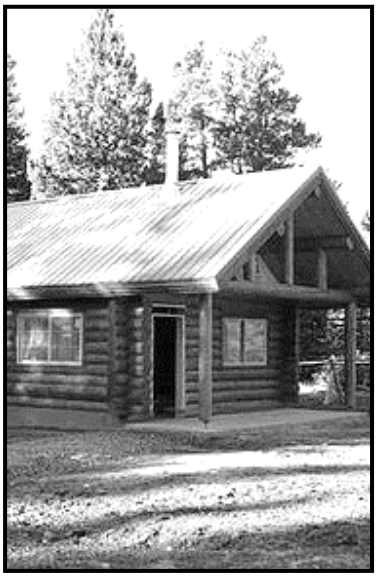
Appendix E:

Environmental Scan



ENVIRONMENTAL SCAN

Shields River Road Planning Project, MT Park 34(1)
IDIQ Contract No. DTFH7015D00007
Task Order No. 69056719F000031

U.S. Department of Transportation
Federal Highway Administration

Prepared for:
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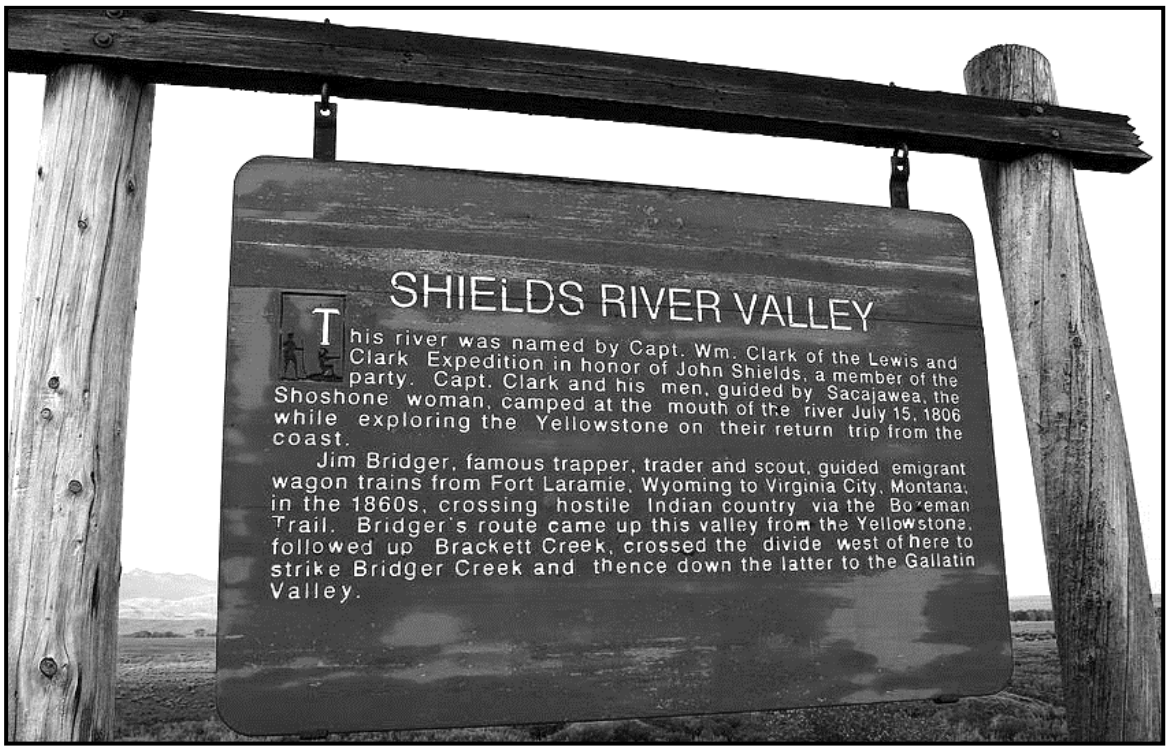

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ABBREVIATIONS/ACRONYMS

ACS	American Community Survey
BCC	Birds of Conservation Concern
BGEPA	Bald and Golden Eagle Protection Act
CWA	Clean Water Act
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FHWA	Federal Highway Administration
FPPA	Farmland Protection Policy Act
FWP	Fish, Wildlife and Parks
GWIC	Groundwater Information Center
LWCF	Land and Water Conservation Fund Act
MAAQS	Montana Ambient Air Quality Standards
MBTA	Migratory Bird Treaty Act
MDEQ	Montana Department of Environmental Quality
MP	Mile Post
MPDES	Montana Pollutant Discharge Elimination System
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHP	National Heritage Program
NRCS	National Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
PCB	Polychlorinated Biphenyls
SOC	Species of Concern
TMDL	Total Maximum Daily Load
US 89	US Highway 89
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WRP	Watershed Restoration Plan

ENVIRONMENTAL SCAN

1.0 INTRODUCTION

The Federal Highway Administration (FHWA), in partnership with Park County and the United States Forest Service (USFS), is completing a planning study for potential corridor improvements to Shields River Road that accesses the Custer-Gallatin National Forest. The study, referred to as the *Shields River Road Planning Project*, will identify feasible improvement options to improve recreational access, operations, and safety in the study corridor as well as reduce maintenance concerns based on identified needs.

Shields River Road begins at the intersection of US Highway 89 (US 89) North, approximately one-quarter mile north of Wilsall, Montana in Park County. The roadway provides access to the Custer-Gallatin National Forest and also offers access to private ranches, homes and cabins; trailheads; designated and undesignated dispersed campgrounds; mountain lakes; and access to many creeks and drainages popular for fishing and hunting activities.

This *Environmental Scan* provides a planning-level overview of resources and identifies potential constraints and opportunities for the *Shields River Road Planning Project*. The scan is not a detailed environmental investigation but is based on readily available environmental information for the study area. If improvement options are forwarded from the feasibility study 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 may be forwarded into the NEPA process at that time.

1.1 BACKGROUND

Shields River Road provides access to over 113,000 acres of the Custer-Gallatin National Forest, also known as the Crazy Mountains. Over the years, several other access points to the national forest have been closed because of landowner disputes. This has made the Shields River Road corridor the most heavily utilized road by recreationists on the west side of the Crazy Mountains.

Shields River Road offers scenic views of mountain peaks, rivers, and streams. The roadway parallels the Shields River which begins in the Crazy Mountains and flows 62 miles to the confluence of the Yellowstone River east of Livingston.

In addition to providing access to public lands for many recreational visitors, the corridor serves as a minor collector road for nearly 500 private residences and three local businesses. Additionally, the area serves multiple fishing and hunting guides and outfitters and is highly used by permitted commercial firewood and morel mushroom collectors. Residential traffic uses the road year-round and several agricultural production entities use the road for personal, commodity, and/or supply transport. Travel restrictions exist on the portion of road maintained by the USFS as documented in the *Motor Vehicle Use Map Custer Gallatin National Forest*[1]. From approximate mile post (MP) 0 to MP 19.8 the road is open to highway legal vehicles year-round; from approximate MP 19.8 to MP 26.9 the roadway is open to highway legal vehicles between June 16th and December 1st; and beyond MP 26.9 the roadway is open to all wheeled, non-tracked vehicles during the same dates.

Park County is responsible for maintenance on the first 19.5 miles of Shields River Road. The USFS is responsible for the next three miles including an additional popular loop (approximately nine miles) that provides users with close access to the headwaters of the Shields River. The first 15.8 miles of Shields River Road is paved while the remainder of the roadway is gravel surfaced. The roadway consists of two travel lanes for the entire length.

At Wilsall, Shields River Road extends north and east from US 89. The highway is one of the major north/south routes between Yellowstone National Park to Glacier National Park. The area attracts a wide demographic of users from young to old, hunters to bicyclists, and leisure weekend drivers venturing over the Brackett Creek Road and/or Bridger Canyon Road from the Bozeman area for hiking and fishing. Within the last 20 years, over 50 new homes and cabins have been built in the Shields River Road area.

1.2 Past and Ongoing Planning

The *Gallatin National Forest Land and Resource Management Plan*[2] (Forest Plan) and the accompanying *Final Environmental Impact Statement*[3] guide all natural resource management activities and establish management standards for the Gallatin National Forest. They describe resource management practices, levels of resource production and management, and the availability and suitability of lands for resource management within the forest, including the Shields River area. An outcome of these planning efforts resulted in significant watershed restoration efforts in the Shields area in the mid-1990s in which the Forest Service spent over $100,000 obliterating and restoring old logging roads to improve water quality.

The *Gallatin National Forest Travel Management Plan Record of Decision*[4] developed and analyzed several alternatives for managing public access and travel within the Gallatin National Forest. The report identified a preferred alternative and detailed the anticipated changes to public road access and modifications to the roads, trails, and open space accessible to cars, ATVs, motorcycles, and snowmobiles.

The *Shields River Road Improvement Decision Notice and Environmental Assessment*[5] called for improving Shields River Road including widening the road to between 24 and 26 feet (two traffic lanes) and laying a gravel surface on the Forest Service section; replacing the Deep Creek bridge; constructing a parking area with an accessible toilet at the junction of Shields River Road and Sunlight Road; and relocating gates closer to the parking area at Sunlight Road. Environmental consequences were considered and the decision was made to proceed with improvements based on a Finding of No Significant Impact by the USFS. Major roadwork on a 5.6-mile section of Shields River Road was performed following the release of the Decision Notice.

Land use policy and development regulation in the study area is governed principally by Park County. Within the National Forest boundary, land use policy and regulations are dictated by the 1987 Forest Plan, as amended. Since the entire study area falls within County jurisdiction, it is anticipated that projects brought forward in this planning study would be subject to County regulations. However, coordination among federal, state, and local agencies would be an essential component of any projects that may arise.

1.3 Study Area

The study area is located in Park County, Montana, north and east of Wilsall. The planning study area encompasses an 19.5-mile section of Shields River Road, starting at MP 0.0 approximately one-quarter mile north of the Town of Wilsall and ending at MP 19.5 near the National Forest Boundary. The study area for this *Environmental Scan* is 0.5-miles wide, encompassing a 0.25-mile buffer from the centerline of the roadway along the 19.5-mile study section.

The study area is shown in **Figure A.1**. The study area encompasses all or part of the following legally described areas in Park County:

- Township 3 North, Range 9 East, Sections 5, 6, 7, 18, 19
- Township 4 North, Range 9 East, Sections 3, 4, 9, 10, 16, 21, 28, 29, 32
- Township 5 North, Range 9 East, Sections 24, 25, 26, 33, 34, 35
- Township 5 North, Range 10 East, Sections 19, 20, 26, 27, 28, 29, 30

1.4 Information Sources

Multiple environmental studies have been conducted in the study area over the course of several decades. Some of these have addressed proposed improvements to Shields River Road, while others have been concerned with larger-scale issues of land and resource management. The preparers of this document reviewed pertinent information from these studies and supplemented it with publicly available data from federal, state, and local agencies.

2.0 PHYSICAL ENVIRONMENT

2.1 Land Ownership and Land Use

Almost all the land in the study area is privately held. These parcels are not currently zoned by Park County, however, the *Park County Growth Policy Update*[6] classifies these parcels as agricultural/farmstead land use. The parcels are primarily used for agriculture (grazing and crop production) and forestry, although there are also several residences accessed by Shields River Road. There are two state owned tracts within close proximity of the study area which are designated as State Trust Lands for agriculture and grazing. These lands are managed by the Montana Department of Natural Resources and Conservation. There are also conservation easements owned by Montana Land Reliance, Montana Department of Transportation, and Gallatin Valley Land Trust in the study area (**Figure A.1**). If any improvement options are forwarded from the planning study, additional research and coordination would be needed to ascertain the specific encumbrances that may be attached to each parcel of land.

2.2 Soil Resources and Prime Farmland

The *Farmland Policy Protection Act* (FPPA) (7 U.S.C. 4201 et. seq.) requires special consideration be given to soils considered as prime farmland, unique farmland, or farmland of statewide or local importance by the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). The FPPA is intended to minimize the impact Federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. 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.

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 study area is included in the Park County soil survey area mapped by the NRCS. **Figure A.2** shows the farmland classification for Park County. As shown in the figure, there are no soils classified as prime farmland, unique farmland, or farmland of local importance in the study area. Some mapped soils on the eastern side of the roadway between Pinkerton Road and Porcupine Road are classified as farmland of statewide importance.

Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use. If any improvement options are forwarded from the planning study, coordination with the NRCS will be required to determine if the FPPA applies and necessary NRCS processing requirements. Projects planned and completed without the assistance of a Federal agency are not subject to the FPPA.

2.3 Geologic Hazards

The study area within the Shields River drainage basin which lies within the western part of the Crazy Mountains structural basin. The Crazy Mountain Basin is a northwest-trending structural and sedimentary basin of about 7,800 square miles. The Crazy Mountains structural basin and Shields River drainage basin share a western boundary with the Bridger Range; however, the Crazy Mountains structural basin extends south and eastward well beyond the Shields River drainage basin boundaries[7].

The Crazy Mountains were formed by a massive domal uplift resulting in varied and complex bedrock outcrops. Bedrock ranges from Precambrian gneiss to the much younger Tertiary volcanic rock. The Shields River Basin exposed bedrock consists of Mississippian through Tertiary age sedimentary rocks. Younger Quaternary age unconsolidated alluvium occurs in the drainage bottoms, and terrace gravels are present at levels above the stream bottoms. Quaternary terrace gravels are most notable between the Shields River and the Crazy Mountains. In some locations along the Shields River, bedrock outcrops form the river bank, and at others alluvium has been removed by erosion and the riverbed is composed of scoured bedrock.[8]

Figure A.3 presents a geologic map of the study area as depicted on the *Geologic Map of the Ringling 30'x60' Quadrangle* produced by the Montana Bureau of Mines and Geology in 2005. The study area lies within several geological map units including alluvium of modern channels and flood plains (Qal), alluvium of alluvial terrace (Qat), alluvium of braid plains (QTab), glacial deposits (Qg), alkalic intrusive (Tai); Hoppers Formation (Kho), Billman Creek Formation (Kbc), and the Fort Union Formation (TKfu).

Montana is considered to be seismically-active; however, most seismic activity occurs in western portions of the state generally west of a Livingston-Great Falls-Cut Bank line. According to the *Seismic-Hazard Map for the State of Montana*[9], the Wilsall/Crazy Mountain area is in a moderate seismic risk zone. Earthquakes are not uncommon in the Crazy Mountains and the area has seen several earthquakes ranging from magnitude 1.5 up to 4.0. Geotechnical investigations would be required for reconstruction or significant improvements to Shields River Road to determine potential stability, erosion, and settlement concerns posed by surface geology and soil conditions.

2.4 Surface Waters

The study area lies entirely within the Shields River Watershed (Hydrologic Unit Code 10070003) as delineated by the United States Geological Survey (USGS). The roadway also lies partially within the Lower Flathead Creek, Cottonwood Creek, Shields River-Antelope Creek, Shields River- Kavanaugh Creek, Porcupine Creek, Meadow Creek, and Shields River-Bennett Creek sub watersheds.

Shields River Road generally parallels the Shields River throughout the entire study area. For approximately one mile, the roadway also parallels Flathead Creek. For an approximately 2.5-mile segment between Elk Creek W Road and Coal Camp Road, Shields River Road also parallels Porcupine Creek and one of its unnamed tributaries.

Throughout the study area, Shields River Road crosses several streams that are mapped in the USGS National Hydrography Dataset for Montana (**Figure A.4**). All of the these are named perennial, fish-bearing streams (**Table 2.1**). Additional unnamed streams, wetlands (**Section 2.6**), irrigation canals and ditches (**Section 2.4.3**), and other waterbodies are also present in the study area.

Table 2.1: Stream and River Crossings

Name	Approximate Location (MP)	Crossing Structure
Flathead Creek	0.3	Bridge
Shields River	3.7	Bridge
Porcupine Creek	7.6	Culvert
Shields River	14.7	Bridge
Shields River	16.8	Bridge
South Fork Shields River	17.5	Culvert
Mill Creek	18.1	Culvert

Road construction and reconstruction activities such as culvert installation or replacement, placement of fill, or bank stabilization have the potential for impacts to surface waters. Coordination with federal, state, and local agencies would be necessary to determine the appropriate permits based on the improvement options forwarded from this study. Impacts should be avoided and minimized to the maximum extent practicable. Impacts to streams and wetlands may trigger compensatory mitigation requirements.

2.4.1 Water Quality

The *Clean Water Act* (CWA), is the principal federal legislation directed at protecting water quality. The Montana Department of Environmental Quality (MDEQ) is the state agency responsible for implementing components of the CWA. As directed by the Montana Water Quality Act, MDEQ prepares an Integrated Report every two years listing the status of water quality for waterbodies under state jurisdiction.

The biennial Integrated Report includes a list of all surface waters where pollutants have impaired the beneficial uses of water (for drinking, recreation, aquatic habitats, etc.). Types of pollutants include high temperatures, fecal coliform bacteria, excess nutrients, low levels of dissolved oxygen, and toxic substances. The CWA requires the development and implementation of cleanup plans for waterbodies that fail to meet state water quality standards. This typically involves the development of a Total Maximum Daily Load (TMDL) in which MDEQ determines the sources of pollutants and sets the maximum amount of pollutants that each source can discharge to a waterbody.

The MDEQ has identified one water body within the study area that does not meet water quality standards. The Shields River main stem is currently listed as “impaired” by MDEQ due to physical and ecology impacts derived mainly from sediment. The source of impairment is crop production, grazing in riparian zones, silviculture activities, and streambank modifications. The waterbody is classified as Category 4A by MDEQ, meaning all required TMDLs are in place to correct identified impairments or threats. Shields River is also classified by MDEQ as Use Class B-1. The waterbody’s existing and anticipated beneficial use is primarily aquatic life (salmonid). Class B-1 waterbodies may also benefit drinking water, recreation, agriculture, or industry, although these uses have not yet been assessed.

The Park Conservation District sponsors the *Shields River Watershed Restoration Plan*[10] (WRP) which was accepted by the MDEQ in June 2012 as a means of charting a path to improved water quality. The WRP was developed by the Shields Valley Watershed Group which consists of landowners coordinating efforts to maintain productive and sustainable ranching lifestyles. Several restoration projects led by USFS and Montana Fish, Wildlife and Parks (FWP) have also been completed to improve water quality and stream habitats within the Shields River watershed.[11]

In Montana, stormwater management is regulated by MDEQ. A Montana Pollutant Discharge Elimination System (MPDES) general permit is required for stormwater discharges from construction activities that result in the disturbance of equal to or greater than one acre of total land area. The applicability of this MPDES permits for Shields River Road would need to be reviewed for any projects that may be brought forward from the planning study.

2.4.2 Wild and Scenic Rivers

The *Wild and Scenic Rivers Act*, created by Congress in 1968, provided for the protection of certain selected rivers, and their immediate environments, that possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. In 1976, Congress designated portions of two rivers in Montana—the Flathead River and the Missouri River—as wild, scenic, or recreational components of the National Wild and Scenic River System. Neither of these rivers are within the study area therefore there are no wild and scenic rivers that may be affected by potential projects recommended by this planning study.

2.4.3 Irrigation Features

About 5,100 acres of lands surrounding the study area are irrigated with water originating in the upper Shields River basin. An additional 600 acres of land in the Porcupine Creek drainage is irrigated with water diverted from the South Fork of the Shields River.[12] The two general types of irrigation in the Shields River Watershed are flood and sprinkler irrigation. The Big Canal is the largest irrigation canal in the study area at about 12 miles long and supplying about 2,200 acres of irrigated land. The Big Canal feeds several smaller ditches with the largest being the Myer's Ditch. The Big Canal crosses Shields River Road at approximate MP 2.8 and Myer's Ditch crosses at MP 3.2. Another, the Horse Camp Ditch, supplies water to about 760 acres of irrigated lands and crosses Shields River Road at MP 12.0. Several other smaller ditches and canals exist throughout the study area and throughout the Shields River Watershed, as shown in **Figure A.4**. Irrigation facilities that may be affected by improvement options advanced from this planning project should be coordinated with appropriate overseeing authorities and affected landowners to avoid or minimize impacts to agricultural operations and downstream water users.

2.5 Groundwater

Groundwater is the water present beneath Earth's surface in soil pore spaces and in the fractures of rock formations. In Montana, groundwater is the primary source of drinking water for rural domestic water supplies as well as public water systems. Groundwater is also important for irrigation and livestock.

Groundwater resources in northern Park County are under increasing pressure from land use change from irrigated cropland to residential. Much of the new development is dependent on individual household wells for potable water, and on septic systems for wastewater disposal. With increased use, there is a potential for groundwater resources to become overutilized in some locations.

As of March 2019, records maintained by the Groundwater Information Center (GWIC) at the Montana Bureau of Mines and Geology show there are 6,038 wells on record in Park County with about 50 percent of the wells drilled to depths of less than 100 feet. The most common uses for wells in the county are for domestic use, agricultural use (stockwater and irrigation), and for monitoring or testing groundwater.

Based on interactive mapping from the GWIC, approximately 30 wells are located within the study area. Well depths vary by individual location, but the majority of wells drilled in the study area have been drilled to depths of less than 100 feet. Static water levels vary considerably but range from 5 to 30 feet below the ground surface in most locations.

The only public water supply well near the study area is located on the western edge of Wilsall town limits. Public water supply wells have a setback requirement from MDEQ of a 100-foot isolation zone in which no source of pollutant can be located. Public water supply wells can also be deeper and require a higher volume of water to be discharged.

Figure A.4 shows the locations of the public water supply, domestic, agricultural, and monitoring wells in the study area. Impacts to the groundwater supply should be considered in any improvement option that may be brought forward from the planning study.

2.6 Floodplains and Floodways

Floodplains are the flat or nearly flat land adjacent to a stream or river that experiences occasional or periodic flooding. The floodplain includes the "floodway" which consists of the stream channel and adjacent areas that carry flood flows and the "flood fringe" includes the area covered by the flood.

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 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 this directive requires an evaluation of a proposed project and its alternatives 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. The study area floodplains are show in **Figure A.5**.

Several segments of Shields River Road cross or lie within Zone A (100-year floodplain) of the Shields River although the majority of the roadway lies outside the floodplain boundary (Zone X). Numerous major flood events have occurred within the Shields River Watershed in the past. High precipitation events and snowmelt from the Crazy Mountains are primary causes of flooding of the Shields River, however, the most significant flood events have occurred south of the study area.

The *Park County Flood Hazard Management Regulations*[13] regulate development activities in flood hazard areas. If any improvement options advanced from this study cross encroach on a regulated flood hazard area, it will be necessary to coordinate with and obtain a floodplain permit from the county floodplain administrator.

2.7 Wetlands and Waters of the U.S.

Wetlands are lands on which water covers the soil or is present either at or near the surface of the soil or within the root zone, all year or for varying periods of time during the year, including during the growing season. 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 be identified by the existence of plants adapted to life in the soils that form under flooded or saturated conditions characteristic of wetlands. Wetlands include marshes, bogs, the shallow portions and shorelines of lakes, ponds, and reservoirs, and the floodplain and shoreline of streams.

The U.S. 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*[14]. Note that 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 A.6**. The figure shows primarily freshwater emergent wetlands and freshwater forested/shrub wetlands along Shields River and other intermittent rivers, streams, and drainages.

Wetland delineations would be required if improvement options are forwarded from the planning study that could potentially affect wetlands. Future projects in the study area would need to incorporate project design features to avoid and minimize adverse impacts on wetlands to the maximum extent practicable. Unavoidable impacts to wetlands, streams, and irrigation features must be compensated through mitigation in accordance with applicable U.S. Army Corps of Engineers requirements. Various state and federal water quality permits may be required to implement construction projects on the Shields River Road including a Montana Pollutant Discharge Elimination System (MPDES) General Permit for Storm Water Discharges Associated with Construction Activity; a Clean Water Act Section 404 permit and Section 401 Water Quality Certification; and a Stream Protection Act (SPA 124) permit.

2.8 Hazardous Substances

MDEQ works to clean up contaminated properties throughout the state. MDEQ also regulates underground storage tanks on properties owned by private businesses and public entities, ensuring that the tanks are installed, managed, and monitored in a manner that prevents releases into the environment. Information about the existence of hazardous sites in the study area was obtained from the Montana Natural Resource Information System database and from MDEQ's online interactive website and databases. **Figure A.7** depicts sites in the study area identified using MDEQ's online mapping data.

National Priority List (Superfund) Sites: The National Priority List is the list of hazardous waste sites throughout the US and its territories eligible for long-term remedial action financed under the federal Superfund program. A Superfund site is any land that has been contaminated by hazardous waste and identified by the US Environmental Protection Agency (EPA) as a candidate for cleanup because it poses a risk to human health and/or the environment. No Superfund sites exist in or near the study area.

Hazardous Waste Generators: There are no hazardous waste generators in the study area.

Hazardous Waste Release Sites: Wilsall PCB Site, one mile north of Wilsall, is a smaller than one acre area where a former resident dismantled electrical transformers and burned transformer oil, contaminating soils with polychlorinated biphenyls (PCBs), dioxins, and heavy metals. This site was identified as a hazardous waste release site in 1991 and was delisted in 1996 following cleanup activities.

Underground Storage Tanks: There are four active underground storage tanks at the Park Farmers Coop approximately a half mile from Shields River Road. The tanks are located at the intersection of Elliot Street South (US Highway 89) and Shields Street West. All of the tanks are actively in use.

Remediation Response Sites. No remediation response sites were identified within the study area.

Petroleum Tank Releases: Mantz Texaco (Site 3403476) was identified as the site of a petroleum release in Wilsall, the incident was resolved in 2007. A second site, Park Farmers Coop (Site 3406686), also located in Wilsall was identified as the site of a petroleum release in August 1993 but it has not yet been resolved. A third site, Wilsall Consolidated School (Site 3405391), was resolved in 2000. Spear Lazy U Ranch L P (Site 3401300), is the fourth petroleum release site in the study area. It is located on Hill Road just north of Shields River Road and a release was identified in 2000 and resolved in 2003.

Abandoned and Inactive Mine Sites: There are no abandoned or inactive mine sites in the study area.

Open Cut Permits: Open cut permits are permits required for the mining and processing of materials specified in the Opencut Mining Act (i.e. sand, gravel, soil, bentonite, clay, scoria, and peat). No open cut permits were identified within the study area.

Landfills: There are no active landfills in the study area.

2.9 Air Quality

The *Clean Air Act* of 1970, as amended, is the basis for air pollution control programs. In accordance with the Act, the EPA established National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: ozone, carbon monoxide, particulate matter, 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 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. An area that has been designated as non-attainment in the past, but that now complies with the NAAQS, is classified as a “maintenance” area. Park County is considered an attainment area for all pollutants. There are no nearby nonattainment areas.

Since Park County is considered in attainment, for all pollutants, federally-funded transportation projects on Shields River Road by the FHWA would not be subject to conformity requirements.

2.10 Noise

Roadway projects can cause noise levels to increase for affected receivers, during project construction and/or from operation of the traffic facility. Noise impacts can potentially occur due to construction of a roadway on new location or the physical alteration of an existing roadway which significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes.

Residences in the study area comprise the only sensitive noise receptors that could be affected by roadway improvements on Shields River Road. Detailed noise analyses are often conducted when the potential for noise impacts exists due to substantial changes in roadway design or configuration. However, given the rural environment, low volumes of traffic, and dispersed nature of residences in the study area, noise impacts resulting from potential roadway improvements are unlikely.

Construction activities associated with improvements to Shields River Road may result in localized and temporary noise impacts in the vicinity of residences. These impacts can be minimized by incorporating measures to control of noise sources during construction.

3.0 BIOLOGICAL RESOURCES

3.1 VEGETATION

Native vegetation in the Shields River Valley is consistent with elevation-based gradients in mountain valleys of the northern Rocky Mountains. Some of the riparian vegetation at lower elevations in the Shields River watershed is woody species such as cottonwood, willow, and alder, but much of the woody vegetation in agricultural areas was historically removed and has been replaced by a mix of herbaceous vegetation and shrubs.[15] As elevation increases, the vegetation turns to mesic and xeric shrub lands dominated by sagebrush, transitions to grasslands and, eventually, culminates in coniferous forests. The vegetation in the study area consists of agriculture/crops, grasslands, riparian, shrubs, and coniferous and deciduous forest. The forestland includes lodgepole pines, Douglas firs, and mixed mesic and subalpine forest species.[16]

Invasive weeds are a growing concern in the Shields River watershed. Priority species include Russian and spotted knapweed, leafy spurge, Dalmation toadflax, and whitetop[17]. Russian and spotted knapweeds, Dalmatian toadflax, and leafy spurge have been identified by the Montana Noxious Weed Trust Fund as weeds that the Montana noxious weed survey and mapping system must monitor on a section basis. The Park County Weed Control District has been active in public education for noxious weeds. New developments are required to develop a weed management plan and landowners are encouraged to use biocontrol or large animal grazing. If improvement options are forwarded from the feasibility study, field surveys for noxious weeds should take place before any ground disturbance occurs. Proposed projects should incorporate applicable practices outlined by the Park County Weed Control District. Any projects forwarded from the feasibility study within the National Forest would need to comply with USFS management policies.

Whitebark pines (*Pinus albicaulis*) are designated as a candidate species for listing under the Endangered Species Act (ESA). Whitebark pines are typically found in cold, windy, high elevation or high latitude sites in western North America and as a result, many stands are geographically isolated. Whitebark pines are unlikely to occur along Shields River Road but may potential occur on high elevation forest lands in the area.

3.2 FISH AND WILDLIFE

The Shields River Watershed provides breeding, resting, foraging, and migratory habitat for many species of fish and wildlife. The watershed has approximately 453 miles of habitat with 277 miles being inhabited by both native and non-native species and 176 miles having native fish species only.[18] The study area supports eleven species among four families of fish. Native salmonids include the Yellowstone cutthroat trout and mountain whitefish. The basin also supports three introduced salmonids: brook trout, rainbow trout, and brown trout. Two species of cyprinids present in the Shields River Watershed include lake chub and longnose dace. Three species of catostomid, or sucker, occur in the watershed including mountain sucker, white sucker, and longnose sucker. The mottled sculpin is the sole member of its family in the watershed. No stocking has occurred in the watershed since the early 1970s.[19]

Yellowstone cutthroat trout is considered a sensitive species by the USFS and a species of concern (SOC) by Montana. The Shields River watershed provides substantial habitat for Yellowstone cutthroat trout - the watershed contains 66% of the core and conservation populations. In the past twenty years, over $4 million has been spent on diversion dams and fish passage infrastructure within parts of the Shields River to maximize the watershed as a basin-level stronghold for Yellowstone cutthroat trout.

The Shields River Valley supports diverse wildlife populations. The elk population is large (over 5,000) with the majority occurring on the west side of the valley near the study area. The Shields River and its tributaries provide an attractive habitat for moose, and they can often be seen from Shields River Road during the winter. The Shields River Valley also supports an unusually high concentration of golden eagles; the largest antelope population in Park County (up to 2,000); and one of the largest mountain goat populations in the lower 48 states. The wetlands provide important staging, resting, and viewing areas for migratory waterfowl and shorebirds. A small population of remnant sage grouse, a species of concern throughout the western US, can also be found in the Shields River Valley. Bighorn Sheep do not currently inhabit the area.[20]

If any improvement projects are brought forward from the feasibility study, project planners should coordinate with fish and wildlife biologists from Montana FWP and the USFS to gain further insight into issues related to the management of these species, as well as measures for avoiding, minimizing, or mitigating adverse effects on species and habitat.

3.3 Threatened and Endangered Species

Section 7(a)(2) of the ESA of 1973, 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 whitebark pine (pinus albicaulis), a candidate plant species for listing under the ESA, occurs within the Custer-Gallatin National Forest and is typically found in high elevation, upper montane habitat near the treeline. There are also currently three species of wildlife that are known or expected to use habitats in Park County which are listed or proposed for listing under the ESA. The grizzly bear (*ursus arctos horribilis*) and canada lynx (*lynx canadensis*) are threatened species present in the county. The wolverine (*gulo gulo luscus*) is a proposed for listing on forest lands species that may occur within mountainous and forested areas of Park County. All three of these species have been observed in the Shields River Road study area based on information from the Montana National Heritage Program (NHP) although there are not designated critical habitats for these species within the study area. The wolverine is the only species that has been documented as having a sustained presence within the study area. Any improvements forwarded from the planning study would need to undergo review for compliance with the provisions of the ESA. The listing status of species and critical habitat can change over time; therefore, an up-to-date list of potentially affected species and critical habitats should be reviewed for each project.

3.4 Other Species of Concern

Montana NHP maintains a database of species of concern in Montana. SOC are native animals that are at-risk due to declining population trends, threats to their habitats, 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 in three ways, as threatened or endangered under the ESA, or as “sensitive” by the USFS or Bureau of Land Management. Many of the bird species are also protected under or included in the USFWS *Migratory Bird Treaty Act* (MBTA), *Birds of Conservation Concern 2008* (BCC), or *Bald and Golden Eagle Protection Act of 1940* (16 U.S.C. 668-668c) (BGEPA) listings.

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.

In addition to SOC, Montana has two special status species which are species that have some legal protections in place but are otherwise not Montana SOC. The bald eagle is the only special status species known in Park County. Although the bald eagle is no longer protected under the ESA and is also no longer a Montana SOC, it is still protected under the BGEPA).

Table 3.1 presents the all of species occurrence records within the study area and their federal and state statuses. A species occurrence is an area of land or water in which a species is, or was, present. Species observations are reviewed by the Montana NHP for evidence of sustained presence (for example, breeding evidence) and species occurrences are created from those that meet established criteria for species. Note that other species have been observed in the Shields River Road study area (see **Appendix B**) but have not been documented as a species occurrence within the study area. As such, if any projects are brought forward from the feasibility study, a thorough review of wildlife sightings databases should be conducted, and habitats near any proposed project sites should be evaluated to determine their suitability for any species of concern. Measures to avoid or minimize disturbance of these species or their habitat should be incorporated into project design and implementation.

Table 3.1: Montana Species of Concern – Species Occurrence in Study Area

	Species	Federal Status	State Status
Mammals	**Wolverine** *(Gulo gulo)*	ESA Proposed / Sensitive	3
	Little Brown Myotis *(Myotis lucifugus)*	None	3
	Canada Lynx (*Lynx canadensis*) *	ESA Threatened	3
	Grizzly Bear (*Ursus arctos horribilis*) *	ESA Threatened	2-3
Birds	**Sprague's Pipit** *(Anthus spragueii)*	MBTA / BCC / Sensitive	3
	Great Gray Owl *(Strix nebulosi)*	MBTA / Sensitive	3
	Great Blue Heron *(Ardea herodias)*	MBTA	3
	Bobolink *(Dolichonyx oryzivorus)*	MBTA	3
	Brewer's Sparrow *(Spizella breweri)*	MBTA / BCC / Sensitive	3
	Clark's Nutcracker *(Nucifraga Columbiana)*	MBTA	3
	Veery *(Catharus fuscescens)*	MBTA / Sensitive	3
	Greater Sage-Grouse *(Centrocercus urophasianus)*	Sensitive	2
Fish	**Yellowstone Cutthroat Trout** *(Oncorhynchus clarkii bouvieri)*	Sensitive	2
Plants	**Whitebark Pine** *(Pinus albicaulis)*	ESA Candidate / Sensitive	3
	Linear-Leaf Fleabane *(Erigeron linearis)*	None	2
	Pointed Broom Sedge *(Carex scoparia)*	None	1-2

**indicates that the species is listed in the ESA as being endangered, threatened, or is a candidate for listing in the ESA but does not have a species occurrence in the study area.*

4.0 SOCIAL AND CULTURAL RESOURCES

4.1 Demographic and Economic Conditions

Implementing regulations for NEPA require federal agencies to assess potential social and economic impacts resulting from proposed actions. FHWA guidelines recommend consideration of impacts to neighborhoods and community cohesion, social groups including minority populations, and local and/or regional economies, as well as growth and development that may be induced by transportation improvements. 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 Wilsall, Park County, and Montana obtained from the 2013 to 2017 American Community Survey (ACS) 5-Year Estimates[21].

Table 4.1: Population and Demographic Data

		Wilsall	Park County	Montana
Population		307	16,001	1,029,862
Race/Ethnic Characteristics	White (not Hispanic or Latino)	100%	95.3%	90.7%
	Hispanic or Latino	0.0%	2.2%	2.4%
	Black or African American	0.0%	0.3%	0.4%
	American Indian or Alaska Native	0.0%	0.7%	4.4%
	Asian	0.0%	0.1%	0.6%
	Native Hawaiian and Other Pacific Islander	0.0%	0.0%	0.0%
	Some Other Race	0.0%	0.1%	0.3%
	Two or more races	0.0%	1.3%	1.9%
Economic Characteristics	Median Household Income	$62,143	$44,920	$50,801
	Persons below poverty level	2.0%	13.4%	14.4%
	Unemployment rate	0.0%	2.8%	4.8%

In general, Wilsall and Park County are much less diverse, racially and ethnically, than the state. Persons identifying as White make up 100 percent of the population in Wilsall and approximately 95 percent of the population in Park County. The percentage of the population identifying as American Indian or Alaska Native is less in Park County (0.7 percent) as compared to Montana (4.4 percent). For all other races, Park County and Montana have comparable population distributions.

Median household income in Wilsall is higher than both county and state median values. The median income in Wilsall is approximately 20 percent more than all households in Montana and 38 percent more than all households in Park County. The wealth of the Wilsall community is reflected in the two percent poverty rate cited in the ACS. The county and state have comparable poverty rates (13 and 14 percent, respectively) but the unemployment rate in Park County is approximately half of that of Montana (2.8 versus 4.8 percent, respectively) over the 50-year period considered in the ACS.

Park County's economy is strong and growing. This is primarily attributed to the proximity of Yellowstone National Park which continues to attract high volumes of tourists. Park visitors from all over the world allow lodging, restaurant, retail, and entertainment industries in the county to thrive. However, in the northern part of the county, in the Shields River Valley, the economy has historically been driven by agriculture, forestry, fishing, and hunting. About 30 years ago, the Town of Wilsall was a small trade town on a Northern Pacific Railroad spur line. But the as the popularity of the Shields River Valley for anglers, hunters, and other recreationists has grown, Wilsall and surrounding communities have experienced

notable increases in construction, retail, educational, and healthcare industries. Recreational facilities and opportunities available via Shields River Road, and its access to Custer-Gallatin National Forest, support the local businesses that sell fuel, sporting and camping equipment, groceries, meals, clothing, souvenirs, and other tourist associated commodities. Recreationists also contribute to the local economy by hiring one of the nearly two dozen local commercial outfitters or guides for fishing, hunting, horseback riding and/or pack trip activities permitted in this area.

Title VI of the *United States Civil Rights Act of 1964* and EO 12898 require that projects receiving federal funds must not result in disproportionately high and adverse effects on minority or low-income populations. For transportation projects, this means that minority or low-income populations must not be disproportionately isolated, displaced, or otherwise subjected to adverse effects. If improvement options are forwarded from the planning study into project development, environmental justice would need to be further evaluated during the project development process. However, demographic data obtained for this study indicates minority and/or low-income populations are not present in the area.

4.2 Section 4(f) and 6(f) Resources

Projects undertaken by FHWA or that may receive federal funding and/or discretionary approvals from the agency must demonstrate compliance with Section 4(f) of the *Department of Transportation Act* of 1966 (23 U.S.C. § 138 and 49 U.S.C. § 303). Section 4(f) protects publicly-owned public parks, recreation areas, and wildlife/waterfowl refuges. Section 4(f) also protects historic sites of national, state, or local significance on public or private land that are potentially eligible for listing or are listed on the National Register of Historic Places (NRHP) and are protected under Section 106 of the *National Historic Preservation Act* of 1966. The regulations require coordination with the official(s) with jurisdiction when making determinations about the significance of protected properties or resources.

If a project uses a Section 4(f) property and a finding of *de minimis* impact is not made, FHWA can approve the use of that property only if the agency finds that (1) there is no feasible and prudent avoidance alternative to the use of the Section 4(f) property, and (2) all possible planning to minimize harm to the Section 4(f) property has been incorporated into the alternative.

Projects may also be subject to Section 6(f) of the *Land and Water Conservation Fund (LWCF) Act* which was enacted to preserve, develop, and ensure the quality and quantity of outdoor recreation resources. The Secretary of the Interior must approve any conversion of LWCF property, in whole or in part, to a use other than public outdoor recreation.

4.2.1 Recreational Resources

In addition to providing residential access for 460 residences, Shields River Road also provides access to over 113,000 acres of Custer-Gallatin National Forest. The forest provides for a multitude of both developed and dispersed recreation opportunities. Park County Public Works Department staff estimates that approximately 30,000 people visit and recreate in this area of Custer-Gallatin National Forest each year, although no formal counts have been conducted.

Primary visitor destinations accessed by Shields River Road include: 2 forest service cabins (Crandall Creek and Porcupine Creek); 12 vacation-rental-by-owner facilities; 8 designated dispersed campsites; over 30 undesignated dispersed campsites; 12 day use sites; 6 developed trailheads and 24 trail systems; 9 designated ATV routes; mountain lakes; and several streams. Currently Shields River Road, and land accessible by the roadway, is used for a variety of outdoor recreation experiences including: bicycling, running, and walking; bird and wildlife viewing; ATV activities; horseback riding and pack trips; fishing, hiking, hunting, and camping access; and winter sports including snowmobiling, cross country

skiing and snowshoeing. From some of the camping sites, historic interpretation and trailheads can be accessed.

Within the last 20 years, over 50 new homes and cabins have been built in the Shields River Road area, many of them accessing their properties through Smith Creek Road. The use in the area has changed significantly with the surge in primary home and secondary home construction; that growth has spurred increased ATV and snowmobile usage on many of the primary arterial forest service roads.

Access to the Crazy Mountains and historic mountain trails has long been the subject of contentious debate among private landowners, the Forest Service, and recreationists. Many of the public lands are accessed via trails that cross private land at the base of the mountains. Over the years, many of the access points have been closed through landowner disputes. This leaves Shields River Road as the most heavily utilized road on the west side of the Crazy Mountains used by recreationists to venture to and enjoy the public lands.

Recreation facilities qualify as Section 4(f) properties if they are publicly owned, open to the public during normal hours of operation, and serve recreation activities as a major purpose as stated in adopted planning documents. There are no known designated day use sites, fishing accesses, trailheads, or camp sites within the study area that may be impacted by improvement options forwarded from the planning study. If improvement options are forwarded from the planning study, potential effects on recreational use should be investigated and appropriately considered in accordance with Section 4(f).

Section 6(f) protection applies to all projects that affect recreational lands purchased or improved with LWCF funds. Based on a review of a list of all projects funded by LWCF grants within Park County (Montana State Parks 2019), no projects qualifying for protection under Section 6(f) have been implemented in the study area.

4.2.2 Cultural and Historic Resources

In Montana, the NHRP is administered by the Montana State Historic Preservation Office. Resources listed, or determined eligible for listing, are considered historic properties. Such properties are generally afforded protection under Section 4(f) of the *Department of Transportation Act* and Section 106 of the *National Historic Preservation Act.* Federal agencies are required to consider the effects of their undertakings (including funding, licensing, or permitting the undertakings of other entities) on historic properties and must consult affected American Indian tribes. The implementing regulations of Section 106 also require agencies to seek ways of avoiding, minimizing, or mitigating any adverse effects on historic properties.

Data about tribes that may have an interest in the study area was obtained using the Tribal Directory Assessment Tool available from the U.S. Department of Housing and Urban Development's website. The tool has the ability to link tribes' geographic areas of current and ancestral interest down to the county level and provides tribal contact information to assist users with initiating Section 106 consultation under the National Historic Preservation Act. The directory search identified the following tribes with potential interests in Park County, Montana:

- Apache Tribe of Oklahoma
- Crow Tribe of Montana
- Fort Belknap Indian Community of the Fort Belknap Reservation of Montana
- Shoshone-Bannock Tribes of the Fort Hall Reservation

A review of the NRHP indicates that there are no listed historic properties within the study area. If any projects are brought forward from the planning study, a cultural resource survey for unrecorded historic

and archaeological properties would need to be completed within the area of potential effect defined for each project. Direct and indirect impacts (such as visual, noise, and access impacts) to eligible or listed properties would need to be considered if improvements options are carried forward.

4.3 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.

The study area encompasses a wide variety of settings including the Shields River Road roadway corridor and county roads, rural development, national forestland, other public lands, and wetlands. Actions that may have visual impacts include projects on new location or that involve expansion, realignment or other changes that could alter the character of an existing landscape or move the roadway closer to residential areas, parks and recreation areas, historic or other culturally important resources.

5.0 CONCLUSION

This Environmental Scan identifies physical, biological, social, and cultural resources within the study area that may be affected by potential future improvements arising from the *Shields River Road Planning Project*. Project-level environmental analysis would be required for any improvements forwarded from this study. Information contained in this report may be used to support future environmental documentation for compliance with NEPA.

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Appendix A:

Exhibits

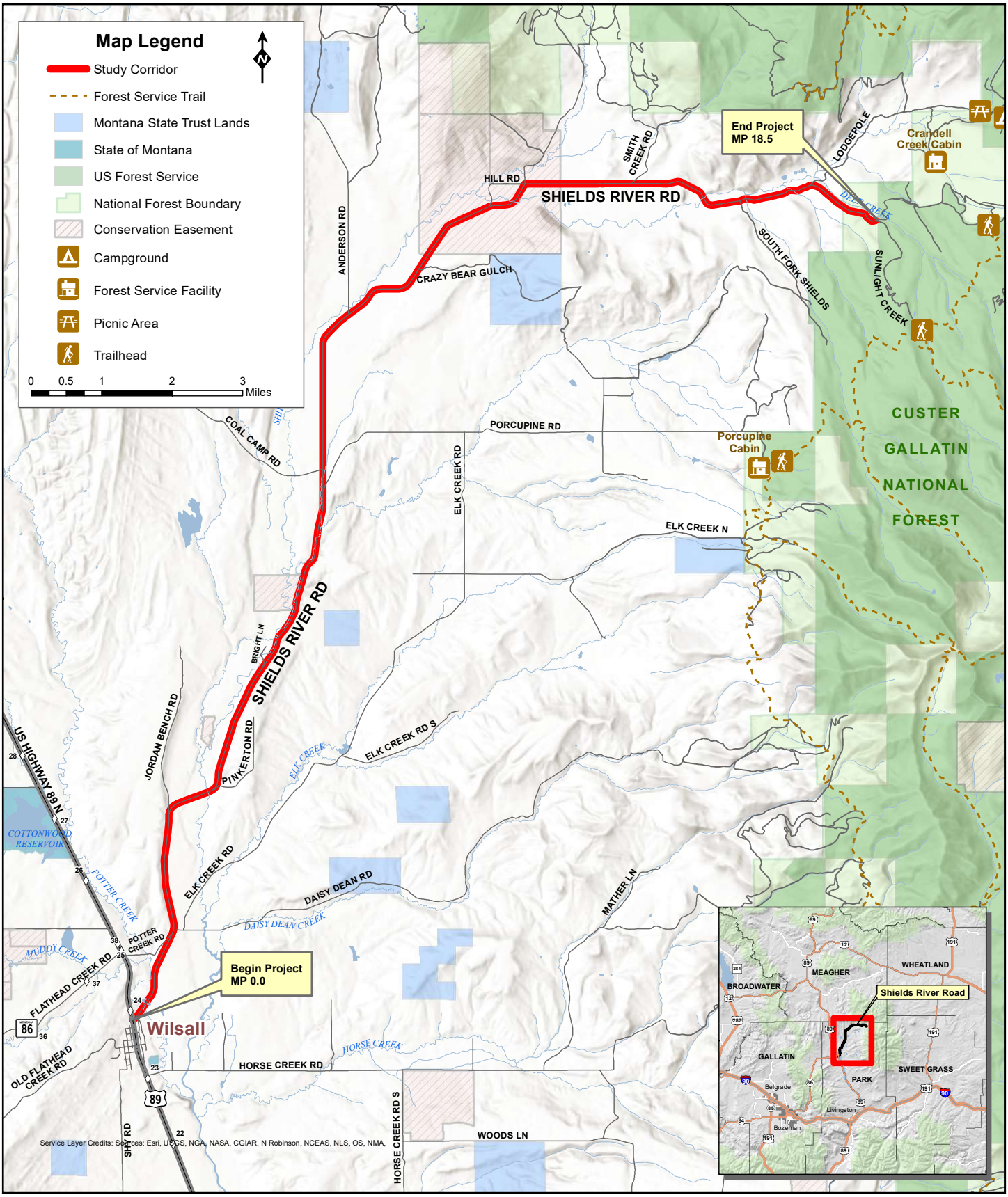


Figure A.1: Study Area

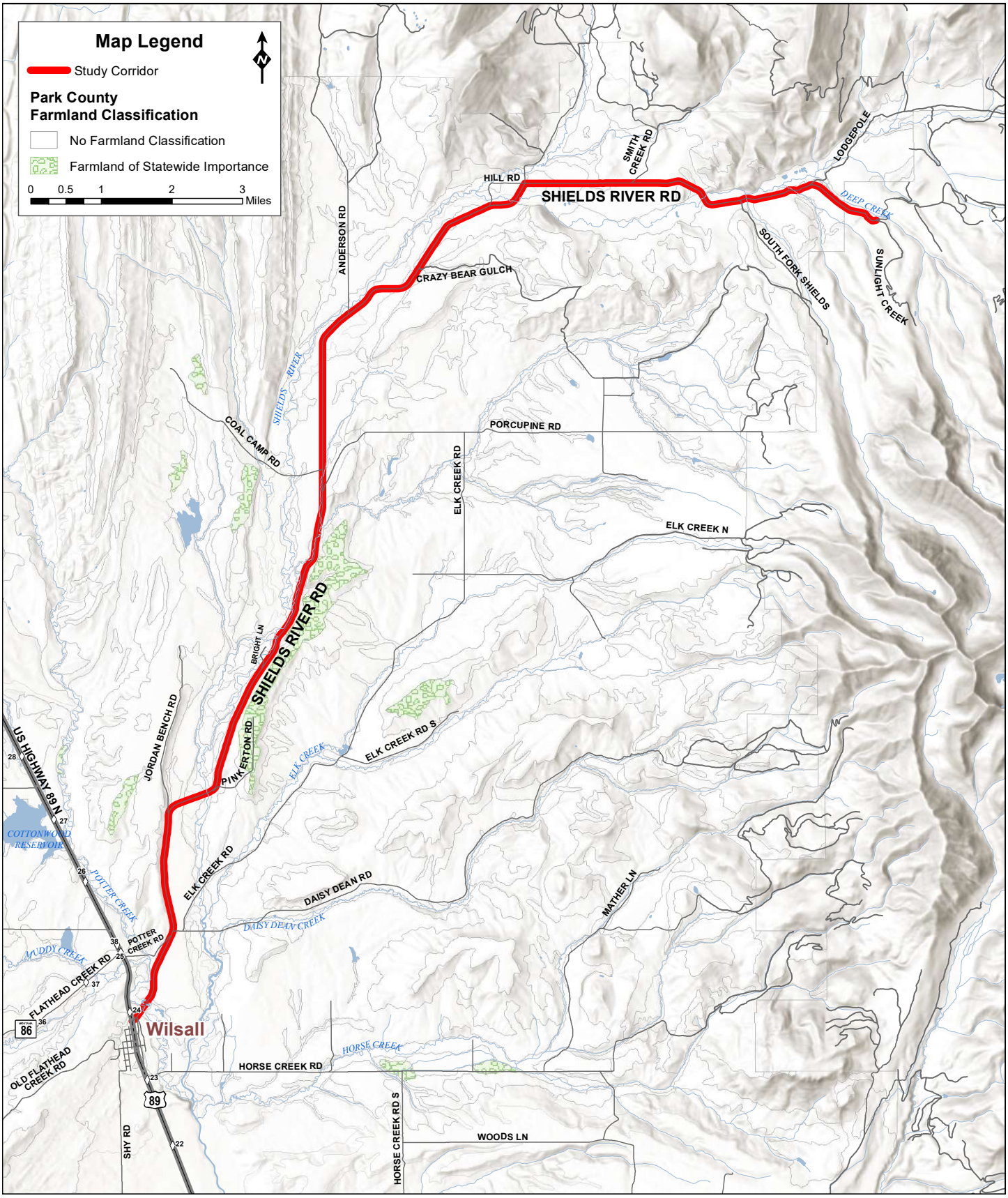


Figure A.2: Farmland Classification

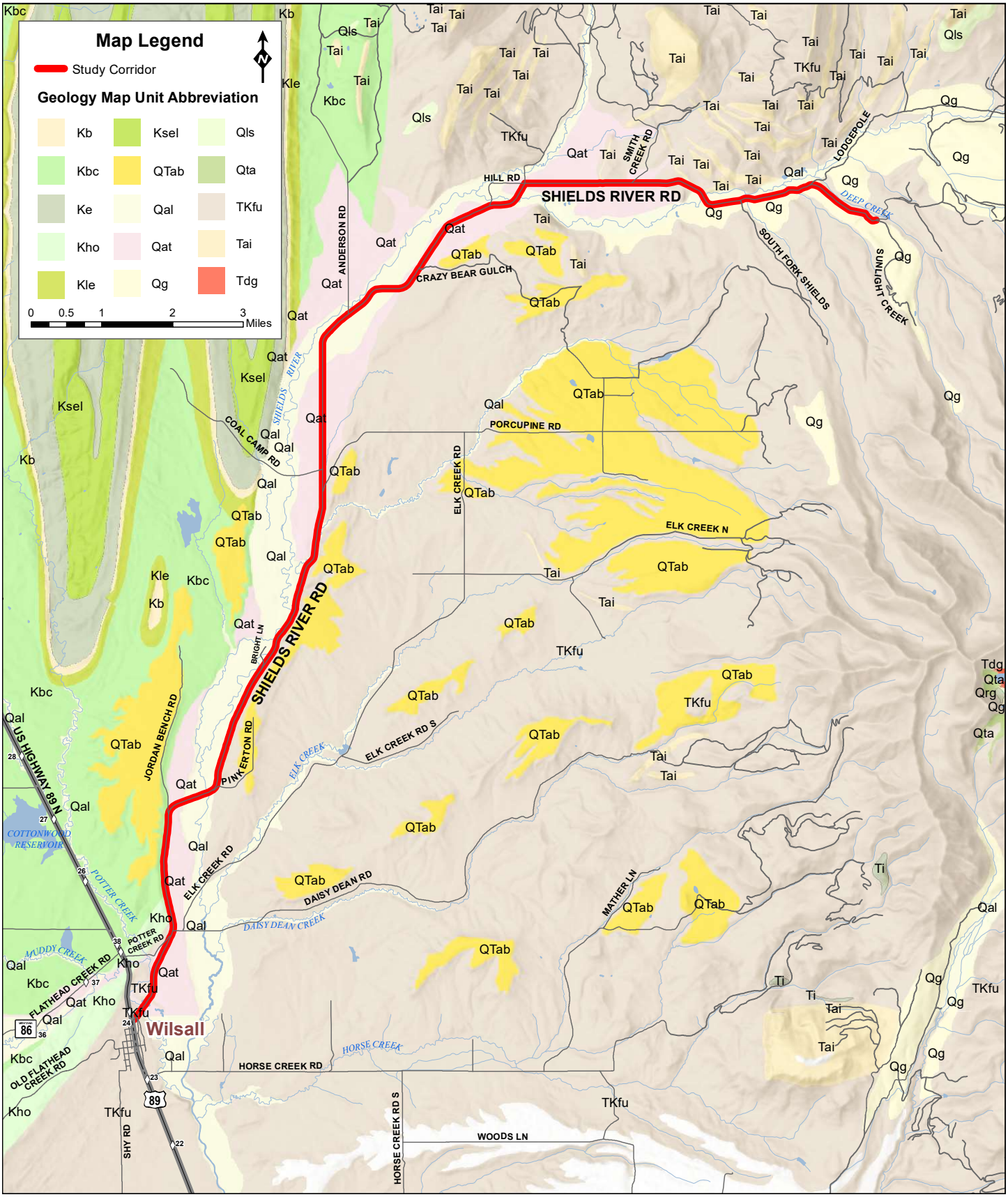


Figure A.3: Surface Geology

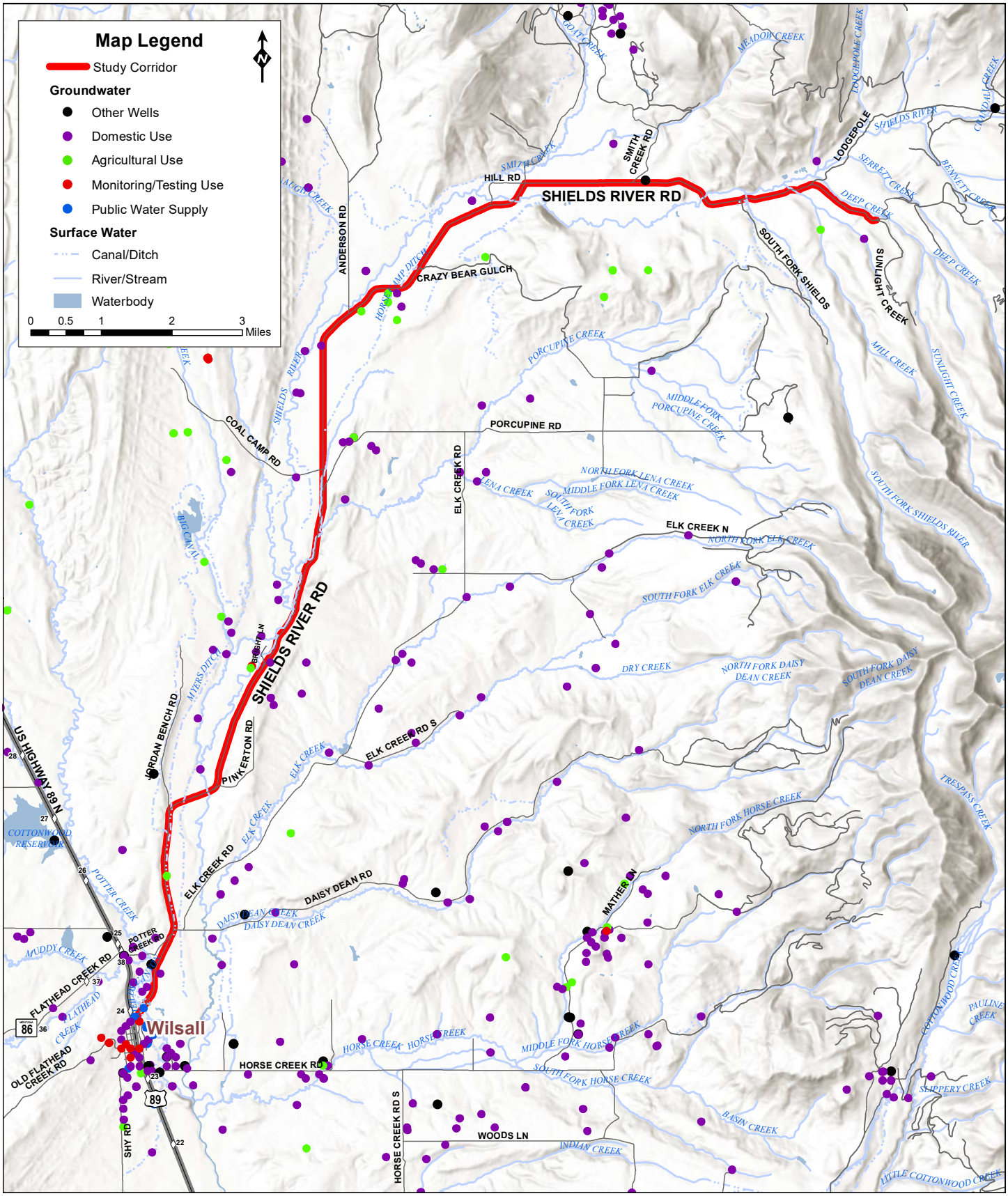


Figure A.4: Groundwater and Surface Water Features

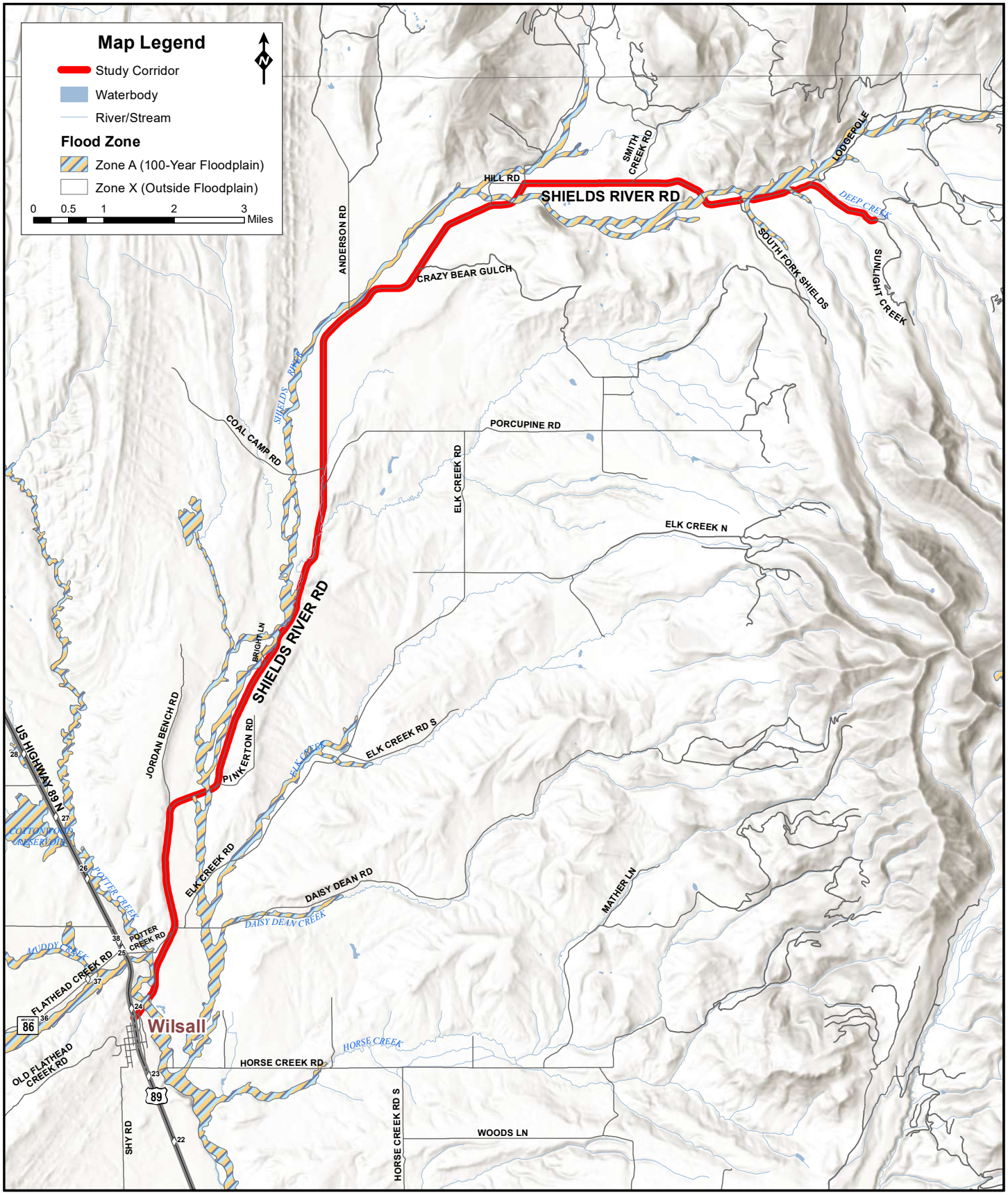


Figure A.5: Floodplains

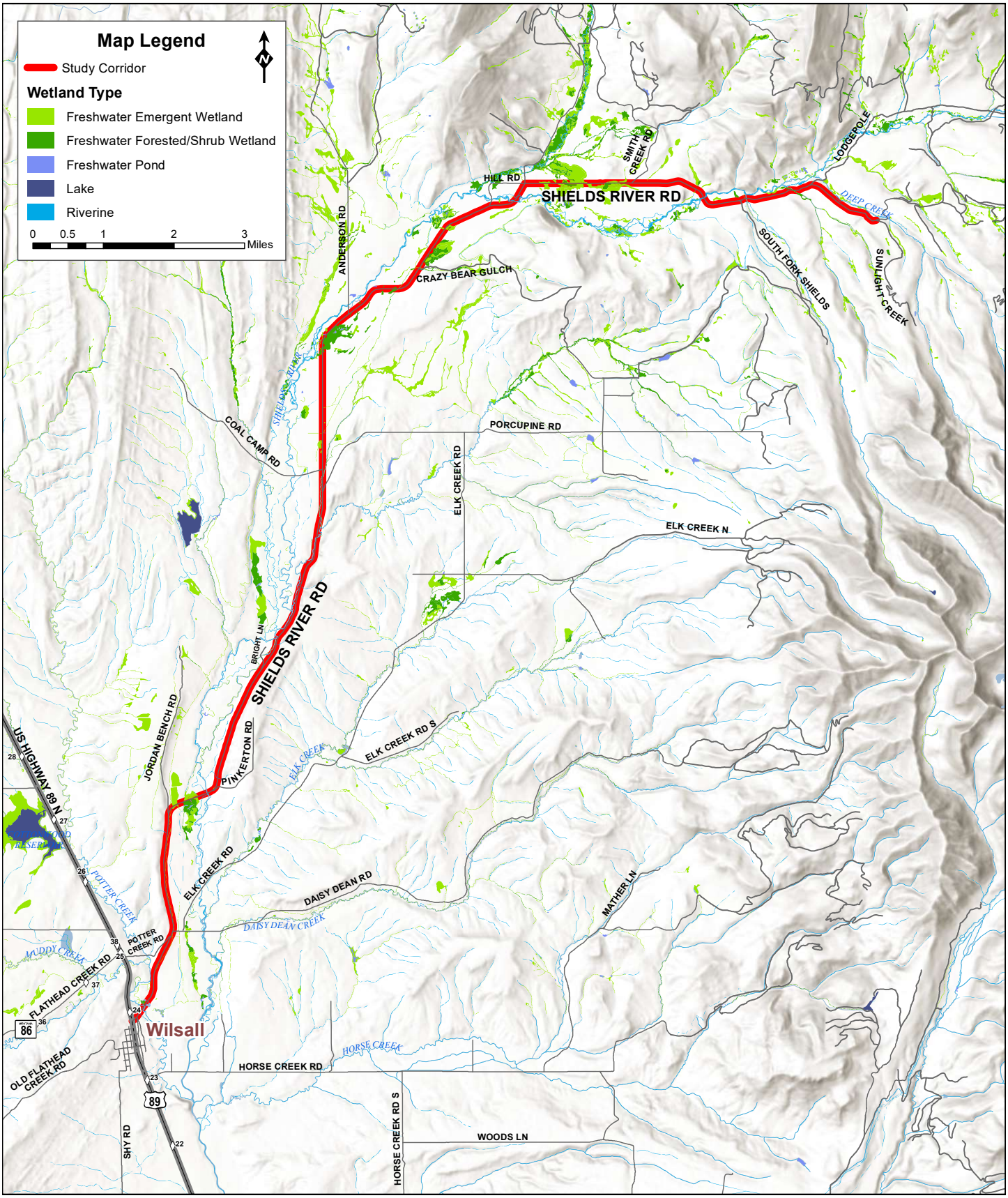


Figure A.6: Wetlands Inventory

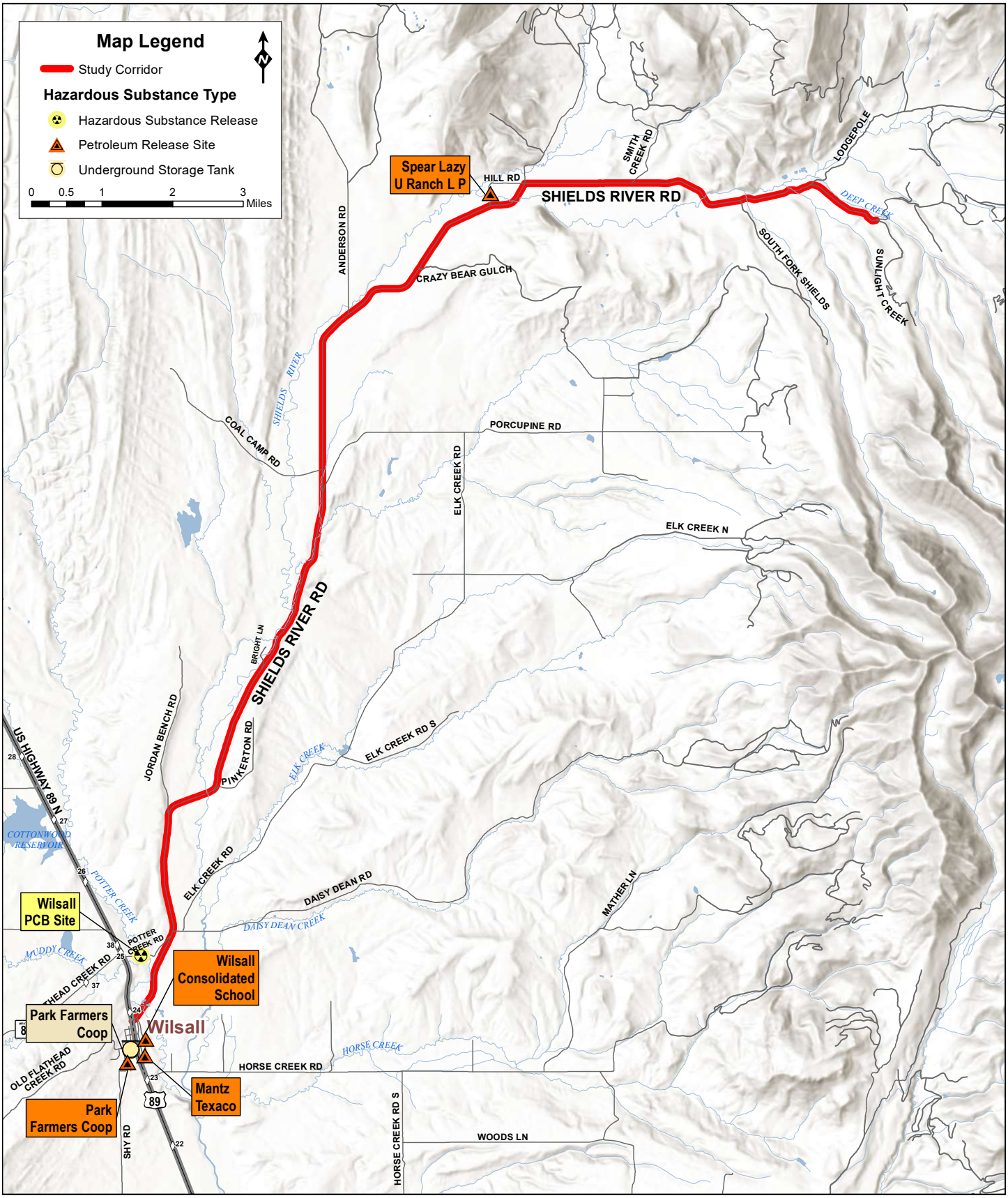


Figure A.7: Hazardous Substances

Appendix B:

Species of Concern Summary

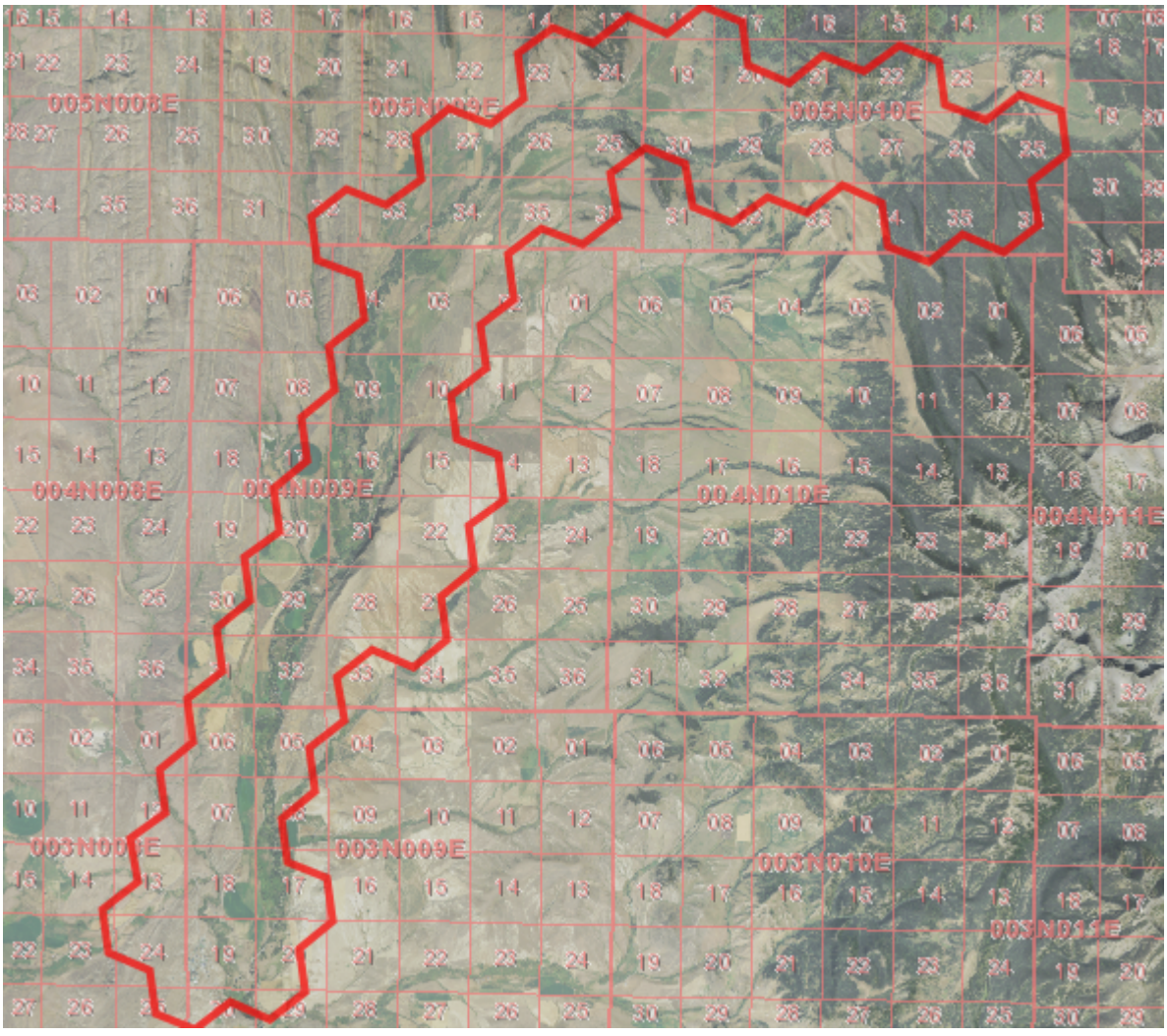
Environmental Summary

MONTANA
Natural Heritage Program

1515 East 6th Avenue
Helena, MT 59620
(406) 444-0241
mtnhp.org

Latitude	Longitude
45.98010	-110.40987
46.19274	-110.69015

Summarized by:
19mtco0014 ShieldsRiverRd
(Custom Area of Interest)



Suggested Citation
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for Latitude 45.98010 to 46.19274 and Longitude -110.40987 to -110.69015. Retrieved on 4/12/2019.

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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

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
45.98010	-110.40987
46.19274	-110.69015

Native Species

Summarized by: **19mtco0014 ShieldsRiverRd** *(Custom Area of Interest)*

Filtered by:

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

Map not shown for scales greater than 1:80,000

Species Occurrences

	USFWS Sec7	# SO	# Obs	Predictive Model	Associated Habitat	Range
F - Yellowstone Cutthroat Trout *(Oncorhynchus clarkii bouvieri)* SOC		16	68 +		Not Assigned	Y H
B - Veery *(Catharus fuscescens)* SOC		1	+			S M
B - Bobolink *(Dolichonyx oryzivorus)* SOC		1	+			S M
B - Clark's Nutcracker *(Nucifraga columbiana)* SOC		3				Y
B - Great Blue Heron *(Ardea herodias)* SOC		1	1 +			Y S M
M - Little Brown Myotis *(Myotis lucifugus)* SOC		1	1			Y
B - Great Gray Owl *(Strix nebulosa)* SOC		1	2 +			Y

F - Yellowstone Cutthroat Trout *(Oncorhynchus clarkii bouvieri)* SOC

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

Species of Concern - Native Species Global: **G4T4** State: **S2** USFS: **Sensitive - Known on Forests (CG)** BLM: **SENSITIVE** FWP SWAP: **SGCN2**

Delineation Criteria Stream reaches and standing water bodies where the species presence has been confirmed through direct capture or where they are believed to be present based on the professional judgement of a fisheries biologist due to confirmed presence in adjacent areas. In order to reflect the importance of adjacent terrestrial habitats to survival, stream reaches are buffered 100 meters, standing water bodies greater than 1 acre are buffered 50 meters, and standing water bodies less than 1 acre are buffered 30 meters into the terrestrial habitat based on PACFISH/INFISH Riparian Conservation Area standards. (Last Updated: May 08, 2015)

Predictive Models: N 81% Suitable (native range) (deductive)

B - Veery *(Catharus fuscescens)* 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**

Delineation Criteria Observations with evidence of breeding activity buffered by a minimum distance of 300 meters in order to be conservative about encompassing home ranges and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Oct 06, 2017)

Predictive Models: O 4% Optimal (inductive), M 79% Moderate (inductive), L 17% Low (inductive)
Associated Habitats: C 18% Common, O 7% Occasional

B - Bobolink *(Dolichonyx oryzivorus)* 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** FWP SWAP: **SGCN3** PIF: **3**

Delineation Criteria Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 150 meters in order to conservatively encompass male 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: Oct 19, 2018)

Predictive Models: M 72% Moderate (inductive), L 21% Low (inductive) **Associated Habitats:** C 46% Common, O 1% Occasional

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

View in Field Guide | View Predicted Models | 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: Oct 19, 2018)

Predictive Models: M 64% Moderate (inductive), L 36% Low (inductive) **Associated Habitats:** C 37% Common

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

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 16, 2019)

Predictive Models: M 51% Moderate (inductive), L 49% Low (inductive) **Associated Habitats:** C 18% Common

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

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: Oct 19, 2018)

Predictive Models: M 49% Moderate (inductive), L 51% Low (inductive) **Associated Habitats:** C 69% Common, O 31% Occasional

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

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**

Delineation Criteria Confirmed nesting area buffered by a minimum distance of 3,200 meters in order to encompass the known foraging distance and area likely to be used for renesting and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Dec 15, 2017)

Predictive Models: M 17% Moderate (inductive), L 64% Low (inductive) **Associated Habitats:** C 37% Common, O 1% Occasional

M - Wolverine *(Gulo gulo)* SOC

7 1 + Y

View in Field Guide View Predicted Models 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**

Delineation Criteria Confirmed area of occupancy supported by recent (post-1980), nearby (within 10 kilometers) observations of adults or juveniles. Tracking regions were defined by areas of primary habitat and adjacent female dispersal habitat as modeled by Inman et al. (2013). These regions were buffered by 1 kilometer in order to link smaller areas and account for potential inaccuracies in independent variables used in the model. (Last Updated: Sep 03, 2014)

Predictive Models: M 9% Moderate (inductive), L 83% Low (inductive) **Associated Habitats:** C 19% Common, O 19% Occasional

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

1 + 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** PIF: **2**

Delineation Criteria Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 100 meters in order to encompass the maximum territory size reported for the species and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Oct 19, 2018)

Predictive Models: L 96% Low (inductive) **Associated Habitats:** C 20% Common

B - Sprague's Pipit *(Anthus spragueii)* SOC

7 1 + 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**

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 115 meters in order to encompass the maximum breeding territory sizes reported for the species in Montana and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Oct 19, 2018)

Predictive Models: L 81% Low (inductive) **Associated Habitats:** O 10% Occasional

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

3 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**

Delineation Criteria Confirmed breeding area based on the presence of a nest, chicks, juveniles, or adults on a lek. Point observations are mapped in the center of a one-square mile hexagon to protect the exact locations of leks. The outer edges of this hexagon are then buffered by a distance of 6,400 meters in order to encompass a body of research indicating that females typically nest within this distance of a lek and that lek numbers are negatively impacted by fossil fuel drilling activities within this distance of a lek. If the locational uncertainty associated with the observation is greater than this distance, it is buffered by the locational up to a maximum distance of 10,000 meters. All of the one-square mile hexagons intersecting this buffered area are presented as the Species Occurrence record. (Last Updated: Feb 14, 2019)

Predictive Models: L 17% Low (inductive) **Associated Habitats:** C 20% Common

V - Pinus albicaulis *(Whitebark Pine)* SOC

3 Y

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

Species of Concern - Native Species Global: **G3G4** State: **S3** USFWS: **C** USFS: **Candidate on Forests (BD, BRT, CG, HLC, KOOT, LOLO)** BLM: **SENSITIVE**

Delineation Criteria Point and/or polygonal observations are buffered by a minimum distance of 400 meters in order to account for stands instead of individual trees and to a maximum distance of 2,000 meters in order to encompass locational uncertainty associated with some common data sources for this species. (Last Updated: Mar 12, 2019)

Predictive Models: L 13% Low (inductive) **Associated Habitats:** C 1% Common

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

1 + Not Available

View in Field Guide View Associated Habitat

Species of Concern - Native Species Global: **G5** State: **S2** MNPS: **2**

Delineation Criteria Individual occurrences are generally based upon a discretely mapped area provided by an observer and are not separated by any pre-defined distance. Individual clusters of plants mapped at fine spatial scales (separated by less than approximately 25-50 meters) may be grouped together into one occurrence if they are not separated by distinct areas of habitat or terrain features. Point observations are buffered to encompass any locational uncertainty associated with the observation. (Last Updated: May 16, 2018)

Associated Habitats: C 15% Common

V - Carex scoparia *(Pointed Broom Sedge)* SOC

1 1 Not Available Not Assigned

View in Field Guide

Species of Concern - Native Species Global: **G5** State: **S1S2**

Delineation Criteria Individual occurrences are generally based upon a discretely mapped area provided by an observer and are not separated by any pre-defined distance. Individual clusters of plants mapped at fine spatial scales (separated by less than approximately 25-50 meters) may be grouped together into one occurrence if they are not separated by distinct areas of habitat or terrain features. Point observations are buffered to encompass any locational uncertainty associated with the observation. (Last Updated: Apr 26, 2018)

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
45.98010	-110.40987
46.19274	-110.69015

Native Species

Summarized by: **19mtco0014 ShieldsRiverRd** *(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
M - Porcupine *(Erethizon dorsatum)* **PSOC**		2			Y
B - Bald Eagle *(Haliaeetus leucocephalus)* **SSS**		5 +			Y
A - Western Toad *(Anaxyrus boreas)* **SOC**		2			Y
B - Northern Goshawk *(Accipiter gentilis)* **SOC**		2			Y WM
B - Boreal Owl *(Aegolius funereus)* **PSOC**		2			Y
B - Golden Eagle *(Aquila chrysaetos)* **SOC**		5 +			Y
B - Sage Thrasher *(Oreoscoptes montanus)* **SOC**		+			S M
B - Ferruginous Hawk *(Buteo regalis)* **SOC**		+			S M
B - Baird's Sparrow *(Centronyx bairdii)* **SOC**		+			S M
B - Common Tern *(Sterna hirundo)* **SOC**		+			S M
B - Sharp-tailed Grouse *(Tympanuchus phasianellus)* **SOC**		1	Not Available		Y

M - Porcupine *(Erethizon dorsatum)* **PSOC**

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 79% Moderate (inductive), L 21% Low (inductive) **Associated Habitats:** C 60% Common

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 64% Moderate (inductive), L 34% Low (inductive) **Associated Habitats:** C 25% Common, O 17% Occasional

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

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: M 9% Moderate (inductive), L 91% Low (inductive) **Associated Habitats:** C 44% Common, O 12% Occasional

B - Northern Goshawk *(Accipiter gentilis)* **SOC**

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** PIF: **2**
Predictive Models: M 9% Moderate (inductive), L 51% Low (inductive) **Associated Habitats:** C 11% Common, O 1% Occasional

B - Boreal Owl *(Aegolius funereus)* **PSOC**

View in Field Guide **View Predicted Models** **View Associated Habitat** **View Range Maps**
Potential Species of Concern - Native Species Global: **G5** State: **S3S4** USFWS: **MBTA** FWP SWAP: **SGIN** PIF: **3**
Predictive Models: M 9% Moderate (inductive), L 11% Low (inductive) **Associated Habitats:** C 19% Common, O 1% Occasional

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 4% Moderate (inductive), L 89% Low (inductive) **Associated Habitats:** C 38% Common, O 29% Occasional

B - Sage Thrasher *(Oreoscoptes montanus)* **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: **3**
Predictive Models: M 2% Moderate (inductive), L 83% Low (inductive) **Associated Habitats:** C 20% Common

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 2% Moderate (inductive), L 74% Low (inductive) **Associated Habitats:** C 31% Common, O 1% Occasional

B - Baird's Sparrow *(Centronyx bairdii)* **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; BCC11; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **1**
Predictive Models: L 19% Low (inductive) **Associated Habitats:** C 10% Common, O 1% Occasional

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: L 2% Low (inductive) **Associated Habitats:** C 1% Common

B - Sharp-tailed Grouse *(Tympanuchus phasianellus)* **SOC**

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 47% Common, O 30% Occasional

M - Swift Fox *(Vulpes velox)* **SOC** 1 Not Available Y

View in Field Guide View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G3** State: **S3** BLM: **SENSITIVE** FWP SWAP: **SGCN3**
Associated Habitats: O 24% Occasional

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 19% Common

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 1% Common, O 28% 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 1% Common, O 1% Occasional

B - American White Pelican *(Pelecanus erythrorhynchos)* **SOC** 1 + Not Available 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 1% Common

B - Caspian Tern *(Hydroprogne caspia)* **SOC** + Not Available 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 1% Common

B - Common Loon *(Gavia immer)* **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** USFS: **Sensitive - Known on Forests (KOOT, LOLO)** FWP SWAP: **SGCN3** PIF: **1**
Associated Habitats: C 1% Common

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

View in Field Guide View Range Maps
Species of Concern - Native Species Global: **G4T4** State: **S2** USFS: **Sensitive - Known on Forests (BD, BRT, CG, HLC, KOOT, LOLO)** BLM: **SENSITIVE** FWP SWAP: **SGCN2**

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
45.98010	-110.40987
46.19274	-110.69015

Native Species

Summarized by: **19mtco0014 ShieldsRiverRd** *(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
M - Preble's Shrew *(Sorex preblei)* **SOC**				Y
B - Cassin's Finch *(Haemorhous cassinii)* **SOC**				Y
M - Silver-haired Bat *(Lasionycteris noctivagans)* **PSOC**				Y
B - Green-tailed Towhee *(Pipilo chlorurus)* **SOC**				S M
M - Dwarf Shrew *(Sorex nanus)* **SOC**				Y
M - Fringed Myotis *(Myotis thysanodes)* **SOC**				Y
M - Hoary Bat *(Lasiurus cinereus)* **SOC**				S M
V - Phlox kelseyi var. missoulensis *(Missoula Phlox)* **SOC**				Y
M - Water Vole *(Microtus richardsoni)* **PSOC**				Y
B - Yellow-billed Cuckoo *(Coccyzus americanus)* **SOC**				S M
M - Merriam's Shrew *(Sorex merriami)* **SOC**				Y

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

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 87% Moderate (inductive), L 13% Low (inductive) **Associated Habitats:** C 36% Common, O 1% Occasional

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

View in Field Guide | View Predicted Models | View Associated Habitat | View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3** USFWS: **MBTA; BCC10** FWP SWAP: **SGCN3** PIF: **3**
Predictive Models: M 45% Moderate (inductive), L 49% Low (inductive) **Associated Habitats:** C 13% 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 38% Moderate (inductive), L 62% Low (inductive) **Associated Habitats:** C 68% Common, O 30% Occasional

B - Green-tailed Towhee *(Pipilo chlorurus)* **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** FWP SWAP: **SGCN3** PIF: **3**
Predictive Models: M 38% Moderate (inductive), L 62% Low (inductive) **Associated Habitats:** C 61% Common, O 6% Occasional

M - Dwarf Shrew *(Sorex nanus)* **SOC**

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 36% Moderate (inductive), L 57% Low (inductive) **Associated Habitats:** C 20% Common, O 15% Occasional

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

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 32% Moderate (inductive), L 64% Low (inductive) **Associated Habitats:** C 61% Common, O 10% Occasional

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

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**
Predictive Models: M 30% Moderate (inductive), L 70% Low (inductive) **Associated Habitats:** C 68% Common, O 32% Occasional

V - Phlox kelseyi var. missoulensis *(Missoula Phlox)* **SOC**

View in Field Guide | View Predicted Models | View Associated Habitat | View Range Maps
USFS: **Sensitive - Known on Forests (BD, HLC)**
Species of Concern - Native Species Global: **G3** State: **S3** **Sensitive - Suspected on Forests (LOLO)** MNPS: **2**
Predictive Models: M 28% Moderate (inductive), L 66% Low (inductive) **Associated Habitats:** C 10% Common

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

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: M 21% Moderate (inductive), L 60% Low (inductive) **Associated Habitats:** C 19% Common, O 1% Occasional

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

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 15% Moderate (inductive), L 64% Low (inductive) **Associated Habitats:** C 17% Common

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

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 13% Moderate (inductive), L 81% Low (inductive) **Associated Habitats:** C 30% 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 11% Moderate (inductive), L 83% Low (inductive) **Associated Habitats:** C 1% Common, O 28% Occasional

V - Eleocharis rostellata *(Beaked Spikerush)* SOC — Not Assigned Y

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 9% Moderate (inductive), L 62% Low (inductive)

B - Evening Grosbeak *(Coccothraustes vespertinus)* SOC — Y W

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**
Predictive Models: M 6% Moderate (inductive), L 87% Low (inductive) **Associated Habitats:** C 31% Common, O 7% Occasional

M - Canada Lynx *(Lynx canadensis)* SOC — 7 Y

View in Field Guide View Predicted Models 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**
Predictive Models: M 6% Moderate (inductive), L 87% Low (inductive) **Associated Habitats:** C 12% Common, O 8% Occasional

M - Hayden's Shrew *(Sorex haydeni)* PSOC — Y

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S3S4**
Predictive Models: M 6% Moderate (inductive), L 66% Low (inductive) **Associated Habitats:** C 52% Common

B - Brown Creeper *(Certhia americana)* 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** FWP SWAP: **SGCN3** PIF: **1**
Predictive Models: M 6% Moderate (inductive), L 51% Low (inductive) **Associated Habitats:** C 11% Common, O 1% Occasional

B - Ovenbird *(Seiurus aurocapilla)* 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** PIF: **3**
Predictive Models: M 4% Moderate (inductive), L 43% Low (inductive) **Associated Habitats:** C 3% Common, O 1% Occasional

M - White-footed Mouse *(Peromyscus leucopus)* 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: M 4% Moderate (inductive), L 9% Low (inductive) **Associated Habitats:** C 67% Common

B - Rufous Hummingbird *(Selasphorus rufus)* 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** PIF: **3**
Predictive Models: M 2% Moderate (inductive), L 98% Low (inductive) **Associated Habitats:** C 49% Common, O 7% Occasional

B - Barrow's Goldeneye *(Bucephala islandica)* PSOC — Y W 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: M 2% Moderate (inductive), L 91% Low (inductive) **Associated Habitats:** C 19% Common

B - Long-billed Curlew *(Numenius 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: **MBTA; BCC10; BCC11; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**
Predictive Models: L 85% Low (inductive) **Associated Habitats:** C 10% Common, O 28% Occasional

V - Adoxa moschatellina *(Musk-root)* SOC — Not Assigned Y

View in Field Guide View Predicted Models View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3** USFWS: **Sensitive - Known on Forests (BD, CG, LOLO)**
Predictive Models: L 64% Low (inductive)

B - American Bittern *(Botaurus lentiginosus)* 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; BCC11; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **3**
Predictive Models: L 43% Low (inductive) **Associated Habitats:** C 18% Common

M - Townsend's Big-eared Bat *(Corynorhinus townsendii)* 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 (BD, BRT, CG, HLC, KOOT, LOLO)** BLM: **SENSITIVE** FWP SWAP: **SGCN3**
Predictive Models: L 40% Low (inductive) **Associated Habitats:** C 60% Common, O 9% Occasional

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 40% Low (inductive) **Associated Habitats:** C 19% Common

B - Short-eared Owl *(Asio flammeus)* **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** USFWS: **MBTA; BCC11; BCC17** PIF: **3**
Predictive Models: L 34% Low (inductive) **Associated Habitats:** C 82% Common, O 1% Occasional

B - Plumbeous Vireo *(Vireo plumbeus)* **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: **S3S4B** USFWS: **MBTA** PIF: **3**
Predictive Models: L 32% Low (inductive) **Associated Habitats:** C 22% Common, O 5% 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 28% Low (inductive) **Associated Habitats:** C 30% Common, O 40% Occasional

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 23% Low (inductive)

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

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: L 21% Low (inductive) **Associated Habitats:** C 54% Common, O 10% Occasional

B - Black Tern *(Chlidonias niger)* **SOC** S M

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: L 19% Low (inductive) **Associated Habitats:** C 1% Common, O 1% Occasional

B - Gray-crowned Rosy-Finch *(Leucosticte tephrocotis)* **SOC** Y WM

View in Field Guide View Predicted Models View Associated Habitat View Range Maps
Species of Concern - Native Species Global: **G5** State: **S2B,S5N** USFWS: **MBTA** FWP SWAP: **SGCN2, SGIN**
Predictive Models: L 11% Low (inductive) **Associated Habitats:** C 1% Common

B - Varied Thrush *(Ixoreus naevius)* **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 9% Low (inductive) **Associated Habitats:** C 7% Common, O 1% Occasional

B - Peregrine Falcon *(Falco peregrinus)* **SOC** Y

View in Field Guide View Predicted Models 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**
Predictive Models: L 6% Low (inductive) **Associated Habitats:** C 11% Common, O 13% Occasional

B - Black-backed Woodpecker *(Picoides arcticus)* **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** USFS: **Sensitive - Known on Forests (BD, BRT, CG, HLC, KOOT, LOLO)** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **1**
Predictive Models: L 6% Low (inductive) **Associated Habitats:** C 11% Common

B - Pacific Wren *(Troglodytes pacificus)* **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** FWP SWAP: **SGCN3** PIF: **2**
Predictive Models: L 6% Low (inductive) **Associated Habitats:** C 6% Common, O 5% Occasional

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

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: L 6% Low (inductive) **Associated Habitats:** C 1% Common, O 20% 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 2% Low (inductive) **Associated Habitats:** C 24% Common, O 6% Occasional

M - Western Spotted Skunk *(Spilogale gracilis)* **PSOC** Not Available Y

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

Potential Species of Concern - Native Species Global: **G5** State: **SU** FWP SWAP: **SGIN**

Associated Habitats: C 53% Common, O 2% Occasional

M - Grizzly Bear *(Ursus arctos)* **SOC** Not Available H

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

Species of Concern - Native Species Global: **G4** State: **S2S3** USFWS: **PS: LT; XN; DM** USFS: **Threatened on Forests (BD, CG, HLC, KOOT, LOLO)** BLM: **THREATENED** FWP SWAP: **SGCN2-3**

Associated Habitats: C 48% Common, O 20% Occasional

B - McCown's Longspur *(Rhynchophanes mccownii)* **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; BCC11; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**

Associated Habitats: O 39% Occasional

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 32% Common, O 1% Occasional

B - Loggerhead Shrike *(Lanius ludovicianus)* **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; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**

Associated Habitats: C 30% Common, O 29% Occasional

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 25% Common

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 24% Common, O 18% Occasional

R - Greater Short-horned Lizard *(Phrynosoma hernandesi)* **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 (CG) Sensitive - Suspected on Forests (HLC)** BLM: **SENSITIVE** FWP SWAP: **SGCN3, SGIN**

Associated Habitats: C 24% Common, O 5% Occasional

B - Burrowing Owl *(Athene cunicularia)* **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; BCC17** USFS: **Sensitive - Known on Forests (CG) Sensitive - Suspected on Forests (HLC)** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **1**

Associated Habitats: C 20% Common, O 10% Occasional

B - Sagebrush Sparrow *(Artemisiospiza nevadensis)* **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; BCC10; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3**

Associated Habitats: C 20% 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 20% 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 18% Common

B - Pinyon Jay *(Gymnorhinus cyanocephalus)* **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; BCC17** FWP SWAP: **SGCN3**
Associated Habitats: C 17% Common, O 1% 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: C 17% Common, O 1% Occasional

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 17% Common, O 1% Occasional

M - Black-tailed Prairie Dog *(Cynomys ludovicianus)* **SOC** Not Available Y

View in Field Guide 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**
Associated Habitats: C 15% Common, O 44% Occasional

B - Mountain Plover *(Charadrius montanus)* **SOC** Not Available S M

View in Field Guide 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**
Associated Habitats: C 15% Common, O 10% Occasional

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 15% 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 14% 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 2% Common, O 17% Occasional

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 18% Occasional

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 1% Common, O 18% Occasional

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 1% Common, O 17% 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 1% 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 1% 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 1% 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 1% 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 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 1% 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 1% Common

I - Enallagma civile *(Familiar 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

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 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 - 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

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 - 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 1% Common

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 1% 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 1% Common

B - Forster's Tern *(Sterna forsteri)* **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 1% 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 1% 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 1% Common

Latitude	Longitude
45.98010	-110.40987
46.19274	-110.69015

Structured Surveys

Summarized by: **19mtco0014 ShieldsRiverRd** *(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.

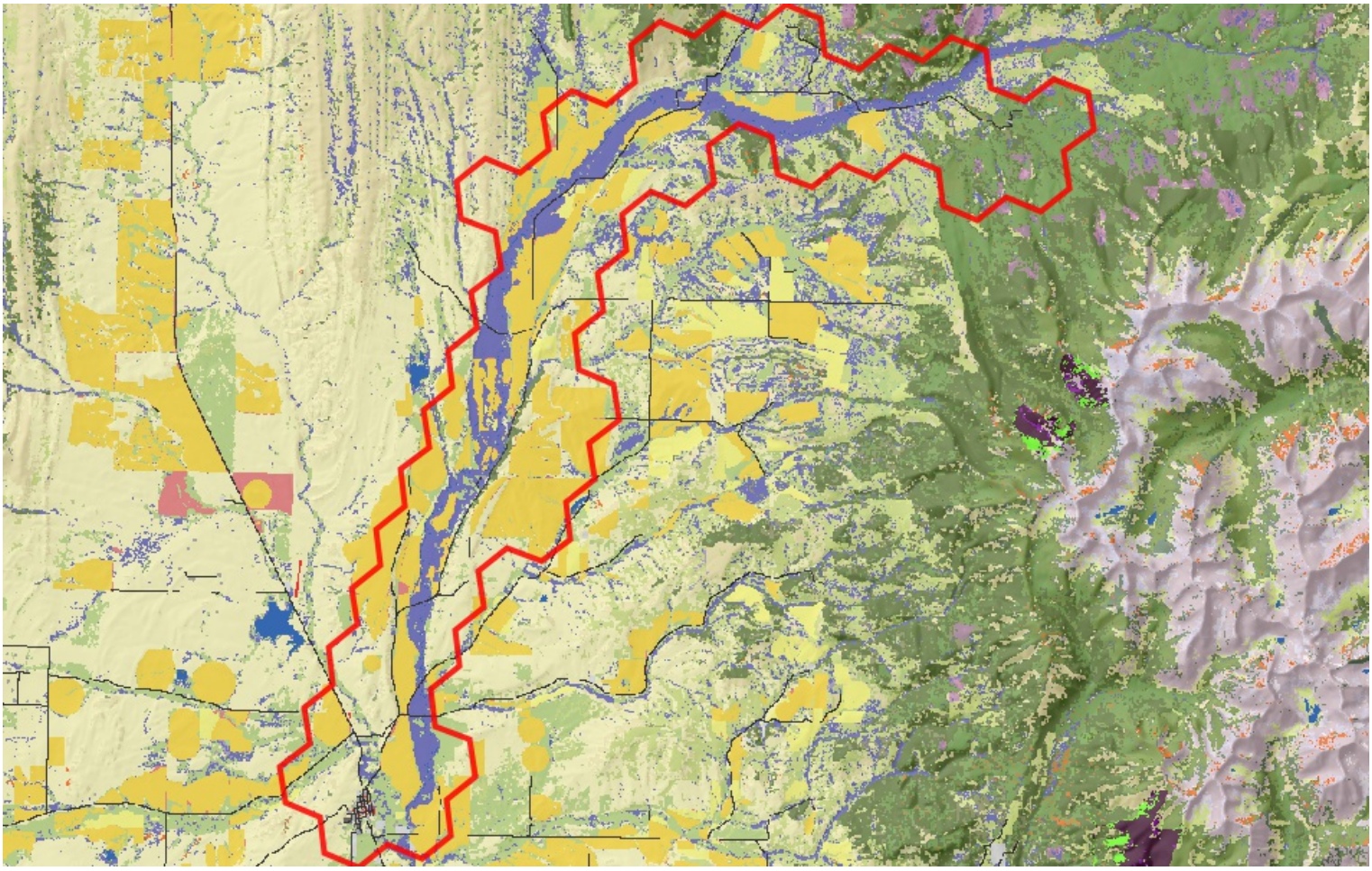
Within the report area you have requested, structured surveys are summarized by the number of each type of structured survey protocol that has been conducted, the number of species detections/observations resulting from these surveys, and the most recent year a survey has been conducted.

AR-Amphibian/Reptile Lentic *(Lentic Amphibian/Reptile Surveys)*	**Survey Count**: 3	**Obs Count**: 2	**Recent Survey**: 2006
B-Colonial-nesting Waterbirds *(Colonial-nesting Waterbird Surveys)*	**Survey Count**: 1	**Obs Count**:	**Recent Survey**: 2011
B-Flammuled Owl Call Playback *(Flammulated Owl Call Playback Survey)*	**Survey Count**: 10	**Obs Count**:	**Recent Survey**: 2013
B-Winter Breeding Owl *(Late Winter Breeding Owl Survey)*	**Survey Count**: 11	**Obs Count**: 2	**Recent Survey**: 2014
E-Eastern Heath Snail *(Eastern Heath Snail Survey)*	**Survey Count**: 3	**Obs Count**:	**Recent Survey**: 2012
E-Noxious Weed, Road-based *(Noxious Weed Road-based Visual Surveys)*	**Survey Count**: 7	**Obs Count**: 32	**Recent Survey**: 2003
F-Fish Electrofishing *(Fish Electrofishing Surveys)*	**Survey Count**: 96	**Obs Count**: 190	**Recent Survey**: 2014
F-Fish Other Survey *(Fish Other Survey (FWP Survey Type))*	**Survey Count**: 17	**Obs Count**: 32	**Recent Survey**: 1990
I-Aquatic Invert Lotic Dipnet *(Invertebrate Lotic Site Dipnet and Visual Encounter Survey)*	**Survey Count**: 1	**Obs Count**: 7	**Recent Survey**: 1992
I-Land Mollusk VES *(Terrestrial Mollusk Visual Encounter Survey)*	**Survey Count**: 1	**Obs Count**: 3	**Recent Survey**: 2005
P-Veg Plot *(Unspecified Vegetation Plot)*	**Survey Count**: 2	**Obs Count**: 59	**Recent Survey**: 1972

Latitude	Longitude
45.98010	-110.40987
46.19274	-110.69015

Land Cover

Summarized by: **19mtco0014 ShieldsRiverRd** *(Custom Area of Interest)*



27% (*8,031 Acres*)

Human Land Use

Agriculture

Cultivated Crops

These areas used for the production of crops, such as corn, soybeans, small grains, sunflowers, vegetables, and cotton, typically on an annual cycle. Agricultural plant cover is variable depending on season and type of farming. Other areas include more stable land cover of orchards and vineyards.

17% (*5,146 Acres*)

Wetland and Riparian Systems
Floodplain and Riparian

Rocky Mountain Lower Montane-Foothill Riparian Woodland and Shrubland

This ecological system is found throughout the Rocky Mountain and Colorado Plateau regions. In Montana, it ranges from approximately 945 to 2,042 meters (3,100 to 6,700 feet), characterristically occuring as a mosaic of multiple communities that are tree-dominated with a diverse shrub component. It is dependent on a natural hydrologic regime, especially annual to episodic flooding. Occurrences are found within the flood zone of rivers, on islands, sand or cobble bars, and on immediate streambanks. It can form large, wide occurrences on mid-channel islands in larger rivers or narrow bands on small, rocky canyon tributaries and well-drained benches. It is also typically found in backwater channels and other perennially wet but less scoured sites, such as floodplains swales and irrigation ditches. In some locations, occurrences extend into moderately high intermountain basins where the adjacent vegetation is sage steppe. Dominant trees may include boxelder maple (*Acer negundo*), narrowleaf cottonwood (*Populus angustifolia*), Plains cottonwood (*Populus deltoides*), Douglas-fir (*Pseudotsuga menziesii*), peachleaf willow (*Salix amygdaloides*), or Rocky Mountain juniper (*Juniperus scopulorum*). Dominant shrubs include Rocky Mountain maple (*Acer glabrum*), thinleaf alder (*Alnus incana*), river birch (*Betula occidentalis*), redoiser dogwood (*Cornus sericea*), hawthorne (*Crataegus spp.*), chokecherry (*Prunus virginiana*), skunkbush sumac (*Rhus trilobata*), Drummondâ€™s willow (*Salix drummondiana*), sandbar willow (*Salix exigua*), Pacific willow (*Salix lucida*), rose (*Rosa* species), silver buffaloberry (*Shepherdia argentea*), or snowberry (*Symphoricarpos* species). Exotic trees of Russian olive (*Elaeagnus angustifolia*) and saltcedar (*Tamarix* species) may invade some stands in southeastern and south-central Montana.

14% (*4,348 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.

10% (*2,871 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.

7% (*2,000 Acres*)

Grassland Systems
Montane Grassland

Rocky Mountain Subalpine-Montane Mesic Meadow

This system is restricted to sites from lower montane to subalpine elevations where finely textured soils, snow deposition, or windswept conditions limit tree establishment. Many occurrences are small patches, and are often found in mosaics within woodlands, dense shrublands, or just below alpine communities. Elevations range from 600 to2,011 meters (2,000-6,600 feet) in the northern Rocky Mountains and up to 2,286- 2,682 meters (7,500-8,800 feet) in the mountains of southwestern Montana. This system occurs on gentle to moderate-gradient slopes and in relatively moist habitats. Soils are typically seasonally moist to saturated in the spring, but dry out later in the growing season. At montane elevations, soils are usually clays or silt loams, and some occurrences may have inclusions of hydric soils in low, depressional areas. At subalpine elevations, soils are derived a variety of parent materials, and are usually rocky or gravelly with good aeration and drainage, but with a well developed organic layer. Some occurrences are more heavily dominated by grasses, while others are more dominated by forbs. Common grasses include tufted hairgrass (*Deschampsia caespitosa*), showy oniongrass (*Melica spectabilis*), mountain brome (*Bromus carinatus*), blue wildrye (*Elymus glaucus*), awned sedge (*Carex atherodes*), and small wing sedge (*Carex microptera*). Forb dominated meadows usually comprise a wide species diversity which differs from montane to subalpine elevations. Shrubs such as shrubby cinquefoil (*Dasiphora fruticosa* ssp. *floribunda*) and snowberry (*Symphoricarpos* species) are occasional but not abundant. This system differs from the Rocky Mountain Alpine Montane Wet Meadow system in that it soils dry out by mid-summer.

5% (*1,590 Acres*)

Shrubland, Steppe and Savanna Systems
Sagebrush Steppe

Montane Sagebrush Steppe

This system dominates the montane and subalpine landscape of southwestern Montana from valley bottoms to subalpine ridges and is found as far north as Glacier National Park. It can also be seen in the island mountain ranges of the north-central and south-central portions of the state. It primarily occurs on deep-soiled to stony flats, ridges, nearly flat ridgetops, and mountain slopes. In general, this system occurs in areas of gentle topography, fine soils, subsurface moisture or mesic conditions, within zones of higher precipitation and areas of snow accumulation. It occurs on all slopes and aspects, variable substrates and all soil types. The shrub component of this system is generally dominated by mountain big sagebrush (*Artemisia tridentata ssp. vaseyana*). Other co-dominant shrubs include silver sagebrush (*Artemisia cana ssp. viscidula)*, subalpine big sagebrush (*Artemisia tridentata ssp. spiciformis*), three tip sagebrush (*Artemisia tripartita* ssp*. tripartita*) and antelope bitterbrush (*Purshia tridentata*). Little sagebrush (*Artemisia arbuscula ssp. arbuscula*) shrublands are only found in southwestern Montana on sites with a perched water table. Wyoming big sagebrush (*Artemisia tridentata ssp. wyomingensis*) sites may be included within this system if occurrences are at montane elevations, and are associated with montane graminoids such as Idaho fescue (*Festuca idahoensis),* spike fescue (*Leucopoa kingii*), or poverty oatgrass (*Danthonia intermedia)*. In ares where sage has been eliminated by human activities like burning, disking or poisoning, other shrubs may be dominant, especially rubber rabbitbrush (*Ericameria nauseosa*), and green rabbitbrush (*Chrysothamnus viscidiflorus*). Because of the mesic site conditions, most occurrences support a diverse herbaceous undergrowth of grasses and forbs. Shrub canopy cover is extremely variable, ranging from 10 percent to as high as 40 or 50 percent.

5% (*1,513 Acres*)

Forest and Woodland Systems
Conifer-dominated forest and woodland (xeric-mesic)

Rocky Mountain Montane Douglas-fir Forest and Woodland

In Montana, this ecological system occurs on the east side of the Continental Divide, north to about the McDonald Pass area, and along the Rocky Mountain Front. This system is associated with a dry to submesic continental climate regime with annual precipitation ranging from 51 to 102 centimeters (20-40 inches), with a maximum in winter or late spring. Winter snowpacks typically melt off in early spring at lower elevations. Elevations range from valley bottoms to 1,980 meters (6500 feet) in northern Montana and up to 2,286 meters (7500 feet) on warm aspects in southern Montana. It occurs on north-facing aspects in most areas, and south-facing aspects at higher elevations. This is a Douglas-fir (*Pseudotsuga menziesii*) dominated system without any maritime floristic composition. Fire disturbance intervals are as infrequent as 500 years, and as a result, individual trees and forests can attain great age on some sites (500 to 1,500 years). In Montana, this system occurs from lower montane to lower subalpine environments and is prevalent on calcareous substrates. Common understory shrubs include common ninebark (*Physocarpus malvaceus*), common juniper (*Juniperus communis*), Rocky Mountain juniper (*Juniperus scopulorum*), birch-leaf spiraea (*Spiraea betulifolia*), snowberry (*Symphoricarpos* species), creeping Oregon grape (*Mahonia repens*) and Canadian buffaloberry (*Shepherdia canadensis*). The Douglas-fir/pinegrass (C*alamogrostis rubescens*) type is the most ubiquitous association found within this system in Montana.

5% (*1,428 Acres*)

Forest and Woodland Systems
Conifer-dominated forest and woodland (xeric-mesic)

Rocky Mountain Lodgepole Pine Forest

This forested system is widespread in upper montane to subalpine zones of the Montana Rocky Mountains, and east into island ranges of north-central Montana and the Bighorn and Beartooth ranges of south-central Montana. These are montane to subalpine forests where the dominance of lodgepole pine (*Pinus contorta*) is related to fire history and topoedaphic conditions. In Montana, elevation ranges from 975 to 2,743 meters (3,200-9000 feet). These forests occur on flats to slopes of all degrees and aspect, as well as valley bottoms. Fire is frequent, and stand-replacing fires are common. Following stand-replacing fires, lodgepole pinewill rapidly colonize and develop into dense, even-aged stands. Most forests in this ecological system occur as early- to mid-successional forests persisting for 50-200 years on warmer, lower elevation forests, and 150-400 years in subalpine forests. They generally occur on dry to intermediate sites with a wide seasonal range of temperatures and long precipitation-free periods in summer. Snowfall is heavy and supplies the major source of soil water used for growth in early summer. Vigorous stands occur where the precipitation exceeds 533 millimeters (21 inches). These lodgepole forests are typically associated with rock types weathering to acidic substrates, such as granite and rhyolite. In west-central Montana ranges such the Big Belts and the Rocky Mountain Front, these forests are found on limestone substrates. These systems are especially well developed on the broad ridges and high valleys near and east of the Continental Divide. Succession proceeds at different rates, moving relatively quickly on low-elevation, mesic sites and particularly slowly in high-elevation forests such as those along the Continental Divide in Montana.

No Image

2% (*659 Acres*)

Human Land Use
Developed

Other Roads

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

Additional Limited Land Cover

1% (*419 Acres*) Pasture/Hay
1% (*369 Acres*) Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland
1% (*348 Acres*) Aspen Forest and Woodland
1% (*297 Acres*) Alpine-Montane Wet Meadow
<1% (*147 Acres*) Rocky Mountain Montane-Foothill Deciduous Shrubland
<1% (*145 Acres*) Introduced Upland Vegetation - Annual and Biennial Forbland
<1% (*143 Acres*) Low Intensity Residential
<1% (*125 Acres*) Open Water
<1% (*89 Acres*) Developed, Open Space
<1% (*69 Acres*) Harvested forest-tree regeneration
<1% (*53 Acres*) Aspen and Mixed Conifer Forest
<1% (*43 Acres*) Major Roads
<1% (*35 Acres*) Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland
<1% (*35 Acres*) Rocky Mountain Foothill Limber Pine - Juniper Woodland
<1% (*35 Acres*) Rocky Mountain Subalpine-Upper Montane Grassland
<1% (*34 Acres*) Harvested forest-shrub regeneration
<1% (*25 Acres*) Rocky Mountain Subalpine Deciduous Shrubland
<1% (*22 Acres*) Insect-Killed Forest
<1% (*12 Acres*) Harvested forest-grass regeneration
<1% (*11 Acres*) Commercial / Industrial
<1% (*10 Acres*) High Intensity Residential
<1% (*2 Acres*) Emergent Marsh
<1% (*1 Acres*) Rocky Mountain Lower Montane-Foothill Shrubland
<1% (*0 Acres*) Low Sagebrush Shrubland

Latitude	Longitude
45.98010	-110.40987
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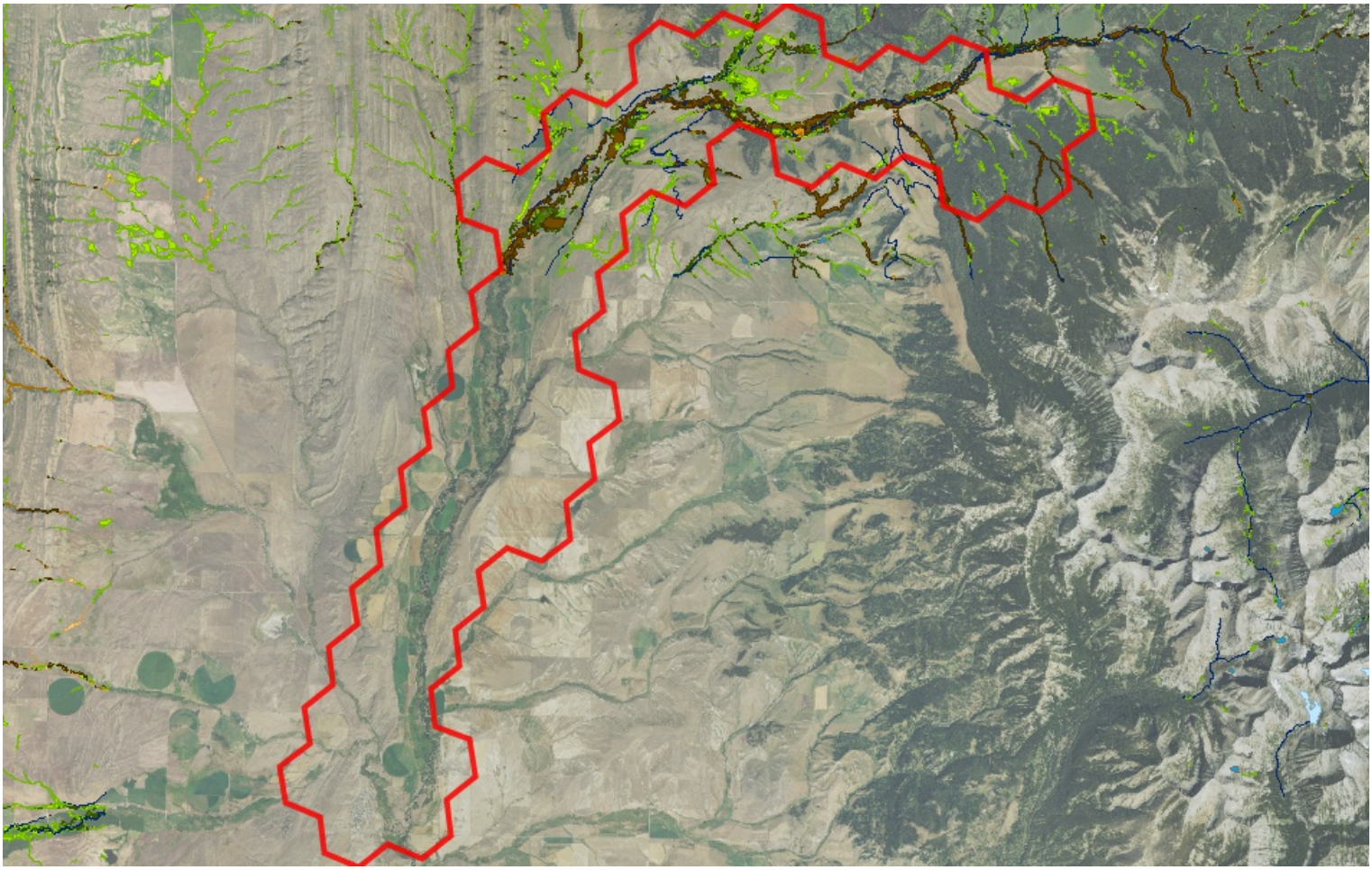
Wetland and Riparian

Summarized by: **19mtco0014 ShieldsRiverRd** *(Custom Area of Interest)*



Wetland and Riparian Mapping

Explain

P - Palustrine

AB - Aquatic Bed

F - Semipermanently Flooded	12 Acres	
(no modifier)	**1 Acres**	**PABF**
b - Beaver	**8 Acres**	**PABFb**
h - Diked/Impounded	**3 Acres**	**PABFh**
x - Excavated	**<1 Acres**	**PABFx**
G - Intermittently Exposed	2 Acres	
h - Diked/Impounded	**2 Acres**	**PABGh**

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

US - Unconsolidated Shore

C - Seasonally Flooded	1 Acres	
b - Beaver	**1 Acres**	**PUSCb**

P - Palustrine, US - Unconsolidated Shore
Wetlands with less than 75% areal cover of stones, boulders, or bedrock. AND with less than 30% vegetative cover AND the wetland is irregularly exposed due to seasonal or irregular flooding and subsequent drying.

EM - Emergent

A - Temporarily Flooded	518 Acres	
(no modifier)	**516 Acres**	**PEMA**
f - Farmed	**<1 Acres**	**PEMAf**
x - Excavated	**2 Acres**	**PEMAx**
C - Seasonally Flooded	192 Acres	
(no modifier)	**191 Acres**	**PEMC**

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

x - Excavated **1 Acres** PEMCx

SS - Scrub-Shrub

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.

A - Temporarily Flooded 262 Acres

(no modifier) **262 Acres** PSSA
x - Excavated **<1 Acres** PSSAx

C - Seasonally Flooded 82 Acres

(no modifier) **82 Acres** PSSC

FO - Forested

P - Palustrine, FO - Forested
Wetlands dominated by woody vegetation greater than 6 meters (20 feet) tall.

A - Temporarily Flooded 6 Acres

(no modifier) **6 Acres** PFOA

R - Riverine (Rivers)

3 - Upper Perennial

UB - Unconsolidated Bottom

R - Riverine (Rivers), 3 - Upper Perennial, UB - Unconsolidated Bottom
Stream channels where the substrate is at least 25% mud, silt or other fine particles.

F - Semipermanently Flooded 3 Acres

(no modifier) **3 Acres** R3UBF

G - Intermittently Exposed 32 Acres

(no modifier) **32 Acres** R3UBG

H - Permanently Flooded 64 Acres

(no modifier) **64 Acres** R3UBH

US - Unconsolidated Shore

R - Riverine (Rivers), 3 - Upper Perennial, US - Unconsolidated Shore
Shorelines with 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.

A - Temporarily Flooded 16 Acres

(no modifier) **16 Acres** R3USA

C - Seasonally Flooded 5 Acres

(no modifier) **5 Acres** R3USC

4 - Intermittent

SB - Stream Bed

R - Riverine (Rivers), 4 - Intermittent, SB - Stream Bed
Active channel that contains periodic water flow.

A - Temporarily Flooded 2 Acres

(no modifier) **1 Acres** R4SBA
x - Excavated **1 Acres** R4SBAx

C - Seasonally Flooded 25 Acres

x - Excavated **25 Acres** R4SBCx

Rp - Riparian

1 - Lotic

SS - Scrub-Shrub
(no modifier) **33 Acres** Rp1SS

Rp - Riparian, 1 - Lotic, 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) **927 Acres** Rp1FO

Rp - Riparian, 1 - Lotic, FO - Forested
This riparian class has woody vegetation that is greater than 6 meters (20 feet) tall.

EM - Emergent
(no modifier) **8 Acres** Rp1EM

Rp - Riparian, 1 - Lotic, EM - Emergent
Riparian areas that have erect, rooted herbaceous vegetation during most of the growing season.

Latitude	Longitude
45.98010	-110.40987
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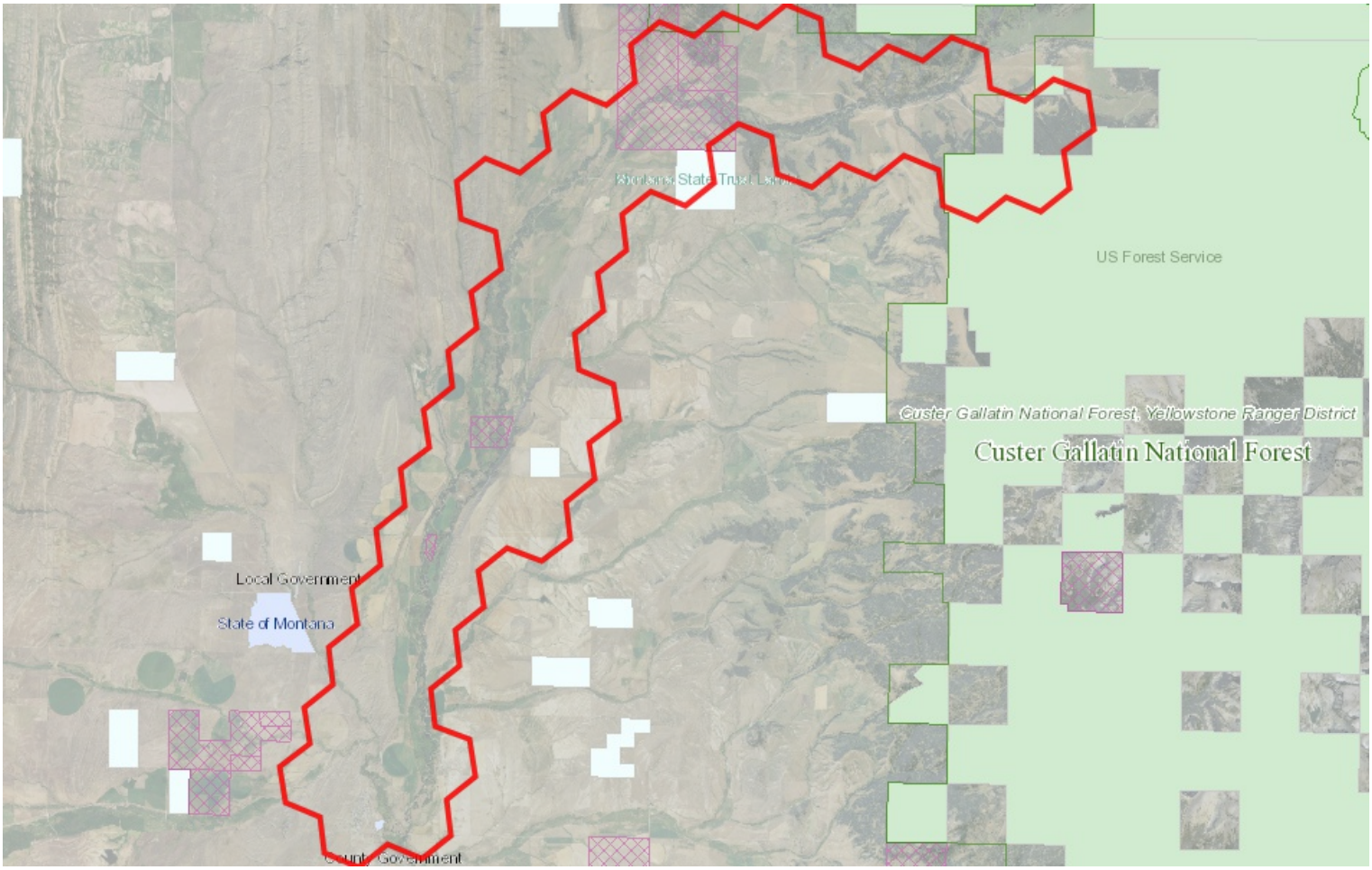
Land Management

Summarized by: **19mtco0014 ShieldsRiverRd** *(Custom Area of Interest)*



Land Management Summary

Explain

	Ownership	Tribal	Easements	Other Boundaries (possible overlap)
Public Lands	1,994 Acres (7%)			
Federal	1,523 Acres (5%)			
US Forest Service	1,523 Acres (5%)			
USFS Owned	1,523 Acres (5%)			
USFS Ranger Districts				2,620 Acres
Custer Gallatin National Forest, Yellowstone Ranger District				2,620 Acres
USFS National Forest Boundaries				2,620 Acres
Custer Gallatin National Forest				2,620 Acres
State	469 Acres (2%)			
Montana State Trust Lands	455 Acres (2%)			
MT State Trust Owned	455 Acres (2%)			
State of Montana	14 Acres (<1%)			
State of Montana Owned	14 Acres (<1%)			
Local	2 Acres (<1%)			
Local Government	2 Acres (<1%)			
Local Government Owned	2 Acres (<1%)			
Conservation Easements			2,531 Acres (8%)	

Land Management Summary

Explain

	Ownership	Tribal	Easements	Other Boundaries (possible overlap)
Private			2,497 Acres (8%)	
Montana Land Reliance			205 Acres (1%)	
Gallatin Valley Land Trust			2,292 Acres (8%)	
State & Local			34 Acres (<1%)	
Montana Department of Transportation			34 Acres (<1%)	
Private Lands or Unknown Ownership	**25,526 Acres (85%)**			

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45.98010	-110.40987
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Biological Reports

Summarized by: **19mtco0014 ShieldsRiverRd** *(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

- Confluence Consulting Inc. 2010. ***Montana Department of Transportation Wetland Mitigation Monitoring Reports (various sites). MDT Helena, MT.***
- Confluence Consulting Inc. 2011. ***Montana Department of Transportation Wetland Mitigation Monitoring Reports (various sites)***. MDT Helena, MT.
- Confluence Consulting Inc. 2012. ***Montana Department of Transportation Wetland Mitigation Monitoring Reports (various sites). MDT Helena, MT.***
- Confluence Consulting Inc. 2013. ***Montana Department of Transportation Wetland Mitigation Monitoring Reports (various sites). MDT Helena, MT.***
- Knowles, C. J., P. R. Knowles, B. Giddings, and A. R. Dood. 1995. ***Status of the Swift fox in Montana***. [document submitted for publication]. FaunaWest Wildlife Consultants, Boulder, MT, and MT Dept. of FWP, Helena, MT. 16 pp.
- Respec. 2016. Easton Ranch Mitigation Site, Park County, Montana, Montana Department of Transportation Wetland Mitigation Monitoring Report: Year 2016. Helena, MT: Respec. 37 p plus appendices.

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
45.98010	-110.40987
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Invasive and Pest Species

Summarized by: **19mtco0014 ShieldsRiverRd** *(Custom Area of Interest)*

	# Obs	Predictive Model	Associated Habitat	Range
Noxious Weeds: Priority 2B				
V - Centaurea stoebe *(Spotted Knapweed)* N2B	11	Not Available	Not Assigned	D
View in Field Guide View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**				
V - Cirsium arvense *(Canada Thistle)* N2B	41	Not Available	Not Assigned	D
View in Field Guide View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: **G5** State: **SNA**				
V - Convolvulus arvensis *(Field Bindweed)* N2B	2	Not Available	Not Assigned	D
View in Field Guide View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**				
V - Cynoglossum officinale *(Common Hound's-tongue)* N2B	43	Not Available	Not Assigned	D
View in Field Guide View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**				
V - Euphorbia virgata *(Leafy Spurge)* N2B	4	Not Available	Not Assigned	D
View in Field Guide View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: **GNRTNR** State: **SNA**				
V - Lepidium draba *(Whitetop)* N2B	6	Not Available	Not Assigned	D
View in Field Guide View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**				
V - Berteroa incana *(Hoary False-alyssum)* N2B	1	Not Available	Not Assigned	
View in Field Guide Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**				
V - Leucanthemum vulgare *(Oxeye Daisy)* N2B	30	Not Available	Not Assigned	
View in Field Guide Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**				
Regulated Weeds: Priority 3				
V - Bromus tectorum *(Cheatgrass)* R3	1	Not Available	Not Assigned	D
View in Field Guide View Range Maps Regulated Weed: Priority 3 - Non-native Species Global: **GNR** State: **SNA**				
Biocontrol Species				
I - Mecinus janthinus *(Yellow 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:** O 55% Optimal (inductive), M 34% Moderate (inductive), L 4% 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:** O 2% Optimal (inductive), M 85% Moderate (inductive), L 9% 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 55% Moderate (inductive), L 40% Low (inductive)				
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 47% Moderate (inductive), L 47% 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 47% Moderate (inductive), L 38% 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 30% Moderate (inductive), L 47% 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 Lee Nelson leenelson@mt.gov (406) 444-2447
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) 444-5209
Managed Terrestrial Game and Nongame Animal Data	Smith Wells – MFWP Data Analyst smith.wells@mt.gov (406) 444-3759
Fisheries Data	Adam Petersen – MFWP Fish Data Manager apetersen@mt.gov (406) 444-1275
Wildlife and Fisheries Scientific Collector's Permits	http://fwp.mt.gov/doingBusiness/licenses/scientificWildlife/ Karen Speeg for Wildlife kspeeg@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:

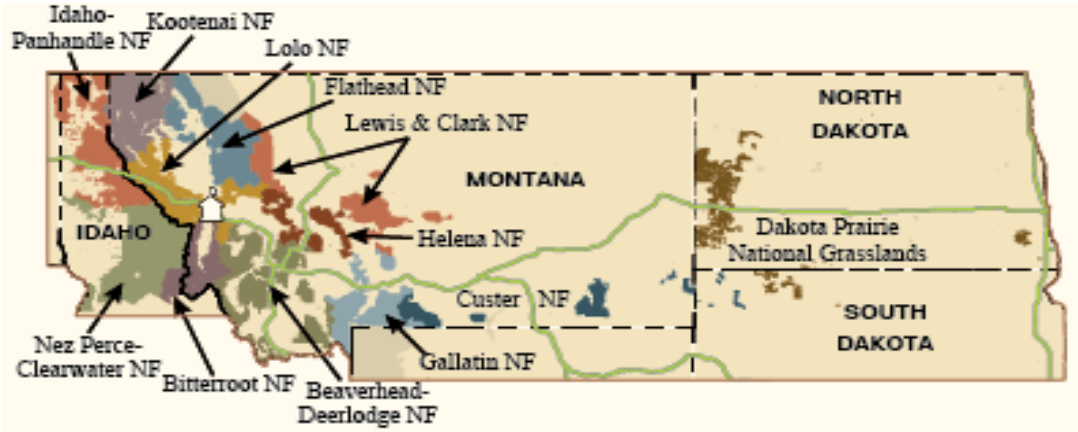
Information Planning and Conservation (IPAC) website: http://ecos.fws.gov/ipac/

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

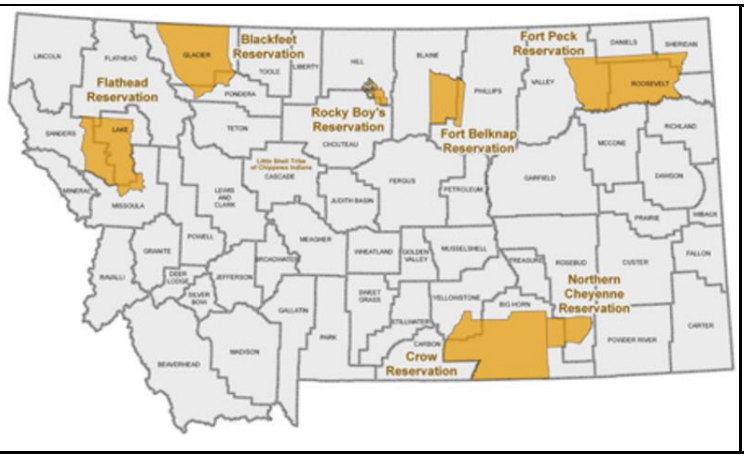
United States Forest Service



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

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

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

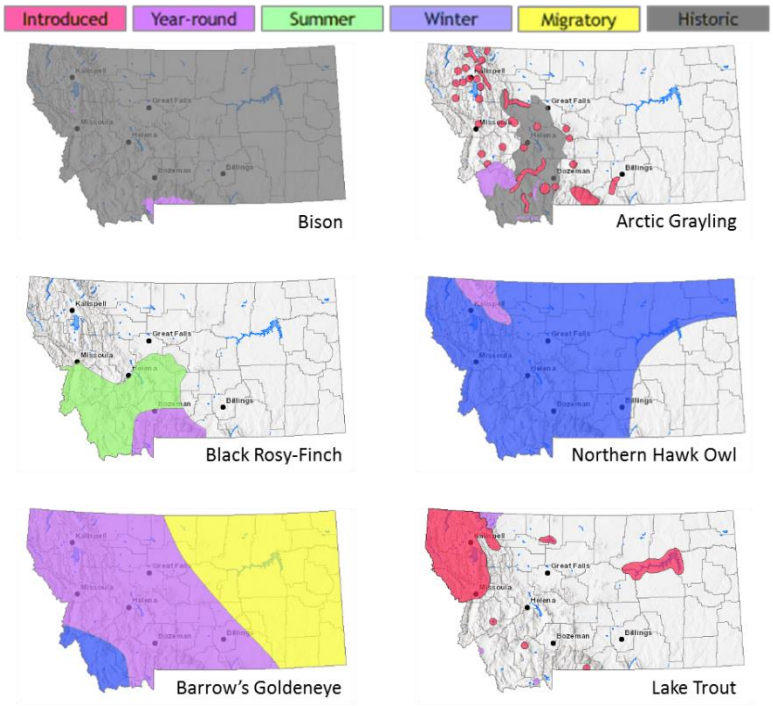
The location of a verified observation or specimen record typically known or assumed to represent a breeding population or a portion of a breeding population. Animal SO's are generally: (1) buffers of terrestrial point observations based on documented species' home range sizes; (2) buffers of stream 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) 444-5354 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

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

Web Soil Survey Tool