11% Moderate (inductive), L 22% Low (inductive) **Associated Habitats:** C 5% Common

B - Yellow-billed Cuckoo *(Coccyzus americanus)* **SOC** S M

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **PS: LT; MBTA; BCC10** USFS: **Threatened on Forests (BRT, LOLO)** BLM: **SENSITIVE** FWP SWAP: **SGCN3, SGIN** PIF: **2**
Predictive Models: M 11% Moderate (inductive), L 17% Low (inductive) **Associated Habitats:** C 1% Common

B - Lewis's Woodpecker *(Melanerpes lewis)* **SOC** S M

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G4** State: **S2B** USFWS: **MBTA; BCC10; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN2** PIF: **2**
Predictive Models: M 6% Moderate (inductive), L 44% Low (inductive) **Associated Habitats:** C 1% Common

M - Black-tailed Prairie Dog *(Cynomys ludovicianus)* **SOC** Y

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G4** State: **S3** USFS: **Sensitive - Known on Forests (CG)** BLM: **SENSITIVE** FWP SWAP: **SGCN3**
Predictive Models: L 83% Low (inductive) **Associated Habitats:** C 5% Common, O 48% Occasional

B - Loggerhead Shrike *(Lanius ludovicianus)* **SOC** S M

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G4** State: **S3B** USFWS: **MBTA; BCC10; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**
Predictive Models: L 78% Low (inductive) **Associated Habitats:** C 51% Common, O 2% Occasional

R - Western Milksnake *(Lampropeltis gentilis)* **SOC** Y

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **S2** USFS: **Sensitive - Known on Forests (CG)** BLM: **SENSITIVE** FWP SWAP: **SGCN2**
Predictive Models: L 78% Low (inductive) **Associated Habitats:** C 44% Common, O 7% Occasional

M - Swift Fox *(Vulpes velox)* **SOC** Y

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G3** State: **S3** BLM: **SENSITIVE** FWP SWAP: **SGCN3**
Predictive Models: L 72% Low (inductive) **Associated Habitats:** O 44% Occasional

B - Bobolink *(Dolichonyx oryzivorus)* **SOC** S M

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA** FWP SWAP: **SGCN3** PIF: **3**
Predictive Models: L 39% Low (inductive) **Associated Habitats:** C 47% Common, O 1% Occasional

M - Grizzly Bear *(Ursus arctos)* **SOC** 7 Y

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G4** State: **S2S3** USFWS: **PS: LT; XN** USFS: **Threatened on Forests (BD, CG, HLC, KOOT, LOLO)**
BLM: **THREATENED** FWP SWAP: **SGCN2-3**
Predictive Models: L 28% Low (inductive) **Associated Habitats:** C 41% Common, O 5% Occasional

V - Utricularia intermedia *(Flatleaf Bladderwort)* **SOC** Not Assigned Y

View in Field Guide View Predicted Models View Range Maps
Species of Concern - Native Species Global: **G5** State: **S2** USFS: **Sensitive - Known on Forests (KOOT)** MNPS: **3**
Predictive Models: L 17% Low (inductive)

B - Meesia triquetra *(Meesia Moss)* **SOC** Not Assigned Y

View in Field Guide View Predicted Models View Range Maps
USFS: **Sensitive - Known on Forests (BRT, CG, KOOT)**
Sensitive - Suspected on Forests (LOLO)
Species of Concern - Native Species Global: **G5** State: **S2** **Species of Conservation Concern on Forests (FLAT)**
Predictive Models: L 17% Low (inductive)

A - Western Toad *(Anaxyrus boreas)* **SOC** Y

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G4** State: **S2** USFS: **Sensitive - Known on Forests (BD, BRT, CG, HLC, KOOT, LOLO)**
BLM: **SENSITIVE** FWP SWAP: **SGCN2**
Predictive Models: L 11% Low (inductive) **Associated Habitats:** C 44% Common, O 46% Occasional

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

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3** USFWS: **MBTA** BLM: **SENSITIVE** FWP SWAP: **SGCN3, SGIN** PIF: **3**
Predictive Models: L 11% Low (inductive) **Associated Habitats:** C 1% Common, O 1% Occasional

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

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G3G4** State: **S2**
Predictive Models: L 11% Low (inductive) **Associated Habitats:** O 1% Occasional

B - Common Poorwill *(Phalaenoptilus nuttallii)* **PSOC** S M

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S4B** USFWS: **MBTA** FWP SWAP: **SGIN** PIF: **3**
Predictive Models: L 6% Low (inductive) **Associated Habitats:** C 44% Common, O 8% Occasional

M - Water Vole *(Microtus richardsoni)* **PSOC** Y

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S4**
Predictive Models: L 6% Low (inductive) **Associated Habitats:** C 43% Common

M - Bison *(Bos bison)* **SOC** Not Available H

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G4** State: **S2** FWP SWAP: **SGCN2**
Associated Habitats: C 45% Common, O 1% Occasional

B - Sharp-tailed Grouse *(Tympanuchus phasianellus)* **SOC** Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **SX,S4** FWP SWAP: **SGCN1** PIF: **2**
Associated Habitats: C 44% Common, O 3% Occasional

I - Argia alberta *(Paiute Dancer)* **PSOC** Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Potential Species of Concern - Native Species Global: **G4** State: **S2S3**
Associated Habitats: O 44% Occasional

B - Black-crowned Night-Heron *(Nycticorax nycticorax)* **SOC** Not Available M

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA** FWP SWAP: **SGCN3** PIF: **3**
Associated Habitats: C 44% Common

I - Somatochlora minor *(Ocellated Emerald)* **PSOC** Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S2S4**
Associated Habitats: C 43% Common, O 1% Occasional

I - Aeshna constricta *(Lance-tipped Darner)* **PSOC** Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S1S3**
Associated Habitats: C 43% Common

I - Aeshna eremita *(Lake Darner)* **PSOC** Not Available Y S W

View in Field Guide View Associated Habitat View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S3S4**
Associated Habitats: C 43% Common

I - Argia emma *(Emma's Dancer)* **PSOC** Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S3S5**
Associated Habitats: C 43% Common

I - Rhionaeschna multicolor *(Blue-eyed Darner)* **PSOC** Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S2S4**
Associated Habitats: C 43% Common

B - Piping Plover *(Charadrius melodus)* **SOC** Not Available M

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G3** State: **S2B** USFWS: **LT; CH; MBTA** BLM: **THREATENED** FWP SWAP: **SGCN2** PIF: **1**
Associated Habitats: C 43% Common

V - Astragalus convallarius *(Lesser Rushy Milkvetch)* **SOC** Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3** MNPS: **2**
Associated Habitats: C 40% Common, O 5% Occasional

V - Erigeron linearis *(Linear-leaf Fleabane)* **SOC** Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **S2** MNPS: **2**
Associated Habitats: C 40% Common

V - Eriogonum caespitosum *(Mat Buckwheat)* **SOC** Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **S2S3** MNPS: **3**
Associated Habitats: C 40% Common

V - Phlox kelseyi var. missoulensis *(Missoula Phlox)* **SOC** Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G3** State: **S3** USFS: **Sensitive - Known on Forests (BD, HLC) Sensitive - Suspected on Forests (LOLO)** MNPS: **2**
Associated Habitats: C 40% Common

M - Black-footed Ferret *(Mustela nigripes)* **SOC** Not Available H

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G1** State: **S1** USFWS: **LE; XN** USFS: **Endangered, Experimental Nonessential on Forests (CG)** BLM: **ENDANGERED** FWP SWAP: **SGCN1**
Associated Habitats: C 5% Common

I - Argia vivida *(Vivid Dancer)* **PSOC** Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S3S5**
Associated Habitats: C 1% Common, O 44% Occasional

I - Aeshna juncea *(Sedge Darner)* **PSOC** Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S3S5**
Associated Habitats: C 1% Common, O 43% Occasional

I - Enallagma clausum *(Alkali Bluet)* **PSOC** Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S2S4**
Associated Habitats: C 1% Common, O 43% Occasional

I - Leucorrhinia borealis *(Boreal Whiteface)* **SOC** Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **S1**
Associated Habitats: C 1% Common, O 43% Occasional

I - Rhionaeschna californica *(California Darner)* **PSOC** Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S3S5**
Associated Habitats: C 1% Common, O 43% Occasional

I - Somatochlora hudsonica *(Hudsonian Emerald)* **PSOC** Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S2S4**
Associated Habitats: C 1% Common, O 43% Occasional

I - Sympetrum madidum *(Red-veined Meadowhawk)* **PSOC** Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S2S3**
Associated Habitats: C 1% Common, O 43% Occasional

I - Euphydryas gillettii *(Gillette's Checkerspot)* **SOC** Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G3** State: **S2**
Associated Habitats: C 1% Common, O 40% Occasional

M - Canada Lynx *(Lynx canadensis)* **SOC** 7 Not Available Y

View in Field Guide View Associated Habitat View Range Maps
USFS: **Threatened on Forests (BD, BRT)**
Species of Concern - Native Species Global: **G5** State: **S3** USFWS: **LT; CH** **Threatened, Critical Habitat on Forests (CG, HLC, KOOT, LOLO)**
BLM: **THREATENED** FWP SWAP: **SGCN3**
Associated Habitats: C 1% Common, O 1% Occasional

M - Wolverine *(Gulo gulo)* **SOC** 7 Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G4** State: **S3** USFWS: **P** USFS: **Proposed on Forests (BD, BRT, CG, HLC, KOOT, LOLO)**
BLM: **SENSITIVE** FWP SWAP: **SGCN3**
Associated Habitats: C 1% Common, O 1% Occasional

B - Boreal Owl *(Aegolius funereus)* **PSOC** Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S3S4** USFWS: **MBTA** FWP SWAP: **SGIN** PIF: **3**
Associated Habitats: C 1% Common, O 1% Occasional

I - Aeshna sitchensis *(Zigzag Darner)* **PSOC** Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S2S3**
Associated Habitats: C 1% Common, O 1% Occasional

I - Colias gigantea *(Giant Sulphur)* **PSOC** Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S3**
Associated Habitats: C 1% Common, O 1% Occasional

B - Flammulated Owl *(Psiloscops flammeolus)* **SOC** Not Available S M

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G4** State: **S3B** USFWS: **MBTA; BCC10**
USFS: **Sensitive - Known on Forests (BD, BRT, HLC, KOOT, LOLO)**
Sensitive - Suspected on Forests (CG)
Species of Conservation Concern on Forests (FLAT) BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **1**
Associated Habitats: C 1% Common, O 1% Occasional

B - Black-backed Woodpecker *(Picoides arcticus)* **SOC** Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3** USFWS: **MBTA**
USFS: **Sensitive - Known on Forests (BD, BRT, CG, HLC, KOOT, LOLO)** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **1**
Associated Habitats: C 1% Common

B - Brown Creeper *(Certhia americana)* **SOC** Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3** USFWS: **MBTA** FWP SWAP: **SGCN3** PIF: **1**
Associated Habitats: C 1% Common

B - Cassin's Finch *(Haemorhous cassinii)* **SOC** Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3** USFWS: **MBTA; BCC10** FWP SWAP: **SGCN3** PIF: **3**
Associated Habitats: C 1% Common

B - Gray-crowned Rosy-Finch *(Leucosticte tephrocotis)* **SOC** — Not Available — Y WM

View in Field Guide | View Associated Habitat | View Range Maps

Species of Concern - Native Species Global: **G5** State: **S2B,S5N** USFWS: **MBTA** FWP SWAP: **SGCN2, SGIN**

Associated Habitats: C 1% Common

B - Pacific Wren *(Troglodytes pacificus)* **SOC** — Not Available — Y

View in Field Guide | View Associated Habitat | View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3** USFWS: **MBTA** FWP SWAP: **SGCN3** PIF: **2**

Associated Habitats: C 1% Common

B - Pileated Woodpecker *(Dryocopus pileatus)* **SOC** — Not Available — Y

View in Field Guide | View Associated Habitat | View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3** USFWS: **MBTA** FWP SWAP: **SGCN3** PIF: **2**

Associated Habitats: C 1% Common

I - Polygonia progne *(Gray Comma)* **SOC** — Not Available — Y

View in Field Guide | View Associated Habitat | View Range Maps

Species of Concern - Native Species Global: **G5** State: **S2**

Associated Habitats: C 1% Common

I - Somatochlora semicircularis *(Mountain Emerald)* **PSOC** — Not Available — Y

View in Field Guide | View Associated Habitat | View Range Maps

Potential Species of Concern - Native Species Global: **G5** State: **S3S5**

Associated Habitats: C 1% Common

V - Castilleja exilis *(Annual Indian Paintbrush)* **SOC** — Not Available — Y

View in Field Guide | View Associated Habitat | View Range Maps

Species of Concern - Native Species Global: **G5T5** State: **S2** MNPS: **2**

Associated Habitats: C 1% Common

V - Primula incana *(Mealy Primrose)* **SOC** — Not Available — Y

View in Field Guide | View Associated Habitat | View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3** USFS: **Sensitive - Known on Forests (BD)** **Sensitive - Historically known, not recently documented on Forests (CG)** MNPS: **2**

Associated Habitats: C 1% Common

V - Trichophorum cespitosum *(Tufted Club-rush)* **SOC** — Not Available — Y

View in Field Guide | View Associated Habitat | View Range Maps

Species of Concern - Native Species Global: **G5** State: **S2** USFS: **Sensitive - Known on Forests (BD, HLC, KOOT)** **Species of Conservation Concern on Forests (FLAT)** MNPS: **3**

Associated Habitats: C 1% Common

V - Veratrum californicum *(California False-hellebore)* **SOC** — Not Available — Y

View in Field Guide | View Associated Habitat | View Range Maps

Species of Concern - Native Species Global: **G5** State: **S2** USFS: **Sensitive - Known on Forests (BD, BRT)** **Sensitive - Suspected on Forests (CG, HLC)**

Associated Habitats: C 1% Common

B - American Bittern *(Botaurus lentiginosus)* **SOC** — Not Available — S M

View in Field Guide | View Associated Habitat | View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA; BCC11; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **3**

Associated Habitats: C 1% Common

B - Black Rosy-Finch *(Leucosticte atrata)* **SOC** — Not Available — S M

View in Field Guide | View Associated Habitat | View Range Maps

Species of Concern - Native Species Global: **G4** State: **S2** USFWS: **MBTA; BCC10** FWP SWAP: **SGCN2, SGIN** PIF: **2**

Associated Habitats: C 1% Common

B - Black-billed Cuckoo *(Coccyzus erythropthalmus)* **SOC** — Not Available — S M

View in Field Guide | View Associated Habitat | View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA; BCC11; BCC17** FWP SWAP: **SGCN3, SGIN** PIF: **2**

Associated Habitats: C 1% Common

B - Ovenbird *(Seiurus aurocapilla)* **PSOC** — Not Available — S M

View in Field Guide | View Associated Habitat | View Range Maps

Potential Species of Concern - Native Species Global: **G5** State: **S4B** USFWS: **MBTA** PIF: **3**

Associated Habitats: C 1% Common

B - Varied Thrush *(Ixoreus naevius)* **SOC** — Not Available — S M

View in Field Guide | View Associated Habitat | View Range Maps

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

Associated Habitats: C 1% Common

B - Northern Hawk Owl *(Surnia ulula)* **SOC** — Not Available — WM

View in Field Guide View Associated Habitat View Range Maps

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

Associated Habitats: C 1% Common

B - Tennessee Warbler *(Oreothlypis peregrina)* **PSOC** Not Available M

View in Field Guide View Associated Habitat View Range Maps

Potential Species of Concern - Native Species Global: **G5** State: **S3S4B** USFWS: **MBTA**

Associated Habitats: C 1% Common

Latitude	Longitude
46.37045	-111.52685
46.45796	-111.61733

Structured Surveys

Summarized by: **20MTCO0004** *(Custom Area of Interest)*

The Montana Natural Heritage Program (MTNHP) records information on the locations where more than 80 different types of well-defined repeatable survey protocols capable of detecting an animal species or suite of animal species have been conducted by state, federal, tribal, university, or private consulting biologists. Examples of structured survey protocols tracked by MTNHP include: visual encounter and dip net surveys for pond breeding amphibians, point counts for birds, call playback surveys for selected bird species, visual surveys of migrating raptors, kick net stream reach surveys for macroinvertebrates, visual encounter cover object surveys for terrestrial mollusks, bat acoustic or mist net surveys, pitfall and/or snap trap surveys for small terrestrial mammals, track or camera trap surveys for large mammals, and trap surveys for turtles. Whenever possible, photographs of survey locations are stored in MTNHP databases.

MTNHP does not typically manage information on structured surveys for plants; surveys for invasive species may be a future exception.

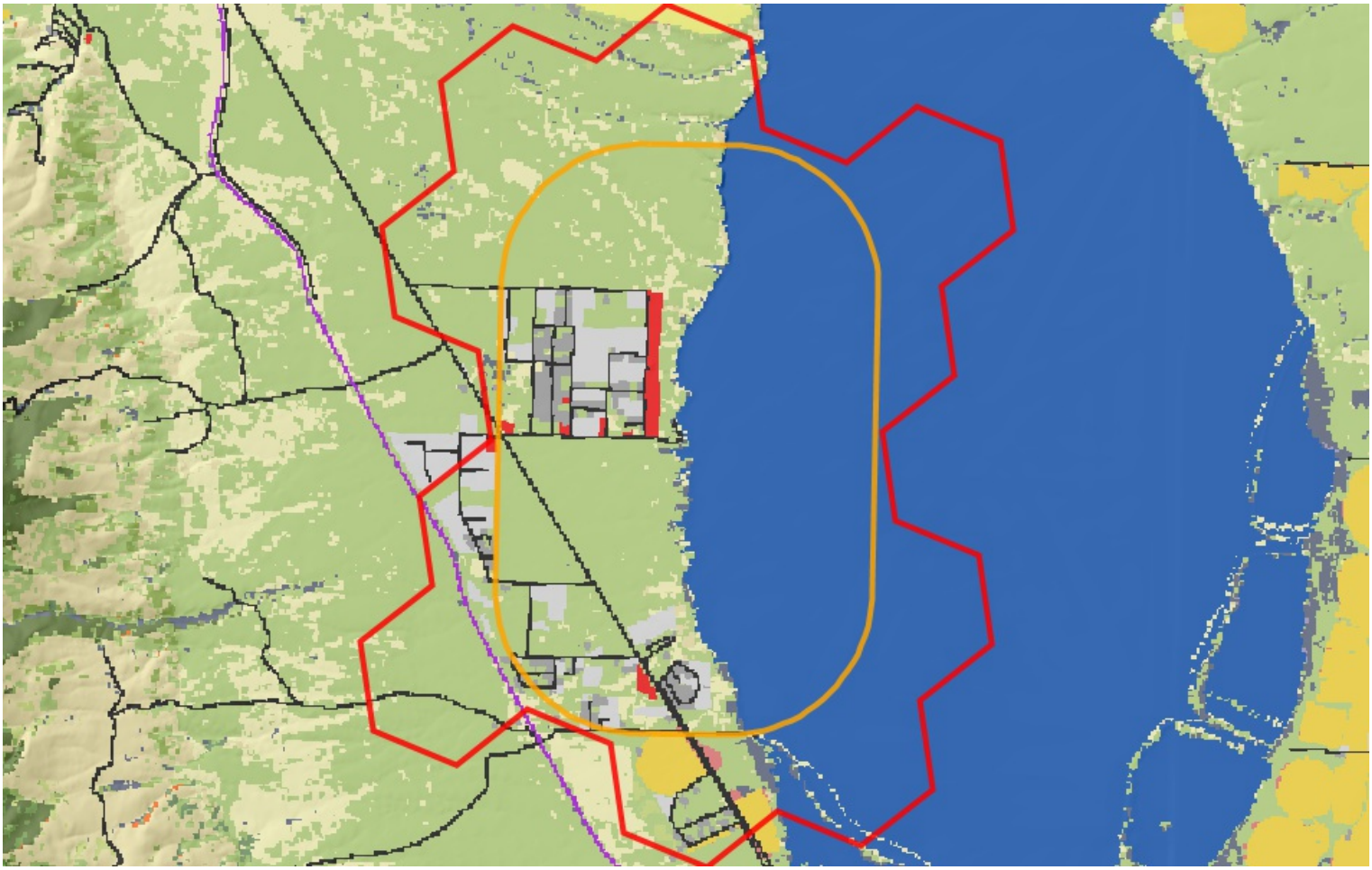
Within the report area you have requested, structured surveys are summarized by the number of each type of structured survey protocol that has been conducted, the number of species detections/observations resulting from these surveys, and the most recent year a survey has been conducted.

B-Long-billed Curlew *(Long-billed Curlew, Road-based, Point Count)*	**Survey Count**: 16	**Obs Count**: 4	**Recent Survey**: 2017
E-Eurasian Water-milfoil Rake *(Rake tows/pulls for Eurasian Water-milfoil)*	**Survey Count**: 85	**Obs Count**: 3	**Recent Survey**: 2019
E-Invasive Mussel Plankton Tow *(Plankton tows for veligers of Invasive Mussels)*	**Survey Count**: 33	**Obs Count**:	**Recent Survey**: 2019
E-Invasive Mussel Substrate *(Artificial Substrate for Invasive Mussels)*	**Survey Count**: 16	**Obs Count**:	**Recent Survey**: 2019
E-Kicknet *(Kicknet Collection Survey for Invasive Mussels and Snails)*	**Survey Count**: 11	**Obs Count**: 2	**Recent Survey**: 2019
E-Noxious Weed, Road-based *(Noxious Weed Road-based Visual Surveys)*	**Survey Count**: 6	**Obs Count**: 3	**Recent Survey**: 2004
E-Sniffer Dog Aquatic Invasive *(Aquatic Sniffer Dog Surveys for Invasives)*	**Survey Count**: 2	**Obs Count**:	**Recent Survey**: 2019
E-Visual Aquatic Invasives *(Visual Encounter Surveys for Aquatic Invasives on Shorelines or Underwater)*	**Survey Count**: 103	**Obs Count**: 19	**Recent Survey**: 2019
M-Bat Acoustic *(Bat Acoustic Survey)*	**Survey Count**: 2	**Obs Count**: 10	**Recent Survey**: 2010

Latitude	Longitude
46.37045	-111.52685
46.45796	-111.61733

Land Cover

Summarized by: **20MTCO0004** *(Custom Area of Interest)*



43% (*4,932 Acres*)

Wetland and Riparian Systems
Open Water
Open Water

All areas of open water, generally with less than 25% cover of vegetation or soil

39% (*4,539 Acres*)

Grassland Systems
Montane Grassland
Rocky Mountain Lower Montane, Foothill, and Valley Grassland

This grassland system of the northern Rocky Mountains is found at lower montane to foothill elevations in mountains and valleys throughout Montana. These grasslands are floristically similar to Big Sagebrush Steppe but are defined by shorter summers, colder winters, and young soils derived from recent glacial and alluvial material. They are found at elevations from 548 - 1,650 meters (1,800-5,413 feet). In the lower montane zone, they range from small meadows to large open parks surrounded by conifers; below the lower treeline, they occur as extensive foothill and valley grasslands. Soils are relatively deep, fine-textured, often with coarse fragments, and non-saline. Microphytic crust may be present in high-quality occurrences. This system is typified by cool-season perennial bunch grasses and forbs (>25%) cover, with a sparse shrub cover (<10%). Rough fescue (*Festuca campestris*) is dominant in the northwestern portion of the state and Idaho fescue (*Festuca idahoensis*) is dominant or co-dominant throughout the range of the system. Bluebunch wheatgrass (*Pseudoroegneria spicata*) occurs as a co-dominant throughout the range as well, especially on xeric sites. Western wheatgrass (*Pascopyrum smithii*) is consistently present, often with appreciable coverage (>10%) in lower elevation occurrences in western Montana and virtually always present, with relatively high coverages (>25%), on the edge of the Northwestern Great Plains region. Species diversity ranges from a high of more than 50 per 400 square meter plot on mesic sites to 15 (or fewer) on xeric and disturbed sites. Most occurrences have at least 25 vascular species present. Farmland conversion, noxious species invasion, fire suppression, heavy grazing and oil and gas development are major threats to this system.

5% (*523 Acres*)

Shrubland, Steppe and Savanna Systems
Sagebrush Steppe
Big Sagebrush Steppe

This widespread ecological system occurs throughout much of central Montana, and north and east onto the western fringe of the Great Plains. In central Montana, where this system occurs on both glaciated and non-glaciated landscapes, it differs slightly, with more summer rain than winter precipitation and more precipitation annually. Throughout its distribution, soils are typically deep and non-saline, often with a microphytic crust. This shrub-steppe is dominated by perennial grasses and forbs with greater than 25% cover. Overall shrub cover is less than 10 percent. In Montana and Wyoming, stands are more mesic, with more biomass of grass, and have less shrub diversity than stands farther to the west, and 50 to 90% of the occurrences are dominated by Wyoming big sagebrush with western wheatgrass (*Pascopyrum smithii*). Japanese brome (*Bromus japonicus*) and cheatgrass (*Bromus tectorum*) are indicators of disturbance, but cheatgrassis typically not as abundant as in the Intermountain West, possibly due to a colder climate. The natural fire regime of this ecological system maintains a patchy distribution of shrubs, preserving the steppe character. Shrubs may increase following heavy grazing and/or with fire suppression. In central and eastern Montana, complexes of prairie dog towns are common in this ecological system.

4% (*470 Acres*)

Human Land Use
Developed
Developed, Open Space

Vegetation (primarily grasses) planted in developed settings for recreation, erosion control, or aesthetic purposes. Impervious surfaces account for less than 20% of total cover. This category often includes highway and railway rights of way and graveled rural roads.

No Image

2% (*274 Acres*)

Human Land Use
Developed
Other Roads

County, city and or rural roads generally open to motor vehicles.

2% (*237 Acres*)

Human Land Use
Developed
Low Intensity Residential

Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20-50% of total cover. These areas most commonly include single-family housing units in rural and suburban areas. Paved roadways may be classified into this category.

Additional Limited Land Cover

1% (*127 Acres*) Cultivated Crops
1% (*113 Acres*) Northern Rocky Mountain Lower Montane Riparian Woodland and Shrubland
1% (*85 Acres*) Commercial / Industrial
1% (*65 Acres*) Major Roads
<1% (*33 Acres*) Pasture/Hay
<1% (*33 Acres*) Montane Sagebrush Steppe
<1% (*28 Acres*) Rocky Mountain Subalpine-Montane Mesic Meadow
<1% (*26 Acres*) Railroad
<1% (*18 Acres*) Introduced Upland Vegetation - Annual and Biennial Forbland
<1% (*3 Acres*) Alpine-Montane Wet Meadow
<1% (*1 Acres*) Rocky Mountain Ponderosa Pine Woodland and Savanna
<1% (*0 Acres*) Emergent Marsh

Latitude	Longitude
46.37045	-111.52685
46.45796	-111.61733

Wetland and Riparian

Summarized by: **20MTCO0004** *(Custom Area of Interest)*

Wetland and Riparian Mapping

Explain

P - Palustrine

AB - Aquatic Bed

F - Semipermanently Flooded	4 Acres	
h - Diked/Impounded	**4 Acres**	**PABFh**

P - Palustrine, AB - Aquatic Bed
Wetlands with vegetation growing on or below the water surface for most of the growing season.

EM - Emergent

A - Temporarily Flooded	40 Acres	
(no modifier)	**40 Acres**	**PEMA**
h - Diked/Impounded	**<1 Acres**	**PEMAh**
C - Seasonally Flooded	2 Acres	
(no modifier)	**1 Acres**	**PEMC**
h - Diked/Impounded	**<1 Acres**	**PEMCh**
x - Excavated	**1 Acres**	**PEMCx**

P - Palustrine, EM - Emergent
Wetlands with erect, rooted herbaceous vegetation present during most of the growing season.

SS - Scrub-Shrub

A - Temporarily Flooded	15 Acres	
h - Diked/Impounded	**4 Acres**	**PSSAh**
x - Excavated	**11 Acres**	**PSSAx**
C - Seasonally Flooded	16 Acres	
h - Diked/Impounded	**3 Acres**	**PSSCh**
x - Excavated	**13 Acres**	**PSSCx**

P - Palustrine, SS - Scrub-Shrub
Wetlands dominated by woody vegetation less than 6 meters (20 feet) tall. Woody vegetation includes tree saplings and trees that are stunted due to environmental conditions.

L - Lacustrine (Lakes)

1 - Limnetic

UB - Unconsolidated Bottom

H - Permanently Flooded 4,858 Acres

h - Diked/Impounded **4,858 Acres** L1UBHh

L - Lacustrine (Lakes), 1 - Limnetic, UB - Unconsolidated Bottom
Deep waterbodies with mud or silt covering at least 25% of the bottom.

2 - Littoral

AB - Aquatic Bed

H - Permanently Flooded 63 Acres

x - Excavated **63 Acres** L2ABHx

L - Lacustrine (Lakes), 2 - Littoral, AB - Aquatic Bed
Shorelines with vegetation growing on or below the water surface for most of the growing season.

US - Unconsolidated Shore

C - Seasonally Flooded 4 Acres

h - Diked/Impounded **4 Acres** L2USCh

L - Lacustrine (Lakes), 2 - Littoral, US - Unconsolidated Shore
Shorelines where there is less than 75% areal cover of stones, boulders, or bedrock, and less than 30% vegetation cover. The area is also irregularly exposed due to seasonal or irregular flooding and subsequent drying.

Rp - Riparian

2 - Lentic

SS - Scrub-Shrub
(no modifier) **<1 Acres** Rp2SS

Rp - Riparian, 2 - Lentic, SS - Scrub-Shrub
This type of riparian area is dominated by woody vegetation that is less than 6 meters (20 feet) tall. Woody vegetation includes tree saplings and trees that are stunted due to environmental conditions.

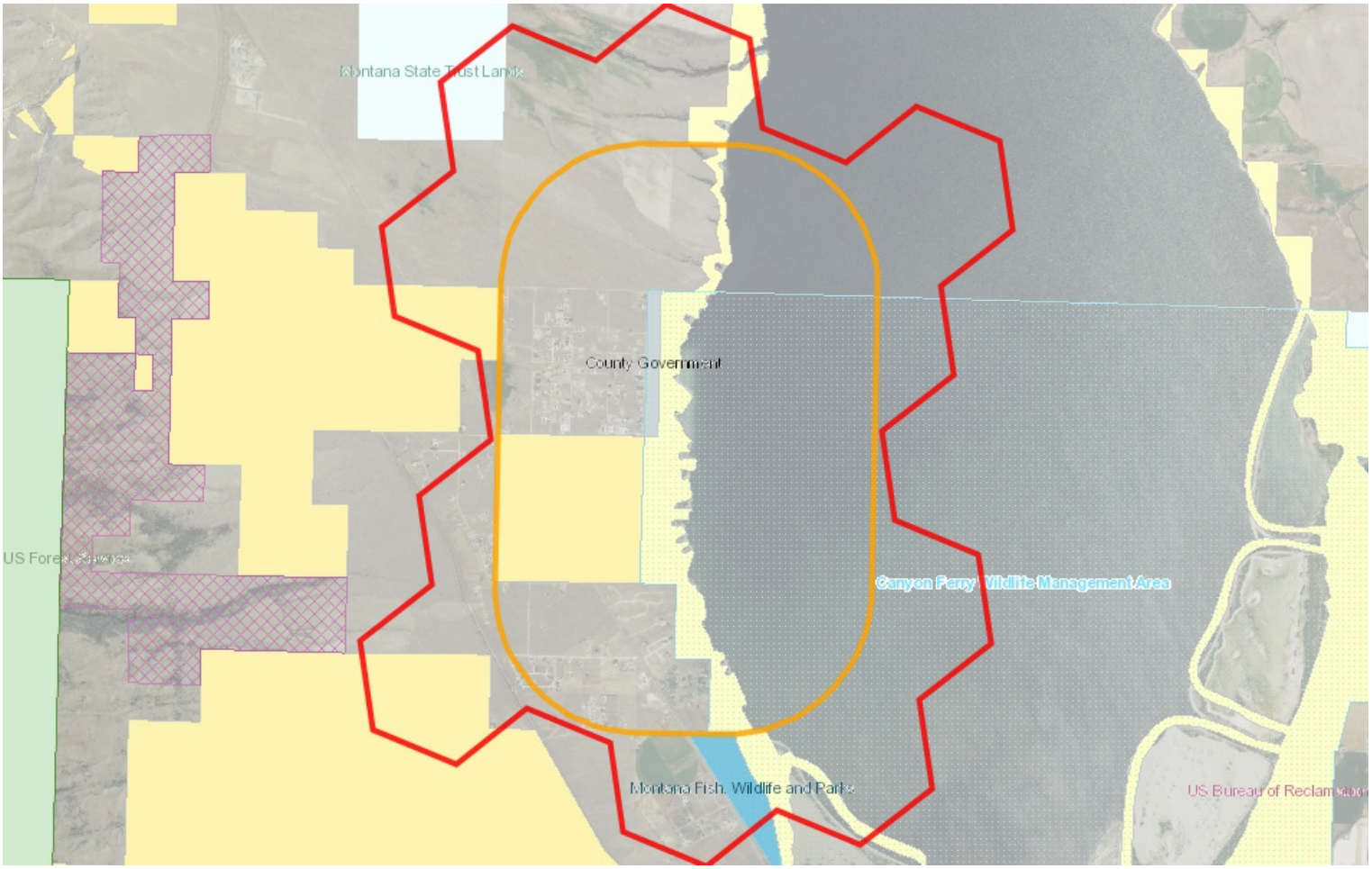
FO - Forested
(no modifier) **13 Acres** Rp2FO

Rp - Riparian, 2 - Lentic, FO - Forested
This riparian class has woody vegetation that is greater than 6 meters (20 feet) tall.

Latitude	Longitude
46.37045	-111.52685
46.45796	-111.61733

Land Management

Summarized by: **20MTCO0004** *(Custom Area of Interest)*



Land Management Summary

Explain

	Ownership	Tribal	Easements	Other Boundaries (possible overlap)
Public Lands	**2,240 Acres (19%)**			
Federal	**1,914 Acres (17%)**			
US Bureau of Land Management	**1,172 Acres (10%)**			
BLM Owned	**1,172 Acres (10%)**			
US Bureau of Reclamation	**742 Acres (6%)**			
USBR Owned	**742 Acres (6%)**			
USBR Water Projects				**5,556 Acres**
Canyon Ferry Reservoir				5,556 Acres
State	**267 Acres (2%)**			
Montana State Trust Lands	**161 Acres (1%)**			
MT State Trust Owned	**161 Acres (1%)**			
Montana Fish, Wildlife and Parks	**106 Acres (1%)**			
MTFWP Owned	**106 Acres (1%)**			
MTFWP Wildlife Management Areas				**4,235 Acres**
Canyon Ferry Wildlife Management Area				4,235 Acres
Local	**59 Acres (1%)**			
Local Government	**59 Acres (1%)**			
Local Government Owned	**59 Acres (1%)**			
Private Lands or Unknown Ownership	**9,267 Acres (81%)**			

Latitude	Longitude
46.37045	-111.52685
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Biological Reports

Summarized by: **20MTCO0004** *(Custom Area of Interest)*

Within the report area you have requested, citations for all reports and publications associated with plant or animal observations in Montana Natural Heritage Program (MTNHP) databases are listed and, where possible, links to the documents are included.

The MTNHP plans to include reports associated with terrestrial and aquatic communities in the future as allowed for by staff resources. If you know of reports or publications associated with species or biological communities within the report area that are not shown in this report, please let us know: mtnhp@mt.gov

- Restani, M. and A.R. Harmata. 1992. Survey of raptors along the upper Missouri River, Montana. Montana State University. Bozeman, MT. 53 pp plus appendix.

MONTANA Natural Heritage Program

A program of the **Montana State Library's Natural Resource Information System** operated by the **University of Montana**.

Legend

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

Habitat Icons
- C Common
- O Occasional

Range Icons
- T Suspect (invasive / pest)
- D Documented (invasive / pest)
- R Released (biocontrol)
- E Established (biocontrol)

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

Latitude	Longitude
46.37045	-111.52685
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Invasive and Pest Species

Summarized by: **20MTCO0004** *(Custom Area of Interest)*

	# Obs	Predictive Model	Associated Habitat	Range
Aquatic Invasive Species				
F - Common Carp *(Cyprinus carpio)* AIS	+		Not Assigned	D
View in Field Guide · View Predicted Models · View Range Maps				
Aquatic Invasive Species - Non-native Species Global: **G5** State: **SNA**				
Predictive Models: I 61% Suitable (introduced range) (deductive)				
V - Potamogeton crispus *(Curly-leaf Pondweed)* N2B/AIS	11	Not Available	Not Assigned	D
View in Field Guide · View Range Maps				
Noxious Weed: Priority 2B - Aquatic Invasive Species - Non-native Species Global: **G5** State: **SNA**				
I - Orconectes virilis *(Virile Crayfish)* AIS	2	Not Available	Not Assigned	
View in Field Guide				
Aquatic Invasive Species - Native Species Global: **G5** State: **S5**				
Noxious Weeds: Priority 1A				
V - Isatis tinctoria *(Dyer's Woad)* N1A			Not Assigned	D
View in Field Guide · View Predicted Models · View Range Maps				
Noxious Weed: Priority 1A - Non-native Species Global: **GNR** State: **SNA**				
Predictive Models: M 83% Moderate (inductive), L 17% Low (inductive)				
V - Centaurea solstitialis *(Yellow Starthistle)* N1A			Not Assigned	D
View in Field Guide · View Predicted Models · View Range Maps				
Noxious Weed: Priority 1A - Non-native Species Global: **GNR** State: **SNA**				
Predictive Models: M 67% Moderate (inductive), L 11% Low (inductive)				
Noxious Weeds: Priority 1B				
V - Echium vulgare *(Blueweed)* N1B			Not Assigned	D
View in Field Guide · View Predicted Models · View Range Maps				
Noxious Weed: Priority 1B - Non-native Species Global: **GNR** State: **SNA**				
Predictive Models: L 11% Low (inductive)				
Noxious Weeds: Priority 2A				
V - Lepidium latifolium *(Perennial Pepperweed)* N2A			Not Assigned	D
View in Field Guide · View Predicted Models · View Range Maps				
Noxious Weed: Priority 2A - Non-native Species Global: **GNR** State: **SNA**				
Predictive Models: O 6% Optimal (inductive), M 17% Moderate (inductive), L 77% Low (inductive)				
V - Hieracium praealtum *(Kingdevil Hawkweed)* N2A			Not Assigned	D
View in Field Guide · View Predicted Models · View Range Maps				
Noxious Weed: Priority 2A - Non-native Species Global: **GNR** State: **SNA**				
Predictive Models: L 11% Low (inductive)				
Noxious Weeds: Priority 2B				
V - Lepidium draba *(Whitetop)* N2B			Not Assigned	D
View in Field Guide · View Predicted Models · View Range Maps				
Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**				
Predictive Models: O 6% Optimal (inductive), M 56% Moderate (inductive), L 28% Low (inductive)				
V - Centaurea diffusa *(Diffuse Knapweed)* N2B			Not Assigned	D
View in Field Guide · View Predicted Models · View Range Maps				
Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**				
Predictive Models: M 72% Moderate (inductive), L 28% Low (inductive)				
V - Euphorbia virgata *(Leafy Spurge)* N2B			Not Assigned	D
View in Field Guide · View Predicted Models · View Range Maps				
Noxious Weed: Priority 2B - Non-native Species Global: **GNRTNR** State: **SNA**				
Predictive Models: M 50% Moderate (inductive), L 50% Low (inductive)				
V - Convolvulus arvensis *(Field Bindweed)* N2B			Not Assigned	D

View in Field Guide View Predicted Models View Range Maps
Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**
Predictive Models: M 22% Moderate (inductive), L 56% Low (inductive)

V - Centaurea stoebe *(Spotted Knapweed)* N2B — Not Assigned D

View in Field Guide View Predicted Models View Range Maps
Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**
Predictive Models: M 17% Moderate (inductive), L 67% Low (inductive)

V - Cirsium arvense *(Canada Thistle)* N2B — 2 — Not Assigned D

View in Field Guide View Predicted Models View Range Maps
Noxious Weed: Priority 2B - Non-native Species Global: **G5** State: **SNA**
Predictive Models: M 11% Moderate (inductive), L 78% Low (inductive)

V - Linaria dalmatica *(Dalmatian Toadflax)* N2B — 1 — Not Assigned D

View in Field Guide View Predicted Models View Range Maps
Noxious Weed: Priority 2B - Non-native Species Global: **G5** State: **SNA**
Predictive Models: M 6% Moderate (inductive), L 72% Low (inductive)

V - Acroptilon repens *(Russian Knapweed)* N2B — Not Assigned D

View in Field Guide View Predicted Models View Range Maps
Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**
Predictive Models: L 83% Low (inductive)

V - Cynoglossum officinale *(Common Hound's-tongue)* N2B — Not Assigned D

View in Field Guide View Predicted Models View Range Maps
Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**
Predictive Models: L 78% Low (inductive)

V - Berteroa incana *(Hoary False-alyssum)* N2B — Not Assigned D

View in Field Guide View Predicted Models View Range Maps
Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**
Predictive Models: L 28% Low (inductive)

V - Potamogeton crispus *(Curly-leaf Pondweed)* N2B/AIS — 11 — Not Available — Not Assigned D

View in Field Guide View Range Maps
Noxious Weed: Priority 2B - Aquatic Invasive Species - Non-native Species Global: **G5** State: **SNA**

Regulated Weeds: Priority 3

V - Elaeagnus angustifolia *(Russian Olive)* R3 — Not Assigned D

View in Field Guide View Predicted Models View Range Maps
Regulated Weed: Priority 3 - Non-native Species Global: **GNR** State: **SNA**
Predictive Models: M 22% Moderate (inductive), L 72% Low (inductive)

V - Bromus tectorum *(Cheatgrass)* R3 — Not Assigned D

View in Field Guide View Predicted Models View Range Maps
Regulated Weed: Priority 3 - Non-native Species Global: **GNR** State: **SNA**
Predictive Models: L 78% Low (inductive)

Biocontrol Species

I - Oberea erythrocephala *(Red-headed Leafy Spurge Stem Borer)* BIOCNTRL — Not Assigned R

View in Field Guide View Predicted Models View Range Maps
Biocontrol Species - Non-native Species Global: **GNR** State: **SNA**
Predictive Models: M 50% Moderate (inductive), L 33% Low (inductive)

I - Aphthona lacertosa *(Brown-legged Leafy Spurge Flea Beetle)* BIOCNTRL — Not Assigned R

View in Field Guide View Predicted Models View Range Maps
Biocontrol Species - Non-native Species Global: **GNR** State: **SNA**
Predictive Models: M 44% Moderate (inductive), L 28% Low (inductive)

I - Cyphocleonus achates *(Knapweed Root Weevil)* BIOCNTRL — Not Assigned R

View in Field Guide View Predicted Models View Range Maps
Biocontrol Species - Non-native Species Global: **GNR** State: **SNA**
Predictive Models: M 28% Moderate (inductive), L 39% Low (inductive)

I - Aphthona nigriscutis *(Black Dot Leafy Spurge Flea Beetle)* BIOCNTRL — Not Assigned R

View in Field Guide View Predicted Models View Range Maps
Biocontrol Species - Non-native Species Global: **GNR** State: **SNA**
Predictive Models: M 11% Moderate (inductive), L 33% Low (inductive)

I - Mecinus janthiniformis *(Dalmatian Toadflax Stem-boring Weevil)* BIOCNTRL — Not Assigned R

View in Field Guide View Predicted Models View Range Maps
Biocontrol Species - Non-native Species Global: **GNR** State: **SNA**
Predictive Models: M 6% Moderate (inductive), L 67% Low (inductive)

Introduction to Montana Natural Heritage Program

P.O. Box 201800 • 1515 East Sixth Avenue • Helena, MT 59620-1800 • fax 406.444.0266 • tel 406.444.0241 • mtnhp.org

Introduction

The Montana Natural Heritage Program (MTNHP) is Montana's source for reliable and objective information on Montana's native species and habitats, emphasizing those of conservation concern. MTNHP was created by the Montana legislature in 1983 as part of the Natural Resource Information System (NRIS) at the Montana State Library (MSL). MTNHP is "a program of information acquisition, storage, and retrieval for data relating to the flora, fauna, and biological community types of Montana" (MCA 90-15-102). MTNHP's activities are guided by statute (MCA 90-15) as well as through ongoing interaction with, and feedback from, principal data source agencies such as Montana Fish, Wildlife, and Parks, the Montana Department of Environmental Quality, the Montana Department of Natural Resources and Conservation, the Montana University System, the US Forest Service, and the US Bureau of Land Management. The enabling legislation for MTNHP provides the State Library with the option to contract the operation of the Program. Since 2006, MTNHP has been operated as a program under the Office of the Vice President for Research and Creative Scholarship at the University of Montana (UM) through a renewable 2-year contract with the MSL. Since the first staff was hired in 1985, the Program has logged a long record of success, and developed into a highly respected, service-oriented program. MTNHP is widely recognized as one of the most advanced and effective of over 80 natural heritage programs throughout the Western Hemisphere.

Vision

Our vision is that public agencies, the private sector, the education sector, and the general public will trust and rely upon MTNHP as the source for information and expertise on Montana's species and habitats, especially those of conservation concern. We strive to provide easy access to our information in order for users to save time and money, speed environmental reviews, and inform decision making.

Core Values

- We endeavor to be a single statewide source of accurate and up-to-date information on Montana's plants, animals, and aquatic and terrestrial biological communities.
- We actively listen to our data users and work responsively to meet their information and training needs.
- We strive to provide neutral, trusted, timely, and equitable service to all of our information users.
- We make every effort to be transparent to our data users in setting work priorities and providing data products.

Confidentiality

All information requests made to the Montana Natural Heritage Program are considered library records and are protected from disclosure by the Montana Library Records Confidentiality Act (MCA 22-1-11).

Information Managed

Information managed at the Montana Natural Heritage Program includes: (1) lists of, and basic information on, plant and animal species and biological communities; (2) plant and animal surveys, observations, species occurrences, predictive distribution models, range polygons, and conservation status ranks; and (3) land cover and wetland and riparian mapping and the conservation status of these and other biological communities.

Data Use Terms and Conditions

- Montana Natural Heritage Program (MTNHP) products and services are based on biological data and the objective interpretation of those data by professional scientists. MTNHP does not advocate any particular philosophy of natural resource protection, management, development, or public policy.
- MTNHP has no natural resource management or regulatory authority. Products, statements, and services from MTNHP are intended to inform parties as to the state of scientific knowledge about certain natural resources, and to further develop that knowledge. The information is not intended as natural resource management guidelines or prescriptions or a determination of environmental impacts. MTNHP recommends consultation with appropriate state, federal, and tribal resource management agencies and authorities in the area where your project is located.
- Information on the status and spatial distribution of biological resources produced by MTNHP are intended to inform parties of the state-wide status, known occurrence, or the likelihood of the presence of those resources. **These products are not intended to substitute for field-collected data, nor are they intended to be the sole basis for natural resource management decisions.**
- MTNHP does not portray its data as exhaustive or comprehensive inventories of rare species or biological communities. **Field verification of the absence or presence of sensitive species and biological communities will always be an important obligation of users of our data.**
- MTNHP responds equally to all requests for products and services, regardless of the purpose or identity of the requester.
- Because MTNHP constantly updates and revises its databases with new data and information, products will become outdated over time. Interested parties are encouraged to obtain the most current information possible from MTNHP, rather than using older products. We add, review, update, and delete records on a daily basis. Consequently, we strongly advise that you update your MTNHP data sets at a minimum of every three months for most applications of our information.
- MTNHP data require a certain degree of biological expertise for proper analysis, interpretation, and application. Our staff is available to advise you on questions regarding the interpretation or appropriate use of the data that we provide. Contact information for MTNHP staff is posted at: http://mtnhp.org/contact.asp
- The information provided to you by MTNHP may include sensitive data that if publicly released might jeopardize the welfare of threatened, endangered, or sensitive species or biological communities. This information is intended for distribution or use only within your department, agency, or business. Subcontractors may have access to the data during the course of any given project, but should not be given a copy for their use on subsequent, unrelated work.
- MTNHP data are made freely available. Duplication of hard-copy or digital MTNHP products with the intent to sell is prohibited without written consent by MTNHP. Should you be asked by individuals outside your organization for the type of data that we provide, please refer them to MTNHP.
- MTNHP and appropriate staff members should be appropriately acknowledged as an information source in any third-party product involving MTNHP data, reports, papers, publications, or in maps that incorporate MTNHP graphic elements.
- Sources of our data include museum specimens, published and unpublished scientific literature, field surveys by state and federal agencies and private contractors, and reports from knowledgeable individuals. MTNHP actively solicits and encourages additions, corrections and updates, new observations or collections, and comments on any of the data we provide.
- MTNHP staff and contractors do not cross or survey privately-owned lands without express permission from the landowner. However, the program cannot guarantee that information provided to us by others was obtained under adherence to this policy.

Suggested Contacts for Natural Resource Agencies

As required by Montana statute (MCA 90-15), the Montana Natural Heritage Program works with state, federal, tribal, nongovernmental organizations, and private partners to ensure that the latest animal and plant distribution and status information is incorporated into our databases so that it can be used to inform a variety of planning processes and management decisions. In addition to the information you receive from us, we encourage you to contact state, federal, and tribal resource management agencies in the area where your project is located. They may have additional data or management guidelines relevant to your efforts. In particular, we encourage you to contact the Montana Department of Fish, Wildlife, and Parks for the latest data and management information regarding hunted and high-profile management species and to use the U.S. Fish and Wildlife Service's Information Planning and Conservation (IPAC) website http://ecos.fws.gov/ipac/ regarding U.S. Endangered Species Act listed Threatened, Endangered, or Candidate species.

For your convenience, we have compiled a list of relevant agency contacts and links below:

Montana Fish, Wildlife, and Parks

Fish Species	Zachary Shattuck zshattuck@mt.gov (406) 444-1231 or Eric Roberts eroberts@mt.gov (406) 444-5334
American Bison Black-footed Ferret Black-tailed Prairie Dog Bald Eagle Golden Eagle Common Loon Least Tern Piping Plover Whooping Crane	Lauri Hanauska-Brown LHanauska-Brown@mt.gov (406) 444-5209
Grizzly Bear Greater Sage Grouse Trumpeter Swan Big Game Upland Game Birds Furbearers	John Vore jvore@mt.gov (406) 444-3940
Managed Terrestrial Game and Nongame Animal Data	Smith Wells – MFWP Data Analyst smith.wells@mt.gov (406) 444-3759
Fisheries Data	Ryan Alger – MFWP Data Analyst ryan.alger@mt.gov (406) 444-5365
Wildlife and Fisheries Scientific Collector's Permits	http://fwp.mt.gov/doingBusiness/licenses/scientificWildlife/ Kammi McClain for Wildlife Kammi.McClain@mt.gov (406) 444-2612 Kim Wedde for Fisheries kim.wedde@mt.gov (406) 444-5594
Fish and Wildlife Recommendations for Subdivision Development	Renee Lemon RLemon@mt.gov (406) 444-3738 and see http://fwp.mt.gov/fishAndWildlife/livingWithWildlife/buildingWithWildlife/subdivisionRecommendations/
Regional Contacts  	Region 1 (Kalispell) (406) 752-5501 Region 2 (Missoula) (406) 542-5500 Region 3 (Bozeman) (406) 994-4042 Region 4 (Great Falls) (406) 454-5840 Region 5 (Billings) (406) 247-2940 Region 6 (Glasgow) (406) 228-3700 Region 7 (Miles City) (406) 234-0900

United States Fish and Wildlife Service:
Information Planning and Conservation (IPAC) website: http://ecos.fws.gov/ipac/
Montana Ecological Services Field Office: http://www.fws.gov/montanafieldoffice/ (406) 449-5225

Bureau of Land Management

Montana Field Office Contacts:		
	Billings	(406) 896-5013
	Butte	(406) 533-7600
	Dillon	(406) 683-8000
	Glasgow	(406) 228-3750
	Havre	(406) 262-2820
	Lewistown	(406) 538-1900
	Malta	(406) 654-5100
	Miles City	(406) 233-2800
	Missoula	(406) 329-3914

United States Forest Service

Regional Office – Missoula, Montana Contacts			
Wildlife Program Leader	Tammy Fletcher	tammyfletcher@fs.fed.us	(406) 329-3588
Wildlife Ecologist	Cara Staab	cstaab@fs.fed.us	(406) 329-3677
Fish Program Leader	Scott Spaulding	scottspaulding@fs.fed.us	(406) 329-3287
Fish Ecologist	Cameron Thomas	cathomas@fs.fed.us	(406) 329-3087
TES Program	Lydia Allen	lrallen@fs.fed.us	(406) 329-3558
Interagency Grizzly Bear Coordinator	Scott Jackson	sjackson03@fs.fed.us	(406) 329-3664
Regional Botanist	Steve Shelly	sshelly@fs.fed.us	(406) 329-3041
Invasive Species Program Manager	Michelle Cox	michelle.cox2@usda.gov	(406) 329-3669

Tribal Nations

Assiniboine & Gros Ventre Tribes – Fort Belknap Reservation
Assiniboine & Sioux Tribes – Fort Peck Reservation
Blackfeet Tribe - Blackfeet Reservation
Chippewa Creek Tribe - Rocky Boy's Reservation
Crow Tribe – Crow Reservation
Little Shell Chippewa Tribe
Northern Cheyenne Tribe – Northern Cheyenne Reservation
Salish & Kootenai Tribes - Flathead Reservation

Natural Heritage Programs and Conservation Data Centers in Surrounding States and Provinces
Alberta Conservation Information Management System
British Columbia Conservation Data Centre
Idaho Natural Heritage Program
North Dakota Natural Heritage Program
Saskatchewan Conservation Data Centre
South Dakota Natural Heritage Program
Wyoming Natural Diversity Database

Invasive Species Management Contacts and Information

Aquatic Invasive Species

Montana Fish, Wildlife, and Parks Aquatic Invasive Species staff
Montana Department of Natural Resources and Conservation's Aquatic Invasive Species Grant Program
Montana Invasive Species Council (MISC)
Upper Columbia Conservation Commission (UC3)

Noxious Weeds

Montana Weed Control Association Contacts Webpage
Montana Biological Weed Control Coordination Project
Montana Department of Agriculture - Noxious Weeds
Montana Weed Control Association
Montana Fish, Wildlife, and Parks - Noxious Weeds
Montana State University Integrated Pest Management Extension
Integrated Noxious Weed Management after Wildfires

Introduction to Native Species

Within the report area you have requested, separate summaries are provided for: (1) Species Occurrences (SO) for plant and animal Species of Concern, Special Status Species (SSS), Important Animal Habitat (IAH) and some Potential Plant Species of Concern; (2) other observed non Species of Concern or Species of Concern without suitable documentation to create Species Occurrence polygons; and (3) other non-documented species that are potentially present based on their range, predicted suitable habitat model output, or presence of associated habitats. Each of these summaries provides the following information when present for a species: (1) the number of Species Occurrences and associated delineation criteria for construction of these polygons that have long been used for considerations of documented Species of Concern in environmental reviews; (2) the number of observations of each species; (3) the geographic range polygons for each species that the report area overlaps; (4) predicted relative habitat suitability classes that are present if a predicted suitable habitat model has been created; (5) the percent of the report area that is mapped as commonly associated or occasionally associated habitat as listed for each species in the Montana Field Guide; and (6) a variety of conservation status ranks and links to species accounts in the Montana Field Guide. Details on each of these information categories are included under relevant section headers below or are defined on our Species Status Codes page. In presenting this information, the Montana Natural Heritage Program (MTNHP) is working towards assisting the user with rapidly determining what species have been documented and what species are potentially present in the report area. We remind users that this information is likely incomplete as surveys to document native and introduced species are lacking in many areas of the state, information on introduced species has only been tracked relatively recently, the MTNHP's staff and resources are restricted by declining budgets, and information is constantly being added and updated in our databases. **Thus, field verification by professional biologists of the absence or presence of species and biological communities will always be an important obligation of users of our data.**

If you are aware of observation datasets that the MTNHP is missing, please report them to the Program Botanist apipp@mt.gov or Senior Zoologist dbachen@mt.gov. If you have observations that you would like to contribute, you can submit animal observations using our online data entry system at http://mtnhp.org/AddObs/, plant and animal observations via Excel spreadsheets posted at http://mtnhp.org/observations.asp , or to the Program Botanist or Senior Zoologist.

Observations

The MTNHP manages information on more than 1.8 million animal and plant observations that have been reported by professional biologists and private citizens from across Montana. The majority of these observations are submitted in digital format from standardized databases associated with research or monitoring efforts and spreadsheets of incidental observations submitted by professional biologists and amateur naturalists. At a minimum, accepted observation records must contain a credible species identification (i.e. appropriate geographic range, date, and habitat and, if species are difficult to identify, a photograph and notes on key identifying features), a date or date range, observer name, locational information (ideally with latitude and longitude in decimal degrees), notes on numbers observed, and species behavior or habitat use (e.g., is the observation likely associated with reproduction). Bird records are also required to have information associated with date-appropriate breeding or overwintering status of the species observed. MTNHP reviews observation records to ensure that they are mapped correctly, occur within date ranges when the species is known to be present or detectable, occur within the known seasonal geographic range of the species, and occur in appropriate habitats. MTNHP also assigns each record a locational uncertainty value in meters to indicate the spatial precision associated with the record's mapped coordinates. Only records with locational uncertainty values of 10,000 meters or less are included in environmental summary reports and number summaries are only provided for records with locational uncertainty values of 1,000 meters or less.

Species Occurrences

The MTNHP evaluates plant and animal observation records for species of higher conservation concern to determine whether they are worthy of inclusion in the Species Occurrence (SO) layer for use in environmental reviews; observations not worthy of inclusion in this layer include long distance dispersal events, migrants observed away from key migratory stopover habitats, and winter observations. An SO is a polygon depicting what is known about a species occupancy from direct observation with a defined level of locational uncertainty and any inference that can be made about adjacent habitat use from the latest peer-reviewed science. If an observation can be associated with a map feature that can be tracked (e.g., a wetland boundary for a wetland associated plant) then this polygon feature is used to represent the SO. Areas that can be inferred as probable occupied habitat based on direct observation of a species location and what is known about the foraging area or home range size of the species may be incorporated into the SO. Species Occurrences generally belong to one of the following categories:

Plant Species Occurrences

A documented location of a specimen collection or observed plant population. In some instances, adjacent, spatially separated clusters are considered subpopulations and are grouped as one occurrence (e.g., the subpopulations occur in ecologically similar habitats, and their spatial proximity likely allows them to interbreed). Tabular information for multiple observations at the same SO location is generally linked to a single polygon. Plant SO's are only created for Species of Concern and Potential Species of Concern.

Animal Species Occurrences

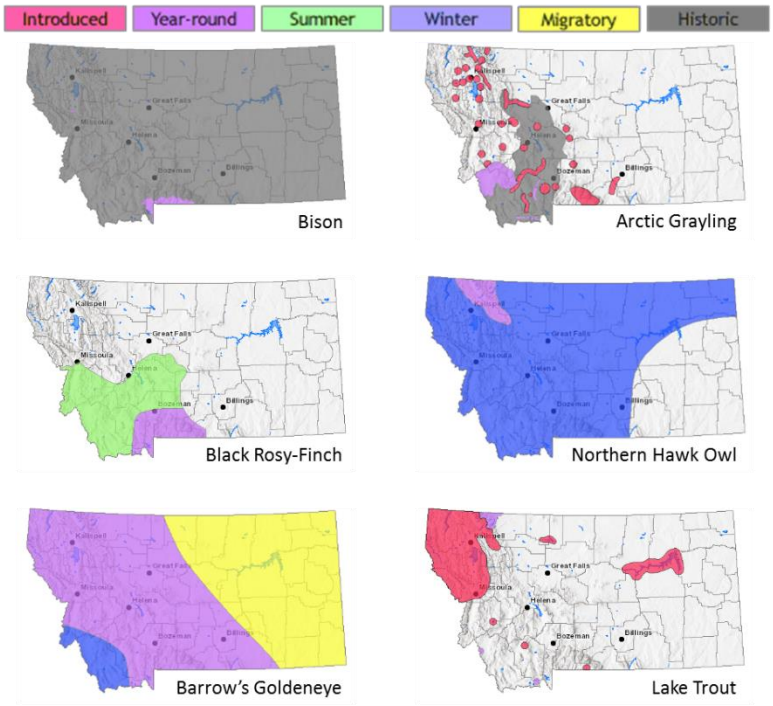
The location of a verified observation or specimen record typically known or assumed to represent a breeding population or a portion of a breeding population. Animal SO's are generally: (1) buffers of terrestrial point observations based on documented species' home range sizes; (2) buffers of stream segments to encompass occupied streams and immediate adjacent riparian habitats; (3) polygonal features encompassing known or likely breeding populations (e.g., a wetland for some amphibians or a forested portion of a mountain range for some wide ranging carnivores); or (4) combinations of the above. Tabular information for multiple observations at the same SO location is generally linked to a single polygon. Species Occurrence polygons may encompass some unsuitable habitat in some instances in order to avoid heavy data processing associated with clipping out habitats that are readily assessed as unsuitable by the data user (e.g., a point buffer of a terrestrial species may overlap into a portion of a lake that is obviously inappropriate habitat for the species). Animal SO's are only created for Species of Concern and Special Status Species (e.g., Bald Eagle).

Other Occurrence Polygons

These include significant biological features not included in the above categories, such as Important Animal Habitats like bird rookeries and bat roosts, and peatlands or other wetland and riparian communities that support diverse plant and animal communities.

Geographic Range Polygons

Geographic range polygons have not yet been defined for most plant species. Native year-round, summer, winter, migratory and historic geographic range polygons as well as polygons for introduced populations have been defined for most animal species for which there are enough observations, surveys, and knowledge of appropriate seasonal habitat use to define them (see examples to left). These native or introduced range polygons bound the extent of known or likely occupied habitats for non-migratory and relative sedentary species and the regular extent of known or likely occupied habitats for migratory and long-distance dispersing species; polygons may include unsuitable intervening habitats. For most species, a single polygon can represent the year-round or seasonal range, but breeding ranges of some colonial nesting water birds and some introduced species are represented more patchily when supported by data. Some ranges are mapped more broadly than actual distributions in order to be visible on statewide maps (e.g., fish).



Predicted Suitable Habitat Models

Recent predicted suitable habitat suitability models have not yet been created for most plant species. For animal species for which models have been completed, the environmental summary report includes simple, rule-based, associations with streams for fish and other aquatic species and mathematically complex Maximum Entropy models (Phillips et al. 2006, Ecological Modeling 190:231-259) constructed from a variety of statewide biotic and abiotic layers and presence only data for individual species contributed to Montana Natural Heritage Program databases for most terrestrial species. For the Maximum Entropy models, we reclassified 90 x 90-meter continuous model output into suitability classes (unsuitable, low, moderate, and optimal) then aggregated that into the one square mile hexagons used in the environmental summary report; this is the finest spatial scale we suggest using this information in management decisions and survey planning. Full model write ups for individual species that discuss model goals, inputs, outputs, and evaluation in much greater detail are posted on the MTNHP's Predicted Suitable Habitat Models page. Evaluations of predictive accuracy and specific limitations are included with the metadata for models of individual species. **Model outputs should not be used in place of on-the-ground surveys for species. Instead model outputs should be used in conjunction with habitat evaluations to determine the need for on-the-ground surveys for species.** We suggest that the percentage of predicted optimal and moderate suitable habitat within the report area be used in conjunction with geographic range polygons and the percentage of commonly associated habitats to generate lists of potential species that may occupy broader landscapes for the purposes of landscape-level planning.

Associated Habitats

Within the boundary of the intersected hexagons, we provide the approximate percentage of commonly or occasionally associated habitat for vertebrate animal species that regularly breed, overwinter, or migrate through the state; a detailed list of commonly and occasionally associated habitats is provided in individual species accounts in the Montana Field Guide. We assigned common or occasional use of each of the 82 ecological systems mapped in Montana by: (1) using personal knowledge and reviewing literature that

summarizes the breeding, overwintering, or migratory habitat requirements of each species; (2) evaluating structural characteristics and distribution of each ecological system relative to the species' range and habitat requirements; (3) examining the observation records for each species in the state-wide point observation database associated with each ecological system; and (4) calculating the percentage of observations associated with each ecological system relative to the percent of Montana covered by each ecological system to get a measure of numbers of observations versus availability of habitat. Species that breed in Montana were only evaluated for breeding habitat use, species that only overwinter in Montana were only evaluated for overwintering habitat use, and species that only migrate through Montana were only evaluated for migratory habitat use. In general, species were listed as associated with an ecological system if structural characteristics of used habitat documented in the literature were present in the ecological system or large numbers of point observations were associated with the ecological system. However, species were not listed as associated with an ecological system if there was no support in the literature for use of structural characteristics in an ecological system, even if point observations were associated with that system. Common versus occasional association with an ecological system was assigned based on the degree to which the structural characteristics of an ecological system matched the preferred structural habitat characteristics for each species as represented in the scientific literature. The percentage of observations associated with each ecological system relative to the percent of Montana covered by each ecological system was also used to guide assignment of common versus occasional association.

We suggest that the percentage of commonly associated habitat within the report area be used in conjunction with geographic range polygons and the percentage of predicted optimal and moderate suitable habitat from predictive models to generate lists of potential species that may occupy broader landscapes for the purposes of landscape-level planning. Users of this information should be aware that land cover mapping accuracy is particularly problematic when the systems occur as small patches or where the land cover types have been altered over the past decade. Thus, particular caution should be used when using the associations in assessments of smaller areas (e.g., evaluations of public land survey sections).

Introduction to Land Cover

Land Use/Land Cover is one of 15 Montana Spatial Data Infrastructure framework layers considered vital for making statewide maps of Montana and understanding its geography. The layer records all Montana natural vegetation, land cover and land use, classified from satellite and aerial imagery, mapped at a scale of 1:100000, and interpreted with supporting ground-level data. The baseline map is adapted from the Northwest ReGAP (NWGAP) project land cover classification, which used 30m resolution multi-spectral Landsat imagery acquired between 1999 and 2001. Vegetation classes were drawn from the Ecological System Classification developed by NatureServe (Comer et al. 2003). The land cover classes were developed by Anderson et al. (1976). The NWGAP effort encompasses 12 map zones. Montana overlaps seven of these zones. The two NWGAP teams responsible for the initial land cover mapping effort in Montana were Sanborn and NWGAP at the University of Idaho. Both Sanborn and NWGAP employed a similar modeling approach in which Classification and Regression Tree (CART) models were applied to Landsat ETM+ scenes. The Spatial Analysis Lab within the Montana Natural Heritage Program was responsible for developing a seamless Montana land cover map with a consistent statewide legend from these two separate products. Additionally, the Montana land cover layer incorporates several other land cover and land use products (e.g., MSDI Structures and Transportation themes and the Montana Department of Revenue Final Land Unit classification) and reclassifications based on plot-level data and the latest NAIP imagery to improve accuracy and enhance the usability of the theme. Updates are done as partner support and funding allow, or when other MSDI datasets can be incorporated. Recent updates include fire perimeters and agricultural land use (annually), energy developments such as wind, oil and gas installations (2014), roads, structures and other impervious surfaces (various years): and local updates/improvements to specific ecological systems (e.g., central Montana grassland and sagebrush ecosystems). Current and previous versions of the Land Use/Land Cover layer with full metadata are available for download at the Montana State Library's Geographic Information Clearinghouse.

Within the report area you have requested, land cover is summarized by acres of Level 1, Level 2, and Level 3 Ecological Systems.

Literature Cited

Anderson, J.R. E.E. Hardy, J.T. Roach, and R.E. Witmer. 1976. A land use and land cover classification system for use with remote sensor data. U.S. Geological Survey Professional Paper 964.

Comer, P., D. Faber-Langendoen, R. Evans, S. Gawler, C. Josse, G. Kittel, S. Menard, M. Pyne, M. Reid, K. Schulz, K. Snow, and J. Teague. 2003. Ecological systems of the United States: A working classification of U.S. terrestrial systems. NatureServe, Arlington, VA.

Introduction to Wetland and Riparian

Within the report area you have requested, wetland and riparian mapping is summarized by acres of each classification present. Summaries are only provided for modern MTNHP wetland and riparian mapping and not for outdated (NWI Legacy) or incomplete (NWI Scalable) mapping efforts; described here. MTNHP has made all three of these datasets and associated metadata available for separate download on the Montana Wetland and Riparian Framework MSDI download page.

Wetland and Riparian mapping is one of 15 Montana Spatial Data Infrastructure framework layers considered vital for making statewide maps of Montana and understanding its geography. The wetland and riparian framework layer consists of spatial data representing the extent, type, and approximate location of wetlands, riparian areas, and deepwater habitats in Montana.

Wetland and riparian mapping is completed through photointerpretation of 1-m resolution color infrared aerial imagery acquired from 2005 or later. A coding convention using letters and numbers is assigned to each mapped wetland. These letters and numbers describe the broad landscape context of the wetland, its vegetation type, its water regime, and the kind of alterations that may have occurred. Ancillary data layers such as topographic maps, digital elevation models, soils data, and other aerial imagery sources are also used to improve mapping accuracy. Wetland mapping follows the federal Wetland Mapping Standard and classifies wetlands according to the Cowardin classification system of the National Wetlands Inventory (NWI) (Cowardin et al. 1979, FGDC Wetlands Subcommittee 2013). Federal, State, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands differently than the NWI. Similar coding, based on U.S. Fish and Wildlife Service conventions, is applied to riparian areas (U.S. Fish and Wildlife Service 2009). These are mapped areas where vegetation composition and growth is influenced by nearby water bodies, but where soils, plant communities, and hydrology do not display true wetland characteristics. **These data are intended for use in publications at a scale of 1:12,000 or smaller. Mapped wetland and riparian areas do not represent precise boundaries and digital wetland data cannot substitute for an on-site determination of jurisdictional wetlands.**

A detailed overview, with examples, of both wetland and riparian classification systems and associated codes can be found at: http://mtnhp.org/help/MapViewer/WetRip_Classification.asp

Literature Cited

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Fish and Wildlife Service, FWS/OBS-79/31. Washington, D.C. 103pp.

Federal Geographic Data Committee. 2013. Classification of wetlands and deepwater habitats of the United States. FGDC-STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington, D.C.

U.S. Fish and Wildlife Services. 2009. A system for mapping riparian areas in the western United States. Division of Habitat and Resource Conservation, Branch of Resource and Mapping Support, Arlington, Virginia.

Introduction to Land Management

Within the report area you have requested, land management information is summarized by acres of federal, state, and local government lands, tribal reservation boundaries, private conservation lands, and federal, state, local, and private conservation easements. Acreage for "Owned", "Tribal", or "Easement" categories represents non-overlapping areas that may be totaled. However, "Other Boundaries" represents managed areas such as National Forest boundaries containing private inholdings and other mixed ownership which may cause boundaries to overlap (e.g. a wilderness area within a forest). Therefore, acreages may not total in a straight-forward manner.

Because information on land stewardship is critical to effective land management, the Montana Natural Heritage Program (MTNHP) began compiling ownership and management data in 1997. The goal of the Montana Land Management Database is to manage a single, statewide digital data set that incorporates information from both public and private entities. The database assembles information on public lands, private conservation lands, and conservation easements held by state and federal agencies and land trusts and is updated on a regular basis. Since 2011, the Information Management group in the Montana State Library's Digital Library Division has taken an increasingly active role in managing layers of the Montana Land Management Database in partnership with the MTNHP.

Public and private conservation land polygons are attributed with the name of the entity that owns it. The data are derived from the statewide Montana Cadastral Parcel layer. Conservation easement data shows land parcels on which a public agency or qualified land trust has placed a conservation easement in cooperation with the land owner. The dataset contains no information about ownership or status of the mineral estate. For questions about the dataset or to report errors, please contact the Montana Natural Heritage Program at (406) 444-5363 or mtnhp@mt.gov. You can download various components of the Land Management Database and view associated metadata at the Montana State Library's GIS Data List at the following links:

Public Lands
Conservation Easements
Private Conservation Lands
Managed Areas

Map features in the Montana Land Management Database or summaries provided in this report are not intended as a legal depiction of public or private surface land ownership boundaries and should not be used in place of a survey conducted by a licensed land surveyor. Similarly, map features do not imply public access to any lands. The Montana Natural Heritage Program makes no representations or warranties whatsoever with respect to the accuracy or completeness of this data and assumes no responsibility for the suitability of the data for a particular purpose. The Montana Natural Heritage Program will not be liable for any damages incurred as a result of errors displayed here. Consumers of this information should review or consult the primary data and information sources to ascertain the viability of the information for their purposes.

Introduction to Invasive and Pest Species

Within the report area you have requested, separate summaries are provided for: Aquatic Invasive Species, Noxious Weeds, Agricultural Pests, and Forest Pests that have been documented or potentially occur there based on their known distribution in the state. Definitions for each of these invasive and pest species categories can be found on our Species Status Codes page.

Each of these summaries provides the following information when present for a species: (1) the number of observations of each species; (2) the geographic range polygons for each species, if developed, that the report area overlaps; (3) predicted relative habitat suitability classes that are present if a predicted suitable habitat model has been created; (4) the percent of the report area that is mapped as commonly associated or occasionally associated habitat as listed for each species in the Montana Field Guide; and (5) and links to species accounts in the Montana Field Guide. Details on each of these information categories are included under relevant section headers under the Introduction to Native Species above or are defined on our Species Status Codes page. In presenting this information, the Montana Natural Heritage Program (MTNHP) is working towards assisting the user with rapidly determining what invasive and pest species have been documented and what species are potentially present in the report area. We remind users that this information is likely incomplete as surveys to document introduced species are lacking in many areas of the state, information on introduced species has only been tracked relatively recently, the MTNHP's staff and resources are restricted by declining budgets, and information is constantly being added and updated in our databases. **Thus, field verification by professional biologists of the absence or presence of species will always be an important obligation of users of our data.**

If you are aware of observation or survey datasets for invasive or pest species that the MTNHP is missing, please report them to the Program Coordinator bmaxell@mt.gov Program Botanist apipp@mt.gov or Senior Zoologist dbachen@mt.gov. If you have observations that you would like to contribute, you can submit animal observations using our online data entry system at http://mtnhp.org/AddObs/, plant and animal observations via Excel spreadsheets posted at http://mtnhp.org/observations.asp , or to the Program Botanist or Senior Zoologist.

Additional Information Resources

Home Page for Montana Natural Heritage Program (MTNHP)

MTNHP Staff Contact Information

Montana Field Guide

MTNHP Species of Concern Report - Animals and Plants

MTNHP Species Status Codes - Explanation

MTNHP Predicted Suitable Habitat Models (for select Animals and Plants)

MTNHP Request Information page

Montana Cadastral

Montana Code Annotated

Montana Department of Environmental Quality

Montana Fisheries Information System

Montana Fish, Wildlife, and Parks Subdivision Recommendations

Montana GIS Data Layers

Montana GIS Data Bundler

Montana Greater Sage-Grouse Project Submittal Site

Montana Ground Water Information Center

Montana Legislative Environmental Policy Office Publications
(Including Index of Environmental Permits required in Montana and Guide to the Montana Environmental Policy Act)

Montana Environmental Policy Act (MEPA)

MEPA Analysis Resource List

Laws, Treaties, Regulations, and Permits on Animals and Plants

Montana Spatial Data Infrastructure Layers

Montana State Historic Preservation Office Review and Compliance

Montana Water Information System

Montana Web Map Services

National Environmental Policy Act

Penalties for Misuse of Fish and Wildlife Location Data (MCA 87-6-222)

U.S. Fish and Wildlife Service Information for Planning and Conservation (Section 7 Consultation)

Web Soil Survey Tool

Appendix 4:

Montana SHPO File Search Results

SILOS
Recreation Area
Master Plan

From: Murdo, Damon
To: Dan Norderud
Subject: RE: Silos Recreation Area Master Plan - CRIS/CRABS File Search Request
Date: Monday, March 16, 2020 3:18:47 PM
Attachments: Reports.pdf
Sites.pdf
2020031602.pdf

Big Sky. Big Land. Big History.
Montana
Historical Society

March 16, 2020

Daniel Norderud
RP&A
3147 Saddle Drive
Helena MT 59601

RE: SILOS RECREATION AREA MASTER PLAN SHPO Project #:2020031602

Dear Mr. Norderud:

I have conducted a cultural resource file search for the above-cited project located in Section 26, 35, T8N R1E. According to our records there have been a few previously recorded sites within the designated search locale. In addition to the sites there have been a few previously conducted cultural resource inventories done in the area. 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 prior to any disturbance taking place.

If this project involves a federal agency, it may constitute a federal undertaking subject to compliance with Section 106 of the National Historic Preservation Act. As such it will be important for you to coordinate efforts in the further consideration of impacts to cultural resources through the federal agency for consultation with our office.

If you have any further questions or comments, you may contact me at (406) 444-7767 or by e-mail at 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

STATE HISTORIC PRESERVATION OFFICE
Cultural Resource Information Systems

CRIS Township, Range, Section Report

Report Date:3/16/2020

Site #	Twp	Rng	Sec	Qs	Site Type 1	Site Type 2	Time Period	Owner	NR Status
24BW0040	8N	1E	35	NE	Lithic Material Concentration		No Indication of Time	No Data	Undetermined*
24BW0044	8N	1E	26	SE	Lithic Material Concentration		No Indication of Time	No Data	Undetermined*
24BW0045	8N	1E	26	NW	Lithic Material Concentration		No Indication of Time	No Data	Undetermined*
24BW0046	8N	1E	35	SW	Lithic Material Concentration		No Indication of Time	No Data	Undetermined*
24BW0047	8N	1E	26	NW	Tipi Ring		No Indication of Time	No Data	Unresolved
24BW0952	8N	1E	26	Comb	Historic Political/Government		1950-1959	BOR	Undetermined*
24BW0965	8N	1E	35		Historic Homestead/Farmstead	Historic Building Foundation	Historic More Than One Decade	BOR	Ineligible
24BW1163	8N	1E	26	NW	Rock Cairn(s)			BOR	Undetermined*
24BW1164	8N	1E	35	NW	Historic Political/Government		Historic More Than One Decade	BOR	Undetermined*

STATE HISTORIC PRESERVATION OFFICE
Montana Cultural Resource Database
CRABS Township,Range,Section Results
Report Date:3/16/2020

Township:8 N Range:1 E Section: 26

GREISER SALLY T., ET AL.

3/1/1983 CLASS III CULTURAL AND PALEONTOLOGICAL RESOURCE INVENTORY AT CANYON FERRY RESERVOIR, NEAR HELENA, MONTANA (INCOMPLETE)

CRABS Document Number: BW 6 1467 Agency Document Number:

Township:8 N Range:1 E Section: 35

GREISER SALLY T., ET AL.

3/1/1983 CLASS III CULTURAL AND PALEONTOLOGICAL RESOURCE INVENTORY AT CANYON FERRY RESERVOIR, NEAR HELENA, MONTANA (INCOMPLETE)

CRABS Document Number: BW 6 1467 Agency Document Number:

Township:8 N Range:1 E Section: 26

MALOUF CARLING I.

1/1/1950 THE ARCHAEOLOGY OF THE CANYON FERRY REGION, MONTANA

CRABS Document Number: BW 6 13739 Agency Document Number: ANTH AND SOC PAPERS #11

Township:8 N Range:1 E Section: 35

MALOUF CARLING I.

1/1/1950 THE ARCHAEOLOGY OF THE CANYON FERRY REGION, MONTANA

CRABS Document Number: BW 6 13739 Agency Document Number: ANTH AND SOC PAPERS #11

Township:8 N Range:1 E Section: 35

VINCENT WILLIAM B.

5/24/2002 NOTIFICATION OF UNDERTAKING- PROPOSED SPECIAL USE PERMIT FOR ERNIE NUNN FOR A COOK SHACK ON THE ICE NEAR THE SILOS CAMPGROUND, CANYON FERRY RESERVOIR, BROADWATER COUNTY, MONTANA

CRABS Document Number: BW 6 24819 Agency Document Number: MTAO CF-02-123

Township:8 N Range:1 E Section: 35

VINCENT WILLIAM B.

5/29/2002 CULTURAL RESOURCES OVERVIEW FOR THE PROPOSED ROAD WORK AT SILOS CAMPGROUND, CANYON FERRY RESERVOIR, BROADWATER COUNTY, MONTANA

CRABS Document Number: BW 6 24826 Agency Document Number: MTAO CF-02-126

Township:8 N Range:1 E Section: 35

VINCENT WILLIAM B.

7/2/2002 PROPOSED SPECIAL USE PERMIT FOR SK CONSTRUCTION COMPANY ACCESS TO CANYON FERRY RESERVOIR AT SILOS CAMPGROUND NEAR HELENA MONTANA

CRABS Document Number: LC 6 25063 Agency Document Number: MTAO CF-02-135

Township:8 N Range:1 E Section: 26

NICKELS ADAM M

5/23/2003 CLASS III CULTURAL RESOURCE INVENTORY OF SILOS AIRPORT, BROADWATER COUNTY, MONTANA

CRABS Document Number: BW 6 26040 Agency Document Number: MTAO CF-03-007

Township:8 N Range:1 E Section: 26

VINCENT WILLIAM B.

1/11/2006 CLASS III CULTURAL RESOURCE INVENTORY OF THE SILOS CAMPGROUND AND RECREATION SITE IN BROADWATER COUNTY, MONTANA

CRABS Document Number: BW 6 28234 Agency Document Number: MTAO#CF-05-014

Township:8 N Range:1 E Section: 35

VINCENT WILLIAM B.

1/11/2006 CLASS III CULTURAL RESOURCE INVENTORY OF THE SILOS CAMPGROUND AND RECREATION SITE IN BROADWATER COUNTY, MONTANA

CRABS Document Number: BW 6 28234 Agency Document Number: MTAO#CF-05-014