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DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

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FINAL DECISION NOTICE

Project Name:	Hysham Irrigation District Intake Improvements Project
Proposed Implementation Date:	August 2022
Proponent:	Hysham Irrigation District
Location:	Sections 21 and 28, Township 6N, Range 35E
County:	Treasure County

I. TYPE AND PURPOSE OF ACTION

The Hysham Irrigation District Intake Improvements Project is located in southeastern Montana. Hysham Irrigation District (HID) manages an irrigation canal network that delivers water to 6,300 acres of arable land. The HID turnout near Myers, Montana diverts water from the Yellowstone River to a lift station that pumps water through canals that service the entire irrigation district, where sugar beets, corn, grains, and hay are produced. The gates at the intake are antiquated and no longer close completely. The goal of this project is to protect surface water quality to the Yellowstone River by stabilizing an eroding bank and limiting the amount of sediment and nutrients impacting the water.

The focus of this project will specifically be at the canal headgates, located in Sections 21 and 28, Township 6 North, Range 35 East. The project is located approximately 6 miles southwest of Hysham, Montana. The project is located within the Lower Yellowstone-Sunday Watershed Basin, in the Yellowstone River TMDL Planning Area from the Big Horn to the Cartersville.

The intake headworks is the only diversion point for the Hysham Irrigation District. Antiquated gates create difficulty for operators to open when water is needed. Due to age, the seal is worn and an opening of 1-2 inches exists at all times, allowing seepage into the canal during non-irrigation season. The gates are mounted on a concrete structure that diverts water and secures them on the bank. This intake structure is located in an area where the river has been eroding at a rate of 6 feet per year as determined by historic aerial imagery. High water events and damaging velocities threaten complete washout of the intake facility that supplies all of the Hysham Irrigation District. Extreme erosion along the riverbank upstream of the diversion could result in strong hydrodynamic forces damaging or displacing the concrete structure that protects the headgate. If erosion causes high velocity waters to infiltrate the supply canal, all ability to regulate flow through the district will be lost. The diversion structure, supply canal and lift station are all at risk of damage or complete washout due to river erosion. Riparian plantings along the bank will stabilize easily erodible soils, preventing agricultural runoff, sediment, and nutrients from entering the Yellowstone River. A stable bank will also ensure the integrity of the headworks that supplies irrigation water to the Hysham Irrigation District and wasted surface water entering the canal during non-irrigation season will be conserved by repairing the leaking head gates. The stabilized bank and new head gate structure will reduce the amount of water taken from the Yellowstone River, eliminate seepage losses, and increase efficiency and effectiveness of the irrigation ditch.

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DNRC will approve the grant to provide funding for the Hysham Irrigation District Intake Improvements Project.

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.

The coordination of the proposed project will take place between local, state, and federal agencies. Most of the project coordination will occur between the HID, DNRC, and the contracted engineering firm. The USBR and other regulating agencies will be involved in the permitting process and design to provide input and associated approvals. Project Management will be responsible for facilitation of communication and cooperation between the agencies and organizations involved in the project.

Public involvement will be encouraged during any district meetings, and comments will be taken by HID staff and board members at any time. Due to the nature of the project, it is anticipated that public comments will be limited. Letters of support are attached to this application, confirming public approval.

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.

318 Authorization – The Short-Term Water Quality Standard for Turbidity requires a permit for any construction activities that will cause temporary violations of state surface water quality standards for turbidity. Pipeline construction will occur in the non-irrigation months when the system is shut down. At this time there is minimal hydraulic link to the Yellowstone River, minimizing the potential to transport sediment or soils disturbed during construction to the river. Yet because there does exist the potential for connection to the river a permit application will be submitted for review and necessity. Determination of the need for a permit will be made by the State.

Stormwater Discharge General Permit – According to Montana State Stormwater Rules, a stormwater discharge permit is required for projects that have a total disturbance greater than 1 acre and that discharge into state waters. Although the potential for any runoff from the proposed construction site to reach state waters is small, a permit will be acquired because there is a hydraulic connection to the Yellowstone River.

SPA 124 – The Montana Stream Protection Act requires a permit for any project that may affect the bed or banks of any stream in Montana. The intake renovation and replacement will take place within the banks of the Yellowstone River. The SPA 124 permit applies to governmental entities and Districts such as Ward Irrigation and would be issued by Montana Department of Fish, Wildlife and Parks.

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USACE 404 – Section 404 of the Clean Water Act (CWA) establishes a program to regulate the discharge of dredged or fill material into waters of the United States. The Section 404 permit would be issued by the US Army Corps of Engineers.

Treasure County Floodplain Permit – Due to the proximity of work within the Federal Emergency Management Agency (FEMA) mapped floodplain, a floodplain permit must be obtained from Treasure County.

US Bureau of Reclamation – Although not considered a permit, the US Bureau of Reclamation will be notified and involved during the design portion of the project to obtain their input and necessary approvals.

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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.

Five alternatives have been developed to rehabilitate the irrigation ditch headgates and surrounding riverbank, which factors in resource benefits, environmental impacts, capital costs, and annual operation and maintenance costs. Outside of the No-Action Alternative, Alternatives 2, 3, and 5 are all feasible options to rehabilitate the irrigation ditch intake. The Five alternatives are listed and described below:

- **Alternative 1 – No Action** – The no-action alternative assumes that no modifications will be made to the current conditions of the project area. The risks associated with the current condition will not be addressed. Over the years, the area of buffer land will erode, leaving no barrier from high velocities and damaging hydrodynamic forces. The Old Myers Road levee will be directly threatened during high water. If the levee were to breach, the irrigation district could eventually face a washout of their entire diversion facility. Approximately 6,300 acres of farmland with statewide importance will be jeopardized. Soil and debris will be washed into the Yellowstone River, creating turbidity and worsening water quality. No stabilization measures will be introduced and risk of a flood damaging the pumphouse and intake structure will remain high. The eroded bank will likely worsen each year. No renewable resource benefits will be seen.
- **Alternative 2 – Vegetated Riprap** – This alternative involves reinforcing the bank with vegetated riprap. This bank stabilization method involves riprap armoring along the bank from the bankfull elevation (Q2) or top of bank if that is near bankfull to scour depth intertwined with live willow cuttings. Based on existing hydraulic information available, riprap with a D100 of 3 feet minimum and scour depths around six (6) feet are anticipated, but final values will need to be determined during final design. Proposed riprap will be placed at a maximum 2H:1V slope over either a filter layer aggregate or geotextile fabric. Live willow cuttings will be installed intermittently throughout the riprap extended into the bank to promote root establishment. Coir fabric wrapped willow wattles, willow cuttings, brush layering, erosion control blanket, and native seed mix will begin at the bankfull elevation and extend up to the top of the bank. See Appendix G for more details and examples of vegetated riprap. This alternative provides hard armor bank stabilization primarily with riprap. The addition of vegetation within the riprap and revegetation from bankfull to the top of bank enhances the benefits to aesthetics and riparian habitat. Suitable riprap that is well graded will be required to ensure proper bank stabilization. Suitable

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riprap will be well graded and meet project specifications to ensure adequate bank stabilization. Per the Federal Highway Administration (FHWA) Hydraulic Engineering Circular (HEC) 23, this technique is easily installed compared to other bank stabilization techniques and requires relatively low maintenance. Vegetated riprap is well suited for many applications and varying bank slopes. This solution is intended to be implemented in the critical erosion area upstream of the headgate. To address other issues, this alternative will include headgate repair and patching of the existing levee downstream with riprap.

- **Alternative 3 – Riprap Revetment** – This alternative suggests essentially burying a riprap embankment in an area with high potential of erosion. This allows for the river to migrate and erode until it exposes the buried riprap. For this project, an ideal location for a revetment would be along the upstream side of Old Myers Road that is acting as a protective levee. By installing the revetment here, we can allow the river to have some erosion buffer to move naturally. If the river begins to encroach on the levee, the revetment will be uncovered and provide extra stabilization. To install a revetment, excavation and trench protection is required. Backfill is placed over the embankment. A large piece of land will be disturbed but permitting may be less because construction is not on the riverbank. See Appendix G for more details and examples of revetment. This solution is intended to be implemented in the critical erosion area upstream of the headgate. To address other issues, this alternative will include headgate repair and patching of the existing levee downstream with riprap.
- **Alternative 4 – Bioengineered Bank** – This bank stabilization technique employs biodegradable materials including woody revetment, coir fabric rolls, willow cuttings, native seed mix, and a minimal amount of rock. Toe protection rock will be placed below the riverbed to scour depth; based on existing hydraulic information, estimated scour depth is around six (6) feet, but final values will need to be determined during final design. Woody revetment will be placed at the bank toe with willow cuttings located directly above embedded to contact groundwater. Coir logs wrapped in coir fabric will be layered with live willow cuttings in between and installed at a 2H:1V slope to the bankfull elevation. The remaining bank will be vegetated with native seed mix and erosion control blanket. See attached Appendix G for more details and examples of bioengineered bank. This alternative provides a mixture of hard and soft bank stabilization techniques utilizing rock toe protection and biodegradable materials. Based on the site conditions, this alternative provides less reliable stabilization compared to vegetated riprap. Per FHWA HEC 23, bioengineered bank stabilization methods are aesthetically appealing and greatly enhance aquatic habitat. Proper construction of this technique is key in achieving adequate bank stabilization. This method is well suited for multiple applications and varying bank slopes. Due to near vertical slopes and anticipated velocities, this alternative may not be an appropriate choice for this site. This solution is intended to be implemented in the critical erosion area upstream of the headgate. To address other issues, this alternative will include headgate repair and patching of the existing levee downstream with riprap.
- **Alternative 5 – River Training** – This alternative suggests a configuration of structures to be installed in the river along the eroding bank that may direct the flow to a prescribed channel. These structures are intended to induce sediment deposition and alter the flow and sediment regimes of the river. The river training system may consist of guide banks, dikes, jetties, or similar flow deflectors. These structures can be made of numerous materials and are proven to reduce hydrodynamic force. See Appendix G for more details and examples of river training. In this situation, rock weirs are already present. This alternative would likely include the fortification and reconstruction of those structures to maintain the flow deflection they have provided over the past years. Some options to enhance effectiveness would be to increase rock size, increase length and height of weirs, or

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reorientation of the structures. Maintaining these riprap jetties would ensure sediment drop in this area, possibly rebuilding the bank if effective. Because of the frequency of high velocities and erosion, these structures may once again wear down over time. Every few years, maintenance may be needed. This solution is intended to be implemented in the critical erosion area upstream of the headgate. To address other issues, this alternative will include headgate repair and patching of the existing levee downstream with riprap.

- **Proposed Alternative** – After comparing the cost/benefit analysis, environmental impacts, and the resource impacts, it was determined Alternative 5 would best accomplish the project goals and objectives. As a result, Alternative 5 is the proposed alternative and will expand across approximately 1050 feet of bank upstream of the intake and create a stable point upstream. This solution will provide immediate and long-term protection with habitat benefits inherent with the establishment of a healthy riparian buffer. The headgate will be repaired so that the mechanics function properly and operators have full control over the diversion from the Yellowstone River. The seal will be replaced or fixed so that there is little to no leakage during offseason. The mechanical components that control the placement of the gate will be replaced or repaired so that the headgate operator will easily be able to open and close the structure (Source: Morrison Majerle Engineering Investigation).

III. IMPACTS ON THE PHYSICAL ENVIRONMENT

- *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.*

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 within and adjacent to the project area along the bank of the Yellowstone River consist of Havre and Glendive soils. These soil types are classified as nonsaline to very slightly saline, well-drained alluvium with slopes mainly from 0 to 1 percent. Appendix C of the Hysham Irrigation District Intake Improvements Project application contains all soils information which was acquired from the NRCS Web Soil Survey.

Proposed alternative – Potentially beneficial as bank stabilization will reduce potential bank erosion in the project area and likely stabile the riverbank slopes (Source: Morrison Maierle Engineering Investigation)

No Action – Potentially adverse with the current rate of erosion and associated sedimentation of the river.

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.

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The project area is located in and adjacent to the Yellowstone River within the Lower Yellowstone HUC, which has a mean annual flow ranging from approximately 6,141 ft3 s-1 to 19,780 ft3 s-1 (Source: USGS NWIS website, USGS 06309000 Yellowstone River at Miles City). The Hysham irrigation canal extracts surface water from the Yellowstone River main stem and transports it roughly 27 miles before discharging back into the Yellowstone River.

The Yellowstone River, located within the Upper Missouri River Basin, is listed on the Montana DEQ 303d as fully supporting agricultural beneficial uses, but not fully supporting aquatic life due to fish passage barriers associated with dam construction. Specifically, the Yellowstone River is considered a warm water fishery, but an intake dam partially restricts fish passage. The Yellowstone is listed as Water Quality Code, 4C, which has been identified as having threats or impairments resulting from pollution categories such as dewatering or habitat modification and, thus, a TMDL has not been required. TDS and salinity concentrations in this reach are relatively low. TSS concentrations tend to be high but are lower than historical levels due construction of Yellowtail Dam (Source: Montana DEQ Search Tools – 2020 Water Quality Information).

Proposed Alternative – Potentially beneficial as installation of the new headgate and bank stabilization will likely increase irrigation delivery efficiency, eliminate seepage, and conserve water in the Yellowstone River. Erosion within the canal will also be eliminated in turn eliminating sediment laden return flows to the Yellowstone River.

No Action – Water delivered through the irrigation canal will continue to be lost during periods of inactivity due to seepage and undesired flow into the canal. Water that remains in the canal year-round will continue to erode the canal bottom and lower the water-holding capacity. Eroding banks and sediment transported from the canal will also continue to impact the Yellowstone River (Source: Morrison Maierle Engineering Investigation).

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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 per the Montana DEQ Air Quality Nonattainment Status list (Source: Montana DEQ Air Quality Website visit).

Proposed Alternative – Potentially adverse direct, short-term impacts to air quality from dust associated with construction activities. If excessive dust is generated, the contractor will be responsible for dust abatement through water application. (Source: Morrison Maierle Engineering Investigation).

No Action – No impact to current air quality.

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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 project area is surrounded by approximately 91% private land (estimated using the Montana Natural Heritage Program website), with the remaining 9% on two types of public lands (Bureau of Land Management and Montana Fish, Wildlife and Parks). The project area is primarily within wetland and riparian systems (48%), cultivated cropland and pasture (26%), Great Plains Mixedgrass Prairie (7%), and Great Plains pine woodland and savanna (4%; see Montana Natural Heritage Program report at the end of this document to view other land cover types, or the MTNHP website). There are two Species of Concern listed for Treasure County (Source: Montana Natural Heritage Program website) and four threatened and/or endangered plant species listed on the NRCS website that could occur in the project area (Source: USDA NRCS plants database).

Proposed Alternative – Potentially beneficial as the proposed project will provide for increase water conservation and controlled water diverted from the Yellowstone River providing for increased in-stream flow for fish, recreation, and wildlife. Elimination of bank erosion and sediments entering the river channel will also improve water quality in the Yellowstone River for fish, vegetation, and wildlife (Source: Morrison Maierle Engineering Investigation).

No Action – Given the project is primarily within the river corridor, there will likely be no to minimal impact on the native and/or rare plant species that could occur in the area.

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.

Project location does not appear to be in an any areas identified as priority areas for terrestrial conservation efforts within the Montana State Wildlife Action Plan (SWAP; Montana Fish, Wildlife, and Parks web map GIS data); however, the Yellowstone River is considered Level 3 Priority with the SWAP for aquatic ecosystems. The project area does not fall within an Executive Order – General/Priority habitat area for sage grouse (see attached map) however greater sage grouse (*Centrocercus urophasianus*) have a confirmed breeding area within the 1-mile buffer around the project area (Source: MTNHP Species Report; attached). Though the project area does not appear to be impacting crucial and/or critical habitat areas, there are 33 Species of Concern listed for Treasure County that may occur in the project area in a broad range of taxa, including bats, birds, reptiles, amphibians, fish, insects, and plants.

Proposed Alternative – Potentially beneficial as the project will provide for increased water conservation and minimize water diverted from the Yellowstone River providing for increased in-stream flow for fish, recreation, and wildlife. Elimination of bank erosion will also reduce sedimentation and improve water quality in the Yellowstone River for fish, vegetation, and wildlife (Source: Morrison Maierle Engineering Investigation).

No Action – There will likely be no impact to the current terrestrial or avian species and habitats given the project is not located within critical and/or crucial habitat areas and will occur within the same footprint. There will continue to be potentially adverse effects to the aquatic species and habitat from bank erosion and sedimentation of the Yellowstone River.

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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 National Wetlands Inventory (NWI) website was used to determine whether any wetlands were present within the lands adjacent to the project location (map included at the end of this EA). This search indicated that several wetlands are present within the project area and the adjacent habitat. There is one freshwater emergent wetland and six riverine habitats. The Freshwater Emergent wetlands are seasonally flooded, contain vegetation for most of the year, and contain hydrophytic plants. The Riverine habitats are generally deepwater habitats contained within a channel, permanently flooded, with intermittent and seasonally flooded channels. In addition, the canal itself is labeled as an excavated Freshwater Emergent wetlands area.

As mentioned in the previous section, there are 33 species of concern listed as potentially using the Yellowstone River area as viable habitat. The lower Yellowstone likely provides critical spawning and rearing habitat for multiple native migratory and resident fishes, including sensitive/Species of Concern paddlefish, sauger, blue sucker, sturgeon chub, pearl dace, and endangered pallid sturgeon (Source: Montana Fish, Wildlife, and Parks FishMT). DNRC also used the U.S. Fish and Wildlife Service 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 one (1) Federally listed species as potentially occurring in the greater project area and three (3) migratory birds of concern: monarch butterfly (Danaus plexippus), Bald Eagle (*Haliaeetus leucocephalus*), Lark Bunting (*Calamospiza melanocorys*), and Pinyon Jay (*Gymnorhinus cyanocephalus*; USFWS IPaC report. Date accessed: 12/19/2022). The three bird species are protected under the Migratory Bird Treaty Act, and the Bald Eagle is also protected under the Montana Bald Eagle Management Plan, Bald and Golden Eagle Protection Act, and Lacey Act.

Proposed Alternative – The proposed alternative may potentially benefit the species of concern, as the proposed project will have a beneficial effect on the environmental resources and endangered species in the area by conserving water in the Yellowstone River and reducing sediment loads eroding into the river (Source: MTNHP Species Report). If an active eagle nest is identified in proximity to the project area during the construction phase of the proposed project, potential construction restrictions will be evaluated.

No Action – The unique, endangered, or fragile environmental resources in the project area may be adversely impacted by the no action alternative, particularly the aquatic species, as high sediment loads will continue to erode into the river.

10. HISTORICAL AND ARCHAEOLOGICAL SITES:
Identify and determine direct, indirect, and cumulative effects to historical, archaeological or paleontological resources.

The project area is primarily within the river channel and surrounding riparian habitat with no archeological resources in the area. The historic Hysham Canal has previously been determined as eligible for the National Register of Historic Places (Site 24TE0127; State Historic Preservation Office; SHPO). Consultation with the SHPO will continue as needed.

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Proposed Alternative – If any part of the historical Hysham Canal structure is to be altered, further coordination with the State Historic Preservation Office will occur (Source: Morrison Maierle Engineering Investigation). If previously unknown cultural or paleontological materials are identified during project related activities, the DNRC grant manager will be notified, and all work will cease until a professional assessment of such resources can be made.

No Action – No impact to historical or archaeological sites.

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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.

The Yellowstone River provides recreation opportunities for the public and the proposed project would include stabilization effort on the riverbank. The canal is predominantly on rural private property which is comprised primarily of cultivated cropland and wetland and riparian systems. In addition, the project is located west of the immediate town limits of Hysham, Montana and therefore outside of populated, residential areas.

Proposed Alternative – The proposed project may have direct, short-term adverse impacts on the waterway use and aesthetics immediately around the project area during construction. The waterway will not be restricted, and recreational use will not be obstructed from traveling through this section of the Yellowstone River. Some nuisance noise and visual impairment will be expected during construction activities, and the contractor will be required to follow any local regulations or ordinances pertaining to the operation of machinery, perform all construction activities during daylight hours and to minimize nuisances (Source: Morrison Maierle Engineering Investigation).

No Action – No impact to aesthetics and no nuisances.

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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.

The Hysham Irrigation District manages the irrigation network that provides water for approximately 6,300 acres of row crops, small grains, and hay. The main headgate diverts irrigation water from the Yellowstone River into a single diversion facility. The main pumphouse sends water off to canals that service the entire Hysham District. The accelerated riverbank erosion is threatening the intake structure, supply canal, protection levee, and pumphouse that conveys water to the entire system. If the upstream buffer of land continues to erode, strong hydrodynamic forces will be in direct contact with the irrigation infrastructure and threaten the ability of users to have guaranteed access to water for crops.

Proposed Alternative – The proposed alternative would eliminate seepage into the canal during times of low irrigation usage and slow erosion of sediments into the river corridor by providing bank stabilization. There will be no changes to the energy resources used in powering the pumping station. Alternative 2 would provide immediate bank stabilization but requires a long span of bank to be protected by riprap, which would be significant in cost and materials. Alternative 3 includes excavation and a large mobilization area but cannot be immediately assessed because it will

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provide protection only when the river reaches a more hydrodynamically threatening flow. Alternative 5 will provide immediate and long-term protection with habitat benefits of establishing a healthy riparian corridor (Source: Morrison Maierle Engineering Investigation).

No Action – The No Action alternative would require the headgate to continue to operate under its current conditions making it very difficult to manage the system as seepage would continue to be an issue. In addition, bank erosion would continue to compromise the integrity of the headgates and sedimentation into the Yellowstone River would continue at an accelerated rate (Source: Morrison- Maierle Engineering Investigation).

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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.

318 Authorization – The Short-Term Water Quality Standard for Turbidity requires a permit for any construction activities that will cause temporary violations of state surface water quality standards for turbidity. Pipeline construction will occur in the non-irrigation months when the system is shut down. At this time there is minimal hydraulic link to the Yellowstone River, minimizing the potential to transport sediment or soils disturbed during construction to the river. Yet because there does exist the potential for connection to the river a permit application will be submitted for review and necessity. Determination of the need for a permit will be made by the State.

Stormwater Discharge General Permit – According to Montana State Stormwater Rules, a stormwater discharge permit is required for projects that have a total disturbance greater than 1 acre and that discharge into state waters. Although the potential for any runoff from the proposed construction site to reach state waters is small, a permit will be acquired because there is a hydraulic connection to the Yellowstone River.

SPA 124 – The Montana Stream Protection Act requires a permit for any project that may affect the bed or banks of any stream in Montana. The intake renovation and replacement will take place within the banks of the Yellowstone River. The SPA 124 permit applies to governmental entities and Districts such as Ward Irrigation and would be issued by Montana Department of Fish, Wildlife and Parks.

USACE 404 – Section 404 of the Clean Water Act (CWA) establishes a program to regulate the discharge of dredged or fill material into waters of the United States. The Section 404 permit would be issued by the US Army Corps of Engineers.

Treasure County Floodplain Permit – Due to the proximity of work within the Federal Emergency Management Agency (FEMA) mapped floodplain, a floodplain permit must be obtained from Treasure County.

US Bureau of Reclamation – Although not considered a permit, the US Bureau of Reclamation will be notified and involved during the design portion of the project to obtain their input and necessary approvals.

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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.

The project area consists of private property associated with an irrigation intake structure on the Yellowstone River, the river channel, and surrounding riparian vegetation.

Proposed Alternative – The proposed improvements will complete the riverbank stabilization and headgate repairs. There is potential for direct, short-term adverse effects to recreation within the river corridor if construction is occurring in the river and along the bank without upstream notification for river users.

No Action – The current headgates will continue to remain open during non-irrigated periods and water seepage into the canal will continue to influence the canal bottom. Erosion will continue to influence the hydrology around the headgate with the potential for destruction of the headgate structure and the inability to control water flow in the irrigation canals.

15. INDUSTRIAL, COMMERCIAL AND AGRICULTURE ACTIVITIES AND PRODUCTION:

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

The Hysham Irrigation District manages the irrigation network that provides water for approximately 6,300 acres of row crops, small grains, and hay. The main headgate diverts irrigation water from the Yellowstone River into a single diversion facility. The main pumphouse sends water off to canals that service the entire Hysham District. The accelerated riverbank erosion is threatening the intake structure, supply canal, protection levee, and pumphouse that conveys water to the entire system. If the upstream buffer of land continues to erode, strong hydrodynamic forces will be in direct contact with the irrigation infrastructure and threaten the ability of users to have guaranteed access to water for crops.

Proposed Alternative – The proposed alternative would be potentially beneficial as implementation will ensure access to water for irrigating crops. Rural communities surrounding the proposed project rely on ag-driven revenues for a long-term sustainable economy. Agriculture has continued to be a main staple in the local economy and helped to stabilize the area during the boom-bust cycles of oil production. It is critical to sustain agricultural production to preserve the lifestyles of these rural Montana communities (Source: Morrison Maierle Engineering Investigation).

No Action – The No Action alternative would require the headgate to continue to operate under its current conditions making it very difficult to manage the system as seepage and water loss would continue to be an issue. In addition, bank erosion would continue to compromise the integrity of the headgates and sedimentation into the Yellowstone River would continue at an accelerated rate (Source: Morrison- Maierle Engineering Investigation).

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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 located in a rural area of the county that is not populated and no businesses are located within the project area. The population for the county was 768 in 2021, with 278 people in Hysham town. The proposed project focuses on an irrigation intake structure and riverbank erosion.

Proposed Alternative – The proposed project could potentially create part-time construction jobs during installation; however, the project is small and will not create significant or long-term employment opportunities.

No Action – The headgates would continue to be monitored and serviced by HID employees and no additional jobs would be created under maintaining the intake in its current status.

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.

Hysham Irrigation District currently supplies irrigation water to 6,300 acres. These 6,300 acres rely solely on the water provided by the canal system that draws surface water directly from the Yellowstone River at one single source location. If users were unable to rely on water being provided, the local and state economies would be directly impacted. In 2017, over half (52%) of the farms in Treasure County are 1,000+ acres in size and have an average market value of products sold of $372,118 (Source: USDA National Agricultural Statistics Service, 2017 Treasure County Profile).

Proposed Alternative – Potentially beneficial because the proposed project alternative would eliminate seepage and improve reliability, allowing users Hysham canals to irrigate their crops without fear of losing water supply. The local economic effect would provide short-term benefit related to project construction, and a long-term benefit. Using the average farm size and average amount of product sold as stated above, the proposed project will ensure that over $2,232,800 in agricultural products that rely on the irrigation canal network are produced.

No Action – The No Action alternative would mean continuing to operate the canal headgates in its current condition. In doing so, the canal would continue to lose water to seepage and the erosion of the riverbank will continue to threaten the safety of the canal intake structures. If the headgate or intake structures were to experience damage such that they can no longer regulate water flow into the canal system, the potential loss of revenue for the 6,300 acres that rely on the irrigation network would cost the County over $2 million in agricultural product sales (Source: National Agricultural Statistics Service, 2017 Treasure County Profile).

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

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The project area is located primarily on private land and is just outside the town limits of Hysham, Montana.

Proposed Alternative – No impact is expected to fire protection, emergency services, or transportation networks/traffic flows.

No Action – No impact to government services.

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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.

The project will be coordinated with all applicable local, state and federal agencies. Local cooperation and regulatory permits will come from the Treasure County Floodplain Administration and other regulatory permitting agencies associated with these in river improvements. Adjustments to water rights are not anticipated with this project as there are no proposed changes to the amount of water withdrawn from Hysham Irrigation District's Yellowstone River water right.

Proposed Alternative – This project aligns with objectives in the Montana State Water Plan – a guide for water policy and management. A main objective of this plan is to support water use efficiency and conservation. The proposed intake improvements will potentially have a long-term beneficial effect to the entire Hysham Irrigation District by increasing the efficiency and conservation in water use.

No Action – The No Action alternative will have a long-term adverse effect to the water use, as the gap in the headgate structure will continue to allow water to flow into the canal during non-irrigated seasons, drawing more surface water from the Yellowstone River than is required.

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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.

The Yellowstone River provides diverse recreational opportunities for the public. The project area is located on the main recreational corridor of the Yellowstone River, primarily on private land. There are 11 public fishing access sites upstream of the project area, and another five downstream of the irrigation canal intake. There are also a few sites available at county bridge crossing and some landowner agreements that provide limit river access outside of the public access points (Source: Morrison-Mairele Engineering Investigation).

Proposed Alternative – The proposed project may have a direct, short-term adverse impact on the waterway use immediately around the project area during construction. However, the waterway will not restrict recreationalist from traveling through this section of the Yellowstone River. There will be no direct impact to public land access or wilderness activities.

No Action –No impact to recreational or wilderness activities.

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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.

The population of Treasure County in 2021 was estimated at 768 individuals and the town of Hysham, MT was estimated having 278 individuals (MT Dept. of Commerce: http://ceic.mt.gov). In addition, there are approximately 321 owner-occupied housing units in Treasure County (https://www.census.gov/quickfacts/fact/table/treasurecountymontana,MT).

Proposed Alternative – No impact of the bank stabilization and headgate repair is expected to impact the county population. Given the project is expected to be short-term, no additional housing is expected to be required.

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.

Treasure County is largely made up of rural, cultivated cropland and/or Great Plains mixedgrass prairie (Source: Montana Natural Heritage Program). The agricultural way of life provides the most common type of lifestyle/community for the county.

Proposed Alternative – No impact is expected to change social structures and/or lifestyles from the project, but rather enhance the current communities and lifestyles. By ensuring stable water access, Hysham Irrigation District will be able to conserve one of Montana's most treasured resources, water. Increased efficiency and conserved water will create benefits locally, regionally, and statewide in the form of increased food supply, improved recreational opportunities, and economic impacts.

No Action – No impact to social structures is likely given the nature of the canal location and is not currently impacting native or traditional lifestyles.

23. CULTURAL UNIQUENESS AND DIVERSITY:

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

The Yellowstone River and agricultural lands sustain the way of life for Treasure County and the greater Hysham area, providing fishing and boating recreational activities and local and regional food supply for the overall area.

Proposed Alternative – No impact is expected to the cultural uniqueness and/or diversity to the project area; however, there may be beneficial impacts to the Yellowstone River as the proposed alternative will reduce erosion and sediment deposition.

No Action – No impact to cultural uniqueness or diversity resources.

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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.

Hysham Irrigation District is the largest (in terms of acres served) water source in the area, providing water for approximately 6,300 acres of land.

Proposed Alternative & No Action– Potentially no impact given the nature of the project is a replacement of aging infrastructure and does not increase or decrease water availability or use, and no additional income would be expected to occur as a result of this project.

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.

Sewer/Sanitation/Storm Water

The town of Hysham is not in the vicinity of the proposed project area. No solid waste management or wastewater treatment facilities exist in the project area. The project area consists of an irrigation intake structure on the Yellowstone River for the Hysham Irrigation District.

Drinking Water/Fire Protection

The project area consists of an irrigation intake structure on the Yellowstone River for the Hysham Irrigation District. Water that is diverted into the Hysham irrigation canal network supplies irrigation for 6,300 acres of farmland in the area. There is little to no fire protection in place or any immediate fire hazards.

Proposed Alternative – The proposed project has the potential to have indirect beneficial impacts on surface waters by protecting the existing intake structure and slowing/preventing erosion of the riverbank. The intake structure will also be improved to prevent seepage and water loss and will ensure more surface water is available for irrigation or recreational purposes. The project will have no anticipated impact on solid waste management or wastewater treatment. The project will have no anticipated direct impact to any community water supply, however some indirect beneficial impacts on irrigation water supply and groundwater recharge may occur, which can impact drinking water.

The proposed project has the potential to have direct, short-term adverse impacts to water quality through constriction activities within the river corridor. If ground disturbance for the proposed project is equal to or greater than 1 acre, the contractor is required to obtain and comply with Montana DEQ's General Permit for Storm Water Discharges Associated with Construction Activities. This permit requires BMPs to be implemented to minimize sediment-laden runoff from reaching a water of the state (in this case, the Yellowstone River), inspections of the BMPs, and rehabilitation of the area post construction.

No Action – The riverbank erosion would continue at an accelerated rate, which would jeopardize the integrity of the irrigation canal intake. These deleterious conditions would persist and eventually decline further, becoming ineffective for the local residents' agricultural water supply and demand.

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26. 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.

The project location is in a rural area and will not have impacts to a specific population.

Proposed Alternative – Potentially no impact as the proposed project will not result in disproportionately high or adverse human health or environmental effects on minority or low-income populations. The economic impact will not have a disproportionate effect among any portion of the community.

No Action – No impact to environmental justice.

EA Prepared By:	**Name:** Samantha Treu		**Date:** December 23, 2022
	Title: MEPA/NEPA Coordinator	**Email:** samantha.treu@mt.gov	

V. FINDING

27. ALTERNATIVE SELECTED:

Proposed Alternative 5 – River Training

After comparing the cost/benefit analysis, environmental impacts, and the resource impacts, it was determined Alternative 5 would best accomplish the project goals and objectives. As a result, Alternative 5 is the proposed alternative and will expand across approximately 1050 feet of bank upstream of the intake and create a stable point upstream. This solution will provide immediate and long-term protection with habitat benefits inherent with the establishment of a healthy riparian buffer. The headgate will be repaired so that the mechanics function properly and operators have full control over the diversion from the Yellowstone River. The seal will be replaced or fixed so that there is little to no leakage during offseason. The mechanical components that control the placement of the gate will be replaced or repaired so that the headgate operator will easily be able to open and close the structure (Source: Morrison Maierle Engineering Investigation).

28. SIGNIFICANCE OF POTENTIAL IMPACTS:

Air Quality

Potentially adverse direct, short-term impacts to air quality from dust associated with construction activities. If excessive dust is generated, the contractor will be responsible for dust abatement through water application

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Aesthetics/Noise

The proposed project may have direct, short-term adverse impacts on the waterway use and aesthetics immediately around the project area during construction. The waterway will not be restricted, and recreational use will not be obstructed from traveling through this section of the Yellowstone River. Some nuisance noise and visual impairment will be expected during construction activities, and the contractor will be required to follow any local regulations or ordinances pertaining to the operation of machinery, perform all construction activities during daylight hours and to minimize nuisances

Human Health and Safety

The proposed improvements will complete the riverbank stabilization and headgate repairs. There is potential for direct, short-term adverse effects to recreation within the river corridor if construction is occurring in the river and along the bank without upstream notification for river users.

Access to and Quality of Recreational and Wilderness Activities

The proposed project may have a direct, short-term adverse impact on the waterway use immediately around the project area during construction. However, the waterway will not restrict recreationalist from traveling through this section of the Yellowstone River. There will be no direct impact to public land access or wilderness activities.

Drinking Water and/or Clean Water

The proposed project has the potential to have direct, short-term adverse impacts to water quality through constriction activities within the river corridor. If ground disturbance for the proposed project is equal to or greater than 1 acre, the contractor is required to obtain and comply with Montana DEQ's General Permit for Storm Water Discharges Associated with Construction Activities (Permit 318). This permit requires BMPs to be implemented to minimize sediment-laden runoff from reaching a water of the state (in this case, the Yellowstone River), inspections of the BMPs, and rehabilitation of the area post construction. Construction activity will be conducted during periods of low river flow and other BMPs will be installed to help filter sedimentation directly within the project area.

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29. NEED FOR FURTHER ENVIRONMENTAL ANALYSIS:

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

EA Approved By:	**Name:** Mark W Bostrom **Title:** Division Administrator	
Signature: DocuSigned by: Mark W Bostrom BF7A1C50B2AF4DE...	**Date**: 3/15/2023 | 3:28:28 PM MDT	

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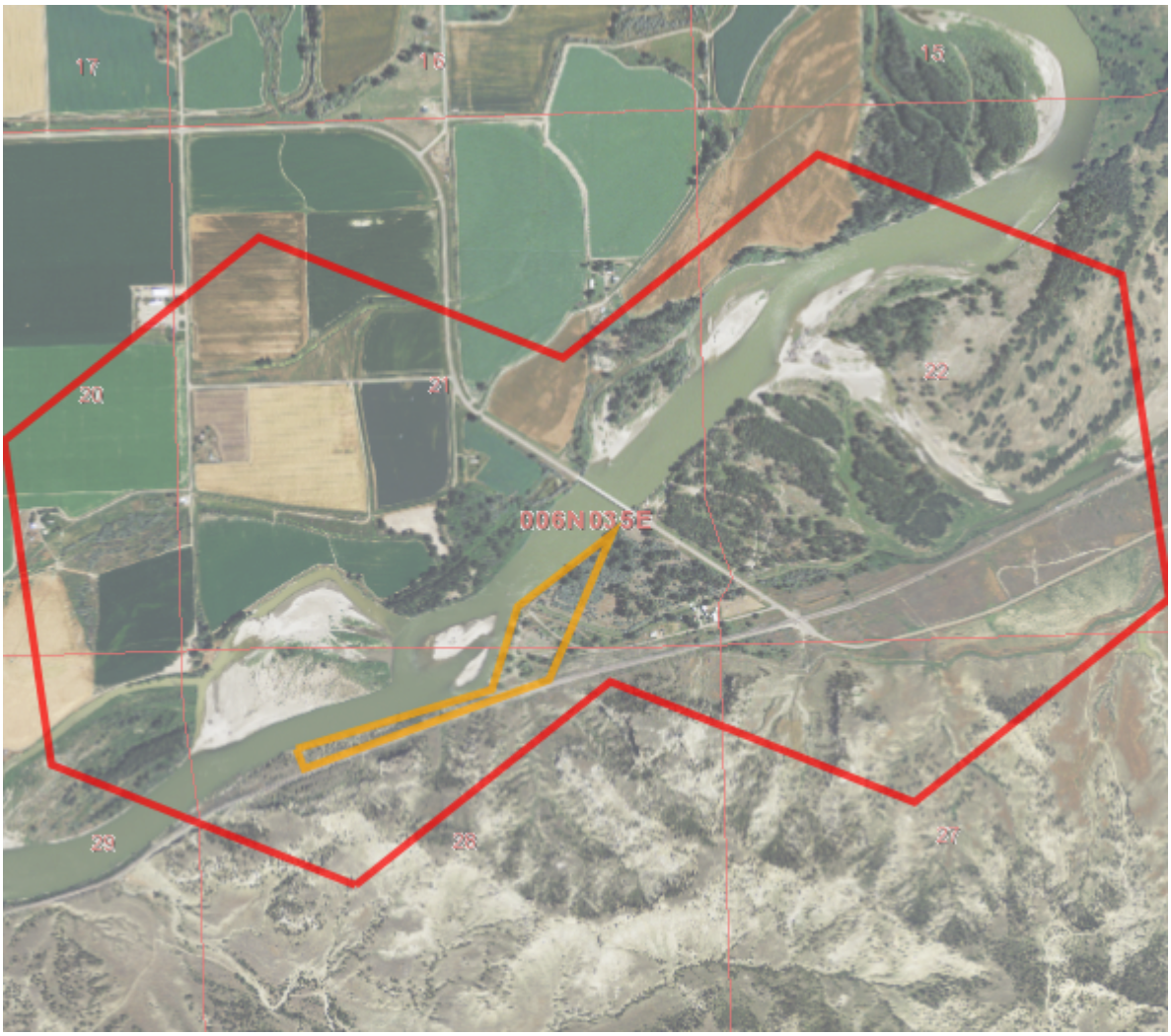
Environmental Summary

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

Latitude	Longitude
46.24411	-107.32280
46.26331	-107.36974

Summarized by:
Hysham Irrigation Canal
(Custom Area of Interest)



Suggested Citation
Montana Natural Heritage Program. Environmental Summary Report.
for Latitude 46.24411 to 46.26331 and Longitude -107.32280 to -107.36974. Retrieved on 12/19/2022.

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 NatureServe, a network of over 80 similar programs in states, provinces, and nations throughout the Western Hemisphere, working to provide current and comprehensive distribution and status information on species and biological communities.

Montana Natural Heritage Program · Montana State Library · NatureServe

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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 the western United States (e.g., Western Association of Fish and Wildlife Agencies - Crucial Habitat Assessment Tool).

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.**

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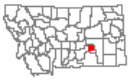
Montana Natural Heritage Program
A program of the **Montana State Library's Natural Resource Information System**

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

Habitat Icons
- C Common
- O Occasional

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

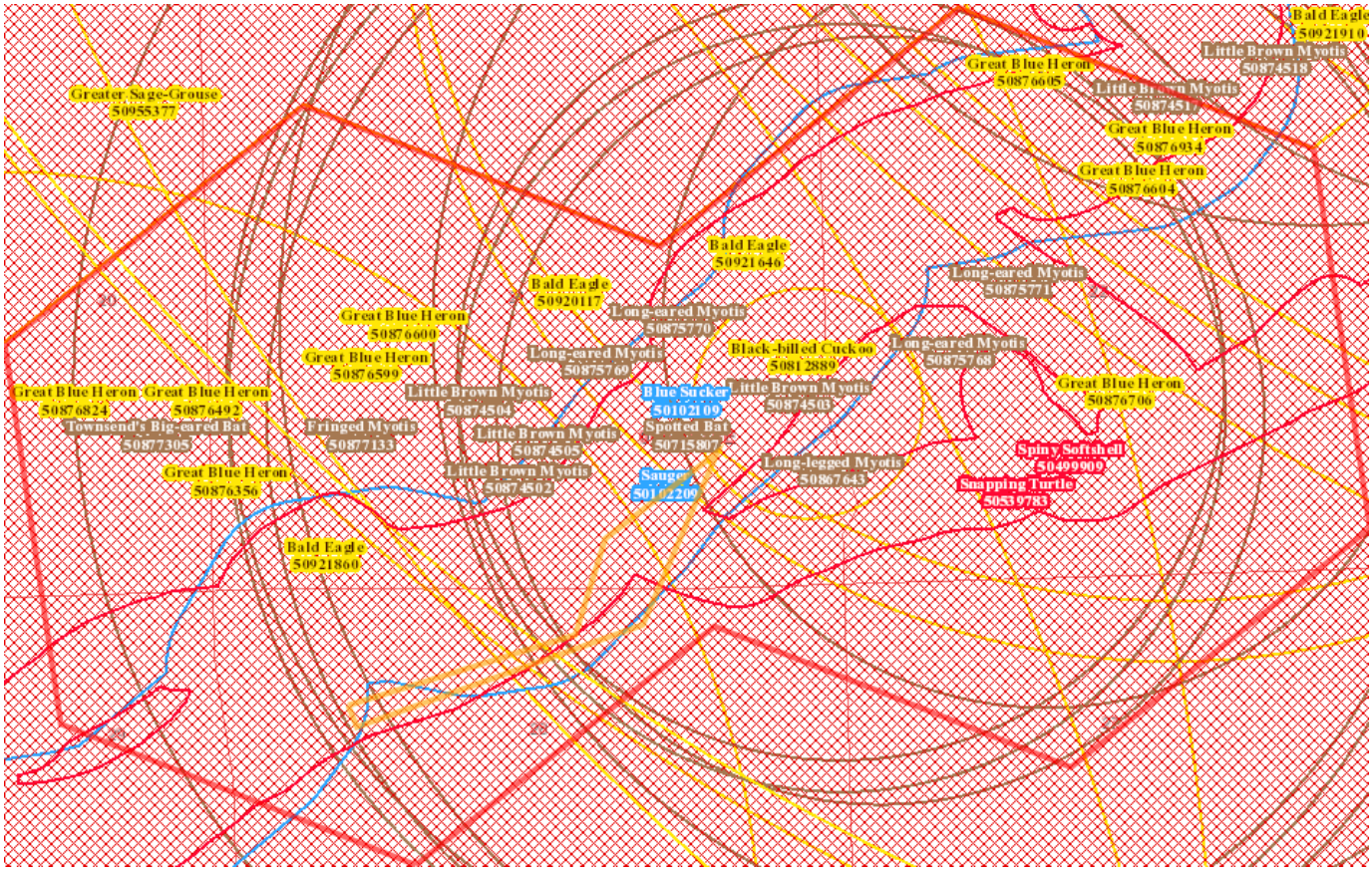
Num Obs
Count of obs with 'good precision' (<=1000m)
+ indicates additional 'poor precision' obs (1001m-10,000m)



Latitude	Longitude
46.24411	-107.32280
46.26331	-107.36974

Native Species

Summarized by: **Hysham Irrigation Canal** *(Custom Area of Interest)*
All Species (not filtered by Status)



Species Occurrences

	USFWS Sec7	# SO	# Obs	Predicted Model	Range
F - Blue Sucker *(Cycleptus elongatus)* SOC		1			Y

View in Field Guide **View Predicted Models** **View Range Maps**
Species of Concern - Native Species Global: **G3G4** State: **S2S3** FWP SWAP: **SGCN2-3**

Delineation Criteria Stream reaches where the species presence has been confirmed through direct capture or where they are believed to be present based on the professional judgement of a fisheries biologist due to confirmed presence in adjacent areas. In order to reflect the importance of adjacent terrestrial habitats to survival, stream reaches are buffered 100 meters into the terrestrial habitat based on PACFISH/INFISH Riparian Conservation Area standards. (Last Updated: Jul 18, 2022)

Predicted Models: N 100% Suitable (native range) (deductive)

F - Sauger *(Sander canadensis)* SOC		1	+		Y

View in Field Guide **View Predicted Models** **View Range Maps**
Species of Concern - Native Species Global: **G5** State: **S2** BLM: **SENSITIVE** FWP SWAP: **SGCN2**

Delineation Criteria Stream reaches and standing water bodies where the species presence has been confirmed through direct capture or where they are believed to be present based on the professional judgement of a fisheries biologist due to confirmed presence in adjacent areas. In order to reflect the importance of adjacent terrestrial habitats to survival, stream reaches are buffered 100 meters, standing water bodies greater than 1 acre are buffered 50 meters, and standing water bodies less than 1 acre are buffered 30 meters into the terrestrial habitat based on PACFISH/INFISH Riparian Conservation Area standards. (Last Updated: Jul 18, 2022)

Predicted Models: N 100% Suitable (native range) (deductive)

B - Bald Eagle *(Haliaeetus leucocephalus)* SSS		3	8		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**

Delineation Criteria Confirmed nesting area buffered by a minimum distance of 2,000 meters in order to be conservative about encompassing the breeding territory and area commonly used for renesting and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Sep 20, 2022)

Predicted Models: O 100% Optimal (inductive)

B - Great Blue Heron *(Ardea herodias)* SOC		9	15		Y S M

View in Field Guide **View Predicted Models** **View Range Maps**
Species of Concern - Native Species Global: **G5** State: **S3** USFWS: **MBTA** FWP SWAP: **SGCN3**

Delineation Criteria Confirmed nesting area buffered by a minimum distance of 6,500 meters in order to be conservative about encompassing the areas commonly used for foraging near the breeding colony and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Jul 20, 2022)

Predicted Models: O 100% Optimal (inductive)

B - Black-billed Cuckoo *(Coccyzus erythropthalmus)* SOC		1	1		S M

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View in Field Guide View Predicted Models View Range Maps

...A; BCC11; BCC17 BLM: **SENSITIVE** FWP SWAP: **SGCN3, SGIN** PIF: **2**

Delineation Criteria Observations with evidence of breeding activity buffered by a minimum distance of 300 meters in order to be conservative about encompassing home ranges and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Apr 13, 2022)

Predicted Models: O 100% Optimal (inductive)

M - Fringed Myotis *(Myotis thysanodes)* SOC 1 1 Y

View in Field Guide View Predicted Models View Range Maps

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

Delineation Criteria Confirmed area of occupancy based on the documented presence (mistnet captures, definitively identified acoustic recordings, and definitively identified roosting individuals) of adults or juveniles. Point observation location is buffered by a minimum distance of 2,000 meters in order to encompass the range of distances traveled from capture locations to roosts in the Black Hills of South Dakota and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. When cave locations are involved, point observations are mapped in the center of a one-square mile hexagon to protect the exact location of the cave entrance as per the Federal Cave Resource Protection Act and associated regulations (U.S. Code Title 16 Chapter 63, Code of Federal Regulations Title 43 Subtitle A Part 37). The outer edges of the hexagon are then buffered by a distance of 2,000 meters and otherwise by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. All of the one-square mile hexagons intersecting this buffered area are presented as the Species Occurrence record. (Last Updated: Jul 21, 2022)

Predicted Models: M 100% Moderate (inductive)

M - Little Brown Myotis *(Myotis lucifugus)* SOC 6 5 Y

View in Field Guide View Predicted Models View Range Maps

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

Delineation Criteria Confirmed area of occupancy based on the documented presence (mistnet captures, definitively identified acoustic recordings, or definitively identified roosting individuals) of adults or juveniles. Point observation location is buffered by a distance of 1,600 meters in order to encompass the greater than 1,500 meters foraging distance reported for the species in New Brunswick, Canada and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. When cave locations are involved, point observations are mapped in the center of a one-square mile hexagon to protect the exact location of the cave entrance as per the Federal Cave Resource Protection Act and associated regulations (U.S. Code Title 16 Chapter 63, Code of Federal Regulations Title 43 Subtitle A Part 37). The outer edges of the hexagon are then buffered by a distance of 1,600 meters and otherwise by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. All of the one-square mile hexagons intersecting this buffered area are presented as the Species Occurrence record. (Last Updated: Jul 20, 2022)

Predicted Models: M 100% Moderate (inductive)

M - Long-eared Myotis *(Myotis evotis)* SOC 4 5 Y

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3**

Delineation Criteria Confirmed area of occupancy based on the documented presence (mistnet captures, definitively identified acoustic recordings, and definitively identified roosting individuals) of adults or juveniles. Point observation location is buffered by a minimum distance of 1,000 meters in order to encompass the average distances traveled from capture locations to roosts and between roosts in western Montana, Alberta, and Oregon and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. When cave locations are involved, point observations are mapped in the center of a one-square mile hexagon to protect the exact location of the cave entrance as per the Federal Cave Resource Protection Act and associated regulations (U.S. Code Title 16 Chapter 63, Code of Federal Regulations Title 43 Subtitle A Part 37). The outer edges of the hexagon are then buffered by a distance of 1,000 meters and otherwise by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. All of the one-square mile hexagons intersecting this buffered area are presented as the Species Occurrence record. (Last Updated: Jul 20, 2022)

Predicted Models: M 100% Moderate (inductive)

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

Delineation Criteria Confirmed area of occupancy based on the documented presence (mistnet captures, definitively identified acoustic recordings, and definitively identified roosting individuals) of adults or juveniles. Point observation location is buffered by a distance of 4,500 meters in order to encompass the 95% confidence interval for nightly foraging distance reported for the species in California and otherwise by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. When cave locations are involved, point observations are mapped in the center of a one-square mile hexagon to protect the exact location of the cave entrance as per the Federal Cave Resource Protection Act and associated regulations (U.S. Code Title 16 Chapter 63, Code of Federal Regulations Title 43 Subtitle A Part 37). The outer edges of the hexagon are then buffered by a distance of 4,500 meters and otherwise by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. All of the one-square mile hexagons intersecting this buffered area are presented as the Species Occurrence record. (Last Updated: Jul 21, 2022)

Predicted Models: M 100% Moderate (inductive)

R - Snapping Turtle *(Chelydra serpentina)* SOC 1 Y

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native/Non-native Species - (depends on location or taxa) Global: **G5** State: **S3** BLM: **SENSITIVE** FWP SWAP: **SGCN3, SGIN**

Delineation Criteria Stream reaches and standing water bodies within the species native range where their presence has been confirmed through direct capture or observation or where they are believed to be present based on the professional judgement of a biologist due to confirmed presence in adjacent areas. Occupied stream reaches are buffered up and downstream and into adjoining streams by 6,000 meters to encompass maximum reported annual travel distance. In order to reflect the importance of adjacent terrestrial habitats to survival, stream reaches and standing water bodies are buffered 100 meters into the terrestrial habitat based on PACFISH/INFISH Riparian Conservation Area standards. (Last Updated: Jul 15, 2022)

Predicted Models: M 100% Moderate (inductive)

R - Spiny Softshell *(Apalone spinifera)* SOC 1 1 Y H

View in Field Guide View Predicted Models View Range Maps

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

Delineation Criteria Stream reaches and impounded streams within the species' native range where the species naturally occurs and their presence has been confirmed through direct capture or where they are believed to be present based on the professional judgement of a biologist due to confirmed presence in adjacent areas. In order to reflect the importance of adjacent terrestrial habitats to survival, stream reaches are buffered 100 meters and impounded streams 50 meters into the terrestrial habitat based on PACFISH/INFISH Riparian Conservation Area standards. (Last Updated: Sep 22, 2022)

Predicted Models: M 100% Moderate (inductive)

M - Spotted Bat *(Euderma maculatum)* SOC 1 2 S M

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**

Delineation Criteria Confirmed area of occupancy based on the documented presence (mistnet captures, definitively identified acoustic recordings, and definitively identified roosting individuals) of adults or juveniles. Point observation location is buffered by a distance of 10,000 meters in order to encompass the reported maximum foraging distance for the species in British Columbia. If the locational uncertainty associated with the observation is greater than 10,000 meters, the observation is not valid for creation of a species occurrence. (Last Updated: Oct 06, 2021)

Predicted Models: M 100% Moderate (inductive)

M - Long-legged Myotis *(Myotis volans)* SOC 1 2 Y

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G4G5** State: **S3**

Delineation Criteria Confirmed area of occupancy based on the documented presence (mistnet captures, definitively identified acoustic recordings, and definitively identified roosting individuals) of adults or juveniles. Point observation location is buffered by a minimum distance of 2,000 meters in order to encompass the average distances traveled from capture locations to roosts in Washington, Oregon, and in the Black Hills of South Dakota and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. When cave locations are involved, point observations are mapped in the center of a one-square mile hexagon to protect the exact location of the cave entrance as per the Federal Cave Resource Protection Act and associated regulations (U.S. Code Title 16 Chapter 63, Code of Federal Regulations Title 43 Subtitle A Part 37). The outer edges of the hexagon are then buffered by a distance of 2,000 meters and otherwise by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. All of the one-square mile hexagons intersecting this buffered area are presented as the Species Occurrence record. (Last Updated: Jul 20, 2022)

Predicted Models: L 100% Low (inductive)

B - Greater Sage-Grouse *(Centrocercus urophasianus)* SOC 1 Not Assessed Y

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View in Field Guide **View Range Maps**

sitive - Known in Forests (BD)

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

Delineation Criteria Confirmed breeding area based on the presence of a nest, chicks, juveniles, or adults on a lek. Point observations are mapped in the center of a one-square mile hexagon to protect the exact locations of leks. The outer edges of this hexagon are then buffered by a distance of 6,400 meters in order to encompass a body of research indicating that females typically nest within this distance of a lek and that lek numbers are negatively impacted by fossil fuel drilling activities within this distance of a lek. If the locational uncertainty associated with the observation is greater than this distance, it is buffered by the locational up to a maximum distance of 10,000 meters. All of the one-square mile hexagons intersecting this buffered area are presented as the Species Occurrence record. (Last Updated: Sep 27, 2022)

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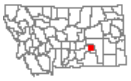
Montana Natural Heritage Program
A program of the **Montana State Library's Natural Resource Information System**

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

Habitat Icons
- C Common
- O Occasional

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

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



Latitude	Longitude
46.24411	-107.32280
46.26331	-107.36974

Native Species

Summarized by: **Hysham Irrigation Canal** *(Custom Area of Interest)*
All Species (not filtered by Status)

Other Observed Species

	USFWS Sec7	# Obs	Predicted Model	Range
F - Bigmouth Buffalo *(Ictiobus cyprinellus)*		+		Y
F - Burbot *(Lota lota)* PSOC		+		Y
F - Channel Catfish *(Ictalurus punctatus)*		+		Y
F - Emerald Shiner *(Notropis atherinoides)*		+		Y
F - Fathead Minnow *(Pimephales promelas)*		+		Y
F - Flathead Chub *(Platygobio gracilis)*		+		Y
F - Freshwater Drum *(Aplodinotus grunniens)*		+		Y
F - Goldeye *(Hiodon alosoides)*		+		Y
F - Lake Chub *(Couesius plumbeus)*		+		Y
F - Longnose Dace *(Rhinichthys cataractae)*		1		Y
F - Longnose Sucker *(Catostomus catostomus)*		+		Y
F - Mountain Sucker *(Catostomus platyrhynchus)*		+		Y
F - Mountain Whitefish *(Prosopium williamsoni)*		+		Y
F - River Carpsucker *(Carpiodes carpio)*		+		Y

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

Native/Non-native Species - (depends on location or taxa) Global: **G5** State: **S4**
Predicted Models: N 100% Suitable (native range) (deductive)

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

Potential Species of Concern - Native Species Global: **G5** State: **S4**
Predicted Models: N 100% Suitable (native range) (deductive)

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

Native Species Global: **G5** State: **S5**
Predicted Models: N 100% Suitable (native range) (deductive)

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

Native Species Global: **G5** State: **S5**
Predicted Models: N 100% Suitable (native range) (deductive)

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

Native/Non-native Species - (depends on location or taxa) Global: **G5** State: **S4S5**
Predicted Models: N 100% Suitable (native range) (deductive)

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

Native Species Global: **G5** State: **S5**
Predicted Models: N 100% Suitable (native range) (deductive)

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

Native Species Global: **G5** State: **S4**
Predicted Models: N 100% Suitable (native range) (deductive)

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

Native Species Global: **G5** State: **S5**
Predicted Models: N 100% Suitable (native range) (deductive)

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

Native Species Global: **G5** State: **S5**
Predicted Models: N 100% Suitable (native range) (deductive)

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

Native Species Global: **G5** State: **S5**
Predicted Models: N 100% Suitable (native range) (deductive)

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

Native Species Global: **G5** State: **S5**
Predicted Models: N 100% Suitable (native range) (deductive)

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

Native Species Global: **G5** State: **S5**
Predicted Models: N 100% Suitable (native range) (deductive)

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

Native Species Global: **G5** State: **S5**
Predicted Models: N 100% Suitable (native range) (deductive)

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F - Sand Shiner *(Notropis stramineus)*

Native Species Global: **G5** State: **S4**

Predicted Models: N 100% Suitable (native range) (deductive)

F - Shorthead Redhorse *(Moxostoma macrolepidotum)*

View in Field Guide View Predicted Models View Range Maps

Native Species Global: **G5** State: **S5**

Predicted Models: N 100% Suitable (native range) (deductive)

F - Smallmouth Buffalo *(Ictiobus bubalus)*

View in Field Guide View Predicted Models View Range Maps

Native/Non-native Species - (depends on location or taxa) Global: **G5** State: **S5**

Predicted Models: N 100% Suitable (native range) (deductive)

F - Stonecat *(Noturus flavus)*

View in Field Guide View Predicted Models View Range Maps

Native Species Global: **G5** State: **S4**

Predicted Models: N 100% Suitable (native range) (deductive)

F - Western Silvery Minnow *(Hybognathus argyritis)*

View in Field Guide View Predicted Models View Range Maps

Native Species Global: **G4** State: **S4**

Predicted Models: N 100% Suitable (native range) (deductive)

F - White Sucker *(Catostomus commersonii)*

View in Field Guide View Predicted Models View Range Maps

Native/Non-native Species - (depends on location or taxa) Global: **G5** State: **S5**

Predicted Models: N 100% Suitable (native range) (deductive)

B - Eastern Screech-Owl *(Megascops asio)* PSOC

View in Field Guide View Predicted Models View Range Maps

Potential Species of Concern - Native Species Global: **G5** State: **S3S4** USFWS: **MBTA** PIF: **3**

Predicted Models: O 50% Optimal (inductive), M 50% Moderate (inductive)

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

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 100% Moderate (inductive)

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

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G5** State: **SX,S4** FWP SWAP: **SGCN1** PIF: **2**

Predicted Models: M 100% Moderate (inductive)

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

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 100% Moderate (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: M 100% Moderate (inductive)

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

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 100% Moderate (inductive)

B - Dickcissel *(Spiza americana)* PSOC

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 100% Moderate (inductive)

B - Plumbeous Vireo *(Vireo plumbeus)* PSOC

View in Field Guide View Predicted Models View Range Maps

Potential Species of Concern - Native Species Global: **G5** State: **S3S4B** USFWS: **MBTA** PIF: **3**

Predicted Models: M 100% Moderate (inductive)

B - Chimney Swift *(Chaetura pelagica)* PSOC

View in Field Guide View Predicted Models View Range Maps

Potential Species of Concern - Native Species Global: **G4G5** State: **S3S4B** USFWS: **MBTA; BCC11** FWP SWAP: **SGIN** PIF: **3**

Predicted Models: M 50% Moderate (inductive), L 50% Low (inductive)

B - Ovenbird *(Seiurus aurocapilla)* PSOC

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 50% Moderate (inductive), L 50% Low (inductive)

B - Golden Eagle *(Aquila chrysaetos)* SOC

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: L 100% Low (inductive)

B - Pinyon Jay *(Gymnorhinus cyanocephalus)* SOC

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View in Field Guide View Predicted Models View Range Maps

; BCC10; BCC17 FWP SWAP: **SGCN3**

Predicted Models: L 100% Low (inductive)

B - Brewer's Sparrow *(Spizella breweri)* SOC — 1 — S M

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: L 100% Low (inductive)

F - Black Bullhead *(Ameiurus melas)* — + — N

View in Field Guide View Predicted Models View Range Maps

Non-native Species Global: **G5** State: **SNA**

Predicted Models: I 100% Suitable (introduced range) (deductive)

F - Black Crappie *(Pomoxis nigromaculatus)* — + — N

View in Field Guide View Predicted Models View Range Maps

Non-native Species Global: **G5** State: **SNA**

Predicted Models: I 100% Suitable (introduced range) (deductive)

F - Bluegill *(Lepomis macrochirus)* — + — N

View in Field Guide View Predicted Models View Range Maps

Non-native Species Global: **G5** State: **SNA**

Predicted Models: I 100% Suitable (introduced range) (deductive)

F - Brook Stickleback *(Culaea inconstans)* PSOC — + — N

View in Field Guide View Predicted Models View Range Maps

Potential Species of Concern - Native/Non-native Species - (depends on location or taxa) Global: **G5** State: **S4**

Predicted Models: I 100% Suitable (introduced range) (deductive)

F - Brown Trout *(Salmo trutta)* — + — N

View in Field Guide View Predicted Models View Range Maps

Non-native Species Global: **G5** State: **SNA**

Predicted Models: I 100% Suitable (introduced range) (deductive)

F - Common Carp *(Cyprinus carpio)* AIS — + — N

View in Field Guide View Predicted Models View Range Maps

Aquatic Invasive Species - Non-native Species Global: **G5** State: **SNA**

Predicted Models: I 100% Suitable (introduced range) (deductive)

F - Green Sunfish *(Lepomis cyanellus)* — + — N

View in Field Guide View Predicted Models View Range Maps

Non-native Species Global: **G5** State: **SNA**

Predicted Models: I 100% Suitable (introduced range) (deductive)

F - Northern Plains Killifish *(Fundulus kansae)* — + — N

View in Field Guide View Predicted Models View Range Maps

Non-native Species Global: **G5** State: **SNA**

Predicted Models: I 100% Suitable (introduced range) (deductive)

F - Pumpkinseed *(Lepomis gibbosus)* — + — N

View in Field Guide View Predicted Models View Range Maps

Non-native Species Global: **G5** State: **SNA**

Predicted Models: I 100% Suitable (introduced range) (deductive)

F - Rainbow Trout *(Oncorhynchus mykiss)* — + — N

View in Field Guide View Predicted Models View Range Maps

Native/Non-native Species - (depends on location or taxa) Global: **G5** State: **S5**

Predicted Models: I 100% Suitable (introduced range) (deductive)

F - Smallmouth Bass *(Micropterus dolomieu)* — + — N

View in Field Guide View Predicted Models View Range Maps

Non-native Species Global: **G5** State: **SNA**

Predicted Models: I 100% Suitable (introduced range) (deductive)

F - Walleye *(Sander vitreus)* — + — N

View in Field Guide View Predicted Models View Range Maps

Non-native Species Global: **G5** State: **SNA**

Predicted Models: I 100% Suitable (introduced range) (deductive)

F - White Crappie *(Pomoxis annularis)* — + — N

View in Field Guide View Predicted Models View Range Maps

Non-native Species Global: **G5** State: **SNA**

Predicted Models: I 100% Suitable (introduced range) (deductive)

I - Argia emma *(Emma's Dancer)* PSOC — 1 — Not Assessed — Y

View in Field Guide View Range Maps

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

I - Enallagma praevarum *(Arroyo Bluet)* PSOC — 1 — Not Assessed — Y

View in Field Guide View Range Maps

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

I - Rhionaeschna californica *(California Darner)* PSOC — 1 — Not Assessed — Y

View in Field Guide View Range Maps

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

B - Cassin's Finch *(Haemorhous cassinii)* SOC — 1 — Not Assessed

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View in Field Guide

; **BCC10** FWP SWAP: **SGCN3** PIF: **3**

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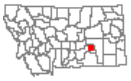
Montana Natural Heritage Program
A program of the **Montana State Library's Natural Resource Information System**

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



Latitude	Longitude
46.24411	-107.32280
46.26331	-107.36974

Native Species

Summarized by: **Hysham Irrigation Canal** *(Custom Area of Interest)*
All Species (not filtered by Status)

Other Potential Species

	USFWS Sec7	Predicted Model	Range
F - Brassy Minnow *(Hybognathus hankinsoni)* PSOC			Y
F - Creek Chub *(Semotilus atromaculatus)* PSOC			Y
F - Plains Minnow *(Hybognathus placitus)* PSOC			Y
F - Shovelnose Sturgeon *(Scaphirhynchus platorynchus)*			Y
M - North American Porcupine *(Erethizon dorsatum)* PSOC			Y
R - Western Milksnake *(Lampropeltis gentilis)* SOC			Y
M - Eastern Red Bat *(Lasiurus borealis)* SOC			S M
M - Pallid Bat *(Antrozous pallidus)* SOC			S M
B - Common Poorwill *(Phalaenoptilus nuttallii)* PSOC			S M
B - Yellow-billed Cuckoo *(Coccyzus americanus)* SOC			S M
M - Dwarf Shrew *(Sorex nanus)* SOC			Y
M - Hayden's Shrew *(Sorex haydeni)* PSOC			Y
M - Merriam's Shrew *(Sorex merriami)* SOC			Y
M - Western Spotted Skunk *(Spilogale gracilis)* PSOC			Y

F - Brassy Minnow *(Hybognathus hankinsoni)* PSOC

View in Field Guide | View Predicted Models | View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S4**
Predicted Models: N 100% Suitable (native range) (deductive)

F - Creek Chub *(Semotilus atromaculatus)* PSOC

View in Field Guide | View Predicted Models | View Range Maps
Potential Species of Concern - Native/Non-native Species - (depends on location or taxa) Global: **G5** State: **S4**
Predicted Models: N 100% Suitable (native range) (deductive)

F - Plains Minnow *(Hybognathus placitus)* PSOC

View in Field Guide | View Predicted Models | View Range Maps
Potential Species of Concern - Native Species Global: **G4** State: **S4**
Predicted Models: N 100% Suitable (native range) (deductive)

F - Shovelnose Sturgeon *(Scaphirhynchus platorynchus)*

View in Field Guide | View Predicted Models | View Range Maps
Native Species Global: **G4** State: **S4**
Predicted Models: N 100% Suitable (native range) (deductive)

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

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: M 100% Moderate (inductive)

R - Western Milksnake *(Lampropeltis gentilis)* SOC

View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species Global: **G5** State: **S2** BLM: **SENSITIVE** FWP SWAP: **SGCN2**
Predicted Models: M 100% Moderate (inductive)

M - Eastern Red Bat *(Lasiurus borealis)* SOC

View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species Global: **G3G4** State: **S3B** BLM: **SENSITIVE**
Predicted Models: M 100% Moderate (inductive)

M - Pallid Bat *(Antrozous pallidus)* SOC

View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species Global: **G4** State: **S3** BLM: **SENSITIVE** FWP SWAP: **SGCN3**
Predicted Models: M 100% Moderate (inductive)

B - Common Poorwill *(Phalaenoptilus nuttallii)* PSOC

View in Field Guide | View Predicted Models | View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S4B** USFWS: **MBTA** FWP SWAP: **SGIN** PIF: **3**
Predicted Models: M 100% Moderate (inductive)

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

View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **PS: LT; MBTA** BLM: **THREATENED** FWP SWAP: **SGCN3, SGIN** PIF: **2**
Predicted Models: M 100% Moderate (inductive)

M - Dwarf Shrew *(Sorex nanus)* SOC

View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species Global: **G4** State: **S2S3** FWP SWAP: **SGCN2-3**
Predicted Models: M 50% Moderate (inductive), L 50% Low (inductive)

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

View in Field Guide | View Predicted Models | View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S3S4**
Predicted Models: M 50% Moderate (inductive), L 50% Low (inductive)

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

View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species Global: **G4** State: **S3** FWP SWAP: **SGCN3**
Predicted Models: M 50% Moderate (inductive), L 50% 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: M 50% Moderate (inductive), L 50% Low (inductive)

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

Species of Concern - Native Species Global: **G5** State: **S2S3** Plant Threat Score: **Low**

Predicted Models: M 50% Moderate (inductive), L 50% Low (inductive)

V - Chenopodium subglabrum *(Smooth Goosefoot)* SOC

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 50% Moderate (inductive), L 50% Low (inductive)

B - American Bittern *(Botaurus lentiginosus)* 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: **3**

Predicted Models: M 50% Moderate (inductive), L 50% Low (inductive)

B - Bobolink *(Dolichonyx oryzivorus)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA; BCC10; BCC11; BCC17** FWP SWAP: **SGCN3** PIF: **3**

Predicted Models: M 50% Moderate (inductive), L 50% Low (inductive)

B - Red-headed Woodpecker *(Melanerpes erythrocephalus)* SOC

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 50% Moderate (inductive), L 50% 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: M 50% Moderate (inductive), L 50% Low (inductive)

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

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: L 100% Low (inductive)

B - Peregrine Falcon *(Falco peregrinus)*

View in Field Guide View Predicted Models View Range Maps

Native Species Global: **G4** State: **S4** USFWS: **MBTA** USFS: **Sensitive - Known in Forests (BD, BRT, KOOT, LOLO)** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**

Predicted Models: L 100% Low (inductive)

R - Greater Short-horned Lizard *(Phrynosoma hernandesi)* SOC

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: L 100% Low (inductive)

R - Plains Hog-nosed Snake *(Heterodon nasicus)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G5** State: **S2** BLM: **SENSITIVE** FWP SWAP: **SGCN2, SGIN**

Predicted Models: L 100% Low (inductive)

A - Great Plains Toad *(Anaxyrus cognatus)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G5** State: **S2** BLM: **SENSITIVE** FWP SWAP: **SGCN2**

Predicted Models: L 100% Low (inductive)

A - Plains Spadefoot *(Spea bombifrons)*

View in Field Guide View Predicted Models View Range Maps

Native Species Global: **G5** State: **S4** FWP SWAP: **SGCN3**

Predicted Models: L 100% Low (inductive)

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

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G2G3** State: **S1**

Predicted Models: L 100% Low (inductive)

V - Carex gravida *(Heavy Sedge)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3** Plant Threat Score: **High - Medium** CCVI: **Moderately Vulnerable**

Predicted Models: L 100% Low (inductive)

V - Elodea bifoliata *(Long-sheath Waterweed)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G4G5** State: **S2?** Plant Threat Score: **No Known Threats**

Predicted Models: L 100% Low (inductive)

V - Psilocarphus brevissimus *(Dwarf woolly-heads)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G4** State: **S2S3** USFS: **Sensitive - Known in Forests (KOOT)** Plant Threat Score: **No Known Threats**

Predicted Models: L 100% Low (inductive)

B - Black-and-white Warbler *(Mniotilta varia)* PSOC

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: L 100% Low (inductive)

B - Cassin's Kingbird *(Tyrannus vociferans)* PSOC

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View in Field Guide View Predicted Models View Range Maps

USFWS: **MBTA**

Predicted Models: L 100% Low (inductive)

B - Eastern Bluebird *(Sialia sialis)* PSOC

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: L 100% Low (inductive)

B - Long-billed Curlew *(Numenius americanus)* SOC

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: L 100% Low (inductive)

B - Sage Thrasher *(Oreoscoptes montanus)* SOC

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: L 100% Low (inductive)

M - Meadow Jumping Mouse *(Zapus hudsonius)* PSOC

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: L 50% Low (inductive)

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

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: L 50% Low (inductive)

V - Astragalus barrii *(Barr's Milkvetch)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G3G4** State: **S3** Plant Threat Score: **Medium - Low** CCVI: **Highly Vulnerable**

Predicted Models: L 50% Low (inductive)

V - Cyperus schweinitzii *(Schweinitz's Flatsedge)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G5** State: **S2** Plant Threat Score: **Low**

Predicted Models: L 50% Low (inductive)

V - Lilium philadelphicum *(Wood Lily)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3** Plant Threat Score: **Low** CCVI: **Less Vulnerable**

Predicted Models: L 50% Low (inductive)

V - Pediomelum hypogaeum var. hypogaeum *(Little Indian Breadroot)* PSOC

View in Field Guide View Predicted Models View Range Maps

Potential Species of Concern - Native Species Global: **G5T4** State: **S3S4**

Predicted Models: L 50% 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: L 50% Low (inductive)

B - Burrowing Owl *(Athene cunicularia)* 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: **1**

Predicted Models: L 50% Low (inductive)

B - Loggerhead Shrike *(Lanius ludovicianus)* SOC

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: L 50% Low (inductive)

F - Largemouth Bass *(Micropterus salmoides)*

View in Field Guide View Predicted Models View Range Maps

Non-native Species Global: **G5** State: **SNA**

Predicted Models: ! 100% Suitable (introduced range) (deductive)

F - Northern Pike *(Esox lucius)*

View in Field Guide View Predicted Models View Range Maps

Native/Non-native Species - (depends on location or taxa) Global: **G5** State: **S5**

Predicted Models: ! 100% Suitable (introduced range) (deductive)

F - Yellow Perch *(Perca flavescens)*

View in Field Guide View Predicted Models View Range Maps

Non-native Species Global: **G5** State: **SNA**

Predicted Models: ! 100% Suitable (introduced range) (deductive)

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

7 Not Assessed

View in Field Guide View Range Maps

Species of Concern - Native Species Global: **G3G4** State: **S3B** USFWS: **MBTA; BCC11; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **1**

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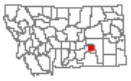

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Structured Surveys

Summarized by: **Hysham Irrigation Canal** *(Custom Area of Interest)*

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

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

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

B-Cuckoo Playback Survey *(Riparian Playback Surveys for Cuckoos)*	**Survey Count**: 1	**Obs Count**: 1	**Recent Survey**: 2012
B-Great Blue Heron Rookery *(Great Blue Heron Rookery)*	**Survey Count**: 1	**Obs Count**:	**Recent Survey**: 2020
B-Nocturnal Calling Bird *(Spring Nocturnal Bird Calling Survey)*	**Survey Count**: 1	**Obs Count**:	**Recent Survey**: 2012
E-Bull Frog Surveillance *(American Bull Frog Audio/Visual Surveillance)*	**Survey Count**: 3	**Obs Count**:	**Recent Survey**: 2010
E-Eastern Heath Snail *(Eastern Heath Snail Survey)*	**Survey Count**: 1	**Obs Count**:	**Recent Survey**: 2012
E-Eurasian Water-milfoil Rake *(Rake tows/pulls for Eurasian Water-milfoil)*	**Survey Count**: 3	**Obs Count**:	**Recent Survey**: 2021
E-Invasive Mussel Plankton Tow *(Plankton tows for veligers of Invasive Mussels)*	**Survey Count**: 4	**Obs Count**:	**Recent Survey**: 2021
E-Kicknet *(Kicknet Collection Survey for Invasive Mussels and Snails)*	**Survey Count**: 5	**Obs Count**:	**Recent Survey**: 2021
E-Noxious Weed, Road-based *(Noxious Weed Road-based Visual Surveys)*	**Survey Count**: 3	**Obs Count**: 8	**Recent Survey**: 2003
E-Noxious Weed, Visual *(Noxious Weed Visual Surveys)*	**Survey Count**: 1	**Obs Count**: 29	**Recent Survey**: 2005
E-Visual Aquatic Invasives *(Visual Encounter Surveys for Aquatic Invasives on Shorelines or Underwater)*	**Survey Count**: 6	**Obs Count**:	**Recent Survey**: 2020
I-Bumble Bee *(Bumble Bee Collection Surveys)*	**Survey Count**: 3	**Obs Count**: 4	**Recent Survey**: 2015
I-Mussel *(Stream Mussel Survey)*	**Survey Count**: 1	**Obs Count**: 1	**Recent Survey**: 2009
I-Odonates/Butterfly VES *(Visual Encounter Survey for Damselfly/Dragonfly/Butterfly)*	**Survey Count**: 1	**Obs Count**: 2	**Recent Survey**: 1996
M-Bat Acoustic *(Bat Acoustic Survey)*	**Survey Count**: 3	**Obs Count**: 11	**Recent Survey**: 2011
M-Bat Mistnet *(Bat Mistnet Survey)*	**Survey Count**: 1	**Obs Count**: 4	**Recent Survey**: 2005

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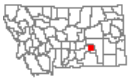

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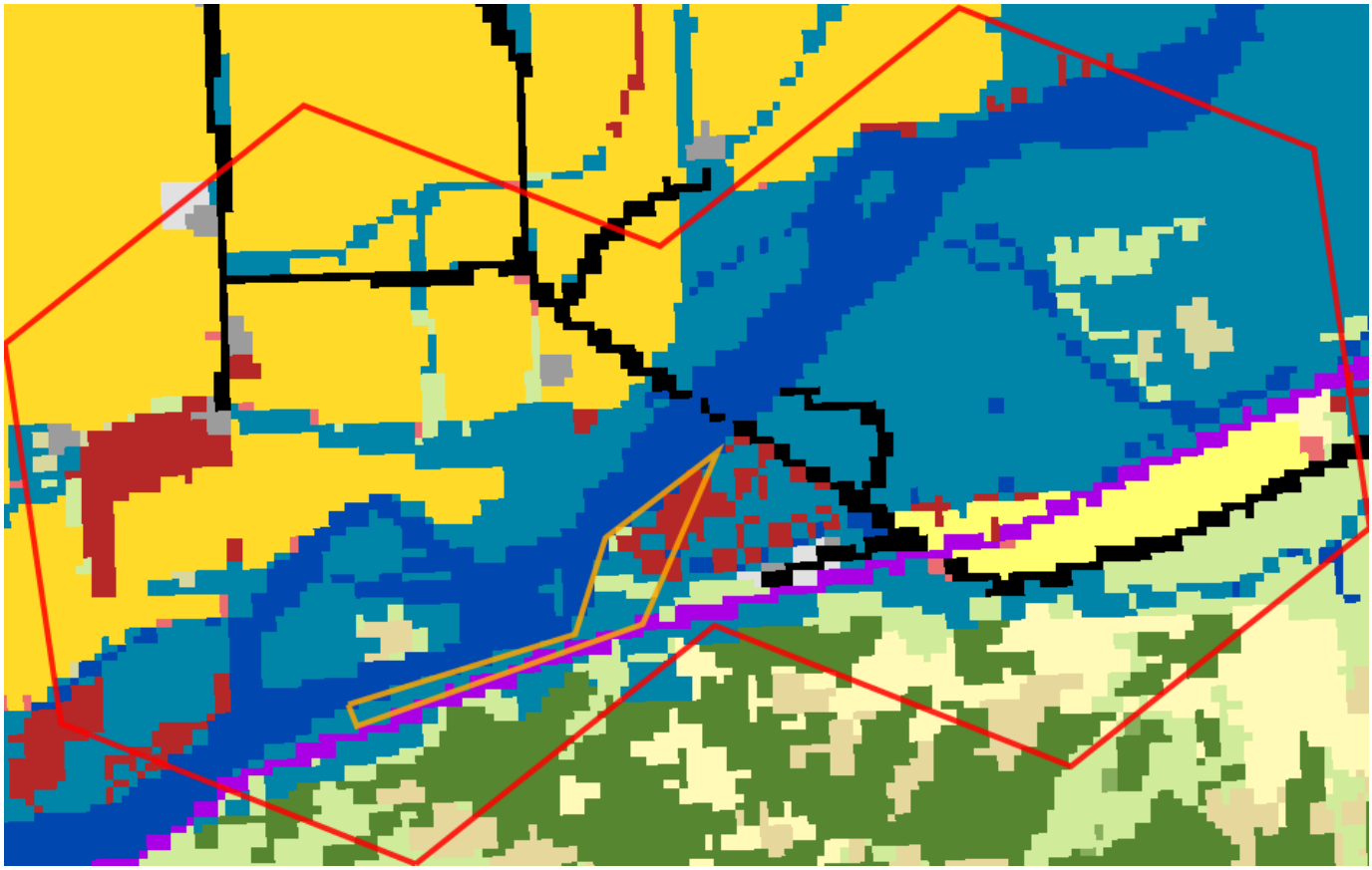
Land Cover

Summarized by: **Hysham Irrigation Canal** *(Custom Area of Interest)*



35% (*447 Acres*)

Wetland and Riparian Systems
Floodplain and Riparian
Great Plains Floodplain

This system occurs along the Missouri and Yellowstone Rivers and their larger tributaries, including parts of the Little Missouri, Clarkâ€™s Fork Yellowstone, Powder, Tongue, Bighorn, Milk, and Musselshell rivers. These are the big perennial rivers of the region, with hydrologic dynamics largely driven by snowmelt and rainfall originating in their headwater watersheds, rather than local precipitation events. In the absence of disturbance, periodic flooding of fluvial and alluvial soils and channel migration will create depressions and backwaters that support a mosaic of wetland and riparian vegetation, whose composition and structure is sustained, altered and redistributed by hydrology. Dominant communities within this system range from floodplain forests to wet meadows to gravel/sand flats, linked by underlying soils and flooding regimes. In the western part of the systemâ€™s range in Montana, the overstory dominant species is black cottonwood (*Populus balsamifera ssp. trichocarpa*) with narrowleaf cottonwood *(Populus angustifolia)* and eastern cottonwood (*Populus deltoides)* occurring as co-dominants in the riparian/floodplain interface near the mountains. Further east, narrowleaf cottonwood and Plains cottonwood become dominant. In relatively undisturbed stands, willow (*Salix* species), redosier dogwood (*Cornus sericea*) and common chokecherry (*Prunus virginiana*) form a thick, multi-layered shrub understory, with a mixture of cool and warm season graminoid species below.

In Montana, many occurrences are now degraded to the point where the cottonwood overstory is the only remaining natural component. The hydrology of these floodplain systems has been affected by dams, highways, railroads and agricultural ditches, and as a result, they have lost their characteristic wetland /riparian mosaic structure. This has resulted in a highly altered community consisting of relict cottonwood stands with little regeneration. The understory vegetation is dominated by non-native pasture grasses, legumes and other introduced forbs, or by the disclimax western snowberry (*Symphoricarpos occidentalis*) and rose (*Rosa* species) shrub community.

23% (*294 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.

13% (*171 Acres*)

Wetland and Riparian Systems
Open Water
Open Water

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

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7% (*87 Acres*)

Great Plains Mixedgrass Prairie

The system covers much of the eastern two-thirds of Montana, occurring continuously for hundreds of square kilometers, interrupted only by wetland/riparian areas or sand prairies. Soils are primarily fine and medium-textured. The growing season averages 115 days, ranging from 100 days on the Canadian border to 130 days on the Wyoming border. Climate is typical of mid-continental regions with long severe winters and hot summers. Grasses typically comprise the greatest canopy cover, and western wheatgrass (*Pascopyrum smithii*) is usually dominant. Other species include thickspike wheatgrass (*Elymus lanceolatus*), green needlegrass (*Nassella viridula*), blue grama (*Bouteloua gracilis*), and needle and thread (*Hesperostipa comata*). Near the Canadian border in north-central Montana, this system grades into rough fescue (*Festuca campestris)* and Idaho fescue (*Festuca idahoensis*) grasslands. Remnants of shortbristle needle and thread *(Hesperostipa curtiseta)* dominated vegetation are found in northernmost Montana and North Dakota, and are associated with productive sites, now mostly converted to farmland. Forb diversity is typically high. In areas of southeastern and central Montana where sagebrush steppe borders the mixed grass prairie, common plant associations include Wyoming big sagebrush-western wheatgrass (*Artemisia tridentata* ssp. *wyomingensis/ Pascopyrum smithii*). Fire and grazing are the primary drivers of this system. Drought can also impact it, in general favoring the shortgrass component at the expense of the mid-height grasses. With intensive grazing, cool season exotics such as Kentucky bluegrass (*Poa pratensis*), smooth brome (*Bromus inermis*), and Japanese brome (*Bromus japonicus*) increase in dominance; both of these rhizomatous species have been shown to markedly decrease species diversity. Previously cultivated acres that have been re-vegetated with non-native plants have been transformed into associations such as Kentucky bluegrass (*Poa pratensis*)/western wheatgrass *(Pascopyrum smithii)* or into pure crested wheatgrass (*Agropyron cristatum)* stands.

4% (*54 Acres*)

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

Great Plains Ponderosa Pine Woodland and Savanna

These ponderosa pine (*Pinus ponderosa*) occurrences differ from the Rocky Mountain Ponderosa Pine Woodland and Savanna systems in that they are typically found within the matrix of the Great Plains grassland systems. They are often surrounded by mixed-grass prairie, in places where available soil moisture is higher or soils are more coarse and rocky. Elevation ranges from 1,189 meters (3,900 feet) in southeastern Montana to 1,646 m (5,400 feet) in north-central Montana. Occurrences are usually on east- and north-facing aspects. These woodlands can be physiognomically variable, ranging from very sparse patches of trees on drier sites, to nearly closed-canopy forest stands on north slopes or in draws where available soil moisture is higher.

4% (*50 Acres*)

Recently Disturbed or Modified
Introduced Vegetation

Introduced Riparian and Wetland Vegetation

Areas where non-native vegetation dominates lands immediately adjacent to rivers and streams (riparian) or occupies 75% of more of a wetland. Typically this class describes Russian Olive along large rivers east of the Rocky Mountains.

3% (*35 Acres*)

Human Land Use
Agriculture

Pasture/Hay

These agriculture lands typically have perennial herbaceous cover (e.g. regularly-shaped plantings) used for livestock grazing or the production of hay. There are obvious signs of management such as irrigation and haying that distinguish it from natural grasslands. Identified CRP lands are included in this land cover type.

2% (*31 Acres*)

Shrubland, Steppe and Savanna Systems
Sagebrush Steppe

Big Sagebrush Steppe

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

No Image

2% (*30 Acres*)

Human Land Use
Developed

Railroad

Railroad tracks and railroad berms/rights of way, currently in use or capable of use

No Image

2% (*24 Acres*)

Human Land Use
Developed

Major Roads

U.S. and State Highways that are not part of the National Highway System (NHS) Interstate network. This category includes entrance and exit ramps to NHS Interstate highways.

No Image

2% (*22 Acres*)

Human Land Use
Developed

Other Roads

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

Additional Limited Land Cover

1% (*13 Acres*) Great Plains Badlands

1% (*8 Acres*) Low Intensity Residential

1% (*7 Acres*) Great Plains Sand Prairie

<1% (*4 Acres*) Introduced Upland Vegetation - Annual and Biennial Forbland

<1% (*3 Acres*) Developed, Open Space

<1% (*0 Acres*) Great Plains Wooded Draw and Ravine

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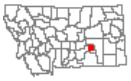

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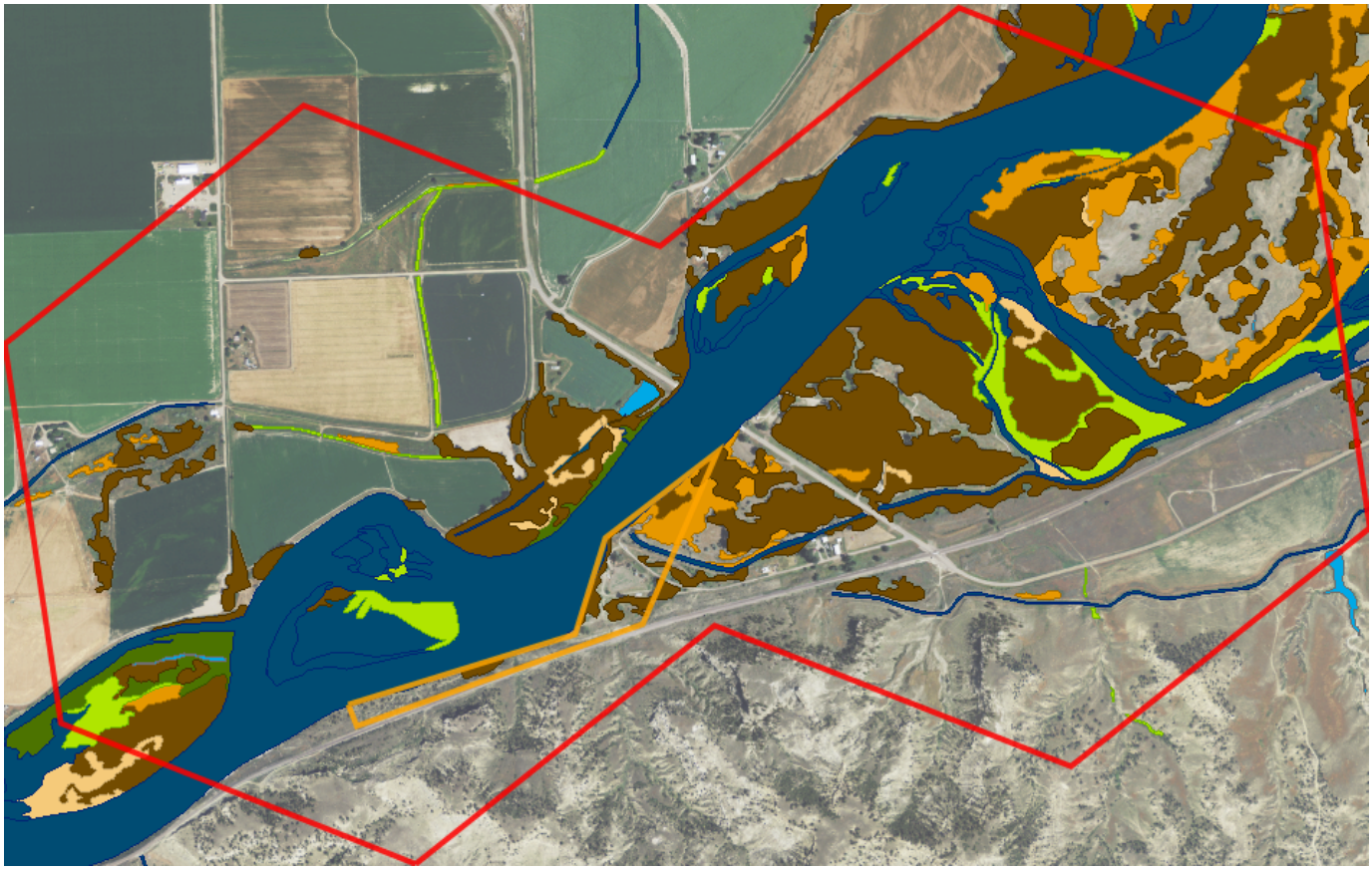
Wetland and Riparian

Summarized by: **Hysham Irrigation Canal** *(Custom Area of Interest)*



Wetland and Riparian Mapping

Explain

P - Palustrine

AB - Aquatic Bed

F - Semipermanently Flooded	1 Acres	
(no modifier)	**<1 Acres**	**PABF**
h - Diked/Impounded	**<1 Acres**	**PABFh**
x - Excavated	**1 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	27 Acres	
(no modifier)	**25 Acres**	**PEMA**
x - Excavated	**2 Acres**	**PEMAx**

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

SS - Scrub-Shrub

A - Temporarily Flooded	11 Acres	
(no modifier)	**11 Acres**	**PSSA**

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

F - Semipermanently Flooded	2 Acres	
(no modifier)	**2 Acres**	**R2UBF**
H - Permanently Flooded	184 Acres	
(no modifier)	**184 Acres**	**R2UBH**

R - Riverine (Rivers), 2 - Lower Perennial, UB - Unconsolidated Bottom
Stream channels where the substrate is at least 25% mud, silt or other fine particles.

US - Unconsolidated Shore

A - Temporarily Flooded	19 Acres	
(no modifier)	**19 Acres**	**R2USA**
C - Seasonally Flooded	27 Acres	
(no modifier)	**27 Acres**	**R2USC**

R - Riverine (Rivers), 2 - Lower Perennial, US - Unconsolidated Shore
Shorelines with less than 75% areal cover of stones, boulders, or bedrock and less than 30% vegetation cover. The area is also irregularly exposed due to seasonal or irregular flooding and subsequent drying.

4 - Intermittent

SB - Stream Bed

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

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C - Seasonally Flooded 6 Acres

x - Excavated **6 Acres** R4SBCx

Rp - Riparian

1 - Lotic

SS - Scrub-Shrub (no modifier)	**39 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)	**208 Acres** Rp1FO	**Rp - Riparian, 1 - Lotic, FO - Forested** *This riparian class has woody vegetation that is greater than 6 meters (20 feet) tall.*
EM - Emergent (no modifier)	**5 Acres** Rp1EM	**Rp - Riparian, 1 - Lotic, EM - Emergent** *Riparian areas that have erect, rooted herbaceous vegetation during most of the growing season.*

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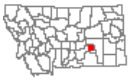

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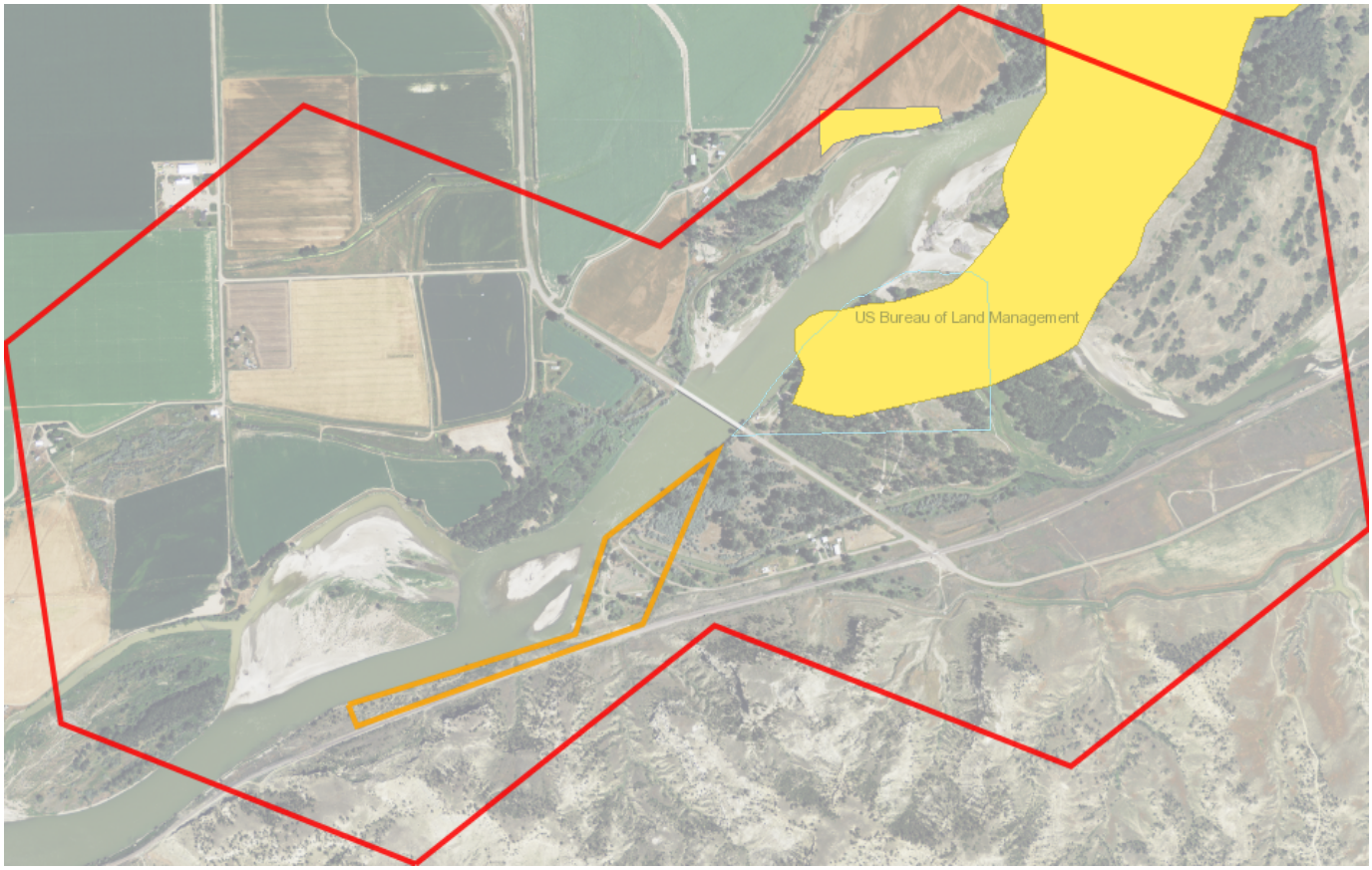
Land Management

Summarized by: **Hysham Irrigation Canal** *(Custom Area of Interest)*



Land Management Summary

Explain

	Ownership	Tribal	Easements	Other Boundaries (possible overlap)
Public Lands	**112 Acres (9%)**			
Federal	**112 Acres (9%)**			
US Bureau of Land Management	**112 Acres (9%)**			
BLM Owned	**112 Acres (9%)**			
BLM Areas of Critical Environmental Concern				**107 Acres**
Howrey Island Area of Critical Environmental Concern				107 Acres
State				
Montana Fish, Wildlife and Parks				
MTFWP Fishing Access Sites				**49 Acres**
Myers Bridge Fishing Access Site				49 Acres
Private Lands or Unknown Ownership	**1,162 Acres (91%)**			

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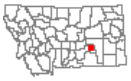

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Biological Reports

Summarized by: **Hysham Irrigation Canal** *(Custom Area of Interest)*

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

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

Tobalske, Claudine and Linda Vance. 2017.***Predicting the distribution of Russian Olive stands in eastern Montana valley bottoms using NAIP imagery***. Report to the US EPA. Montana Natural Heritage Program. Helena, MT. 40pp.

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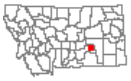
Montana Natural Heritage Program
A program of the **Montana State Library's Natural Resource Information System**

Model Icons
- Suitable (native range)
- Optimal Suitability
- Moderate Suitability
- Low Suitability
- Suitable (introduced range)

Habitat Icons
- Common
- Occasional

Range Icons
- Non-native

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



Latitude	Longitude
46.24411	-107.32280
46.26331	-107.36974

Invasive and Pest Species

Summarized by: **Hysham Irrigation Canal** *(Custom Area of Interest)*

	# Obs	Predicted Model	Range

Aquatic Invasive Species

V - Butomus umbellatus *(Flowering-rush)* N2A/AIS

View in Field Guide | View Predicted Models | View Range Maps
Noxious Weed: Priority 2A - Aquatic Invasive Species - Non-native Species Global: **G5** State: **SNA**
Predicted Models: L 100% Low (inductive)

V - Myriophyllum spicatum *(Eurasian Water-milfoil)* 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: L 100% Low (inductive)

F - Common Carp *(Cyprinus carpio)* AIS

View in Field Guide | View Predicted Models | View Range Maps
Aquatic Invasive Species - Non-native Species Global: **G5** State: **SNA**
Predicted Models: I 100% Suitable (introduced range) (deductive)

V - Nymphaea odorata *(American Water-lily)* AIS

View in Field Guide | View Predicted Models | View Range Maps
Aquatic Invasive Species - Non-native Species Global: **G5** State: **SNA**
Predicted Models: I 100% Suitable (introduced range) (deductive)

Noxious Weeds: Priority 1A

V - Centaurea solstitialis *(Yellow Starthistle)* N1A

View in Field Guide | View Predicted Models | View Range Maps
Noxious Weed: Priority 1A - Non-native Species Global: **GNR** State: **SNA**
Predicted Models: O 50% Optimal (inductive), M 50% Moderate (inductive)

V - Isatis tinctoria *(Dyer's Woad)* N1A

View in Field Guide | View Predicted Models | View Range Maps
Noxious Weed: Priority 1A - Non-native Species Global: **GNR** State: **SNA**
Predicted Models: M 50% Moderate (inductive), L 50% Low (inductive)

V - Phragmites australis ssp. australis *(European Common Reed)* N1A

View in Field Guide | View Predicted Models | View Range Maps
Noxious Weed: Priority 1A - Non-native Species Global: **G5T5** State: **SNA**
Predicted Models: L 50% Low (inductive)

Noxious Weeds: Priority 1B

V - Lythrum salicaria *(Purple Loosestrife)* N1B

View in Field Guide | View Predicted Models | View Range Maps
Noxious Weed: Priority 1B - Non-native Species Global: **G5** State: **SNA**
Predicted Models: O 50% Optimal (inductive), M 50% Moderate (inductive)

V - Cytisus scoparius *(Scotch Broom)* N1B

View in Field Guide | View Predicted Models | View Range Maps
Noxious Weed: Priority 1B - Non-native Species Global: **GNR** State: **SNA**
Predicted Models: L 100% Low (inductive)

V - Echium vulgare *(Blueweed)* N1B

View in Field Guide | View Predicted Models | View Range Maps
Noxious Weed: Priority 1B - Non-native Species Global: **GNR** State: **SNA**
Predicted Models: L 100% Low (inductive)

V - Polygonum cuspidatum *(Japanese Knotweed)* N1B

View in Field Guide | View Predicted Models | View Range Maps
Noxious Weed: Priority 1B - Non-native Species Global: **GNRTNR** State: **SNA**
Predicted Models: L 50% Low (inductive)

Noxious Weeds: Priority 2A

V - Rhamnus cathartica *(Common Buckthorn)* N2A

View in Field Guide | View Predicted Models | View Range Maps
Noxious Weed: Priority 2A - Non-native Species Global: **GNR** State: **SNA**
Predicted Models: O 50% Optimal (inductive), L 50% Low (inductive)

V - Hieracium praealtum *(Kingdevil Hawkweed)* N2A

View in Field Guide | View Predicted Models | View Range Maps
Noxious Weed: Priority 2A - Non-native Species Global: **GNR** State: **SNA**
Predicted Models: M 50% Moderate (inductive), L 50% Low (inductive)

V - Butomus umbellatus *(Flowering-rush)* N2A/AIS

View in Field Guide | View Predicted Models | View Range Maps
Noxious Weed: Priority 2A - Aquatic Invasive Species - Non-native Species Global: **G5** State: **SNA**
Predicted Models: L 100% Low (inductive)

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V - Lepidium latifolium *(Perennial Pepperweed)* N2A

Noxious Weed: Priority 2A - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: L 100% Low (inductive)

V - Myriophyllum spicatum *(Eurasian Water-milfoil)* 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: L 100% Low (inductive)

V - Ventenata dubia *(Ventenata)* N2A

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2A - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: L 50% Low (inductive)

Noxious Weeds: Priority 2B

V - Tamarix ramosissima *(Salt Cedar)* N2B 19

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: O 100% Optimal (inductive)

V - Acroptilon repens *(Russian Knapweed)* N2B

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: M 100% Moderate (inductive)

V - Centaurea stoebe *(Spotted Knapweed)* N2B 4

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: M 100% Moderate (inductive)

V - Cirsium arvense *(Canada Thistle)* N2B 22

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **G5** State: **SNA**

Predicted Models: M 100% Moderate (inductive)

V - Convolvulus arvensis *(Field Bindweed)* 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: M 100% Moderate (inductive)

V - Cynoglossum officinale *(Common Hound's-tongue)* N2B 25

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: M 100% Moderate (inductive)

V - Euphorbia virgata *(Leafy Spurge)* N2B 1

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **GNRTNR** State: **SNA**

Predicted Models: M 100% Moderate (inductive)

V - Linaria dalmatica *(Dalmatian Toadflax)* N2B

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **G5** State: **SNA**

Predicted Models: M 100% Moderate (inductive)

V - Tanacetum vulgare *(Common Tansy)* N2B

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: M 100% Moderate (inductive)

V - Centaurea diffusa *(Diffuse Knapweed)* N2B

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: L 100% Low (inductive)

V - Hypericum perforatum *(Common St. John's-wort)* N2B

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: L 100% Low (inductive)

V - Lepidium draba *(Whitetop)* N2B

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: L 100% Low (inductive)

V - Leucanthemum vulgare *(Oxeye Daisy)* N2B

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: L 100% Low (inductive)

V - Potentilla recta *(Sulphur Cinquefoil)* N2B

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: L 100% Low (inductive)

V - Berteroa incana *(Hoary False-alyssum)* N2B

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View in Field Guide View Predicted Models View Range Maps

Predicted Models: L 50% Low (inductive)

Regulated Weeds: Priority 3

V - Elaeagnus angustifolia *(Russian Olive)* R3

View in Field Guide View Predicted Models View Range Maps

Regulated Weed: Priority 3 - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: O 50% Optimal (inductive), M 50% Moderate (inductive)

V - Bromus tectorum *(Cheatgrass)* R3

View in Field Guide View Predicted Models View Range Maps

Regulated Weed: Priority 3 - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: L 100% Low (inductive)

Biocontrol Species

I - Aphthona lacertosa *(Brown-legged Leafy Spurge Flea Beetle)* BIOCNTRL

View in Field Guide View Predicted Models View Range Maps

Biocontrol Species - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: M 100% Moderate (inductive)

I - Oberea erythrocephala *(Red-headed Leafy Spurge Stem Borer)* BIOCNTRL

View in Field Guide View Predicted Models View Range Maps

Biocontrol Species - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: M 100% Moderate (inductive)

I - Mecinus janthiniformis *(Dalmatian Toadflax Stem-boring Weevil)* BIOCNTRL

View in Field Guide View Predicted Models View Range Maps

Biocontrol Species - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: M 50% Moderate (inductive), L 50% Low (inductive)

I - Aphthona nigriscutis *(Black Dot Leafy Spurge Flea Beetle)* BIOCNTRL

View in Field Guide View Predicted Models View Range Maps

Biocontrol Species - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: L 100% Low (inductive)

I - Mecinus janthinus *(Yellow Toadflax Stem-boring Weevil)* BIOCNTRL

View in Field Guide View Predicted Models View Range Maps

Biocontrol Species - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: L 100% Low (inductive)

I - Cyphocleonus achates *(Knapweed Root Weevil)* BIOCNTRL

View in Field Guide View Predicted Models View Range Maps

Biocontrol Species - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: L 50% Low (inductive)

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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 80 natural heritage programs throughout the Western Hemisphere.

Vision

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

Core Values

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

Confidentiality

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

Information Managed

Information managed at the Montana Natural Heritage Program 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.

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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.

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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 and Nongame Animal Data	Smith Wells – MFWP Data Analyst smith.wells@mt.gov (406) 444-3759
Fisheries Data	Ryan Alger – MFWP Data Analyst ryan.alger@mt.gov (406) 444-5365
Wildlife and Fisheries Scientific Collector's Permits	https://fwp.mt.gov/buyandapply/commercialwildlifeandscientificpermits/scientific Kammi McClain for Wildlife Kammi.McClain@mt.gov (406) 444-2612 Kim Wedde for Fisheries kim.wedde@mt.gov (406) 444-5594
Fish and Wildlife Recommendations for Subdivision Development	Charlie Sperry CSperry@mt.gov (406) 444-3888 See https://fwp.mt.gov/conservation/living-with-wildlife/subdivision-recommendations
Regional Contacts  	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

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:
http://dnrc.mt.gov/licenses-and-permits

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.).
http://dnrc.mt.gov/divisions/cardd/conservation-districts/the-310-law

Flood and Fire Resources: http://dnrc.mt.gov/flood-and-fire

Bureau of Land Management

Montana Field Office Contacts:

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

United States 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://ecos.fws.gov/ipac/
Montana Ecological Services Field Office: https://www.fws.gov/montanafieldoffice/ (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
Fish Program Leader	Scott Spaulding	scott.spaulding@usda.gov	(406) 329-3287
Fish Ecologist	Cameron Thomas	cameron.thomas@usda.gov	(406) 329-3087
TES Program	Lydia Allen	lydia.allen@usda.gov	(406) 329-3558
Interagency Grizzly Bear Coordinator	Scott Jackson	scott.jackson@usda.gov	(406) 329-3664
Acting 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

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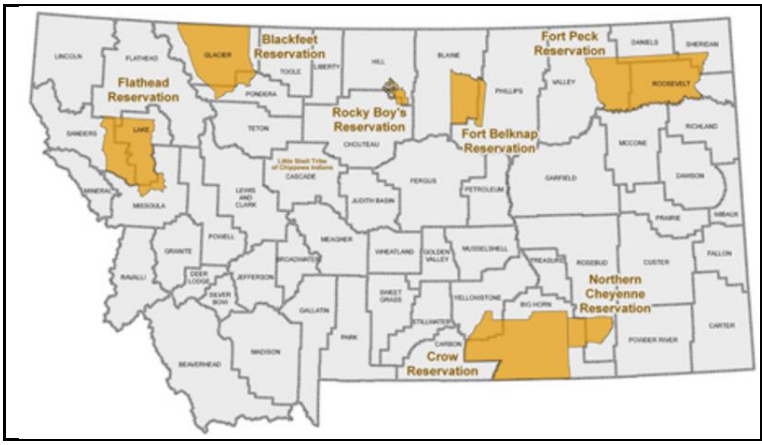
Tribal Nations



[Assiniboine & Gros Ventre Tribes – Fort Belknap Reservation]

[Assiniboine & Sioux Tribes – Fort Peck Reservation]

[Blackfeet Tribe - Blackfeet Reservation]

[Chippewa Creek Tribe - Rocky Boy's Reservation]

[Crow Tribe – Crow Reservation]

[Little Shell Chippewa Tribe]

[Northern Cheyenne Tribe – Northern Cheyenne Reservation]

[Salish & Kootenai Tribes - Flathead Reservation]

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

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

Invasive Species Management Contacts and Information

Aquatic Invasive Species

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

Noxious Weeds

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

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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 observations that you would like to contribute, you can submit them to our Animal Observation Entry Tool You can also submit plant and animal observations via Excel spreadsheets posted at https://mtnhp.org/observations.asp or via the Montana Natural Heritage Observations project in iNaturalist

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.

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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.

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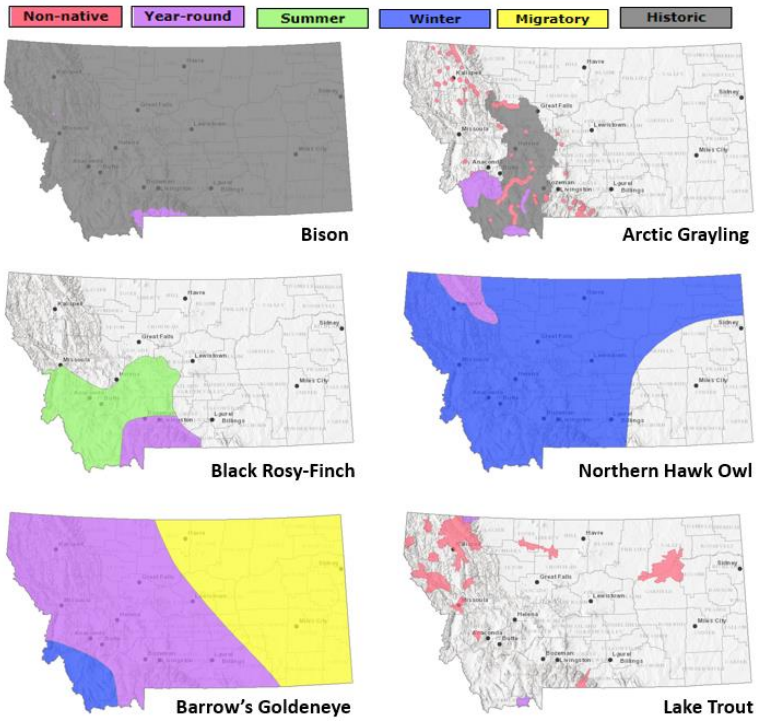
Geographic Range Polygons

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

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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).

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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 at the Montana State Library's Geographic Information Clearinghouse

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

Literature Cited

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

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

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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 a detailed overview, with examples, of both wetland and riparian classification systems and associated codes

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.

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

Public Lands
Conservation Easements
Private Conservation Lands
Managed Areas

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

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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 observations that you would like to contribute, you can submit animal observations using our online data entry system at mtnhp.org/AddObs or via Excel spreadsheets posted at mtnhp.org/observations.asp

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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

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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.

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Location

Treasure County, Montana

Local office

Montana Ecological Services Field Office

(406) 449-5225
(406) 449-5339

585 Shephard Way, Suite 1

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Helena, MT 59601-6287

https://fws.gov/office/montana-ecological-services

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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 species[1] 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 Fisheries[2]).

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.

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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).

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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:

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus 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.

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Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

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-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

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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 Haliaeetus leucocephalus 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 Dec 1 to Aug 31
Lark Bunting Calamospiza melanocorys This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 10 to Aug 15
Pinyon Jay Gymnorhinus cyanocephalus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9420	Breeds Feb 15 to Jul 15

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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 (■)

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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.

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■ probability of presence ■ breeding season | survey effort – no data

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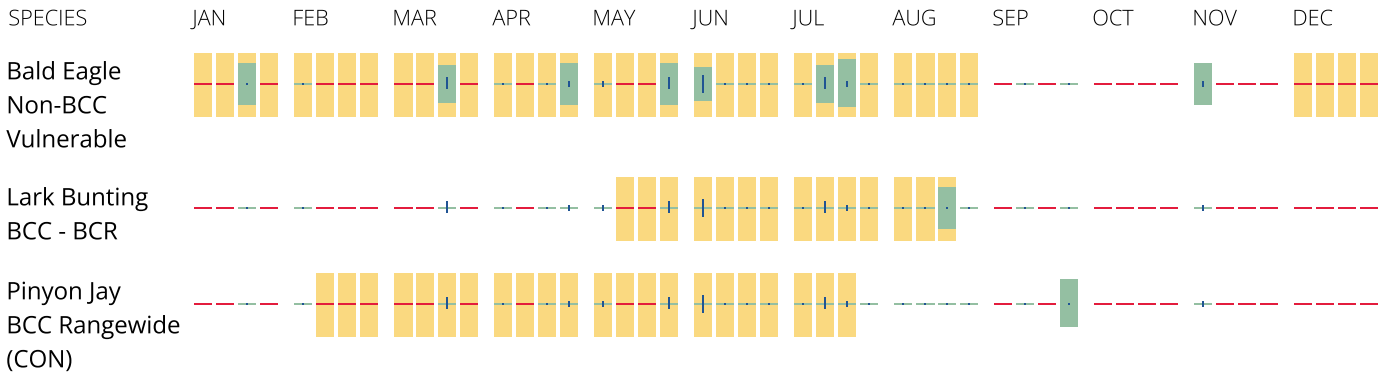

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

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.

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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

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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.

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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.

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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.

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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 tuberficid 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

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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.

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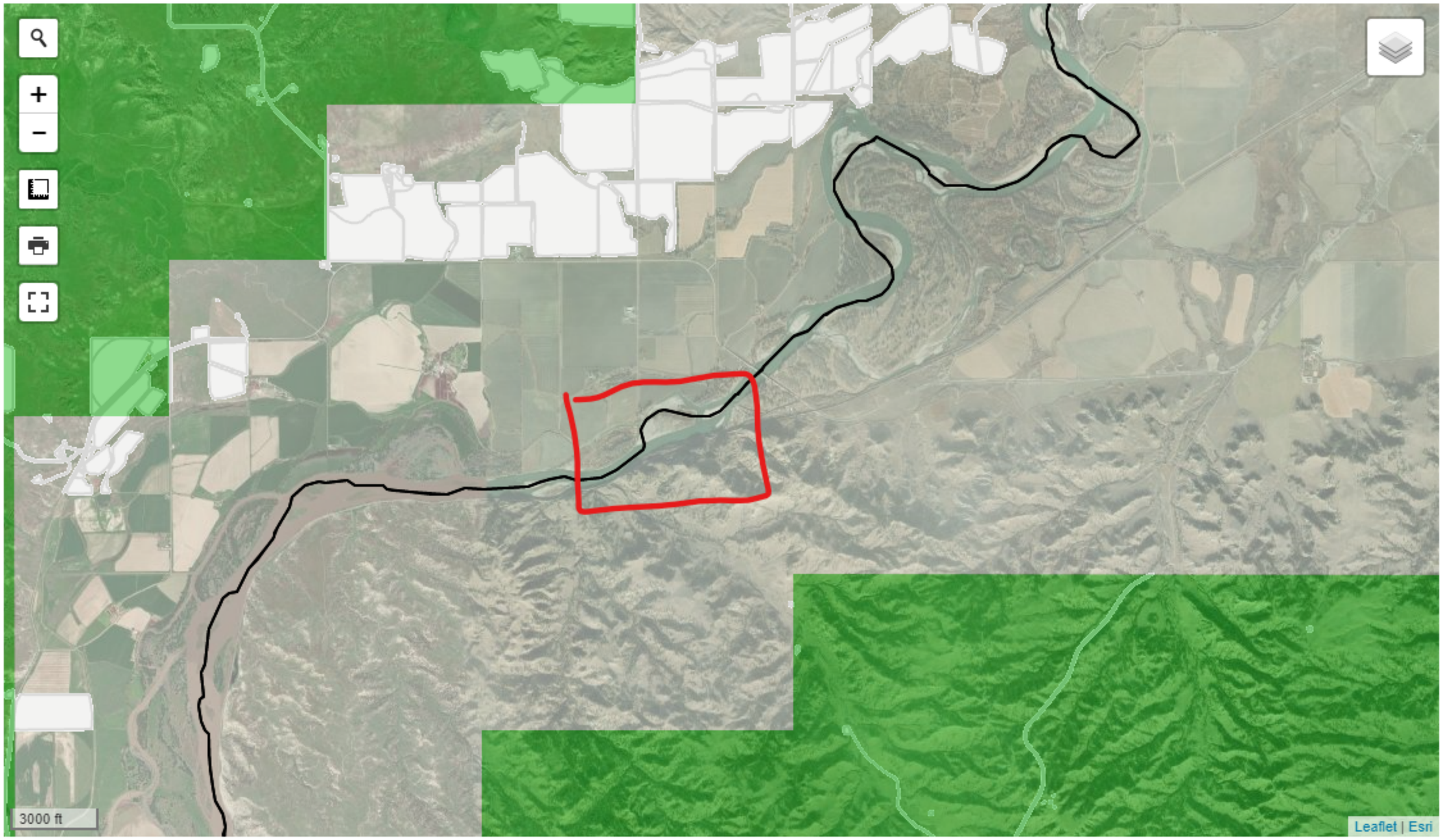
Montana Sage Grouse Habitat Conservation Map

Use this map to view and explore types of sage grouse habitat designated as core (blue), general (green), connectivity (light-blue) habitats or BLM priority areas. To zoom into an area, hold the Shift key and draw a rectangle. Anyone proposing new development activities in sage grouse habitat must submit a development project application for consultation.

If your project is close to designated sage grouse habitat or BLM Priority area, or if you are unsure your project is within designated sage grouse habitat or BLM Priority area, please submit your project for review as permitting agencies will be checking to see if your project is located within these designated sage grouse habitats. If your permitting agency requires evidence that your project is outside of designated sage grouse habitat, we recommend that you log in and start a project application and take a screenshot of your project's location.



MONTANA SAGE GROUSE HABITAT CONSERVATION PROGRAM
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