

NATURAL RESOURCES AND CONSERVATION



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FINAL ENVIRONMENTAL ASSESSMENT

Project Name:	Granite Creek Reclamation and Realignment Project
Proposed Implementation Date:	Fall 2022
Proponent:	Ruby Valley Conservation District
Location:	45.324781, -112.001558
County:	Madison

I. TYPE AND PURPOSE OF ACTION

This project is a collaborative effort that aims to improve safety along Highway 287 just east of Nevada City (herein, the City), restore the confluence of Granite Creek and Alder Gulch, and protect native fish species in upper Granite Creek following the reconnection between these two waterbodies. The confluence of Granite Creek and Alder Gulch is obstructed by several large dredge piles left in place from historic mining practices in the area, which are contributing to aggradation of Granite Creek and hazardous road conditions when the creek overtops the bridge during high water and ice jams. Sediment deposition in lower Granite Creek has resulted in unsafe driving conditions along Highway 287 at the Granite Creek Bridge. The aggradation of sediment in the vicinity of the bridge has resulted in a reduction of bridge capacity, causing the highway to flood during high flow events and ice jams that amass at the bridge. Unsafe driving conditions can develop quickly and unexpectedly. The reduction in bridge capacity also contributes to added potential for bridge and road damage during flood events. The combination of flows overtopping the bridge and the creek scouring around the bridge during floods and ice jams increases the risk of bridge and road failure. Montana Department of Transportation (MDOT) has been required to perform emergency action at the bridge to keep the roadway intact. Failure of the Granite Creek Bridge would sever a major transportation corridor between the Madison and Ruby valleys.

The project will restore the confluence of Granite Creek and Alder Gulch, improve water quality, expand the extent and function of stream, riparian, wetland, and floodplain habitats, and conserve fish native to Montana while improving highway safety. This project will accomplish those goals by reclaiming the dredge piles to restore the confluence, realign 1,660 feet of the Granite Creek river channel to better transport sediment, and prevent water flowing onto Highway 287, relocate the highway bridge to a more appropriate location, and install a fish barrier to protect native Westslope cutthroat trout (*Oncorhynchus clarkii lewisi*). If contaminated materials are identified along the restored channel alignment and adjacent floodplain during reclamation activities, they will be removed from the site, properly disposed of, and replaced with clean fill.

The Montana Department of Transportation has identified a need for this project and is currently planning to replace the bridge in 2023. An alternatives analysis performed by Great West Engineering indicated the most appropriate location for the bridge is 200 feet east of the existing bridge, requiring the realignment of 1,600 feet of Granite Creek. The bridge realignment and

channel relocation phases of the project must occur simultaneously for the channel to function properly and for the project to improve driver safety along Highway 287.

Below are the goals and associated objectives of the project:

- **GOAL 1: Improve the safety of Highway 287 in the vicinity of the Granite Creek confluence with Alder Creek.**
 - Objective #1: Reposition the Highway 287 Bridge crossing Granite Creek to alleviate flooding, icing, and sediment transport issues stemming from historic mining.
 - Objective #2: Realign 1,660 feet of Granite Creek to improve sediment transport.
 - Objective #3: Reclaim and restore the confluence of Granite Creek to Alder Gulch to improve sediment transport and improve ecological connectivity.
- **GOAL 2: Prevent contamination of Granite Creek, Alder Gulch, and its associated floodplains by heavy metals during reclamation at the confluence of these creeks.**
 - Objective #4: Perform contaminant sampling in areas of previous mining activities in vicinity of project.
 - Objective #5: Prepare contaminant reclamation plan to address contamination identified during sampling.
 - Objective #6: Remove contaminated material identified during sampling and replace with clean material.
- **GOAL 3: Conserve native fish species in upper Granite Creek.**
 - Objective #7: Construct fish barrier in lower Granite Creek to prevent non-native fish assemblages from migrating upstream.

Funding for the project will be through a grant from the Department of Natural Resources and Conservation (DNRC) American Plan Rescue Act (ARPA) grant program.

II. PROJECT DEVELOPMENT

1. PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED:

Provide a brief chronology of the scoping and ongoing involvement for this project. List number of individuals contacted, number of responses received, and newspapers in which notices were placed and for how long. Briefly summarize issues received from the public.

This project is a collaborative effort between the Ruby Valley Conservation District; the Montana Department of Transportation; Montana Fish, Wildlife and Parks; and two private landowners. Ongoing communication has occurred between the City; engineer-of-record, Molly Davidson of Morrison-Maierle; DNRC; Department of Environmental Quality (DEQ); the Montana Historical Society; nearby property owners; and other local government entities. The project has been presented at local meetings and made available for public comment.

Letters of support for this project have been received from the following entities:

- MDOT (provided for RDG Planning Grant in 2018, additional letter forthcoming)
- MT FWP (included) - attached to application 7/20/21
- Raisland Trust (provided for RDG Planning Grant in 2018, additional letter forthcoming)

- Central City LLC (provided for RDG Planning Grant in 2018, additional letter forthcoming)
- Madison County (provided for RDG Planning Grant in 2018, additional letter forthcoming)
- US BLM (letter forthcoming)

DNRC will post a draft of this Environmental Assessment to be available for public comment for 30 days on the DNRC – Public Notices webpage. For any comments submitted by the public, the Montana Environmental Policy Act (MEPA) Coordinator will review and work with the Grant Manager and applicant to adequately address those comments.

2. OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:

Examples: cost-share agreement with U.S. Forest Service, 124 Permit, 3A Authorization, Air Quality Major Open Burning Permit.

- United States Army Corp of Engineers (USACE) Clean Water Act 404 Permit
- United States Army Corp of Engineers Nationwide Permit 27
- Montana Fish, Wildlife and Parks Streambed Protection Act 124 Permit
- Ruby Valley Conservation District 310 Permit
- Montana Department of Environmental Quality 318 Permit for Temporary Turbidity
- Montana Department of Environmental Quality SWPPP (requirement TBD)
- Montana Department of Environmental Quality Dewatering (requirement TBD)

3. ALTERNATIVE DEVELOPMENT:

Describe alternatives considered and, if applicable, provide brief description of how the alternatives were developed. List alternatives that were considered but eliminated from further analysis and why. Include the No Action alternative.

In June of 2019, an alternatives analysis and conceptual design planning effort was performed by Great West Engineering, which provided the Ruby Valley Conservation District a summary of existing conditions and alternative designs for improving the channel and bridge alignments. The following is a synopsis of alternatives considered:

Stream Alignment Alternative 1:

In Alternative 1, Granite Creek would re-occupy a former channel alignment upstream of Highway 287. The Granite Creek Bridge would be replaced in its existing condition. This alignment would result in streambed slopes ranging from 0.6% – 1.12%, which falls within the targeted channel gradient. The estimated material quantities under this option include 7,050 CY (cut) and 1,350 CY (fill), for a total earthwork quantity of 8,400 CY. This alternative was not selected because 1) the bridge at its current location is failing and has been undermined by several years of localized flooding, and 2) problems with the existing roadway angle of approach, MDT prefers to improve the roadway approach, prism, and bridge infrastructure.

Stream Alignment Alternative 2:

In alternative 2, Granite Creek would be maintained in its existing alignment upstream of Highway 287, while the 90-degree bend at the highway would be removed and the channel realigned to pass beneath the highway at this location. This alignment would require a new bridge crossing at Highway 287, and would result in streambed slopes ranging from 0.51% to 1.16%. The estimated material quantities under this option include 12,000 CY (cut) and 2,300 CY (fill), for a total

earthwork quantity of 14,300 CY. This alternative was not selected because the downstream channel alignment would require extensive and expensive restoration of the channel through several ponds and large dredge piles, while also moving the stream away from existing floodplains and wetlands. As a result, the added costs for this alternative do not outweigh the natural resource benefits.

Stream Alignment Alternative 1A:

This alignment would relocate Granite Creek through a remnant channel that exists between the alignments proposed in Alternatives 1 and 2, thereby reducing the amount of channel restoration required to meet the project's restoration objectives downstream of Highway 287. The new alignment would result in streambed slopes around 0.70%. The estimated material quantities under this option include 8,600 CY (cut) and 2,100 CY (fill), for a total earthwork quantity of 10,700 CY. Alternative 1A was selected as the "preferred alternative" by the stakeholder group because it 1) provides the most efficient sediment transport capacity for the channel, 2) creates a preferable channel alignment and bridge approach, and 3) balances the overall project cost of channel construction with benefits to natural resources.

III. IMPACTS ON THE PHYSICAL ENVIRONMENT
<ul style="list-style-type: none"> • <i>RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.</i> • <i>Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.</i> • <i>Enter "NONE" If no impacts are identified or the resource is not present.</i>

4. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:

Consider the presence of fragile, compactable or unstable soils. Identify unusual geologic features. Specify any special reclamation considerations. Identify direct, indirect, and cumulative effects to soils.

The soils upstream of Hwy 287 bridge are a loamy sand with slopes of 2-8 percent. The soils have been impacted by historical flooding and flood irrigation. Downstream from the Hwy 287 bridge, the soils are sandy and sparse. The soils have largely been displaced by historical dredge piles of gravel to small boulder sized rock (Aquatic Resources Delineation for Granite Creek Channel Restoration).

The NRCS Web Soil Survey indicates that the soil near the project area consists of approximately:

- Cumulic Haplustolls (30% of project area), loam to gravelly loam, 1 – 5 percent slopes, Hydrologic Soil Group B, moderately well drained
- Aquic Cumulic Haplustolls (25% of project area), rarely ponded, fine sandy loam, 1 – 5 percent slopes, Hydrologic Soil Group C, somewhat poorly drained
- Chaffee (20% of project area), frequently ponded, loam to fine sandy loam, 0 - 3 percent slopes, Hydrologic Soil Group B/D, very poorly drained
- Kleinschmidt and Bruneel (9.5% of project area)
- Ustic Torriorthents (18.5% of project area), hilly, sandy and gravelly alluvium

Proposed Alternative – The project will have a cumulative beneficial impact by regrading dredge

piles and ponds left behind by historic mining practices to achieve a functional and vegetated floodplain and riparian corridor along lower Granite Creek. (Granite Creek Channel Restoration Design Plans, prepared by Great West Engineering, 1/10/2020)

No Action – Continued adverse impacts and safety issues to Highway 287 Bridge crossing Granite Creek; contamination of Granite Creek, Alder Gulch and its associated floodplains by heavy metals; and impacts to native fish species in Upper Granite Creek.

5. WATER QUALITY, QUANTITY AND DISTRIBUTION:

Identify important surface or groundwater resources. Consider the potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality. Identify direct, indirect, and cumulative effects to water resources.

Ruby Valley Conservation District hired Hydrometrics Inc. to conduct soil surveys for heavy metals within the project extent. The results for all heavy metals were below the human health standards. The consultant was asked to provide recommendation for the next steps. They recommended excavation to ensure no heavy metals are filtering into the aquifer.

The project reach has been impaired due to historic mining techniques. The project reach has heavy metal concentrations that are below the human health standards for remedial actions. Granite Creek and Alder Creek are unable to adequately follow the natural sediment regime due to a loss of connectivity during the 1800's.

Proposed Alternative – The project will have direct, indirect, short- and long-term, localized and regional, reoccurring beneficial impacts by removing heavy metals found on site. Removal of these materials will benefit groundwater and aquifers by eliminating a source of contamination. Restoring Granite Creek's floodplain is likely to allow for improved aquifer recharge during high flow events. The project will improve surface waters by increasing shade and reducing stream temperatures in the restored floodplain and riparian corridor along lower Granite Creek. If heavy metals are discovered in the project area they will be removed, which will eliminate a source of contamination to surface waters. Restoration of a functional floodplain and riparian corridor will buffer the stream channel from sediment and nutrient inputs that might otherwise reach the channel in the absence of such buffering features (Granite Creek Channel Restoration Design Plans).

No Action – Continued adverse impacts to water quality from flooding, icing, and metals-laden sediment transport issues.

6. AIR QUALITY:

What pollutants or particulate would be produced (i.e. particulate matter from road use or harvesting, slash pile burning, prescribed burning, etc)? Identify the Airshed and Impact Zone (if any) according to the Montana/Idaho Airshed Group. Identify direct, indirect, and cumulative effects to air quality.

The proposed project is not located in an air quality Attainment Area, as set by the U.S. Environmental Protection Agency's National Ambient Air Quality Standards. The project area is not listed as impaired in air quality particulates, carbon monoxide, lead or sulfur dioxide per the Montana DEQ Air Quality Nonattainment Status List (Montana DEQ Air Quality). No air pollution facilities are in, or near (within 1/2-mile) the project area. No nonattainment areas exist in the vicinity of the project (NEPAssist).

Proposed Alternatives – Potentially direct, minor, short-term, localized adverse impacts to air quality from fugitive dust introduced to the environment from construction activity and exhaust fumes from the operation of heavy construction equipment. The contractor will need to provide dust control measures and should limit construction working hours to approximately 7 AM to 7 PM.

No Action – No impacts to air quality.

7. VEGETATION COVER, QUANTITY AND QUALITY:

What changes would the action cause to vegetative communities? Consider rare plants or cover types that would be affected. Identify direct, indirect, and cumulative effects to vegetation.

The riparian corridor is narrow along the downstream reach. It provides limited habitat for wildlife and shade for the fishery. The project area is within Highway 287 right-of-way and at the non-functional confluence of Granite Creek and Alder Creek. Terrestrial, avian, and aquatic life and habitats are consistent with those expected to be within a riparian corridor. Records from the Montana Natural Heritage Program (MTNHP) indicate the project area is surrounded by Shrubland Steppe and Savanna Systems, and the project area is primarily within Grassland Systems and Wetland and Riparian Systems; see MTNHP report at the end of this document to view other land cover types, or the MTNHP website).

The project area is located within or near land classified as riverine by the National Wetlands Inventory. Vegetation along the project area is mostly grasses, sedges, and brush, with some trees in the project area. Most of the land within the project area identified as riverine exists within Granite and Alder Creek. This riverine section is detailed in the map presented in the MTNHP report. This riverine system is identified as freshwater emergent wetland habitat classified as Palustrine Emergent Persistent Temporary Flooded (PEM1A) within the project area. Scrub/shrub riparian, palustrine emergent wetlands (PSSC) are also detailed in the MTNHP report.

The private property north of Highway 287 allows cattle to graze adjacent to the project boundary. Soils information for the area does not indicate the presence of prime or important farmland within one mile of the project boundary.

No farmland or agricultural land exists in the project area. According to the FWS, no critical habitat exists within the project.

Proposed Alternative – Potential short-term, minor, localized adverse impacts to vegetation cover, quantity, and quality. Construction that may impact existing vegetation is expected to be revegetated after construction is complete. Efforts should be made to preserve existing vegetation during construction where applicable. BMPs should be installed and monitored per the MPDES CGP and SWPPP, and other required permits. Restoring the floodplain and riparian corridor along lower Granite Creek will have an overall beneficial impact to vegetation by providing the physical features necessary for riparian vegetation colonization and regeneration.

The project will not affect grazing practices that are occurring on private lands north of Highway 287.

No Action – No impact to vegetation cover, quantity, and quality.

8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:

Consider substantial habitat values and use of the area by wildlife, birds or fish. Identify direct, indirect, and cumulative effects to fish and wildlife.

The project lies within the Madison Valley Focal Area for terrestrial conservations efforts within the Montana State Wildlife Action Plan (SWAP). This Focal Area provides connectivity to designated wilderness areas, includes important areas for grizzly bears and wolverines, and contains important winter and summer range for elk, antelope, mule deer, and bighorn sheep. It also is an important area for grassland birds, contains many wetlands and riparian areas, and is therefore important wetland bird and waterfowl habitat. In addition, this area is a designated IBA by the National Audubon Society. There is high recreational use including fishing, hunting, and wildlife watching.

There are some existing conservation easements in this area, but the opportunity for more is great. The existing partnerships are successful and include landowners, a county commission, and county planners, as well as NGOs and state and federal agencies. There are on-going wetland restoration projects underway in the valley and the potential for additional wetland and riparian restoration opportunities is high.

Current impacts to the area include subdivision development and possible recreation impacts. Certain agricultural practices which could be deleterious to CTGCN and SGCN include chronic livestock overstocking and overuse. Also, some powerlines may pose hazards to some SGCN.

The project does exist within the general habitat boundaries for Montana Sage Grouse (see Montana Sage Grouse Habitat Conservation Plan web mapping tool). According to the FWS, no critical habitat exists within the project area. Riverine systems exist within the project area. Riparian forested/shrub habitat, palustrine emergent wetlands, and freshwater ponds exist northwest of the project.

Records from the MTNHP indicate the project area there are 4 species of concern in and around the project region including the following:

Green-tailed Towhee	<i>Pipilo chlorurus</i>
Pygmy Rabbit	<i>Brachylagus idshoensis</i>
Grizzly Bear	<i>Ursus arctos</i>
Wolverine	<i>Gulo gulo</i>

Other Observations

Brewers's Sparrow	<i>Spizella breweri</i>
Golden Eagle	<i>Aquila chrysaetos</i>

Potential Species

Preble's Shrew	<i>Sorex preblei</i>
Uinta Ground Squirrel	<i>Urocitellus armatus</i>
Linear-leaf Fleabane	<i>Erigeron linearis</i>
Sage Thrasher	<i>Oreoscoptes montanus</i>

Parry's Fleabane	<i>Erigeron parryi</i>
Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>
Idaho Pocket Gopher	<i>Thomomys idahoensis</i>
Dwarf Shrew	<i>Sorex nanus</i>

Terrestrial, and avian wildlife have adequate access to riparian habitat. Fish are currently unable to travel between Alder Gulch and Granite Creek. Granite Creek is one of a few populations of pure Westslope Cutthroat Trout. Before opening the channel, a fish passage barrier will be installed to provide habitat for the native population.

Proposed Alternative – Restoring the floodplain and riparian corridor along lower Granite Creek will have an overall beneficial impact on vegetation by providing the physical features necessary for riparian vegetation colonization and regeneration. Wildlife species that utilize riparian corridors will benefit from the restored environment along lower Granite Creek. Fisheries will benefit by an improved riparian corridor that provides better shade, reduced stream temperatures, and sources of woody debris to the channel for increased habitat complexity. The native cutthroat trout fishery will substantially benefit through the installation of a fish barrier, which will eliminate sources of competition and genetic introgression from non-native trout populations.

No Action – Continued adverse impacts on the Westslope Cutthroat Trout population from non-native species.

9. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:

Consider any federally listed threatened or endangered species or habitat identified in the project area. Determine effects to wetlands. Consider Sensitive Species or Species of special concern. Identify direct, indirect, and cumulative effects to these species and their habitat.

The upper section of the project reach has access to natural wetlands. The lower section of the project reach, including the confluence, does not have wetland habitat. The project area is located within or near land classified as riverine by the National Wetlands Inventory. Vegetation along the project area is mostly grasses, sedges, and brush, with some trees in the project area. Most of the land within the project area identified as riverine exists within Granite and Alder Creek. This riverine section is detailed in the map presented in the MTNHP report. This riverine system is identified as freshwater emergent wetland habitat classified as Palustrine Emergent Persistent Temporary Flooded (PEM1A) within the project area. Scrub/shrub riparian, palustrine emergent wetlands (PSSC) are also detailed in the MTNHP report.

DNRC also used the U.S. Fish and Wildlife Service Information Planning and Consultation (IPaC) tool to generate a resource list summarizing any endangered or threatened species that are known or expected to be near the project area. The IPaC list generated four (4) Federally listed species under the Endangered Species Act as potentially occurring in the greater project area, including: Canada Lynx (*Lynx canadensis*), Grizzly Bear (*Ursus arctos horribilis*), North American Wolverine (*Gulo gulo luscus*), and Monarch Butterfly (*Danaus plexippus*), and five (5) migratory bird species: Bald Eagle (*Haliaeetus leucocephalus*), California Gull (*Larus californicus*), Cassin's Finch (*Carpodacus cassinii*), Evening Grosbeak (*Coccothraustes vespertinus*) and Golden Eagle (*Aquila chrysaetos*) (USFWS IPaC). The five bird species are protected under the Bald and Golden Eagle Protection Act of 1940, Migratory Bird Treaty Act of 1918, and the Bald Eagle is also protected under the Montana Bald Eagle Management Plan, and Lacey Act of 1900.

Proposed Alternative – Restoring the confluence of Granite Creek and Alder Gulch will result in long-term, localized and regional, minor beneficial impact by increasing the extent and function of wetlands adjacent to the restored channel alignment, as well as areas where wetlands do not currently exist. There will be short- and long-term, localized, major adverse impacts to approximately 1.64 acres of existing wetlands from the excavation of the proposed new channel alignment of Granite Creek, partial fill of the current channel to create an overflow channel, construction of a new bridge crossing at Highway 287, and streambank stabilization. (Granite Creek Channel Restoration Design Plans, prepared by Great West Engineering, 1/10/2020; Memorandum from Great West Engineering to Ms. Sage Joyce; subject: Aquatic Resources Delineation for Granite Creek Channel Restoration, Madison County, MT; United States Department of the Interior. Fish and Wildlife Service; National Wetlands Inventory. Wetland Mapper. May 14, 2018).

Based on the Natural Heritage Program's observation database, only the Grizzly Bear has been observed near the project area. This species may be temporarily impacted by construction activities while the project is being built due to increased noise, traffic, and human activities in the area. (United States Department of the Interior, Fish and Wildlife Service. Endangered, Threatened, Proposed and Candidate Species for Montana Counties).

No Action – Unique, endangered, fragile or limited environmental resources will continue to experience adverse impacts from flooding, icing, and metals-laden sediment transport issues stemming from historic mining.

10. HISTORICAL AND ARCHAEOLOGICAL SITES:

Identify and determine direct, indirect, and cumulative effects to historical, archaeological or paleontological resources.

No historical properties or cultural and archaeological resources have been identified within or adjacent to the project.

Proposed Alternative – Prior to the project commencing, a file search from the Montana State Historic Preservation Office (SHPO) will be conducted to determine whether any historic sites exist within or adjacent to the proposed project. Dredge piles left behind by historic mining practices will be affected, but not to the extent that will substantially reduce or eliminate the cultural and historic resources that exist within the project area.

No cultural or historical resource impacts are anticipated. However, if previously unknown cultural or paleontological materials are identified during project related activities, all work will cease until a professional assessment of such resources can be made.

No Action – No impact to historical and archaeological sites.

11. AESTHETICS:

Determine if the project is located on a prominent topographic feature, or may be visible from populated or scenic areas. What level of noise, light or visual change would be produced? Identify direct, indirect, and cumulative effects to aesthetics.

This section of Alder gulch and Granite Creek have been significantly impaired by historical mining

practices.

Proposed Alternative – There will be short-term, minor, localized, nonrecurring adverse impacts to aesthetics during construction activities. The proposed project activities will have long-term, localized, minor beneficial impacts to aesthetics. Restoring lower Granite Creek and its floodplain, riparian corridor, and adjacent wetlands will improve the area’s aesthetics and visual quality by allowing it to appear more natural than its current, artificial state.

No Action – Continued adverse impacts from flooding, icing, and metals laden sediment transport from historic mining.

12. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY:

Determine the amount of limited resources the project would require. Identify other activities nearby that the project would affect. Identify direct, indirect, and cumulative effects to environmental resources.

Upstream of Highway 287, land use primarily consists of grazed pasture and farming. Downstream of the highway, land consists primarily of tailings piles of coarse gravel and cobble interspersed with small ponds due to historic dredge mining in Alder Gulch. (Memorandum from Great West Engineering to Ms. Sage Joyce; subject: Aquatic Resources Delineation for Granite Creek Channel Restoration, Madison County, MT)

Proposed Alternative – Land uses in the area will not be disturbed or impacted by the project. The project is not anticipated to impact the consumption or conservation of energy resources. During the related relocation of the Hwy. 287 bridge and road surface, contractors will be working with Northwestern Energy to ensure there are no interruptions to service.

No Action – No impact to demands on environmental resources of land, water air or energy.

13. OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA:

List other studies, plans or projects on this tract. Determine cumulative impacts likely to occur as a result of current private, state or federal actions in the analysis area, and from future proposed state actions in the analysis area that are under MEPA review (scoped) or permitting review by any state agency.

Granite Creek Channel Restoration Design Plans, prepared by Great West Engineering, 1/10/2020
Great West Engineering Conceptual Design Memo dated 7/18/19 - attached to application 7/20/21
Great West Engineering Cost Estimate - attached to application 7/20/21
Great West Engineering 95% Design Plans - attached to application 7/20/21
Great West Engineering Joint Permit Application (draft) - attached to application 7/20/21
Typical Design Drawings – Fish Passage Barrier - attached to application 7/20/21

IV. IMPACTS ON THE HUMAN POPULATION

- *RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.*
- *Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.*
- *Enter "NONE" If no impacts are identified or the resource is not present.*

14. HUMAN HEALTH AND SAFETY:

Identify any health and safety risks posed by the project.

Sediment deposition in lower Granite Creek due to historic mining has resulted in unsafe driving conditions along Highway 287 at the Granite Creek Bridge. The aggradation of sediment in the vicinity of the bridge has resulted in a reduction of bridge capacity, causing the highway to flood during high flow events and ice jams that form at the bridge. Unsafe driving conditions can develop quickly and unexpectedly.

The reduction in bridge capacity also contributes to added potential for bridge and road damage during flood events. The combination of flows overtopping the bridge and the creek scouring around the bridge during floods and ice jams increased the risk of bridge and road failure. MDT has been required to perform emergency action at the bridge to keep the roadway intact. Failure of the Granite Creek Bridge would sever a major transportation corridor between the Madison and Ruby valleys.

Proposed Alternative – Potentially direct, adverse, negligible to minor, short-term, local, nonrecurring adverse impacts to human health and safety. During the construction period, there is the potential for storm water runoff through construction areas to mobilize pollutants. An MPDES Construction General Permit and Stormwater Pollution Prevention Plan will be prepared, and Best Management Practices (BMPs) will be installed and maintained by the contractor to mitigate sediment deposition.

The project will have short- and long-term, minor, localized, reoccurring beneficial impacts to human health and safety by reducing the frequency of Granite Creek overtopping Highway 287 at the Granite Creek Bridge. If needed, the project will remove soils that were contaminated by past mining practices, rendering them more suitable for human health. Any soil remediation will serve to improve groundwater and surface water resources, both of which will benefit public health. (Granite Creek Channel Restoration Design Plans, prepared by Great West Engineering, 1/10/2020)

No Action – Continued adverse impacts to human health and safety from flooding, icing, and metals laden sediment transport issues stemming from historic mining contamination of Granite Creek, Alder Gulch, and its associated floodplains.

15. INDUSTRIAL, COMMERCIAL AND AGRICULTURE ACTIVITIES AND PRODUCTION:

Identify how the project would add to or alter these activities.

There are no industrial or commercial facilities within the project area. Soils information for the area does not indicate the presence of prime or important farmland within one mile of the project boundary. (U.S. Department of Agriculture Soils Survey: <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>)

Proposed Alternative and No Action – No impact to industrial, commercial or agricultural activities and production.

16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:

Estimate the number of jobs the project would create, move or eliminate. Identify direct, indirect, and cumulative effects to the employment market.

The project is currently not contributing to local employment.

Proposed Alternative – The project is anticipated to have beneficial impacts to the local economy, as construction contractors are likely to utilize local lodging and restaurant accommodations while the project is being constructed. The project may also be contracted by a local construction company, which would employ local workers and benefit local businesses.

No Action – No impact to quantity and distribution of employment.

17. LOCAL AND STATE TAX BASE AND TAX REVENUES:

Estimate tax revenue the project would create or eliminate. Identify direct, indirect, and cumulative effects to taxes and revenue.

The project are does not contain resources that currently impact the local and state tax base.

Proposed Alternative and No Action – No impact to local and state tax base and tax revenues.

18. DEMAND FOR GOVERNMENT SERVICES:

Estimate increases in traffic and changes to traffic patterns. What changes would be needed to fire protection, police, schools, etc.? Identify direct, indirect, and cumulative effects of this and other projects on government services

The roadway is subject to flooding during winter and spring. Under these conditions, Hwy 287 has been subject to closures and delays. This is the only access road for ambulance services from the Ruby Valley Medical Center to respond to calls in Nevada City and Virginia City.

Proposed Alternative – The project will have long-term, localized, reoccurring beneficial impacts to highway safety by reducing driving hazards along Highway 287. If successful, the project will reduce the demand on police and emergency medical services due to reduced vehicle accidents. (Granite Creek Channel Restoration Design Plans, prepared by Great West Engineering, 1/10/2020).

No Action – Continued adverse impacts and potential for closures and delays on Hwy 287 during flooding events.

19. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:

List State, County, City, USFS, BLM, Tribal, and other zoning or management plans, and identify how they would affect this project.

Upstream of Highway 287, land use primarily consists of grazed pasture and farming. Downstream of the highway, land consists primarily of tailings piles of coarse gravel and cobble interspersed with small ponds due to historic dredge mining in Alder Gulch. Land uses in the area will not be disturbed or affected by the project.

Proposed Alternative and No Impact – No impact to locally adopted environmental plans and goals.

20. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:

Identify any wilderness or recreational areas nearby or access routes through this tract. Determine the effects of the project on recreational potential within the tract. Identify direct, indirect, and cumulative effects to recreational and wilderness activities.

Public access is currently limited on private land at the confluence. The channel of Alder Creek is discontinuous, preventing continuous access within ordinary high-water mark. Improving stream channel continuity will reduce potential unintentional trespass by allowing the public to remain within ordinary high-water mark while walking the stream channel.

Proposed Alternative – Restoring the confluence of Granite Creek and Alder Gulch will have a beneficial impact to access and quality of recreational activities by providing a means of public access to Alder Gulch via the Montana Stream Access Law, so long as the public stays within the ordinary high-water mark of both Granite Creek and Alder Gulch. (MCA 23-2-312)

No Action – There would be a continued adverse impact to public access, as it is currently limited on private land at the confluence.

21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:

Estimate population changes and additional housing the project would require. Identify direct, indirect, and cumulative effects to population and housing.

This is a remote site with no housing in the vicinity.

Proposed Alternative and No Action – No impact to density and distribution of population and housing.

22. SOCIAL STRUCTURES AND MORES:

Identify potential disruption of native or traditional lifestyles or communities.

No social structures and mores are impacted under the current conditions.

Proposed Alternative and No Action – No impact on social structures and mores.

23. CULTURAL UNIQUENESS AND DIVERSITY:

How would the action affect any unique quality of the area?

The current conditions do not affect cultural facilities, uniqueness or diversity.

Proposed Alternative and No Action – No impact to cultural uniqueness or diversity.

24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:

Include appropriate economic analysis. Identify potential future uses for the analysis area other than existing management. Identify direct, indirect, and cumulative economic and social effects likely to occur as a result of the proposed action.

In 2017, the Highway 287 bridge crossing Granite Creek flooded due to the channel aggradation from a lack of sediment transport. The bridge allows connectivity between the Ruby Valley and the Madison Valley.

Proposed Alternative – The project will have a beneficial impact on the public transportation route along Highway 287 by relocating a hazardous bridge to a more appropriate location. This action is expected to reduce driving hazards and decrease road closures during high flow events and ice jams.

No Action – Continued adverse impacts and potential for closures and delays on Hwy 287 during flooding events.

25. DRINKING WATER AND/OR CLEAN WATER

Identify potential impacts to water and/or sewer infrastructure (e.g., community water supply, stormwater, sewage system, solid waste management) and identify direct, indirect, and cumulative effects likely to occur as a result of the proposed action.

The project does not affect community water supply, wastewater treatment, solid waste management, but does affect transport of storm water – surface drainage.

Proposed Alternative – Potentially direct, adverse, negligible to minor, short-term, local, nonrecurring adverse impacts to storm water and surface drainage. During the construction period, there is the potential for storm water runoff through construction areas to mobilize pollutants. An MPDES Construction General Permit and Stormwater Pollution Prevention Plan will be prepared, and Best Management Practices (BMPs) will be installed and maintained by the contractor to mitigate sediment deposition. Direct and indirect beneficial impacts will result from the completion of the project.

No Action – No impact to drinking water and/or clean water.

25. ENVIRONMENTAL JUSTICE

Will the proposed project result in disproportionately high or adverse human health or environmental effects on minority or low-income populations per the Environmental Justice Executive Order 12898? Identify potential impacts to and identify direct, indirect, and cumulative effects likely to occur as a result of the proposed action.

There are no environmental justice concerns associated with the site.

Proposed Alternative – The project is not anticipated to affect income patterns; however, maintaining the transportation corridor along this reach of Highway 287 is vital to maintaining the local tourism economy of Virginia City and Nevada City.

No Action – Potential future adverse impacts to the Hwy 287 transportation corridor.

EA Prepared By:	Name: Samantha Treu	Date: 08/07/2023
	Title: MEPA/NEPA Coordinator	Email: samantha.treu@mt.gov

V. FINDING

26. ALTERNATIVE SELECTED:

Stream Alignment Alternative 1A:

This alignment would relocate Granite Creek through a remnant channel that exists between the alignments proposed in Alternatives 1 and 2, thereby reducing the amount of channel restoration required to meet the project's restoration objectives downstream of Highway 287. The new alignment would result in streambed slopes around 0.70%. The estimated material quantities under this option include 8,600 CY (cut) and 2,100 CY (fill), for a total earthwork quantity of 10,700 CY. Alternative 1A was selected as the "preferred alternative" by the stakeholder group because it 1) provides the most efficient sediment transport capacity for the channel, 2) creates a preferable channel alignment and bridge approach, and 3) balances the overall project cost of channel construction with benefits to natural resources.

27. SIGNIFICANCE OF POTENTIAL IMPACTS:

Air Quality

Potentially direct, minor, short-term, localized adverse impacts to air quality from fugitive dust introduced to the environment from construction activity and exhaust fumes from the operation of heavy construction equipment. The contractor will need to provide dust control measures and should limit construction working hours to approximately 7 AM to 7 PM.

Vegetation Cover, Quality and Quantity

Potential short-term, minor, localized adverse impacts to vegetation cover, quantity, and quality. Construction that may impact existing vegetation is expected to be revegetated after construction is complete. Efforts should be made to preserve existing vegetation during construction where applicable. BMPs should be installed and monitored per the MPDES CGP and SWPPP, and other required permits.

Unique, Endangered, Fragile or Limited Environmental Resources

There will be short- and long-term, localized, major adverse impacts to approximately 1.64 acres of existing wetlands from the excavation of the proposed new channel alignment of Granite Creek, partial fill of the current channel to create an overflow channel, construction of a new bridge crossing at Highway 287, and streambank stabilization.

Aesthetics

There will be short-term, minor, localized, nonrecurring adverse impacts to aesthetics during

construction activities.

Human Health and Safety

Potentially direct, adverse, negligible to minor, short-term, local, nonrecurring adverse impacts to human health and safety. During the construction period, there is the potential for storm water runoff through construction areas to mobilize pollutants. An MPDES Construction General Permit and Stormwater Pollution Prevention Plan will be prepared, and Best Management Practices (BMPs) will be installed and maintained by the contractor to mitigate sediment deposition.

Drinking Water and/or Clean Water

Potentially direct, adverse, negligible to minor, short-term, local, nonrecurring adverse impacts to storm water and surface drainage. During the construction period, there is the potential for storm water runoff through construction areas to mobilize pollutants. An MPDES Construction General Permit and Stormwater Pollution Prevention Plan will be prepared, and Best Management Practices (BMPs) will be installed and maintained by the contractor to mitigate sediment deposition.

28. NEED FOR FURTHER ENVIRONMENTAL ANALYSIS:

There are no significant adverse impacts, and this project does not require a MITIGATED EA or EIS.

THIS IS A THE FINAL ENVIRONMENTAL REVIEW.

EIS

More Detailed EA

No Further Analysis

EA Approved By:	Name: Mark W Bostrom
	Title: Division Administrator
Signature:	Date: 9/18/2023 8:53:19 AM MDT

DocuSigned by: Mark W Bostrom

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45.30405	-111.96567
45.35097	-112.02723

Summarized by:
006S003W008
(Buffered PLSS Section)



Suggested Citation

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



Environmental Summary

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Introduction to Environmental Summary Report

Environmental Summary Reports from the Montana Natural Heritage Program (MTNHP) provide information on species and biological communities to inform all stakeholders in environmental review, permitting, and planning processes. For information on environmental permits in Montana, please see permitting overviews by the [Montana Department of Environmental Quality](#), the [Montana Department of Natural Resources and Conservation](#), the [Index of Environmental Permits for Montana](#) and our [Suggested Contacts for Natural Resource Management Agencies](#). The 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 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 that follow 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. If your area of interest corresponds to a statewide polygon layer (e.g., watersheds, counties, or public land survey sections) information summaries in your report will exactly match those boundaries. However, if your report is for a custom area, 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 a layer of hexagons intersected by the polygon they specified as shown on the report cover. Summarizing by these hexagons which are one square mile in area and approximately one kilometer in length on each side allows for consistent and rapid delivery of summaries based on a uniform grid that has been used for planning efforts across North America.

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. Users are reminded 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.**

Model Icons	Habitat Icons	Range Icons	Num Obs
Suitable (native range)	Common	Native / Year-round	Count of obs with 'good precision' (<=1000m)
Optimal Suitability	Occasional	Summer	+ indicates additional 'poor precision' obs (1001m-10,000m)
Moderate Suitability		Winter	
Low Suitability		Migratory	
Suitable (introduced range)		Non-native	
		Historical	



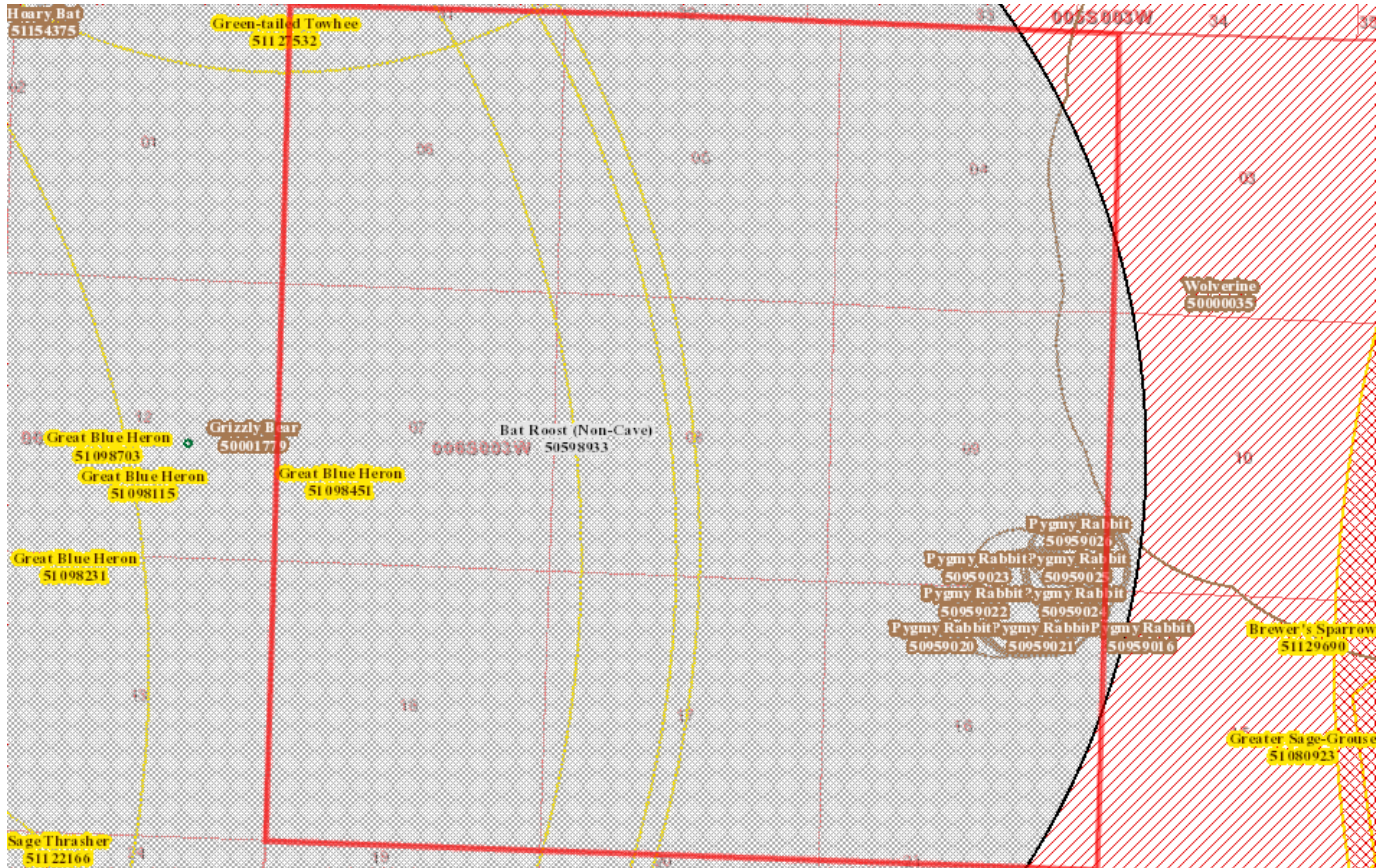
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Native Species

Summarized by: **006S003W008** (Buffered PLSS Section)

Filtered by:

Native Species reports are filtered for Species with MT Status = Species of Concern, Special Status, Important Animal Habitat, Potential SOC



Species Occurrences

Species	USFWS Sec7	# SO	# Obs	Predicted Model	Range
B - Green-tailed Towhee (<i>Pipilo chlorurus</i>) SOC		1			
<p>View in Field Guide View Predicted Models View Range Maps</p> <p>Species of Concern - Native Species Global: G5 State: S3B USFWS: MBTA FWP SWAP: SGCN3 PIF: 3</p> <p>Delineation Criteria Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 125 meters in order to encompass the breeding home range size reported for the species and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Jun 29, 2023)</p> <p>Predicted Models: 50% Moderate (inductive), 50% Low (inductive)</p>					
M - Pygmy Rabbit (<i>Brachylagus idahoensis</i>) SOC		15	15		
<p>View in Field Guide View Predicted Models View Range Maps</p> <p>Species of Concern - Native Species Global: G4 State: S3 USFS: Sensitive - Known in Forests (BD) BLM: SENSITIVE FWP SWAP: SGCN3</p> <p>Delineation Criteria Confirmed breeding area based on the presence of a resident animal of any age or evidence for recent occupancy of a burrow system. Point observation location is buffered by a minimum distance of 300 meters in order to encompass the maximum home range size reported for the species and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Dec 22, 2022)</p> <p>Predicted Models: 3% Moderate (inductive), 97% Low (inductive)</p>					
M - Grizzly Bear (<i>Ursus arctos</i>) SOC		1			
<p>View in Field Guide View Predicted Models View Range Maps</p> <p>Species of Concern - Native Species Global: G4 State: S2S3 USFWS: LT BLM: THREATENED FWP SWAP: SGCN2-3</p> <p>Delineation Criteria Species Occurrence polygons represent areas delineated by the U.S. Fish and Wildlife Service (USFWS) that encompass both home ranges and potential transitory movements based on verified sightings. Within these areas, the USFWS wants project proponents to consider whether the species is present when evaluating the potential impacts of a project and to work with the USFWS to develop and implement best management practices to minimize or eliminate project effects on the species. (Last Updated: Jul 06, 2023)</p> <p>Predicted Models: 44% Low (inductive)</p>					
M - Wolverine (<i>Gulo gulo</i>) SOC		7	1	Not Assessed	
<p>View in Field Guide View Range Maps</p> <p>Species of Concern - Native Species Global: G4 State: S3 USFS: Sensitive - Known in Forests (BD, BRT, KOOT, LOLO) BLM: SENSITIVE FWP SWAP: SGCN3</p> <p>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: Jul 06, 2023)</p>					

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Important Animal Habitat - Native Species

Global: **GNR** State: **SNR**

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



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Model Icons	Habitat Icons	Range Icons	Num Obs
Suitable (native range)	Common	Native / Year-round	Count of obs with 'good precision' (<=1000m)
Optimal Suitability	Occasional	Summer	
Moderate Suitability		Winter	+ indicates additional 'poor precision' obs (1001m-10,000m)
Low Suitability		Migratory	
Suitable (introduced range)		Non-native	
		Historical	



Latitude 45.30405
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Native Species

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Filtered by:

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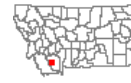
Other Observed Species

	USFWS Sec7	# Obs	Predicted Model	Range
<p>B - Brewer's Sparrow (<i>Spizella breweri</i>) SOC</p> <p>View in Field Guide View Predicted Models View Range Maps</p> <p>Species of Concern - Native Species Global: G5 State: S3B USFWS: MBTA BLM: SENSITIVE FWP SWAP: SGCN3 PIF: 2</p> <p>Predicted Models: 37% Moderate (inductive), 63% Low (inductive)</p>		1		
<p>B - Golden Eagle (<i>Aquila chrysaetos</i>) SOC</p> <p>View in Field Guide View Predicted Models View Range Maps</p> <p>Species of Concern - Native Species Global: G5 State: S3 USFWS: BGEP A; MBTA BLM: SENSITIVE FWP SWAP: SGCN3</p> <p>Predicted Models: 28% Moderate (inductive), 72% Low (inductive)</p>		1		



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Model Icons	Habitat Icons	Range Icons	Num Obs
Suitable (native range)	Common	Native / Year-round	Count of obs with 'good precision' (<=1000m) + indicates additional 'poor precision' obs (1001m-10,000m)
Optimal Suitability	Occasional	Summer	
Moderate Suitability		Winter	
Low Suitability		Migratory	
Suitable (introduced range)		Non-native	
		Historical	



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45.35097 -112.02723

Native Species

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Filtered by:

Native Species reports are filtered for Species with MT Status = Species of Concern, Special Status, Important Animal Habitat, Potential SOC

Other Potential Species

Species Name	USFWS Sec7	Predicted Model	Range
M - Preble's Shrew (<i>Sorex preblei</i>) SOC			Y
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G4 State: S3 FWP SWAP: SGCN3 Predicted Models: 99% Moderate (inductive), 1% Low (inductive)			
M - Uinta Ground Squirrel (<i>Urocitellus armatus</i>) PSOC			Y
View in Field Guide View Predicted Models View Range Maps Potential Species of Concern - Native Species Global: G5 State: S3S4 FWP SWAP: SGIN Predicted Models: 96% Moderate (inductive), 4% Low (inductive)			
V - Erigeron linearis (<i>Linear-leaf Fleabane</i>) SOC			Y
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S2 Plant Threat Score: Low CCVI: Less Vulnerable Predicted Models: 94% Moderate (inductive), 6% Low (inductive)			
B - Sage Thrasher (<i>Oreoscoptes montanus</i>) SOC			S M
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G4 State: S3B USFWS: MBTA BLM: SENSITIVE FWP SWAP: SGCN3 PIF: 3 Predicted Models: 84% Moderate (inductive), 16% Low (inductive)			
V - Erigeron parryi (<i>Parry's Fleabane</i>) SOC			Y
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G2G3 State: S2S3 Plant Threat Score: No Known Threats CCVI: Moderately Vulnerable Predicted Models: 80% Moderate (inductive), 20% Low (inductive)			
M - Townsend's Big-eared Bat (<i>Corynorhinus townsendii</i>) SOC			Y
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G4 State: S3 USFS: Sensitive - Known in Forests (BD, BRT, KOOT, LOLO) BLM: SENSITIVE FWP SWAP: SGCN3 Predicted Models: 76% Moderate (inductive), 24% Low (inductive)			
M - Idaho Pocket Gopher (<i>Thomomys idahoensis</i>) PSOC			Y
View in Field Guide View Predicted Models View Range Maps Potential Species of Concern - Native Species Global: G4 State: S2S4 FWP SWAP: SGIN Predicted Models: 56% Moderate (inductive), 44% Low (inductive)			
M - Dwarf Shrew (<i>Sorex nanus</i>) SOC			Y
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G4 State: S2S3 FWP SWAP: SGCN2-3 Predicted Models: 54% Moderate (inductive), 46% Low (inductive)			
I - Rhyacophila betteni (<i>A Caddisfly</i>) SSS			Y
View in Field Guide View Predicted Models View Range Maps Special Status Species - Native Species Global: G2G4 State: S3S4 Predicted Models: 49% Moderate (inductive), 51% Low (inductive)			
M - Fringed Myotis (<i>Myotis thysanodes</i>) SOC			Y
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G4 State: S3 BLM: SENSITIVE FWP SWAP: SGCN3 Predicted Models: 45% Moderate (inductive), 15% Low (inductive)			
V - Stellaria crassifolia (<i>Fleshy Stitchwort</i>) SOC			Y
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S2 Plant Threat Score: No Known Threats Predicted Models: 43% Moderate (inductive), 53% Low (inductive)			
L - Rhizoplaca haydenii (<i>Hayden's Rimmed Navel Lichen</i>) SOC			Y
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G2G3 State: S1S2 Predicted Models: 36% Moderate (inductive), 58% Low (inductive)			
V - Eleocharis rostellata (<i>Beaked Spikerush</i>) SOC			Y
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S3 USFS: Species of Conservation Concern in Forests (CG, FLAT, HLC) Plant Threat Score: Unknown CCVI: Less Vulnerable Predicted Models: 34% Moderate (inductive), 38% Low (inductive)			

Species of Concern - Native Species Global: **G5** State: **S3** USFS: **Sensitive - Known in Forests (BD)** Plant Threat Score: **High** CCVI: **Highly Vulnerable**
Predicted Models: 28% Moderate (inductive), 30% Low (inductive)

V - Astragalus terminalis (Railhead Milkvetch) SOC

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Species of Concern - Native Species Global: **G3** State: **S2S3** BLM: **SENSITIVE** Plant Threat Score: **Unknown** CCVI: **Moderately Vulnerable**
Predicted Models: 28% Moderate (inductive), 26% Low (inductive)

V - Oxytropis lagopus var. conjugans (Hare's-foot Locoweed) PSOC

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Potential Species of Concern - Native Species Global: **G4G5T3T4** State: **S3S4**
Predicted Models: 27% Moderate (inductive), 17% Low (inductive)

V - Orobancha corymbosa (Flat-topped Broomrape) PSOC

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Potential Species of Concern - Native Species Global: **G4** State: **S3S4**
Predicted Models: 26% Moderate (inductive), 74% Low (inductive)

B - Ferruginous Hawk (Buteo regalis) SOC

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Species of Concern - Native Species Global: **G4** State: **S3B** USFWS: **MBTA; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**
Predicted Models: 26% Moderate (inductive), 74% Low (inductive)

M - Long-eared Myotis (Myotis evotis) SOC

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Species of Concern - Native Species Global: **G5** State: **S3**
Predicted Models: 22% Moderate (inductive), 78% Low (inductive)

B - Clark's Nutcracker (Nucifraga columbiana) SOC

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Species of Concern - Native Species Global: **G5** State: **S3** USFWS: **MBTA** USFS: **Species of Conservation Concern in Forests (FLAT)** FWP SWAP: **SGCN3** PIF: **3**
Predicted Models: 22% Moderate (inductive), 78% Low (inductive)

M - Long-legged Myotis (Myotis volans) SOC

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Species of Concern - Native Species Global: **G4G5** State: **S3**
Predicted Models: 21% Moderate (inductive), 53% Low (inductive)

M - Merriam's Shrew (Sorex merriami) SOC

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Species of Concern - Native Species Global: **G4** State: **S3** FWP SWAP: **SGCN3**
Predicted Models: 20% Moderate (inductive), 80% Low (inductive)

V - Potentilla plattensis (Platte Cinquefoil) SOC

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Species of Concern - Native Species Global: **G4** State: **S3** Plant Threat Score: **No Known Threats** CCVI: **Highly Vulnerable**
Predicted Models: 18% Moderate (inductive), 60% Low (inductive)

M - Little Brown Myotis (Myotis lucifugus) SOC

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Species of Concern - Native Species Global: **G3G4** State: **S3** FWP SWAP: **SGCN3**
Predicted Models: 17% Moderate (inductive), 83% Low (inductive)

M - Western Spotted Skunk (Spilogale gracilis) PSOC

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Potential Species of Concern - Native Species Global: **G5** State: **SU** FWP SWAP: **SGIN**
Predicted Models: 17% Moderate (inductive), 61% Low (inductive)

M - Wyoming Ground Squirrel (Urocitellus elegans) PSOC

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Potential Species of Concern - Native Species Global: **G5** State: **S3S4**
Predicted Models: 16% Moderate (inductive), 84% Low (inductive)

M - Spotted Bat (Euderma maculatum) SOC

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Species of Concern - Native Species Global: **G4** State: **S3** USFS: **Sensitive - Known in Forests (BD)** BLM: **SENSITIVE** FWP SWAP: **SGCN3, SGIN**
Predicted Models: 11% Moderate (inductive), 89% Low (inductive)

B - Cassin's Finch (Haemorhous cassinii) SOC

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Species of Concern - Native Species Global: **G5** State: **S3** USFWS: **MBTA; BCC10** FWP SWAP: **SGCN3** PIF: **3**
Predicted Models: 10% Moderate (inductive), 45% Low (inductive)

B - Veery (Catharus fuscescens) SOC

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**
Predicted Models: 10% Moderate (inductive), 39% Low (inductive)

M - Hoary Bat (Lasiurus cinereus) SOC

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Species of Concern - Native Species Global: **G3G4** State: **S3B** BLM: **SENSITIVE** FWP SWAP: **SGCN3**
Predicted Models: 6% Moderate (inductive), 94% Low (inductive)

M - North American Porcupine (*Erethizon dorsatum*) **PSOC** Global: **G5** State: **S3S4** FWP SWAP: **SGIN**
Potential Species of Concern - Native Species
Predicted Models: **M** 6% Moderate (inductive), **L** 42% Low (inductive)

I - Bombus suckleyi (*Suckley Cuckoo Bumble Bee*) **SOC** Global: **G2G3** State: **S1**
View in Field Guide **View Predicted Models** **View Range Maps**
Species of Concern - Native Species
Predicted Models: **M** 6% Moderate (inductive), **L** 42% Low (inductive)

B - Bobolink (*Dolichonyx oryzivorus*) **SOC** Global: **G5** State: **S3B** USFWS: **MBTA; BCC10; BCC11; BCC17** FWP SWAP: **SGCN3** PIF: **3**
View in Field Guide **View Predicted Models** **View Range Maps**
Species of Concern - Native Species
Predicted Models: **M** 6% Moderate (inductive), **L** 42% Low (inductive)

V - Draba densifolia (*Dense-leaf Draba*) **SOC** Global: **G5** State: **S2** USFS: **Species of Conservation Concern in Forests (CG, HLC)** Plant Threat Score: **Low** CCVI: **Moderately Vulnerable**
View in Field Guide **View Predicted Models** **View Range Maps**
Species of Concern - Native Species
Predicted Models: **M** 6% Moderate (inductive), **L** 12% Low (inductive)

V - Dichanthelium acuminatum (*Panic Grass*) **SOC** Global: **G5** State: **S2S3** Plant Threat Score: **Unknown**
View in Field Guide **View Predicted Models** **View Range Maps**
Species of Concern - Native Species
Predicted Models: **M** 5% Moderate (inductive), **L** 59% Low (inductive)

V - Adoxa moschatellina (*Musk-root*) **SOC** USFS: **Sensitive - Known in Forests (BD, LOLO)** **Species of Conservation Concern in Forests (CG, HLC)** Plant Threat Score: **Low** CCVI: **Highly Vulnerable**
View in Field Guide **View Predicted Models** **View Range Maps**
Species of Concern - Native Species
Predicted Models: **M** 4% Moderate (inductive), **L** 72% Low (inductive)

V - Eriogonum caespitosum (*Mat Buckwheat*) **SOC** Global: **G5** State: **S2S3** Plant Threat Score: **No Known Threats**
View in Field Guide **View Predicted Models** **View Range Maps**
Species of Concern - Native Species
Predicted Models: **M** 1% Moderate (inductive), **L** 77% Low (inductive)

B - Greater Sage-Grouse (*Centrocercus urophasianus*) **SOC** USFS: **Sensitive - Known in Forests (BD)** **Species of Conservation Concern in Forests (CG)** BLM: **SENSITIVE** FWP SWAP: **SGCN2** PIF: **1**
View in Field Guide **View Predicted Models** **View Range Maps**
Species of Concern - Native Species
Predicted Models: **M** 1% Moderate (inductive), **L** 74% Low (inductive)

V - Mimulus suksdorfii (*Suksdorf Monkeyflower*) **PSOC** Global: **G4** State: **S3S4**
View in Field Guide **View Predicted Models** **View Range Maps**
Potential Species of Concern - Native Species
Predicted Models: **M** 1% Moderate (inductive), **L** 30% Low (inductive)

B - Pinyon Jay (*Gymnorhinus cyanocephalus*) **SOC** Global: **G3** State: **S3** USFWS: **MBTA; BCC10; BCC17** FWP SWAP: **SGCN3**
View in Field Guide **View Predicted Models** **View Range Maps**
Species of Concern - Native Species
Predicted Models: **L** 100% Low (inductive)

V - Elodea bifoliata (*Long-sheath Waterweed*) **SOC** Global: **G4G5** State: **S2?** Plant Threat Score: **No Known Threats**
View in Field Guide **View Predicted Models** **View Range Maps**
Species of Concern - Native Species
Predicted Models: **L** 100% Low (inductive)

M - Silver-haired Bat (*Lasionycteris noctivagans*) **PSOC** Global: **G3G4** State: **S4**
View in Field Guide **View Predicted Models** **View Range Maps**
Potential Species of Concern - Native Species
Predicted Models: **L** 94% Low (inductive)

V - Ranunculus hyperboreus (*High Northern Buttercup*) **PSOC** Global: **G5** State: **S3S4**
View in Field Guide **View Predicted Models** **View Range Maps**
Potential Species of Concern - Native Species
Predicted Models: **L** 85% Low (inductive)

B - Gray Flycatcher (*Empidonax wrightii*) **PSOC** Global: **G5** State: **S3S4B** USFWS: **MBTA**
View in Field Guide **View Predicted Models** **View Range Maps**
Potential Species of Concern - Native Species
Predicted Models: **L** 82% Low (inductive)

B - Common Poorwill (*Phalaenoptilus nuttallii*) **PSOC** Global: **G5** State: **S4B** USFWS: **MBTA** FWP SWAP: **SGIN** PIF: **3**
View in Field Guide **View Predicted Models** **View Range Maps**
Potential Species of Concern - Native Species
Predicted Models: **L** 81% Low (inductive)

V - Kobresia simpliciuscula (*Simple Kobresia*) **SOC** Global: **G5** State: **S3** Plant Threat Score: **Unknown**
View in Field Guide **View Predicted Models** **View Range Maps**
Species of Concern - Native Species
Predicted Models: **L** 73% Low (inductive)

V - Mimulus floribundus (*Floriferous Monkeyflower*) **SOC** [Progress Bar] [Y]

[Species of Concern - Native Species](#) Global: **G5** State: **SH** Plant Threat Score: **No Known Threats** CCVI: **Highly Vulnerable**

Predicted Models: [Bar] 68% Low (inductive)

B - Bald Eagle (*Haliaeetus leucocephalus*) **SSS** [Progress Bar] [Y]

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

Special Status Species - Native Species Global: **G5** State: **S4** USFWS: **BGEPA; MBTA** USFS: **Sensitive - Known in Forests (BD, BRT, KOOT, LOLO)** BLM: **SENSITIVE** PIF: **2**

Predicted Models: [Bar] 56% Low (inductive)

V - Stanleya viridiflora (*Green Prince's plume*) **PSOC** [Progress Bar] [Y]

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

Potential Species of Concern - Native Species Global: **G4** State: **S3S4**

Predicted Models: [Bar] 54% Low (inductive)

B - Long-billed Curlew (*Numerius americanus*) **SOC** [Progress Bar] [S] [M]

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

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

Predicted Models: [Bar] 51% Low (inductive)

B - Broad-tailed Hummingbird (*Selasphorus platycercus*) **PSOC** [Progress Bar] [S] [M]

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

Potential Species of Concern - Native Species Global: **G5** State: **S4B** USFWS: **MBTA; BCC10** FWP SWAP: **SGIN**

Predicted Models: [Bar] 50% Low (inductive)

V - Stipa lettermanii (*Letterman's Needlegrass*) **SOC** [Progress Bar] [Y]

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

Species of Concern - Native Species Global: **G5** State: **S1S3** USFS: **Species of Conservation Concern in Forests (HLC)** Plant Threat Score: **No Known Threats**

Predicted Models: [Bar] 49% Low (inductive)

A - Western Toad (*Anaxyrus boreas*) **SOC** [Progress Bar] [Y]

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

Species of Concern - Native Species Global: **G4** State: **S2** USFS: **Sensitive - Known in Forests (BD, BRT, KOOT, LOLO)** BLM: **SENSITIVE** FWP SWAP: **SGCN2**

Predicted Models: [Bar] 48% Low (inductive)

B - American White Pelican (*Pelecanus erythrorhynchos*) **SOC** [Progress Bar] [S] [M]

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

Species of Concern - Native Species Global: **G4** State: **S3B** USFWS: **MBTA** FWP SWAP: **SGCN3** PIF: **3**

Predicted Models: [Bar] 46% Low (inductive)

B - Trumpeter Swan (*Cygnus buccinator*) **SOC** [Progress Bar] [Y] [M]

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

Species of Concern - Native Species Global: **G4** State: **S3** USFWS: **MBTA** USFS: **Sensitive - Known in Forests (BD)** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **1**

Predicted Models: [Bar] 45% Low (inductive)

B - Harlequin Duck (*Histrionicus histrionicus*) **SOC** [Progress Bar] [S] [M]

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

Species of Concern - Native Species Global: **G4** State: **S2B** USFWS: **MBTA** USFS: **Sensitive - Known in Forests (BD, KOOT, LOLO)** FWP SWAP: **SGCN2** PIF: **1**

Predicted Models: [Bar] 45% Low (inductive)

I - Danaus plexippus (*Monarch*) **SOC** [Progress Bar] [S]

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

Species of Concern - Native Species Global: **G4** State: **S2S3** USFWS: **C**

Predicted Models: [Bar] 44% Low (inductive)

R - Greater Short-horned Lizard (*Phrynosoma hernandesi*) **SOC** [Progress Bar] [Y]

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

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

Predicted Models: [Bar] 42% Low (inductive)

V - Gentianopsis simplex (*Hiker's Gentian*) **SOC** [Progress Bar] [Y]

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

USFS: **Sensitive - Known in Forests (BD)**
Sensitive - Suspected in Forests (KOOT, LOLO)
Species of Conservation Concern in Forests (CG) Plant Threat Score: **Unknown**

Species of Concern - Native Species Global: **G5** State: **S2** CCVI: **Extremely Vulnerable**

Predicted Models: [Bar] 39% Low (inductive)

B - Barrow's Goldeneye (*Bucephala islandica*) **PSOC** [Progress Bar] [Y] [W] [M]

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

Potential Species of Concern - Native Species Global: **G5** State: **S4** USFWS: **MBTA** FWP SWAP: **SGIN** PIF: **2**

Predicted Models: [Bar] 37% Low (inductive)

M - Columbia Plateau Pocket Mouse (*Perognathus parvus*) **SOC** [Progress Bar] [Y]

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

Species of Concern - Native Species Global: **G5** State: **S3** USFS: **Sensitive - Suspected in Forests (BD)** FWP SWAP: **SGCN3, SGIN**

Predicted Models: [Bar] 36% Low (inductive)

V - Castilleja gracillima (*Slender Indian Paintbrush*) **SOC** [Progress Bar] [Y]

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

Species of Concern - Native Species Global: **G3G4** State: **S2** Plant Threat Score: **Low** CCVI: **Highly Vulnerable**

Predicted Models: [Bar] 35% Low (inductive)



NATURAL HERITAGE PROGRAM

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Latitude	Longitude
45.30405	-111.96567
45.35097	-112.02723

Structured Surveys

Summarized by: **006S003W008** (*Buffered PLSS Section*)

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.

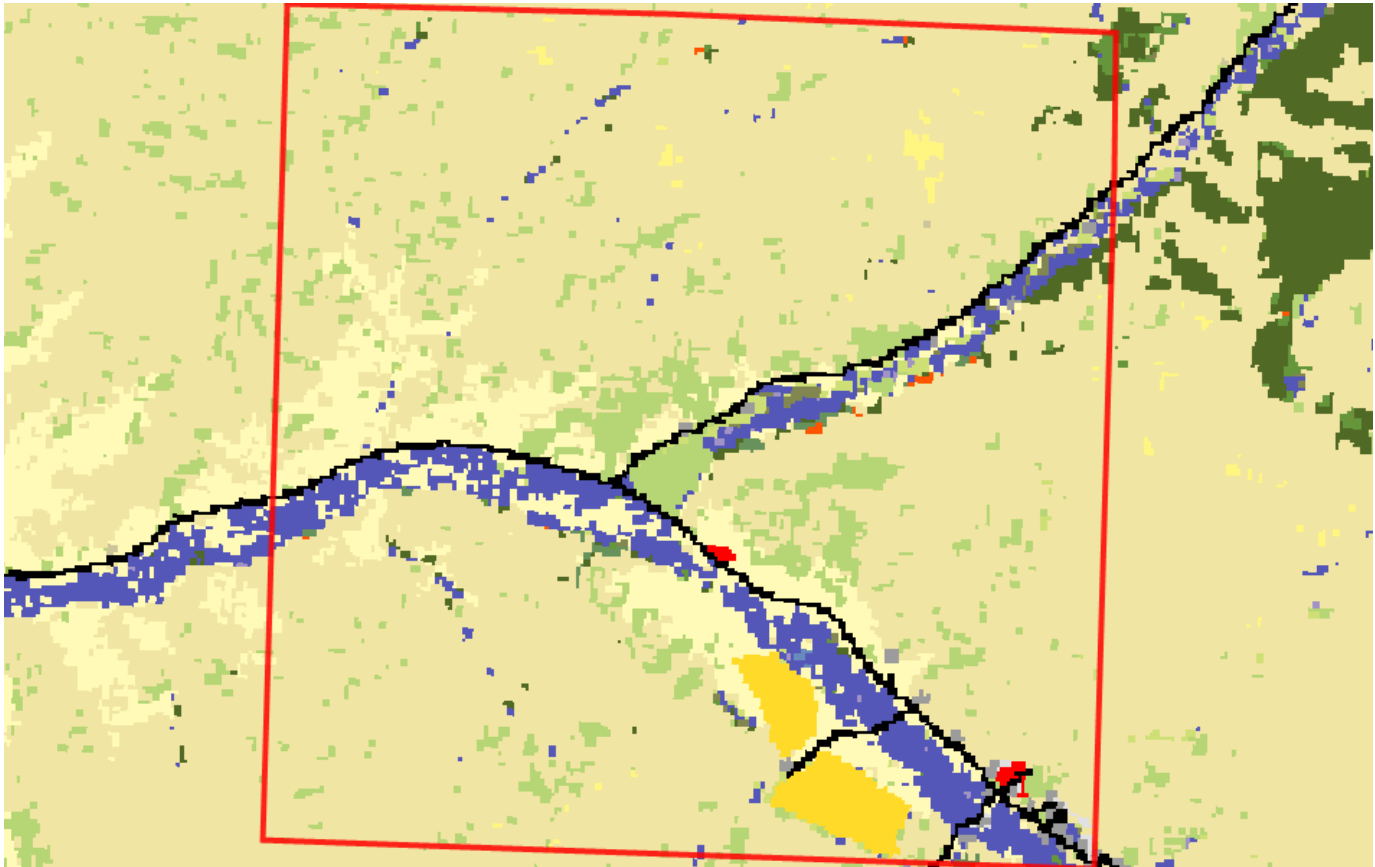
MTNHP does not typically manage information on structured surveys for plants; surveys for invasive species may be a future exception.

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.

A-Nocturnal Calling Amphibian (<i>Nocturnal Breeding Amphibian Calling Survey</i>)	Survey Count: 11	Obs Count:	Recent Survey: 2009
AR-Amphibian/Reptile Lentic (<i>Lentic Amphibian/Reptile Surveys</i>)	Survey Count: 1	Obs Count:	Recent Survey: 2011
B-Sage Grouse Lek (<i>Greater Sage Grouse Lek Survey</i>)	Survey Count: 3	Obs Count:	Recent Survey: 2002
E-Eastern Heath Snail (<i>Eastern Heath Snail Survey</i>)	Survey Count: 1	Obs Count:	Recent Survey: 2012
E-Noxious Weed, Road-based (<i>Noxious Weed Road-based Visual Surveys</i>)	Survey Count: 5	Obs Count: 6	Recent Survey: 2004
M-Bat Roost (Active Season) (<i>Bat Roost (Active Season) Survey</i>)	Survey Count: 2	Obs Count: 1	Recent Survey: 2019
M-Pygmy Rabbit VES (<i>Pygmy Rabbit Burrow/Pellet Survey</i>)	Survey Count: 15	Obs Count: 15	Recent Survey: 2005
P-AIM Terrestrial Plot (<i>BLM AIM Terrestrial Survey Plot</i>)	Survey Count: 2	Obs Count: 60	Recent Survey: 2020
P-Algal scraping (<i>Algal Scraping</i>)	Survey Count: 2	Obs Count: 149	Recent Survey: 2003

Land Cover

Summarized by: **006S003W008** (Buffered PLSS Section)



Shrubland, Steppe and Savanna Systems Sagebrush Steppe

Montane Sagebrush Steppe

71% (4,185 Acres)

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 areas 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.



Shrubland, Steppe and Savanna Systems Sagebrush Steppe

Big Sagebrush Steppe

9% (520 Acres)

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 cheatgrass is 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.

Grassland Systems**8% (444 Acres)****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.

**6% (326 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), characteristically occurring 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*), thinlinealder (*Alnus incana*), river birch (*Betula occidentalis*), redbud (*Cornus sericea*), hawthorne (*Crataegus spp.*), chokecherry (*Prunus virginiana*), skunkbush sumac (*Rhus trilobata*), Drummond'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.

**2% (110 Acres)****Human Land Use
Agriculture****Cultivated Crops**

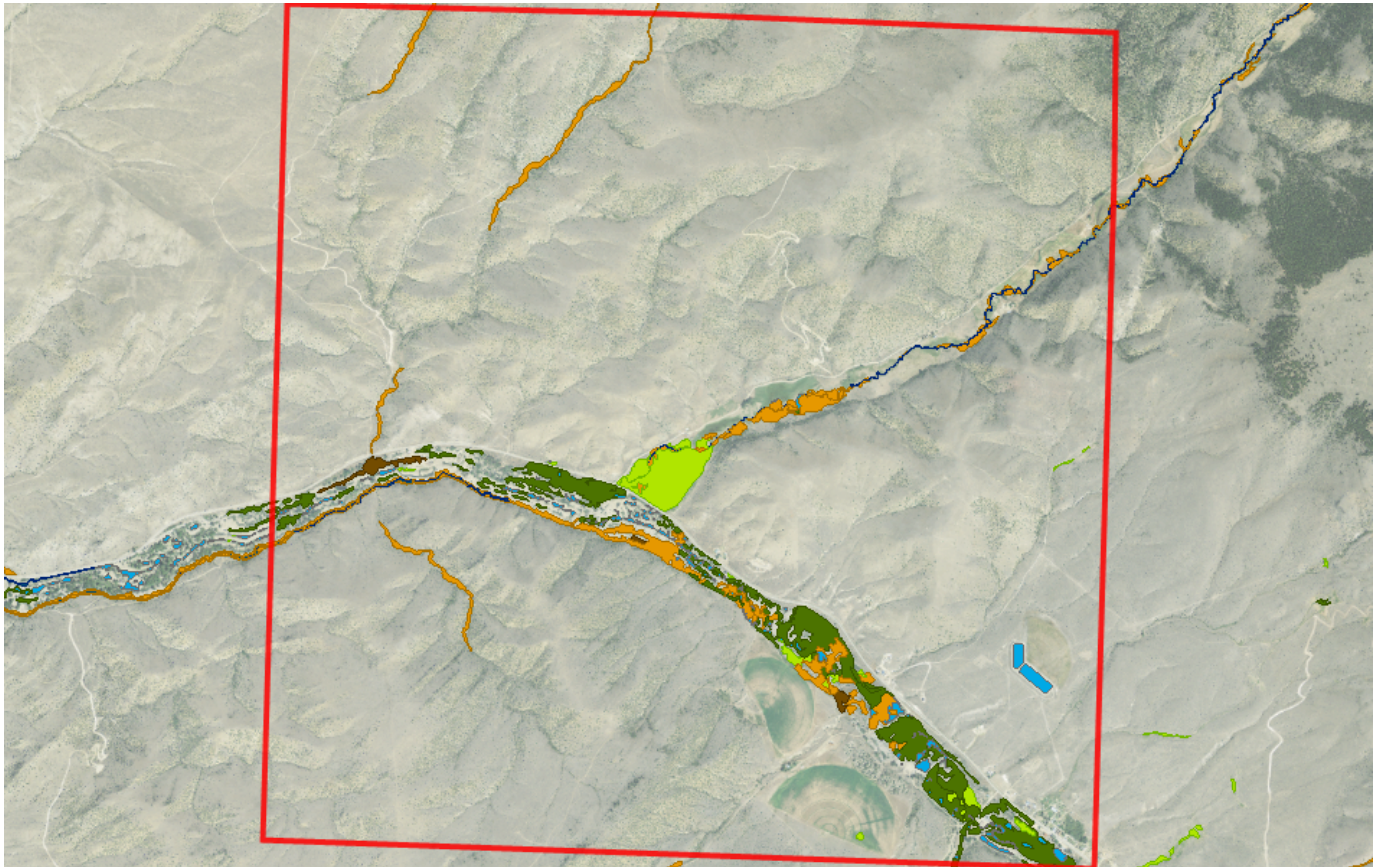
These areas used for the production of crops, such as corn, soybeans, small grains, sunflowers, vegetables, and cotton, typically on an annual cycle. Agricultural plant cover is variable depending on season and type of farming. Other areas include more stable land cover of orchards and vineyards.

Additional Limited Land Cover

- 1% (56 Acres) ■ [Major Roads](#)
- 1% (55 Acres) ■ [Other Roads](#)
- 1% (49 Acres) ■ [Rocky Mountain Montane Douglas-fir Forest and Woodland](#)
- 1% (31 Acres) ■ [Rocky Mountain Subalpine-Montane Mesic Meadow](#)
- <1% (24 Acres) ■ [Low Intensity Residential](#)
- <1% (23 Acres) ■ [Low Sagebrush Shrubland](#)
- <1% (14 Acres) ■ [Rocky Mountain Foothill Limber Pine - Juniper Woodland](#)
- <1% (13 Acres) ■ [Aspen Forest and Woodland](#)
- <1% (11 Acres) ■ [Rocky Mountain Lodgepole Pine Forest](#)
- <1% (7 Acres) ■ [Commercial / Industrial](#)
- <1% (5 Acres) ■ [Developed, Open Space](#)
- <1% (4 Acres) ■ [Alpine-Montane Wet Meadow](#)
- <1% (4 Acres) ■ [Insect-Killed Forest](#)
- <1% (1 Acres) ■ [Emergent Marsh](#)
- <1% (1 Acres) ■ [Rocky Mountain Montane-Foothill Deciduous Shrubland](#)
- <1% (0 Acres) ■ [Rocky Mountain Cliff, Canyon and Massive Bedrock](#)

Wetland and Riparian

Summarized by: **006S003W008** (Buffered PLSS Section)



Wetland and Riparian Mapping

[Explain](#)

P - Palustrine

UB - Unconsolidated Bottom

F - Semipermanently Flooded	5 Acres
x - Excavated	5 Acres PUBFx

P - Palustrine, UB - Unconsolidated Bottom

Wetlands where mud, silt or similar fine particles cover at least 25% of the bottom, and where vegetation cover is less than 30%.

AB - Aquatic Bed

F - Semipermanently Flooded	19 Acres
(no modifier)	2 Acres PABF
b - Beaver	<1 Acres PABFb
h - Diked/Impounded	1 Acres PABFh
x - Excavated	16 Acres PABFx

P - Palustrine, AB - Aquatic Bed

Wetlands with vegetation growing on or below the water surface for most of the growing season.

EM - Emergent

A - Temporarily Flooded	37 Acres
(no modifier)	37 Acres PEMA
b - Beaver	<1 Acres PEMAb
C - Seasonally Flooded	<1 Acres
(no modifier)	<1 Acres PEMC

P - Palustrine, EM - Emergent

Wetlands with erect, rooted herbaceous vegetation present during most of the growing season.

SS - Scrub-Shrub

A - Temporarily Flooded	43 Acres
(no modifier)	42 Acres PSSA
h - Diked/Impounded	1 Acres PSSAh
C - Seasonally Flooded	62 Acres
(no modifier)	62 Acres PSSC
F - Semipermanently Flooded	1 Acres
b - Beaver	1 Acres PSSFb

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.

R - Riverine (Rivers)

2 - Lower Perennial

UB - Unconsolidated Bottom

H - Permanently Flooded	3 Acres
-------------------------	---------

R - Riverine (Rivers), 2 - Lower Perennial, UB - Unconsolidated Bottom

Stream channels where the substrate is at least 25% mud, silt or other fine particles.

(no modifier)

3 Acres R2UBH

■ UB - Unconsolidated Bottom

H - Permanently Flooded

(no modifier)

3 Acres

3 Acres R3UBH

R - Riverine (Rivers), 3 - Upper Perennial, UB - Unconsolidated Bottom

Stream channels where the substrate is at least 25% mud, silt or other fine particles.

Rp - Riparian

1 - Lotic

■ SS - Scrub-Shrub
(no modifier)

80 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)

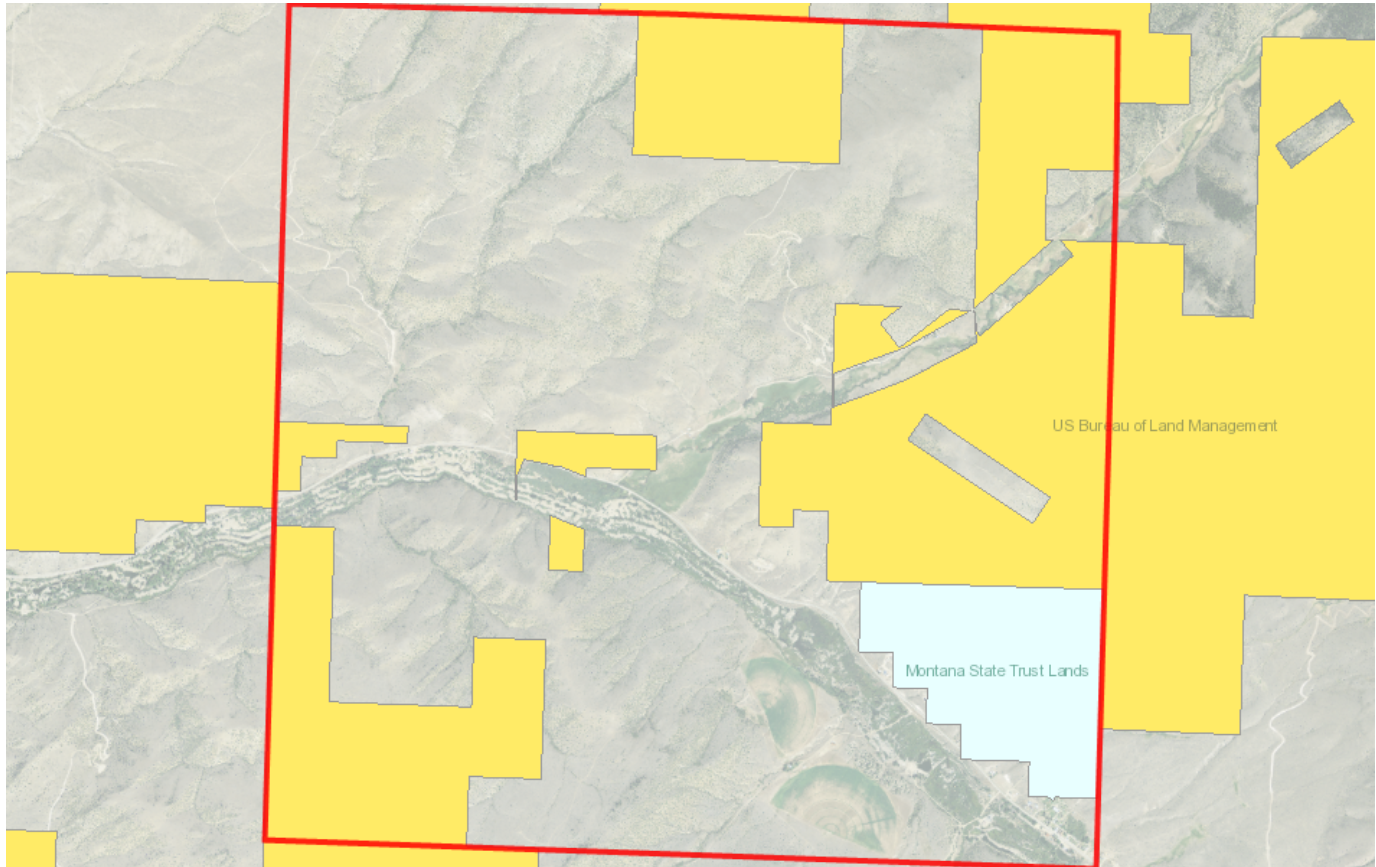
7 Acres Rp1FO

Rp - Riparian, 1 - Lotic, FO - Forested

This riparian class has woody vegetation that is greater than 6 meters (20 feet) tall.

Land Management

Summarized by: **006S003W008** (Buffered PLSS Section)



Land Management Summary

[Explain](#)

	Ownership	Tribal	Easements	Other Boundaries (possible overlap)
Public Lands	1,944 Acres (33%)			
Federal	1,628 Acres (28%)			
US Bureau of Land Management	1,628 Acres (28%)			
BLM Owned	1,628 Acres (28%)			
State	316 Acres (5%)			
Montana State Trust Lands	316 Acres (5%)			
MT State Trust Owned	316 Acres (5%)			
Private Lands or Unknown Ownership	3,941 Acres (67%)			



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Latitude	Longitude
45.30405	-111.96567
45.35097	-112.02723


Biological Reports

Summarized by: **006S003W008** (*Buffered PLSS Section*)

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

• Greater Yellowstone Coordinating Committee. ***GYA Weed Mapping Update and Database Augmentation***. 2000-04.

•  Hendricks, P., D. Kampwerth and M. Brown. 1999. ***Assessment of abandoned mines for bat use on Bureau of Land Management lands in southwestern Montana: 1997-1998***. Montana Natural Heritage Program, Helena. 29 pp.



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Model Icons	Habitat Icons	Range Icons	Num Obs
Suitable (native range)	Common	Non-native	Count of obs with 'good precision' (<=1000m)
Optimal Suitability	Occasional		+ indicates additional 'poor precision' obs (1001m-10,000m)
Moderate Suitability			
Low Suitability			
Suitable (introduced range)			



Latitude 45.30405
Longitude -111.96567
45.35097 -112.02723

Invasive and Pest Species

Summarized by: **006S003W008** (Buffered PLSS Section)

	# Obs	Predicted Model	Range
Aquatic Invasive Species			
<input type="checkbox"/> V - Myriophyllum spicatum (<i>Eurasian Water-milfoil</i>) N2A/AIS			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Aquatic Invasive Species - Non-native Species Global: GNR State: SNA Predicted Models:			
<input type="checkbox"/> V - Nymphaea odorata (<i>American Water-lily</i>) AIS			
View in Field Guide View Predicted Models View Range Maps Aquatic Invasive Species - Non-native Species Global: G5 State: SNA Predicted Models:			
Noxious Weeds: Priority 1A			
<input type="checkbox"/> V - Centaurea solstitialis (<i>Yellow Starthistle</i>) N1A			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1A - Non-native Species Global: GNR State: SNA Predicted Models:			
<input type="checkbox"/> V - Isatis tinctoria (<i>Dyer's Wood</i>) N1A			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1A - Non-native Species Global: GNR State: SNA Predicted Models:			
Noxious Weeds: Priority 1B			
<input type="checkbox"/> V - Lythrum salicaria (<i>Purple Loosestrife</i>) N1B			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1B - Non-native Species Global: G5 State: SNA Predicted Models:			
<input type="checkbox"/> V - Polygonum x bohemicum (<i>Bohemian Knotweed</i>) N1B			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1B - Non-native Species Global: GNA State: SNA Predicted Models:			
<input type="checkbox"/> V - Echium vulgare (<i>Blueweed</i>) N1B			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1B - Non-native Species Global: GNR State: SNA Predicted Models:			
Noxious Weeds: Priority 2A			
<input type="checkbox"/> V - Ranunculus acris (<i>Tall Buttercup</i>) N2A			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Non-native Species Global: G5 State: SNA Predicted Models:			
<input type="checkbox"/> V - Myriophyllum spicatum (<i>Eurasian Water-milfoil</i>) N2A/AIS			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Aquatic Invasive Species - Non-native Species Global: GNR State: SNA Predicted Models:			
<input type="checkbox"/> V - Ventenata dubia (<i>Ventenata</i>) N2A			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Non-native Species Global: GNR State: SNA Predicted Models:			
<input type="checkbox"/> V - Lepidium latifolium (<i>Perennial Pepperweed</i>) N2A			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Non-native Species Global: GNR State: SNA Predicted Models:			
Noxious Weeds: Priority 2B			
<input type="checkbox"/> V - Lepidium draba (<i>Whitetop</i>) N2B	3		
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predicted Models:			
<input type="checkbox"/> V - Centaurea diffusa (<i>Diffuse Knapweed</i>) N2B			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predicted Models:			
<input type="checkbox"/> V - Linaria dalmatica (<i>Dalmatian Toadflax</i>) N2B			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: G5 State: SNA Predicted Models:			

- V - Centaurea stoebe (Spotted Knapweed) N2B**
Global: **GNR** State: **SNA**
Predicted Models: **M** 58% Moderate (inductive), **L** 42% Low (inductive)
- V - Cynoglossum officinale (Common Hound's-tongue) N2B**
Global: **GNR** State: **SNA**
Predicted Models: **M** 56% Moderate (inductive), **L** 44% Low (inductive)
- V - Linaria vulgaris (Yellow Toadflax) N2B**
Global: **GNR** State: **SNA**
Predicted Models: **M** 34% Moderate (inductive), **L** 66% Low (inductive)
- V - Berteroa incana (Hoary False-allysum) N2B**
Global: **GNR** State: **SNA**
Predicted Models: **M** 29% Moderate (inductive), **L** 71% Low (inductive)
- V - Euphorbia virgata (Leafy Spurge) N2B**
Global: **GNR** State: **SNA**
Predicted Models: **M** 6% Moderate (inductive), **L** 94% Low (inductive)
- V - Cirsium arvense (Canada Thistle) N2B**
Global: **G5** State: **SNA**
Predicted Models: **M** 6% Moderate (inductive), **L** 59% Low (inductive)
- V - Tanacetum vulgare (Common Tansy) N2B**
Global: **GNR** State: **SNA**
Predicted Models: **M** 6% Moderate (inductive), **L** 43% Low (inductive)
- V - Convolvulus arvensis (Field Bindweed) N2B**
Global: **GNR** State: **SNA**
Predicted Models: **M** 6% Moderate (inductive), **L** 39% Low (inductive)
- V - Acroptilon repens (Russian Knapweed) N2B**
Global: **GNR** State: **SNA**
Predicted Models: **L** 50% Low (inductive)
- V - Potentilla recta (Sulphur Cinquefoil) N2B**
Global: **GNR** State: **SNA**
Predicted Models: **L** 50% Low (inductive)
- V - Leucanthemum vulgare (Oxeye Daisy) N2B**
Global: **GNR** State: **SNA**
Predicted Models: **L** 49% Low (inductive)

Regulated Weeds: Priority 3

- V - Bromus tectorum (Cheatgrass) R3**
Global: **GNR** State: **SNA**
Predicted Models: **M** 55% Moderate (inductive), **L** 45% Low (inductive)

Biocontrol Species

- I - Aphthona lacertosa (Brown-legged Leafy Spurge Flea Beetle) BIOCNTL**
Global: **GNR** State: **SNA**
Predicted Models: **M** 100% Moderate (inductive)
- I - Oberea erythrocephala (Red-headed Leafy Spurge Stem Borer) BIOCNTL**
Global: **GNR** State: **SNA**
Predicted Models: **M** 100% Moderate (inductive)
- I - Aphthona nigricutis (Black Dot Leafy Spurge Flea Beetle) BIOCNTL**
Global: **GNR** State: **SNA**
Predicted Models: **M** 33% Moderate (inductive), **L** 43% Low (inductive)
- I - Cyphocleonus achates (Knapweed Root Weevil) BIOCNTL**
Global: **GNR** State: **SNA**
Predicted Models: **M** 7% Moderate (inductive), **L** 60% Low (inductive)
- I - Mecinus janthiniformis (Dalmatian Toadflax Stem-boring Weevil) BIOCNTL**
Global: **GNR** State: **SNA**
Predicted Models: **L** 100% Low (inductive)

Introduction to Montana Natural Heritage Program



P.O. Box 201800 • 1515 East Sixth Avenue • Helena, MT 59620-1800 • fax 406.444.0266 • phone 406.444.5363 • 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 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. 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 60 natural heritage programs that are distributed across North America.

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 to allow users to save time and money, speed environmental reviews, and make informed decisions.

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 is botanical, zoological, and ecological information that describes the distribution (e.g., observations, structured surveys, range polygons, predicted habitat suitability models), conservation status (e.g., global and state conservation status ranks, including threats), and other supporting information (e.g., accounts and references) on the biology and ecology of species and 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 four 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. See [Contact Information for MTNHP Staff](#)
- 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 enter or cross 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 Management 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 permitting and planning processes and management decisions. We encourage you to contact state, federal, and tribal resource management agencies in the area where your project is located and review the permitting overviews by the [Montana Department of Environmental Quality](#), the [Montana Department of Natural Resources and Conservation](#) and the [Index of Environmental Permits for Montana](#) for 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 Consultation \(IPAC\) website regarding](#) U.S. Endangered Species Act listed Threatened, Endangered, or Candidate species.

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

Montana Fish, Wildlife, and Parks

Fish Species	Zachary Shattuck zshattuck@mt.gov (406) 444-1231 or Eric Roberts eroberts@mt.gov (406) 444-5334																												
American Bison Black-footed Ferret Black-tailed Prairie Dog Bald Eagle Golden Eagle Common Loon Least Tern Piping Plover Whooping Crane	Kristian Smucker KSmucker@mt.gov (406) 444-5209																												
Grizzly Bear Greater Sage Grouse Trumpeter Swan Big Game Upland Game Birds Furbearers	Brian Wakeling brian.wakeling@mt.gov (406) 444-3940																												
Managed Terrestrial Game Data	Cara Whalen– MFWP Data Analyst cara.whalen@mt.gov (406) 444-3759																												
Fisheries Data and Nongame Animal Data	Ryan Alger – MFWP Data Analyst ryan.alger@mt.gov (406) 444-5365																												
Wildlife and Fisheries Scientific Collector's Permits	https://fwp.mt.gov/buyandapply/commercialwildlifeandscientificpermits/scientific Kristina Smucker for Wildlife ksmucker@mt.gov (406) 444-5209 Dave Schmetterling for Fisheries dschmetterling@mt.gov (406) 542-5514																												
Fish and Wildlife Recommendations for Subdivision Development	Charlie Sperry csperry@mt.gov (406) 444-3888 See https://fwp.mt.gov/conservation/living-with-wildlife/subdivision-recommendations																												
Regional Contacts 	<table> <tr> <td>Region 1</td> <td>(Kalispell)</td> <td>(406) 752-5501</td> <td>fwprg12@mt.gov</td> </tr> <tr> <td>Region 2</td> <td>(Missoula)</td> <td>(406) 542-5500</td> <td>fwprg22@mt.gov</td> </tr> <tr> <td>Region 3</td> <td>(Bozeman)</td> <td>(406) 577-7900</td> <td>fwprg3@mt.gov</td> </tr> <tr> <td>Region 4</td> <td>(Great Falls)</td> <td>(406) 454-5840</td> <td>fwprg42@mt.gov</td> </tr> <tr> <td>Region 5</td> <td>(Billings)</td> <td>(406) 247-2940</td> <td>fwprg52@mt.gov</td> </tr> <tr> <td>Region 6</td> <td>(Glasgow)</td> <td>(406) 228-3700</td> <td>fwprg62@mt.gov</td> </tr> <tr> <td>Region 7</td> <td>(Miles City)</td> <td>(406) 234-0900</td> <td>fwprg72@mt.gov</td> </tr> </table>	Region 1	(Kalispell)	(406) 752-5501	fwprg12@mt.gov	Region 2	(Missoula)	(406) 542-5500	fwprg22@mt.gov	Region 3	(Bozeman)	(406) 577-7900	fwprg3@mt.gov	Region 4	(Great Falls)	(406) 454-5840	fwprg42@mt.gov	Region 5	(Billings)	(406) 247-2940	fwprg52@mt.gov	Region 6	(Glasgow)	(406) 228-3700	fwprg62@mt.gov	Region 7	(Miles City)	(406) 234-0900	fwprg72@mt.gov
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Region 6	(Glasgow)	(406) 228-3700	fwprg62@mt.gov																										
Region 7	(Miles City)	(406) 234-0900	fwprg72@mt.gov																										

Montana Department of Agriculture

General Contact Information: <https://agr.mt.gov/About/Office-Locations/Office-Locations-and-Field-Offices>

Noxious Weeds: <https://agr.mt.gov/Noxious-Weeds>

Montana Department of Environmental Quality

Permitting and Operator Assistance for all Environmental Permits: <https://deq.mt.gov/Permitting>

Montana Department of Natural Resources and Conservation

Overview of, and contacts for, licenses and permits for state lands, water, and forested lands:

<https://dnrc.mt.gov/Permits-Services>

Stream Permitting (310 permits) and an overview of various water and stream related permits (e.g., Stream Protection Act 124, Federal Clean Water Act 404, Federal Rivers and Harbors Act Section 10, Short-term Water Quality Standard for Turbidity 318 Authorization, etc.).

<https://dnrc.mt.gov/Licenses-and-Permits/Stream-Permitting>

Wildfire Resources: <https://dnrc.mt.gov/Forestry/Wildfire>

Bureau of Land Management

<p>Montana Field Office Contacts:</p> 	<table> <tr><td>Billings</td><td>(406) 896-5013</td></tr> <tr><td>Butte</td><td>(406) 533-7600</td></tr> <tr><td>Dillon</td><td>(406) 683-8000</td></tr> <tr><td>Glasgow</td><td>(406) 228-3750</td></tr> <tr><td>Havre</td><td>(406) 262-2820</td></tr> <tr><td>Lewistown</td><td>(406) 538-1900</td></tr> <tr><td>Malta</td><td>(406) 654-5100</td></tr> <tr><td>Miles City</td><td>(406) 233-2800</td></tr> <tr><td>Missoula</td><td>(406) 329-3914</td></tr> </table>	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
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United States Army Corps of Engineers

Montana Regulatory Office for federal permits related to construction in water and wetlands

<https://www.nwo.usace.army.mil/Missions/Regulatory-Program/Montana/> (406) 441-1375

United States Environmental Protection Agency

Environmental information, notices, permitting, and contacts <https://www.epa.gov/mt>

Gateway to state resource locators <https://www.envcap.org/srl/index.php>

United States Fish and Wildlife Service

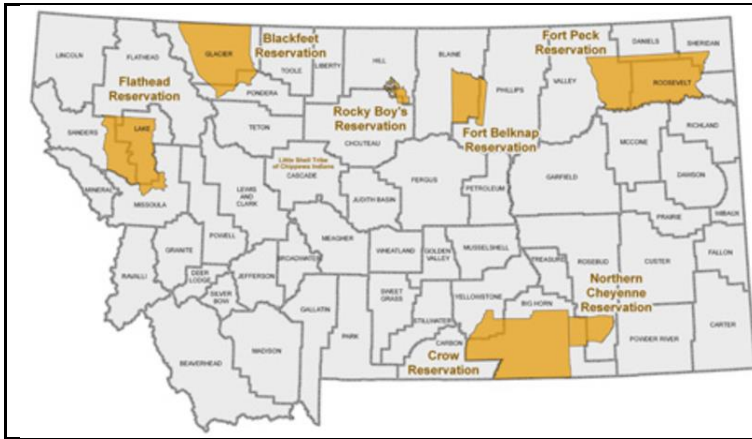
Information Planning and Conservation (IPAC) website: <https://ipac.ecosphere.fws.gov>

Montana Ecological Services Field Office: <https://www.fws.gov/office/montana-ecological-services> (406) 449-5225

United States Forest Service

Regional Office – Missoula, Montana Contacts			
Wildlife Program Leader	Tammy Fletcher	tammy.fletcher2@usda.gov	(406) 329-3086
Wildlife Ecologist	Cara Staab	cara.staab@usda.gov	(406) 329-3677
Aquatic Ecologist	Justin Jimenez	justin.jimenez@usda.gov	(435) 370-6830
TES Program	Lydia Allen	lydia.allen@usda.gov	(406) 329-3558
Interagency Grizzly Bear Coordinator	Scott Jackson	scott.jackson@usda.gov	(406) 329-3664
Regional Botanist	Amanda Hendrix	amanda.hendrix@usda.gov	(651) 447-3016
Regional Vegetation Ecologist	Mary Manning	marry.manning@usda.gov	(406) 329-3304
Invasive Species Program Manager	Michelle Cox	michelle.cox2@usda.gov	(406) 329-3669

Tribal Nations



- [Assiniboine & Gros Ventre Tribes – Fort Belknap Reservation](#)
- [Assiniboine & Sioux Tribes – Fort Peck Reservation](#)
- [Blackfoot Tribe - Blackfoot Reservation](#)
- [Chippewa Creek Tribe - Rocky Boy's Reservation](#)
- [Crow Tribe – Crow Reservation](#)
- [Little Shell Chippewa Tribe](#)
- [Northern Cheyenne Tribe – Northern Cheyenne Reservation](#)
- [Salish & Kootenai Tribes - Flathead Reservation](#)

Natural Heritage Programs and Conservation Data Centers in Surrounding States and Provinces

- [Alberta Conservation Information Management System](#)
- [British Columbia Conservation Data Centre](#)
- [Idaho Natural Heritage Program](#)
- [North Dakota Natural Heritage Program](#)
- [Saskatchewan Conservation Data Centre](#)
- [South Dakota Natural Heritage Program](#)
- [Wyoming Natural Diversity Database](#)

Invasive Species Management Contacts and Information

Aquatic Invasive Species

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

Noxious Weeds

- [Montana Weed Control Association Contacts Webpage](#)
- [Montana Biological Weed Control Coordination Project](#)
- [Montana Department of Agriculture - Noxious Weeds](#)
- [Montana Weed Control Association](#)
- [Montana Fish, Wildlife, and Parks - Noxious Weeds](#)
- [Montana State University Integrated Pest Management Extension](#)
- [Integrated Noxious Weed Management after Wildfires](#)
- [Fire Management and Invasive Plants](#)

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 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 animal or plant observations that you would like to contribute, you can also submit them via Excel spreadsheets, geodatabases, iNaturalist, or a Survey123 form. Various methods of data submission are reviewed in this playlist of videos:

<https://www.youtube.com/playlist?list=PLRaydtZpHu2qOHPoSPq9cnM9uXGmEXACx>

Observations

The MTNHP manages information on several 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/or 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

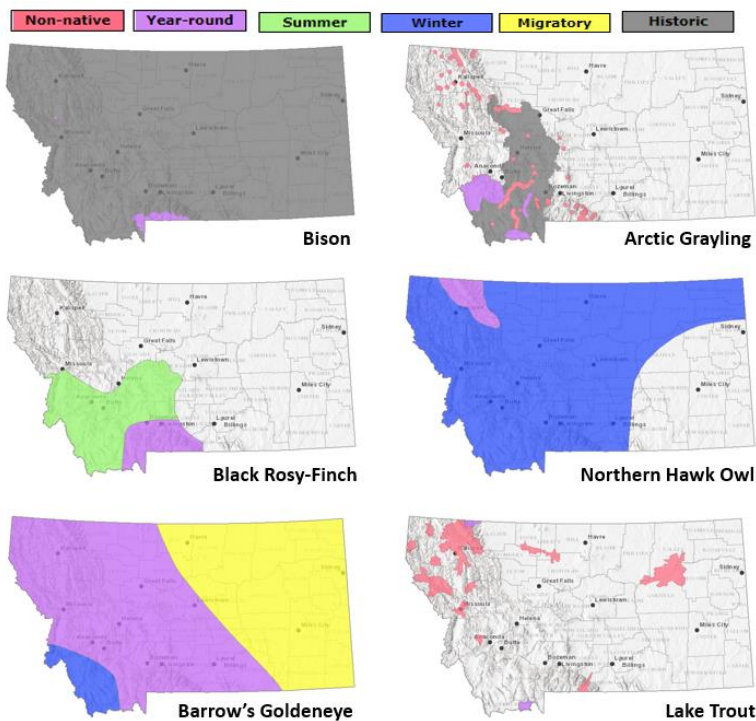
The location of a verified observation or specimen record typically known or assumed to represent a breeding population or a portion of a breeding population. Animal SO's are generally: (1) buffers of terrestrial point observations based on documented species' home range sizes; (2) buffers of stream 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 are still under development for most plant and invertebrate species. Native year-round, summer, winter, migratory and historic geographic range polygons as well as polygons for introduced



populations have been defined for most vertebrate 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

Predicted habitat suitability models have been created for plant and animal Species of Concern and are undergoing development for non-Species of Concern. For species for which models have been completed, the environmental summary report includes simple rule-based associations with streams for aquatic species and seasonal habitats for game species as well as 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 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](#) webpage. 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 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 1:100,000, 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 from the Montana State Library's [GIS Data List](#). More information on the land cover layer is available at: https://msl.mt.gov/geoinfo/msdi/land_use_land_cover/

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](#) web 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 deep water 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 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.**

See detailed overviews, with examples, of both wetland and riparian classification systems and associated codes as a [storymap](#) and companion [guide](#)

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 led 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 landowner. The dataset contains no information about ownership or status of the mineral estate. For questions about the dataset or to report errors, please contact the Montana Natural Heritage Program at (406) 444-5363 or mtnhp@mt.gov. You can download various components of the Land Management Database and view associated metadata at the Montana State Library’s [GIS Data List](#) at the following links:

[Public Lands](#)

[Conservation Easements](#)

[Private Conservation Lands](#)

[Managed Areas](#)

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

Introduction to Invasive and Pest Species

Within the report area you have requested, separate summaries are provided for: Aquatic Invasive Species, Noxious Weeds, Agricultural Pests, Forest Pests, and Biocontrol species that have been documented or potentially occur there based on the predicted suitability of habitat. 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) 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 limited, 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 animal or plant observations that you would like to contribute, you can also submit them via Excel spreadsheets, geodatabases, iNaturalist, or a Survey123 form. Various methods of data submission are reviewed in this playlist of videos:

<https://www.youtube.com/playlist?list=PLRaydtZpHu2qOHPoSPq9cnM9uXGmEXACx>

Additional Information Resources

[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 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 Index of Environmental Permits, 21st Edition \(2018\)](#)

[Montana Environmental Policy Act \(MEPA\)](#)

[Montana Environmental Policy Act Analysis Resource List](#)

[Laws, Treaties, Regulations, and Agreements on Animals and Plants](#)

[Montana Spatial Data Infrastructure Layers](#)

[Montana State Historic Preservation Office Review and Compliance](#)

[Montana Stream Permitting: a guide for conservation district supervisors and others](#)

[Montana Water Information System](#)

[Montana Web Map Services](#)

[National Environmental Policy Act](#)

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

[U.S. Fish and Wildlife Service Information for Planning and Consultation](#) (Section 7 Consultation)

[Web Soil Survey Tool](#)

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Madison County, Montana



Local office

Montana Ecological Services Field Office

☎ (406) 449-5225

📠 (406) 449-5339

585 Shephard Way, Suite 1
Helena, MT 59601-6287

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).

4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Canada Lynx <i>Lynx canadensis</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3652	Threatened
Grizzly Bear <i>Ursus arctos horribilis</i> There is proposed critical habitat for this species. https://ecos.fws.gov/ecp/species/7642	Threatened
North American Wolverine <i>Gulo gulo luscus</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5123	Proposed Threatened

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the [Bald and Golden Eagle Protection Act](#) and the [Migratory Bird Treaty Act](#).

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

There are bald and/or golden eagles in your project area.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

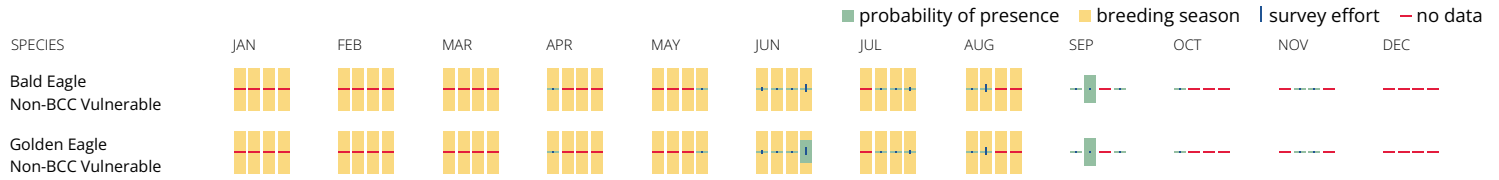
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (-)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply). To see a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the [Eagle Act](#) should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern \(BCC\)](#) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31
California Gull <i>Larus californicus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31
Cassin's Finch <i>Carpodacus cassinii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15
Evening Grosbeak <i>Coccothraustes vespertinus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

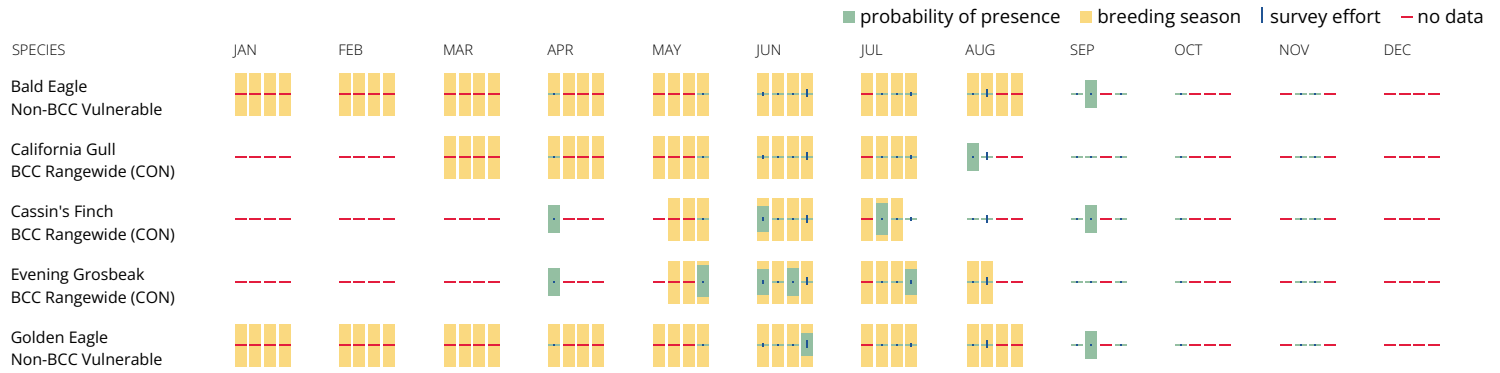
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through

image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

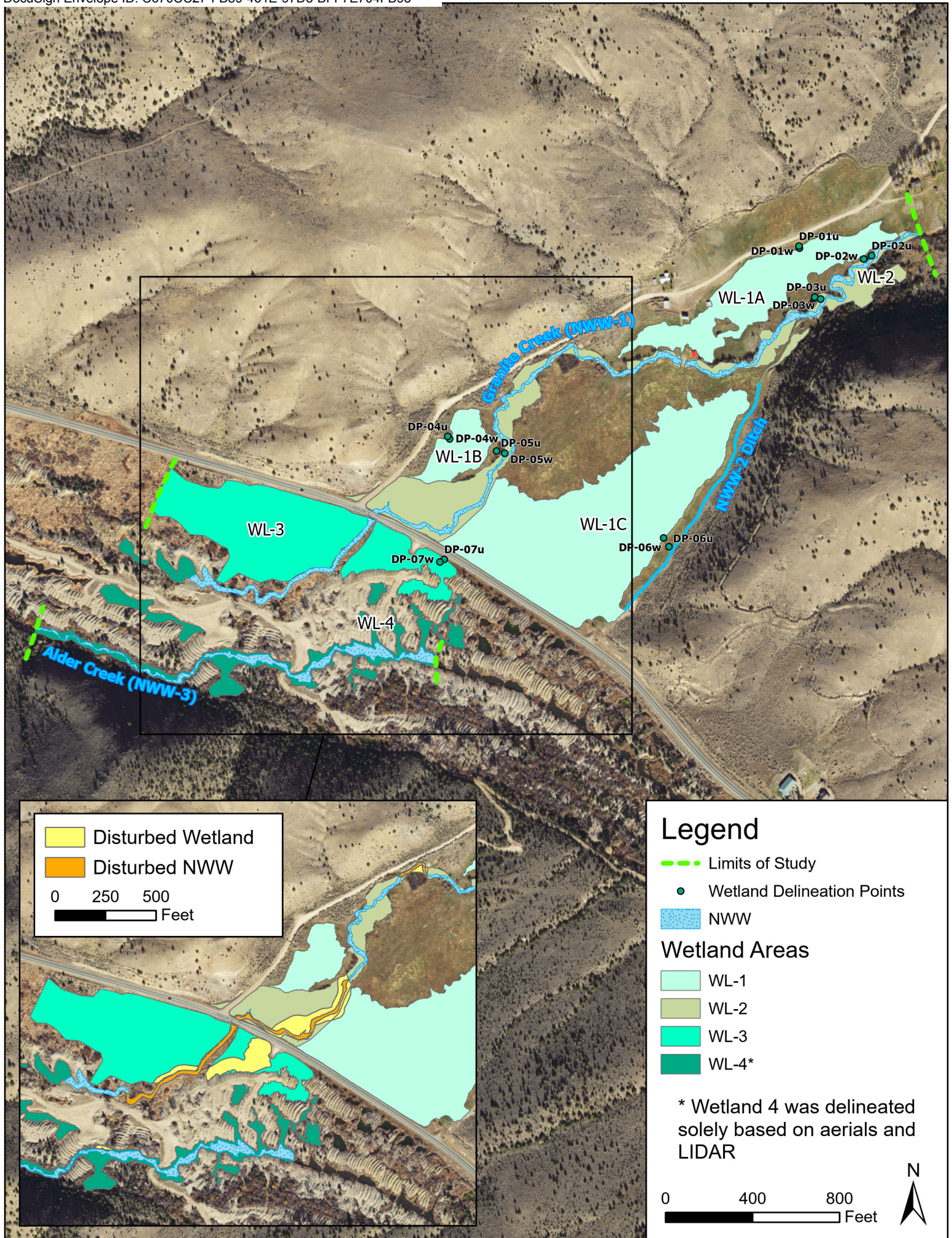
Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.



Legend

- Limits of Study
- Wetland Delineation Points
- NWW
- Wetland Areas
 - WL-1
 - WL-2
 - WL-3
 - WL-4*

* Wetland 4 was delineated solely based on aerials and LIDAR

