

NATURAL RESOURCES AND CONSERVATION



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FINAL ENVIRONMENTAL ASSESSMENT

Project Name:	Huntley Project Irrigation District - Intake Bank Stabilization Project
Proposed Implementation Date:	October 2022
Proponent:	Huntley Project Irrigation District
Location:	45.87315, -108.35054
County:	Yellowstone

I. TYPE AND PURPOSE OF ACTION

The purpose of this project is to stabilize a significant reach of the Yellowstone River bank upstream of the Huntley Project Irrigation District (HPID) intake diversion to mitigate sediment loading in the river and protect the diversion structure's ability to supply irrigation water. The project is located along the Yellowstone River between Lockwood and Huntley, Montana. A figure showing the project location within Montana is attached.

The HPID provides irrigation for 1,210 users on over 36,000 acres of prime farmland. The section of the Yellowstone River located directly upstream of the HPID diversion structure has been a growing concern due to channel migration of the river and corresponding erosion and sediment loading to the river. Channel migration and bank erosion have resulted in the loss of an estimated 40-acres of riverbank and release of an additional 426,000 tons of sediment into the Yellowstone River. Erosion of the riverbank has left 8 foot to 10 foot shear walls that consist of soils highly susceptible to continued erosion and loss of additional riverbank, increased sediment load to the river, and pose a potential safety risk to recreationists using the Yellowstone River. Migration of the channel is also threatening to bypass the HPID intake diversion structure due to the potential for the main channel to connect with a northerly bypass channel that routes recreationists around the diversion structure. Continued migration of the channel and corresponding erosion of the banks jeopardizes the diversion's ability to route irrigation water to 36,000 acres of prime farmland and puts an additional 25 acres of riverbank at risk of being eroded adding another 266,000 tons of sediment to the Yellowstone River.

The goal of the project is to eliminate sediment loading to the Yellowstone River upstream of the HPID intake diversion structure and stabilize erosion and migration of the river to ensure consistent and reliable irrigation water delivery to the 36,000 acres of prime farmland.

Project objectives include grading the existing northern and southern bank slopes upstream of the diversion structure to reduce highwalls and provide a stable foundation for installation of rip rap material; installing large angular rip rap to armor the banks and reduce the potential for channel migration, erosion, sediment loading to the river, and stock access to the river; repairing the low-water weir; and installing Bendway Weirs on the north bank only. Bendway Weirs will hydraulically redirect the river away from the bank to prevent erosion, sedimentation, and provide

fishery habitat which may result in enhanced recreational opportunities. A figure showing site features and proposed work areas is attached.

The preliminary engineering design and consultation with permitting agencies are complete. Final design, permitting, bidding, and construction are expected upon Department of Natural Resource and Conservation (DNRC) approval of American Rescue Plan (ARPA) grant funding for the project. The project was projected to begin construction in October 2022 and be completed by February 2023.

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.

HPID has met with and conducted onsite inspections with all permitting agencies. All agencies support the project moving forward.

Miller Coors Southern Montana Barley Operations, Wester Sugar Cooperative, and Vermilion Ranch are all business that either grow or purchase crops raised on the 36,000 acres of farmland irrigated by the HPID. These businesses would be directly impacted by continued channel migration, erosion, and corresponding threats to the HPID's intake diversion and its ability to supply irrigation water. All three business have supplied letters of support for the project.

No issues received from the public are identified.

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.

In addition to the requested DNRC ARPA grant funds, an additional \$125,000 of funding for the project has been awarded by the DNRC Renewable Resource Grant and Loan Program (RRGL).

The U.S. Bureau of Reclamation, in co-ownership with the Huntley Project Irrigation District, hold water rights for the point of diversion which date back to the early 1910s.

Required permits for the project include the following:

- Section 10 Permit from the U.S. Army Corp of Engineers (USCOE)
- 310 permit from the local conservation district
- SPA 124 Permit from Montana Fish Wildlife and Park (FWP)
- 318 Authorization from the Montana Department of Environmental Quality (DEQ)
- Yellowstone County Floodplain permit from local floodplain administrator

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.

An *Alternatives Analysis for Huntley Project Irrigation District – River Migration*, dated January 2019 evaluated the following six alternatives. These alternatives were evaluated based on criteria including availability (i.e., landowner permission), costs, logistics, existing technology, and summary (i.e., need and purpose met).

Alternatives evaluated:

Alternative 1 – Reinforce Long Section of the Main Bank (preferred alternative)

This alternative proposes the reinforcement of the northern bank with approximately 2,400 LF of well-graded rip rap to armor the bank. The existing vertical bank between the main and side channel would be graded back away from the main channel to produce a 2H:1V slope. Approximately 6,300 CF of fill would be placed at the toe of the bank below the OHWM and 150 CF of fill placed above the OHWM. Access to the site would be a low water temporary crossing across the side channel outlet and would require the removal of a few trees to access the project area. Although impacts to water quality during construction may have a high intensity, the duration of detrimental water quality impacts is short and confined to the construction period. Once the bank has been stabilized, the reinforced and armored bank will act as protection against any continual long-term erosion. This alternative would meet the purpose of the project by stabilizing the main channel bank and helping prevent any further erosion or channel migration.

Alternative 2 – Reinforce a Short Section of the Main Bank

This alternative is similar to Alternative 1 with the vertical bank being graded back and fill placed below the OHWM. However, it would shorten the extents of proposed reinforcement and place only 1,400 CF of fill below the OHWM while disturbing 500 LF of the main channel bank. This alternative would only address the most impacted area of the bank. This alternative may provide temporary bank stabilization to help prevent further erosion or channel migration, but only in a small reach of the eroded main channel bank. By only addressing the small area in Alternative 2 there is a high likelihood that the reach repaired could be undermined by further erosion upstream. If the bank upstream of Alternative 2 were to fail it is likely that any and all treatments placed as part of the project would fail and wash into the main channel. Access to the site would also be a low water temporary crossing across the side channel outlet and would require the removal of a few trees to access the project area. Impacts to water quality due to construction activity would be less because of the smaller project area; however, after construction the small area of bank stabilization would not help prevent continued erosion along the long stretch of vertical bank. Not addressing the entire susceptible bank would allow prolonged long-term erosion to occur throughout the year unabated. The extent of this alternative fulfilling the project purpose is limited and introduces unnecessary risk to the project area.

Alternative 3 – Reinforce the Side Channel Bank

This alternative assumes that the riverbank of the main channel will continue to erode naturally, eventually connecting with the northern side channel. However, the northern bank of the side channel adjacent to the current erosion area would be reinforced and armored with rip rap to prevent any additional river migration to the north. This would include placement of approximately 1,500 LF of stabilization along the side channel bank equating to approximately 3,200 CF of fill below the OHWM. Access to the site would be provided from the private farm road and would not cross the side channel but stay along the north side of the side channel bank. A

few trees would still need to be cleared to provide accessibility to the site. During construction water quality impacts would be less intensity due to the location along the side channel and the ability of any suspended soil to settle before discharging out to the main channel of the Yellowstone River. The overall project after construction however would have an intense and long-term detrimental effect to water quality due to the continued erosion of the main channel bank. The erosion from the unprotected main channel bank would cause continually high turbidity and dangerous floating debris would harm the natural habitat and ecosystems. Allowing the river to migrate north thus eliminating the side channel would also eliminate a prime area of habitat for fish and wildlife that the side channel now offers. This alternative would meet the ultimate purpose of the project in helping prevent channel migration to the north; however, it does not address the current erosion problem or propose any mitigation to the detrimental effects of continued erosion along the main channel bank. In addition, debris created from the continued erosion along the main channel bank may cause damage to the diversion structure downstream and additional material to be removed at the diversion dam.

Alternative 4 - Vegetation Stabilization

This alternative would entail sloping back the bank and stabilizing it with an assortment of vegetated material (i.e. trees, brush, and/or root wads). Root wads would be placed in the existing bank in numerous locations with the log portion driven into the bank and the roots extending into the river to protect the susceptible bank by diverting and/or slowing down high flows prior to hitting the bank. Willow trees would be planted in between root wads to help stabilize the banks with roots. Native shrubs and grasses would be placed along the slope to help protect the bank. Work would still be conducted below the OHWM in order to stabilize the current vertical bank. Access to the site would be the same as Alternative 1 and 2. Multiple cottonwood trees adjacent to the existing project area would need to be cleared for use as root wads. During construction there would be a period of highly detrimental impacts to water quality due to re-grading the bank slope back and installing the root wads into the bank. After construction, the likelihood of flows continuing to erode the bank is high due to the high velocity flood events experienced every summer and ice flows during the winter. Vegetative stabilization may reinforce the bank during low flows and minor flood events; however, it may leave the area susceptible to continued erosion during larger flood events, causing continued negative impacts to water quality over an extended period of time. This alternative may possibly meet the purpose of the project in helping prevent channel migration to the north and help prevent further erosion of the main channel bank; however, due to the high velocities and large debris floating down the Yellowstone River during flood events, as well as ice flows down the river during the winter season, the level of effective reinforcement from vegetated material is likely to be minimal. There is a high chance of continued bank erosion which would decrease water quality and harm aquatic ecosystems.

Alternative 5 - Reinforce Above the Ordinary High-Water Mark

This alternative would include installation of a revetment wall or material above the OHWM alongside the main channel. Staying outside of the OHWM would eliminate the need for extensive permitting; however, due to the top of the bank being approximately 10 to 12 feet above the channel bottom adjacent to the bank and the OHWM being at most 2 feet down from the top of the bank (See Appendix C), only a small portion of the bank would be reinforced against erosion. The material used to reinforce the bank above the OHWM could be undermined by continued erosion and ultimately sluff off into the river resulting in hazardous debris and unwanted material entering the Yellowstone River, causing damage to the diversion dam downstream. This alternative has been eliminated as unreasonable without any further analysis due to the lack of

any solution being provided and the high potential for failure, causing dangerous debris situations downstream.

Alternative 6 – No Action

This alternative is to do nothing and let the river continue to erode the riverbanks and migrate without any reinforcement either below or above the OHWM. This option has been eliminated as unreasonable without any further analysis due to the lack of any solution being provided to the problem.

Of the six alternatives evaluated, “Alternative 1 provides the best and least environmentally damaging alternative because it provides a long-term solution and higher level of protection against continued erosion and channel migration especially during flood events when high velocities and large debris float down the river. Alternative 1 helps ensure any detrimental effects to water quality and aquatic ecosystems along the main channel or side channel of the Yellowstone River are mitigated. Since the river has already eroded approximately 200 feet of the main channel bank to the north, the amount of fill placed below the OHWM will have negligible effects on the floodplain or any potential encroachment”.

The Huntley Project Irrigation District, Yellowstone River – Bank Stabilization Project, Preliminary Engineering Report, dated May 2020, further analyzed the following four alternatives. These alternatives were evaluated based on criteria including renewable resource benefits, environmental impacts, capital costs, and annual operation and maintenance costs.

Alternatives evaluated:

Alternative 1 – No Action

Alternative 1 would analyze the results of taking no action and continuing to allow the Yellowstone River to migrate north away from the existing irrigation facilities. No other mitigation efforts to provide water for the HPID delivery system would be taken. As shown in Table 3, irrigators using the HPID facilities would lose up to \$209M in potential revenues over the course of 50 years due to the elimination of the current water supply or reductions in the production rate caused by inadequate supply. Failure to mitigate channel migration experienced along the Yellowstone River will result in continued degradation and inefficiencies with the existing infrastructure. Taking no action has the potential to end the supply of irrigation to over 30,000 acres and 1,210 users. This alternative would not preserve existing infrastructure, improve resource management or protect the water quality of the Yellowstone River. As such, the No- Action Alternative would not achieve any of the goals or objectives previously laid out in Section 3.0.

Alternative 2 – Rip Rap Stabilization and Weir Repair (preferred alternative)

Alternative 2, Rip Rap Stabilization & Weir Repair, would involve excavating the existing riverbank to create adequate slope to provide a stable foundation for the riprap installation. All excess material generated will be hauled from the site. Riprap would be pulled from a local quarry and installed through machine placement along the re-sloped embankment. In addition, large boulder and riprap material would be used to repair the existing low-water weir at the overflow channel to the north of the existing diversion structure, which would help improve the system’s efficiency especially during low-water flows. Alternative 2 will meet all the goals and objectives set forth in section 3.0. The alternative will help improve water management while

utilizing the existing infrastructure, preserve the ability of using the current water resource and provide water for HPID delivery system as well as help to preserve the water quality and public safety near eroding slopes all while improving the system's efficiency.

Alternative 3 – Relocation of Diversion and Intake Structures

Alternative 3, Relocation of Diversion and Intake Structures, would include removal of the existing structures and reconstruction of both structures in a location on the river that is less likely to experience river channel migration. This would include analysis to determine the best location along the Yellowstone River, permitting for construction work within the main channel of the Yellowstone River, riverbank stabilization around the structures, and actual construction of the new structures along with any canals or pipelines to tie into the existing delivery system. Alternative 3 will meet only a portion of the goals and objectives set forth in section 3.0. While the alternative will help preserve the current water resource and provide water for the HPID delivery system, the impacts to the river ecosystem and water quality as well as risk associated with the new location still experiencing inefficiencies and possible channel migration may not improve water management and waste existing resources already in place.

Alternative 4 – New Pump Station on River

Alternative 4 involves constructing a new pump station in the Yellowstone River to provide irrigation to the HPID delivery system. This would include permitting for construction work within the main channel of the Yellowstone River, upgrading access roads to the pump station, establishing a long-term maintenance and replacement plan for pumps and actual construction of the new structures along with any canals or pipelines to tie into the existing delivery system. Some, but not all of the project goals and objectives would be met if Alternative 4 were to be implemented. The pump station would fulfill the primary goal and objective to preserve the ability of HPID to provide irrigation to its delivery system and users. Implementing Alternative 4 would allow the river to migrate north unmitigated. The efficiency of the pump station intake may be in jeopardy if the river migrates too far to the north. Location of the new intake structure would need to be analyzed to maximize long-term efficiency of the system. Another goal of the project to improve water management would be met. The pump station would provide a location for adjusting available irrigation in the system and optimizing how much is taken out of the Yellowstone River; however, the water quality of the river would not be preserved if erosion went unmitigated and existing infrastructure in the waterway could pose a threat to public health and safety as it continues to deteriorate.

Of the four alternatives evaluated, "it was determined that Alternative 2, rip rap stabilization and weir repair, would best accomplish the project goals and objectives."

Both Alternative 1, Reinforce Long Section of the Main Bank from the 2019 analysis and Alternative 2, Rip Rap Stabilization and Weir Repair from the 2020 analysis have the common characteristic of reinforcing the banks with rip rap. The difference is the addition of repairing the weir in 2020 analysis. This project incorporates the 2020 preferred alternative, Rip Rap Stabilization and Weir Repair.

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 riverbank within the project area is primarily comprised of mixed alluvial land. Portions of the bank have up to 8 to 10 foot shear walls that consist of soils highly susceptible to continued erosion and loss of additional riverbank, increased sediment load to the river, and pose a potential safety risk to recreational users of the Yellowstone River. No unusual geologic features have been identified.

The Natural Resource Conservation Service (NRCS) Web Soil Survey mapping application shows that soils within the immediate project area consist of the following:

- Alluvial land, mixed (not prime farmland)
- Riverwash (not prime farmland)
- Haverson loam (0 to 1 percent slopes, farmland of statewide importance)
- Haverson-Hysham loams (0 to 1 percent slopes, not prime farmland)
- Blacksheep, dry-Cabbart, dry-Rock outcrop, complex (8 to 60 percent slopes, not prime farmland)

No special reclamation considerations have been identified.

Proposed Alternative: Temporary and short-term direct adverse impacts to soil stability will occur since existing soils will be disturbed during construction activities. It is expected that Best Management Practices (BMPs) will be implemented during construction to reduce sediment impacts to the river. Long-term, soil stability along the banks of the river will have a direct beneficial impact, since recontoured grades will be less susceptible to erosion and sediment loading to the river. Soils within the surrounding area will experience indirect and cumulative beneficial impacts since they will no longer be threatened by erosion into the river and the corresponding impact that would have to wildlife habitat and usable farmland acreage.

No Action Alternative: Direct adverse impact to soil quality and stability. Existing soils will continue to be unstable and erode into the river. Indirect and cumulative adverse impacts to surrounding soils will continue to occur due to channel migration and the threat of losing additional riverbank and farmland acreage to erosion.

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.

The project is located on the Yellowstone River between Lockwood and Huntly, Montana. This reach of the Yellowstone River does not have formal total maximum daily load limits (TMDLs). However, this stretch of the river is located within a DEQ pre-TMDL assessment area with impairment causes identified as dissolved oxygen, arsenic, oil and grease, sediment, total dissolved solids (TDS), ammonia, benthic macroinvertebrates, and eutrophication (Discover DEQ Throughout Montana web mapping application).

The Montana Bureau of Mine and Geology Ground Water Information Center (GWIC) web mapping application does not identify any important groundwater resources within the project area. Local groundwater resources are primarily used for domestic purposes.

Proposed Alternative: Potential direct adverse impact to water quality during construction of the project. Construction activities have the potential to cause temporary violations of surface water quality standards for turbidity. These effects are temporary, short-term and will not have long-term adverse impacts to water quality. In addition to any potential permit requirements, BMPs are expected to be installed during construction to reduce erosion and the potential for release of sediments to surface water.

Long-term, water quality will experience direct, indirect, and cumulative beneficial impacts due to decreased erosion and sediment load to the Yellowstone River. Stabilizing the riverbank with rip rap will prevent further erosion of the existing bank and prevent sheet flows from adjacent land from contributing to erosion and bank instability. Stormwater from adjacent lands will be routed through the rip rap armored reaches thus preventing erosion and catching debris before it enters the river. The large angular rip rap rock will also prevent grazing livestock on the north shore from directly accessing the river and polluting it with animal waste.

No Action Alternative: Continued direct adverse impacts to water quality from erosion and sediment loading.

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 project is not located within any air quality non-attainment areas (U.S. Environmental Protection Agency NEPAassist web mapping applications). However, there is a Yellowstone County Road and Bridger Gabel Pit crushing and screening facility listed as a Montana Air Quality Registered Portable Facility located approximately 2.5 miles northeast of the project area. The project is located within a Yellowstone County open burning restriction area (Montana DEQ Discover DEQ Throughout Montanan web mapping application).

Proposed Alternative: Temporary and short-term direct adverse impacts to air quality (i.e., dust)

may occur during construction due to ground disturbance caused by construction activities. Any air quality impacts are expected to only affect the immediate area surrounding the construction site. Recreationists utilizing the Yellowstone River (ex: anglers and boaters) would directly be affected by any dust generated by the project; however, the adverse impact would be short-term as they pass by the project site. Dust suppression measures such as water application are expected during construction. No long-term adverse impacts to air quality are expected. Placement of rip rap and armoring the riverbank will stabilize the banks and minimize any long-term impacts to air quality caused by dust generated from exposed riverbanks. If any open burning was planned, Yellowstone County would need to be contacted prior to any burning.

No Action: No impact to air quality is expected. The potential for minor, localized adverse impact from dust generated from the exposed riverbanks would still be present.

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 Montana Natural Heritage Program identifies primary land cover ($\geq 12\%$) in and around the project area to include cultivated crops, Great Plains floodplain, Great Plains Mixedgrass Prairie, and Big Sagebrush Steppe. The areas immediately adjacent to the river are identified as Great Plains Floodplain along the northern bank and a mixture of Great Plains Mixedgrass prairie and Big Sagebrush Steppe dominating the southern bank. No rare plants or cover types within a 1-mile radius of the project site have been identified.

Dominant vegetation communities include floodplain forests, wet meadows, and gravel/sand flats. Many types of perennial grasses and forbs are present with the project area. Common trees include black cottonwood (*Populus balsamifera ssp. trichocarpa*), narrowleaf cottonwood (*Populus angustifolia*), and eastern cottonwood (*Populus deltoides*). Redosier dogwood (*Cornus sericea*) and common chokecherry (*Prunus virginiana*) may also be present. Commercial crops produced in the surrounding area include sugar beets, wheat, barley, alfalfa, corn, silage, and grass hay.

Proposed Alternative: Minor, direct adverse impact to local vegetation. Approximately 10 to 12 native trees will need to be removed to facilitate access to the project site. Additional trees along the narrow width of bank between the main channel and the side channel will be removed only as needed to provide access to the eroding bank. Construction equipment will be clean and free of weeds and weed seeds prior to arriving at the project site and throughout the duration of the project to reduce the spread of weeds onto the project site. No long-term adverse impacts to vegetation cover, quantity, and quality are expected. Native grasses and vegetation will be replaced after construction is complete. Long-term, vegetation will experience beneficial impacts from mitigating the threat of erosion and maintaining existing riverbank and farmland soils necessary for plant growth.

No Action: Potential direct and indirect adverse impacts to vegetation along the banks. The threat of erosion and channel migration will continue to threaten vegetation present along the banks. Long-term difficulties associated with the intake diversions structure's ability to supply irrigation water due to channel migration may impact commercial crop production.

8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:

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

The project is not located within any habitat areas of particular concern or essential fish habitat area protected from fishing (U.S. Environmental Protection Agency NEPAAssist web mapping application). Per Montana Fish, Wildlife and Parks and the U.S. Fish and Wildlife Service, the project is not located within a wildlife habitat protection area or critical habitat for threatened and endangered species (FWP Wildlife Habitat Protection Area and USFWS Critical Habitat for Threatened and Endangered Species web mapping applications). According to the Montana Sage Grouse Habitat Conservation Map mapping application, no critical sage grouse habitat is present within the project area.

Animal habitat associated with Great Plains Floodplain is present along the northern bank and habitat associated with Great Plains Mixedgrass prairie and Big Sagebrush Steppe is present along the southern bank. The river itself provides habitat for a variety of reptiles, fish, amphibians, and invertebrates. The Montana Natural Heritage program also identifies bat roost (non-cave) important animal habitat as confirmed as occurring or observed within a 1 mile radius of the project area. The National Wetlands Inventory web mapping application shows riverine habitat present within the project area and freshwater emergent wetland present within the vicinity of the low-water weir. Herbaceous and forested/shrub riparian habitat is also located along the northern bank both upstream and downstream of the project area.

According to the Montana Natural Heritage Program, there are no threatened or endangered species present within the immediate or greater project area. One special status species, Bald Eagle (*Haliaeetus leucocephalus*) has been confirmed as occurring or observed within a 1 mile radius of the project area. Red Knot (*Calidris canutus*), which is also a special status species, may potentially be present in the area. Several species of concern are confirmed as occurring or observed within a 1 mile radius of the project area and include Sauger (*Sander canadensis*), Black-Billed Cuckoo (*Coccyzus erythrophthalmus*), Great Blue Heron (*Ardea Herodias*), Snapping Turtle (*Chelydra serpentina*), Hoary Bat (*Lasiurus cinereus*), Little Brown Myotis Bat (*Myotis lucifugus*), Spiny Softshell Turtle (*Apalone spinifera*), and Pinyon Jay (*Gymnorhinus cyanocephalus*).

Other fish, amphibian, mammal, bird, or invertebrate species of concern or potential species of concern that have been observed include Burbot (*Lota lota*), Brassy Minnow (*Hybognathus hankinsoni*), Northern Leopard Frog (*Lithobates pipiens*), Silver-haired Bat (*Lasionycteris noctivagans*), Ovenbird (*Seiurus aurocapilla*), Brook Stickleback (*Culaea inconstans*), Emma's Dancer (*Argia emma*), and Arroyo Bluet (*Enallagma praevarum*).

There are also potentially 67 other species of concern and 14 potential species of concern that include various amphibians, birds, invertebrates, mammals, reptiles, and vascular plants that may be present within a 1-mile radius of the project area.

Proposed Alternative: Direct adverse impacts to habitats currently present along any access routes and the banks to be stabilized and armored with rip rap. The 10 to 12 native trees that will need to be removed to facilitate access to the project site will no longer be available for habitat; however, long-term adverse impacts to this habitat and surrounding habitats are expected to be minimal and temporary since no essential or critical habitats have been identified and disturbed areas are planned to be revegetated upon completion of the project. Grading the banks to reduce steep slopes

and cliffs will directly impact any habitats present since the current nature of that potential habitat will be changed.

Long-term beneficial impacts outweigh the adverse impacts since stabilizing the banks will help minimize constant erosion that puts stress on fish and aquatic habitat. Properly sloped banks with Bendway weirs are expected to create natural eddies for fish and spawning habitat. Eliminating vertical shear faces with no vegetation or structure for fish habitat and replacing them with properly sloped rip rapped banks is expected to increase potential fish habitat. Reduction in sediment loading to the river will also improve the water quality thus benefiting local fish and aquatic life populations.

Equipment used for construction of the project is planned to be clean, allowed to dry before moving, and free of mud and aquatic plants/organisms to ensure invasive species that may impact existing aquatic life habitats are not introduced during construction.

No Action: Continued direct, indirect, and cumulative adverse impacts as erosion and resulting sediment loading will continue to stress fish and other aquatic life and habitat.

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.

Threatened and Endangered Species, Special Status Species, and Species of Concern

According to the Montana Natural Heritage Program, there are no threatened or endangered species present within the immediate or greater project area. One special status species, Bald Eagle (*Haliaeetus leucocephalus*) has been confirmed as occurring or observed within a 1 mile radius of the project area. Red Knot (*Calidris canutus*), which is also a special status species, may potentially be present in the area. Several species of concern are confirmed as occurring or observed within a 1 mile radius of the project area and include Sauger (*Sander canadensis*), Black-Billed Cuckoo (*Coccyzus erythrophthalmus*), Great Blue Heron (*Ardea Herodias*), Snapping Turtle (*Chelydra serpentina*), Hoary Bat (*Lasiurus cinereus*), Little Brown Myotis Bat (*Myotis lucifugus*), Spiny Softshell Turtle (*Apalone spinifera*), and Pinyon Jay (*Gymnorhinus cyanocephalus*).

Critical Habitat

Per Montana Fish, Wildlife and Parks and the U.S. Fish and Wildlife Service, the project is not located within wildlife habitat protection area or critical habitat for threatened and endangered species. According to the Montana Sage Grouse Habitat Conservation Map mapping application, no critical sage grouse habitat is present within the project area. The Montana Natural Heritage program does identify bat roost (non-cave) important animal habitat as confirmed as occurring or observed within a 1-mile radius of the project area.

Wetlands and Riparian Zones

The National Wetlands Inventory web mapping application shows riverine habitat present within the project area and freshwater emergent wetland present within the vicinity of the low-water weir. Herbaceous and forested/shrub riparian habitat is also located along the northern bank both upstream and downstream of the project area.

Proposed Alternative: No effect on threatened and endangered species or sage grouse habitats since

none are present within the project area. No essential or critical habitats have been identified. The 10 to 12 native trees that will need to be removed to facilitate access to the project site will no longer be available as potential habitat for some bird special status species and bird species of concern; however, other trees are present within the project area and are readily available.

Some herbaceous and forested/shrub riparian and potentially some reptile species of concern habitat along the northern bank may experience direct adverse impacts since grading the banks and armoring them with rip rap may destroy some vegetation and will change the existing conditions. However, other herbaceous and forested/shrub riparian habitat is readily available both upstream and downstream of the project location. It is not expected that the project will affect the small area of freshwater emergent wetland present east of the low-water weir.

Potential long-term adverse impacts to any special status species and/or species of concern habitat affected by tree removal and bank regrading are expected to be minimal since similar type habitat is readily available in the area immediately surrounding the project area and disturbed areas are planned to be revegetated upon completion of the project.

No Action: No impact expected to unique, endangered, fragile or limited environmental resources.

10. HISTORICAL AND ARCHAEOLOGICAL SITES:

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

No historical, archaeological, or paleontological resources are anticipated to be identified. The project is also not located within a tribal area (U.S. Environmental Protection Agency NEPAAssist web mapping application).

Proposed Alternative: No historical and archaeological impacts are anticipated. 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.

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.

No prominent topographic features have been identified within the project area.

Proposed Alternative: Potential temporary and short-term adverse effect on aesthetics to users of the Yellowstone River during construction of the project. River recreationists may see construction equipment, dust, and hear noise associated with general construction activities while floating by the project site.

No long-term adverse impact to aesthetics. The project is not located near a populated area, is not readily accessible by the public, and is not readily visible by the general public. It is located between

Lockwood and Huntley, Montana, and is surrounded by cultivated cropland and rural private residences along the north bank and Bureau of Reclamation managed lands along the southern bank. Access to the project site along the northern bank is through private land and access to the southern bank is by the Diversion Dam Road. Construction of the project is expected to occur during daylight hours, so there are no light impacts expected.

No Action: No impact to aesthetics.

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 project is expected to be short-term and performed by local contractors and project personnel living and working within Yellowstone County and the local area. Material supplies necessary to construct the project are expected to be locally and readily available and not in limited supply.

Proposed Alternative: No impact to demands on limited environmental resources of land, water, air, or energy beyond the expected fuel consumption associated with operation of heavy construction equipment are expected. Acquiring fill and rip rap material would put a demand on land but these materials are not expected to be a limited resource and are expected to be readily available from local quarry and material suppliers. Recreational activities along this stretch of the Yellowstone River may experience a direct, temporary adverse aesthetic impact as previously discussed due to the project being visible to users of the Yellowstone River as they float by the project site. No other activities nearby that the project would affect have been identified.

No action: Continued direct adverse impact to water resources. Erosion and increased sediment load to the Yellowstone River will continue to impact water quality.

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.

No other current studies, plans, or projects within the project area have been identified. No other current private, state, or federal actions within the project area have been identified. No future proposed state actions that are under Montana Environmental Policy Act (MEPA) review or permitting have been identified.

According to the Montana Natural Heritage Program, there have been a few structured surveys within the project area that include lentic amphibian/reptile surveys (2013); Bald Eagle (*Haliaeetus leucocephalus*) nest survey (2020); American Bull Frog audio/visual Surveillance survey (2016); noxious weed road-based visual surveys (2003); visual encounter surveys for aquatic invasives on shorelines or underwater (2012); fish electrofishing, trapping, or netting surveys (2009 and 2011); visual encounter survey for Damselfly/Dragonfly/Butterfly (1994); bat mistnet survey (2005); algal scraping (2012, and turtle trapping surveys (2019).

A Joint Application for Proposed Work in Montana's Streams, Wetlands, Floodplains, and Other Water

Bodies has been completed. Preliminary meetings along with onsite inspections with all permitting agencies has been completed. The USCOE has reviewed the preliminary permit application and determined the wetland mitigation credit requirements for the work which are included in the proposed budget. All permitting agencies support the project.

The reach of the Yellowstone River where the project is proposed does not have formal TMDLs. However, this stretch of the river is located within a DEQ pre-TMDL assessment area with impairment causes identified as dissolved oxygen, arsenic, oil and grease, sediment, total dissolved solids (TDS), ammonia, benthic macroinvertebrates, and eutrophication. (Discover DEQ Throughout Montana web mapping application).

Proposed Alternative: No direct, indirect, or cumulative impact on other environmental documents pertinent to the area are expected. Reducing erosion and corresponding sediment loading in the river may have a direct beneficial impact to DEQ pre-TMDL assessment of the Yellowstone River and resulting environmental documents.

No Action: No impact to other environmental documents pertinent to the area.

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 DEQ web mapping application identifies one permitted opencut mining site, Riverside Contracting, Inc., located approximately 0.75 miles northwest of the project site. This facility does not pose a health and safety risk to the project given the distance from the project site.

The U.S. Environmental Protection Agency NEPAAssist web mapping application identifies several National Pollutant Discharge Elimination System (NPDES) permitted facilities within 0.75 miles of the project area. These NPDES facilities do not pose a human health and safety risk to the project given the distance from the project site and because they are monitored and permitted by the U.S. Environmental Protection Agency.

Current bank erosion within the project area has contributed to the loss of up to 40 acres of land and created up to 10-foot vertical banks that continue to slough off into the river creating a potential safety hazard to recreationists on the Yellowstone River. Additionally, the erosion along the southern bank is threatening an access road for the HPID diversion structure and may potentially threaten the Burlington Northern and Santa Fe (BNSF) railway that runs along and parallels the southern bank.

Proposed Alternative: Direct, indirect, and cumulative beneficial impacts to human health and safety. Vertical sloughing banks along the river will be eliminated and regraded to more stable angles improving safety for recreational users of the Yellowstone River. Stabilization of the southern bank will save and stabilize the only access road to the HPID diversion and protect the

BNSF railway from potential railway damage, derailments, and resulting health and safety concerns.

No Action: Direct, indirect, and cumulative adverse impacts to human health and safety. Banks will continue to erode and slough into the river creating a potential safety hazard for recreational users of the Yellowstone River. Threats to the HPID diversion access road along the southern bank will continue which has the potential of adversely impact the HPID's ability to access and maintain the diversion. Threats to the BNSF railway will continue which has the potential to create concerns with the safe operation of the railway and transportation of cargo.

15. INDUSTRIAL, COMMERCIAL AND AGRICULTURE ACTIVITIES AND PRODUCTION:

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

The HPID serves 36,000 acres of prime farmland. The primary commercial crops grown on this acreage includes sugar beets, wheat, barley, alfalfa, corn, silage, and grass hay. Millercoors, who owns and operates a barley elevator in Huntley, Montana, contracts barley grown on farmland irrigated by the HPID. Millercoors receives barley from approximately 20 producers serviced by the HPID and estimates payments to growers for production valued at approximately \$2.5 million with values as high as \$4.4 million in the past. Disruptions to irrigation water delivery would directly impact their productions. The Western Sugar Cooperative annually purchases approximately 100,000 tons of sugar beets from 15 producers on approximately 2,900 acres of farmland serviced by the HPID. Payments to producers typically total around \$4.0 million annually. This volume represents nearly 15% of the throughput of the Billing factory which could not be replaced with production from other growing area. Vermilion Ranch, Inc., which is located a short distance downstream of the project area, has also expressed support for the project.

With existing conditions and the low water weir not functioning properly, the HPID does experience a water shortage throughout the district during peak irrigation months based on flows in the Yellowstone River. Intake inefficiencies contribute to water shortages and its effect on crop production and supply. The farmland within the HPID relies heavily on traditional flood irrigation methods to irrigate fields. Inefficiencies or losses through the intake structure effect the distribution of water and crop production due to insufficient water supply.

Proposed Alternative: Direct, indirect, and cumulative beneficial impact to industrial, commercial, and agricultural activities and production. By installing and repairing weirs, the water surface elevation will be returned to the original design which will allow more water to be consistently diverted into the HPID main canal. The increase of water may provide for additional crop yields. Additional irrigation of the surrounding agricultural land may allow the crops to reach maximum production which will likely result in higher revenues for crop producers, vendors, processors, and users.

No Action: Direct, indirect, and cumulative adverse impacts to crop producers, vendors, processors, and users. The diversion will continue to not operate at maximum efficiency due to the low-water weir needing maintenance, and the river continuing to cut into the northern bank threatening to bypass the intake structure. Crop producers, vendors, and processors will continue to not be able to maximum production efficiencies and revenues.

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 population of Yellowstone County in 2020 was 164,731. The population of Lockwood in 2020 was estimated at 7,195 individuals, Huntley 442 individuals, and Billings 117,116 individuals (United States Census Bureau). All three of these cities/towns are located less than 20 miles to the project area. Implementation of the project is expected to use standard construction equipment that is expected to be locally available. Construction of the project is expected to be performed by existing local contractors and project personnel living and working within Yellowstone County and the local area. It is not expected that the project would create, move, or eliminate jobs.

Proposed Alternative: Potentially short-term direct and indirect beneficial impacts to the local employment market by creating a job opportunity for local contractors and material suppliers. Creation of new jobs is not expected.

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

17. LOCAL AND STATE TAX BASE AND TAX REVENUES:

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

The project is located along the banks of the Yellowstone River where state tax revenues are received from agricultural production from land serviced by the HPID and from recreation associated with the Yellowstone River itself (ex: lodging taxes, etc.).

The project site is adjacent to private property along the northern bank and land managed by the Bureau of Reclamation along the southern bank. Per the Montana Department of Revenue, the 2022 market value for the private parcel along the northern bank was \$476,863, and the taxable value was \$7,843.

According to Montana State University, over 95% of land in Yellowstone County is classified as farmland. As a whole, farmland in Yellowstone County produced \$5,615,000 of government paid revenue (i.e., state taxes). The HPID services 36,000 acres of this land and taxes on this land contribute to overall Yellowstone County agricultural tax revenues.

Per the Montana Office of Tourism, the Yellowstone River is the last major free flowing river in the lower 48 states. Its blue-ribbon water are known world round for an abundance of big trout, and the river is popular for both fishing and boating. Montana Fish, Wildlife, and Parks estimates the annual economic value of expenditures from fishing activity are over \$900 million. In 2021, the Bureau of Economic Analysis estimated that \$163,099 of value was added by the Montana boating/fishing industry. The University of Montana and Institute for Tourism & Recreation Research (ITRR) 2022 Montana travel industry data shows that the Montana outdoor recreation economy grew by nearly 30% from 2020 to 2021 with boating/fishing being one of the largest value-added outdoor recreation activities. The Yellowstone River, and the recreational opportunities supported by the river, contribute to Montana tax revenues through taxes on lodging, businesses (ex: guides, outfitters, sporting goods, restaurants), etc.

Proposed Alternative: Potentially direct, indirect, and cumulative beneficial impacts to the local and

state tax base and tax revenues. Ensuring that the river does not bypass the diversion intake will protect revenues received from crop production on lands serviced by the HPID. Repairing the low-water weir may facilitate more consistent seasonal delivery of irrigation water which may improve crop production and increase revenues. Creating additional fish spawning habitat will help support boating and fishing recreation along the Yellowstone River and support state tax revenues received from these industries. The taxable value of the private land along the northern bank is not expected to substantially change.

No Action: Potentially direct, indirect, and cumulative adverse impacts. If the river continues to cut into the northern bank, there is potential for the river to bypass the diversion intake. The inability to divert irrigation water to the 36,000 acres serviced by the HPID would affect all revenues tied to crop production on these lands.

18. DEMAND FOR GOVERNMENT SERVICES:

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

The main project site along the northern bank is accessed through privately owned rural farmland. The smaller work area along the southern bank is accessed by the Diversion Dam Road on Bureau of Reclamation managed land. The larger surrounding area primarily consists of farmland and private residences scattered throughout.

Proposed Alternative: No impact to fire protection, police, schools, etc. Potential temporary and short-term adverse impacts to traffic and traffic patterns. Rip rap material will be imported from an offsite supplier and hauled to the general project area using existing roads. Materials will then be hauled to the work area from an established trail across a gravel bar and temporary low water crossing over the side channel outlet. Traffic control and signage may need to be implemented on existing roadways used for hauling; however, any traffic control and/or signage is expected to be short-term and not have a significant adverse impact on existing traffic or traffic patterns given the rural nature of the area. No changes to fire protection, police, schools, etc. are expected.

No Action: No impact to demand for government services.

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 Montana Fish Wildlife and Parks, Wildlife Habitat Protection Area mapping applications shows that the proposed project is not located within crucial and/or critical habitat areas. According to the Montana Sage Grouse Habitat Conservation Map mapping application, no critical sage grouse habitat is present within the project area. There are no other known zoning or management plans for the project area (Environmental Protection Agency NEPAassist and Montana DEQ Discover DEQ Throughout Montanan web mapping applications).

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

No Action: No impact to locally adopted environmental plans and goals.

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

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

The Yellowstone River is used by recreationists for floating, fishing, and other water related activities. Per the Montana Fish, Wildlife, and Parks waterbody search web mapping application, the nearest fishing access sites for the Yellowstone River are East Bridge located approximately eight river miles upstream and Gritty Stone located approximately 15 river miles downstream of the project area. No wilderness areas are located proximal to the project area.

Proposed Alternative: Potential minor, temporary, and short-term adverse impacts to recreational activities. Approximately 2,400 liner feet (i.e., 0.5 miles) of riverbank will be impacted by the project. River recreationists may see construction equipment, dust, and hear noise associated with general construction activities while floating by the project site which may affect the “river experience” along the short stretch of river affected by the project. Long-term beneficial impacts outweigh the short-term adverse impact since steep slopes that pose a potential safety hazard will be removed. Installation of weirs may create natural eddies in the water suitable for fish spawning habitat which has the potential to benefit fishing recreation on the Yellowstone River.

No Action: Potential direct adverse impact to recreation as steep riverbank slopes will continue to be present and pose a potential safety concern to recreationists on the Yellowstone River.

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.

According to the United States Census Bureau, the population of Yellowstone County in 2020 was 164,731 with 71,804 housing units. The population of Lockwood, Montana in 2020 was estimated at 7,195 individuals with 2,811 housing units, The population of Huntley, Montana was 442 individuals with 211 housing units. All three of these cities/towns are located less than 20-miles to the project area.

Proposed Alternative: No impact to the density and distribution of the population within the project area, nearby towns, or Yellowstone County. Implementation of the project is expected to use standard construction equipment that is also expected to be locally available. Construction of the project is expected to be performed by existing local contractors and project personnel living and working within Yellowstone County and the local area; no additional housing is expected.

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.

The project area is largely made up of rural, cultivated cropland, and rural private residences. Agriculture provides the most common type of lifestyle/community for the area (Montana Natural Heritage). No federally recognized Tribal land is within the project area; however, the project does

take place on land traditionally inhabited or used by the Cayuse, Umatilla, Walla Walla, Sioux, Cheyenne, Crow, and Blackfoot Tribes (Native Land Digital web mapping application).

Proposed Alternative: No impact to social structures and/or traditional lifestyles or communities is expected. The community and lifestyle are expected to continue to be agriculture. Potential direct, indirect, and cumulative beneficial impacts to the existing community may result from improved agricultural production and any associated revenue.

No Action: No impact to social structures is expected.

23. CULTURAL UNIQUENESS AND DIVERSITY:

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

No cultural uniqueness and diversity have been identified. The area surrounding the project is rural farmland with private residences scattered throughout.

Proposed Alternative: No impact to any unique quality of the project area or nearby communities is expected. The area would remain agricultural farmland.

No Action: No impact to cultural uniqueness and diversity.

24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:

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

From the *Huntly Project Irrigation District, Yellowstone River – Bank Stabilization Project, Preliminary Engineering Report*, dated May 2020.

“The crop production values associated with this project were determined from financial data given by individual water users within the HPID. The following assumptions have been made in calculating the economic benefits of the 30,000 acres in production:

1. Acres of sugar beets in production: 6,000 acres
2. Acres in malt barley production: 6,000 acres
3. Acres of corn in production: 4,500 acres
4. Acres in alfalfa hay production: 7,500 acres
5. Acres of wheat in production: 3,000 acres
6. Acres of pasture/native grasses: 3,000 acres
7. Per ton price of sugar beets: \$40
8. Average per irrigated acre hay production: 32 tons
9. Price per bushel of malt barley: \$4.40
10. Average per acre malt barley production: 85 bushels
11. Price per ton of corn: \$4.20
12. Average per acre corn production: 23 bushels
13. Price per bushel of alfalfa: \$145
14. Average per acre alfalfa production: 2 bushels
15. Price per bushel of wheat: \$4.65

16. Average per acre wheat production: 52 bushels
17. Project life: 50 years
18. Interest rate factor: 6%
19. Present value assuming compounding interest.

Data provided above for the economic analyses was collected from HPID and local producers with knowledge of the system and crop production rates. Values match those traditionally found in the Yellowstone River area. Results of the analyses are provided in Table 2.

Table 2: Economic Benefit of Project

Land Classification	Acres	Production Rate (tons/ac or bushels/ac)	Unit Price/Ton or Bushel	Total Value
Alternative 1 - No Action				
Sugar Beets	0	32	\$40.00	\$0.00
Malt Barley	0	85	\$4.40	\$0.00
Corn	0	23	\$4.20	\$0.00
Alfalfa	0	2	\$145.00	\$0.00
Wheat	0	52	\$4.65	\$0.00
Pasture/Native Grasses	30,000	1	\$0.00	\$0.00
Total Value				\$0
Alternative 2, 3 & 4 - Rip Rap & Weir Repair, New Diversion & Intake, and Pump Station				
Sugar Beets	6,000	32	\$40.00	\$7,680,000.00
Malt Barley	6,000	85	\$4.40	\$2,244,000.00
Corn	4,500	23	\$4.20	\$434,700.00
Alfalfa	7,500	2	\$145.00	\$2,175,000.00
Wheat	3,000	52	\$4.65	\$725,400.00
Pasture/Native Grasses	3,000	1	\$3.00	\$9,000.00
Total Value				\$13,268,100
Diff. from Alt. 1				\$13,268,100
50-Year Present Value (Equal Payment) (P/A,i,N = 15.762)				\$209,131,792

The total present worth value of the improvements with preserving current production rates is up to \$209,131,792 over the 50-year design life of the mitigated improvements. It should be noted that operation and maintenance costs may increase during this period, but these increases are minimal when compared to the benefits of the project.”

The analysis area is likely to be used for continued agricultural production in the future.

Proposed Alternative: Direct, indirect, and cumulative beneficial impacts for the HPID, crop producers, processors, and vendors. The project will preserve and improve production by increasing water availability and in turn increasing irrigation efficiency and effectiveness. The improvements will not increase the acreage served but additional crop yields per acre will be gained from increasing the amount of water diverted to the HPID main canal thus increasing economic revenues.

No Action: Potential direct, indirect, and cumulative adverse impact to economic circumstances. Irrigators services by the HPID could lose up to \$209 million in potential revenues over the course of 50-years due to the elimination of the current water supply or reductions in the production rate caused by inadequate supply.

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.

No water and/or sewer infrastructure has been identified in the project area.

Proposed Alternative: No impact is expected to water and/or sewer infrastructure since none are present in the project area. However, the project will improve surface water quality in the Yellowstone River by reducing sediment loading, an overall beneficial impact to clean water.

No Action: No direct, indirect, or cumulative effects or impacts are expected to drinking water and/or clean water since no drinking water and/or sewer infrastructure is located within the project area. Surface water quality will continue to be adversely impacted by increased sediment load to the river.

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.

In 2021, the median household income in Yellowstone County was \$69,182 which is a 20.6% increase from 2016 to 2021. In 2021, people in poverty represented 11.3% of the population, which is a 2.5% increase from 2016 to 2021 (Montana Department of Commerce).

Proposed Alternative: No impact is expected as the project will not result in disproportionately high or adverse human health or environmental effects on minority or low-income populations. Project direct, indirect, and cumulative effects are expected to affect users of the HPID proportionality. No disproportionate effects among any portion of the community or users of the irrigation system are expected.

No Action: No impact to environmental justice.

EA Prepared By:	Name: Samantha Treu Title: MEPA/NEPA Coordinator	Date: 06/28/2023 Email: samantha.treu@mt.gov
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V. FINDING

27. ALTERNATIVE SELECTED:

Grading the existing northern and southern bank slopes upstream of the diversion structure to reduce highwalls and provide a stable foundation for installation of rip rap material; installing large angular rip rap to armor the banks and reduce the potential for channel migration, erosion, sediment loading to the river, and stock access to the river; repairing the low-water weir; and installing Bendway Weirs on the north bank only.

28. SIGNIFICANCE OF POTENTIAL IMPACTS:**Geology and Soil Quality, Stability, and Moisture**

Temporary and short-term direct adverse impacts to soil stability will occur since existing soils will be disturbed during construction activities. It is expected that Best Management Practices (BMPs) will be implemented during construction to reduce sediment impacts to the river. Long-term, soil stability along the banks of the river will experience a direct beneficial impact since recontoured grades will be less susceptible to erosion and sediment loading to the river. Soils within the surrounding area will have indirect and cumulative benefits since they will no longer be threatened by erosion into the river and the corresponding impact that would have to wildlife habitat and usable farmland acreage.

Water Quality, Quantity, and Distribution

Potential direct adverse effect to water quality during construction of the project. Construction activities have the potential to cause temporary violations of surface water quality standards for turbidity. These effects are temporary, short-term and will not have long-term adverse impacts to water quality. In addition to any potential permit requirements, BMPs are expected to be installed during construction to reduce erosion and the potential for release of sediments to surface water.

Air Quality

Temporary and short-term direct adverse impacts to air quality (i.e., dust) may occur during construction due to ground disturbance caused by construction activities. Any air quality impacts are expected to only affect the immediate area surrounding the construction site. Recreationists utilizing the Yellowstone River (ex: anglers and boaters) would directly be affected by any dust generated by the project; however, the adverse impact would be short-term as they pass by the project site. Dust suppression measures such as water application are expected during construction. No long-term adverse impacts to air quality are expected. Placement of rip rap and armoring the riverbank will stabilize the banks and minimize any long-term adverse impacts to air quality caused by dust generated from exposed riverbanks. If any open burning was planned, Yellowstone County would need to be contacted prior to any burning.

Vegetation Cover, Quantity, and Quality

Minor direct adverse impact to local vegetation. Approximately 10 to 12 native trees will need to be removed to facilitate access to the project site. Additional trees along the narrow width of bank between the main channel and the side channel will be removed only as needed to provide access to the eroding bank. Construction equipment will be clean and free of weeds and weed seeds prior to arriving at the project site and throughout the duration of the project to reduce the spread of weeds onto the project site. No long-term adverse impacts to vegetation cover, quantity, and quality are expected. Native grasses and vegetation will be replaced after construction is complete. Long-term, vegetation will benefit from mitigating the threat of erosion and maintaining existing riverbank and farmland soils necessary for plant growth.

Terrestrial, Avian, and Aquatic Life and Habitats

Direct adverse impact to habitats currently present along any access routes and the banks to be stabilized and armored with rip rap. The 10 to 12 native trees that will need to be removed to facilitate access to the project site will no longer be available for habitat; however, long-term adverse impacts to this habitat and surrounding habitat are expected to be minimal and temporary since no essential or critical habitats have been identified and disturbed areas are planned to be revegetated upon completion of the project. Grading the banks to reduce steep slopes and cliffs will directly impact any habitats present since the current nature of that potential habitat will be changed. Long-term beneficial impacts outweigh the adverse impacts since stabilizing the banks will help minimize constant erosion that puts stress on fish and aquatic habitat. Properly sloped banks with Bendway weirs are expected to create natural eddies for fish with areas for spawning. Eliminating vertical shear faces with no vegetation or structure for fish habitat and replacing them with properly sloped rip rapped banks is expected to increase potential fish habitat. Reduction in sediment loading to the river will also improve the water quality thus benefiting local fish populations. Equipment used for construction of the project is planned to be clean, allowed to dry before moving, and free of mud and aquatic plants/organisms to ensure invasive species that may impact existing aquatic life habitats are not introduced during construction.

Unique, Endangered, Fragile or Limited Environmental Resources

The 10 to 12 native trees that will need to be removed to facilitate access to the project site will no longer be available as potential habitat for some bird special status species and bird species of concern; however, other trees are present within the project area and are readily available. Some herbaceous and forested/shrub riparian and potentially some reptile species of concern habitat along the northern bank may be directly adversely impacted since grading the banks and armoring them with rip rap may destroy some vegetation and will change the existing conditions. However, other herbaceous and forested/shrub riparian habitat is readily available both upstream and downstream of the project location. It is not expected that the project will affect the small area of freshwater emergent wetland present east of the low-water weir. Potential long-term adverse impacts to any special status species and/or species of concern habitat affected by tree removal and bank regrading are expected to be minimal since similar type habitat is readily available in the area immediately surrounding the project area and disturbed areas are planned to be revegetated upon completion of the project.

Aesthetics

Potential temporary and short-term adverse impact on aesthetics to users of the Yellowstone River during construction of the project. River recreationists may see construction equipment, dust, and hear noise associated with general construction activities while floating by the project site. No long-term impact to aesthetics.

Demand for Government Services

Potential temporary and short-term adverse impacts to traffic and traffic patterns. Rip rap material will be imported from an offsite supplier and hauled to the general project area using existing roads. Traffic control and signage may need to be implemented on existing roadways used for hauling; however, any traffic control and/or signage is expected to be short-term and not have a significant impact on existing traffic or traffic patterns given the rural nature of the area. No changes to fire protection, police, schools, etc. are expected.

Access to and Quality of Recreational and Wilderness Activities

Potential temporary and short-term adverse impact to recreational activities. Approximately 2,400 linear feet (i.e., 0.5 miles) of riverbank will be impacted by the project. River recreationists may see

construction equipment, dust, and hear noise associated with general construction activities while floating by the project site which may affect the “river experience” along the short stretch of river affected by the project. Long-term beneficial impacts outweigh the short-term adverse impact since steep slopes that pose a potential safety hazard will be removed. Installation of weirs may create natural eddies in the water suitable for fish spawning habitat which has the potential to benefit fishing recreation on the Yellowstone River.

29. NEED FOR FURTHER ENVIRONMENTAL ANALYSIS:

This is the final environmental review.

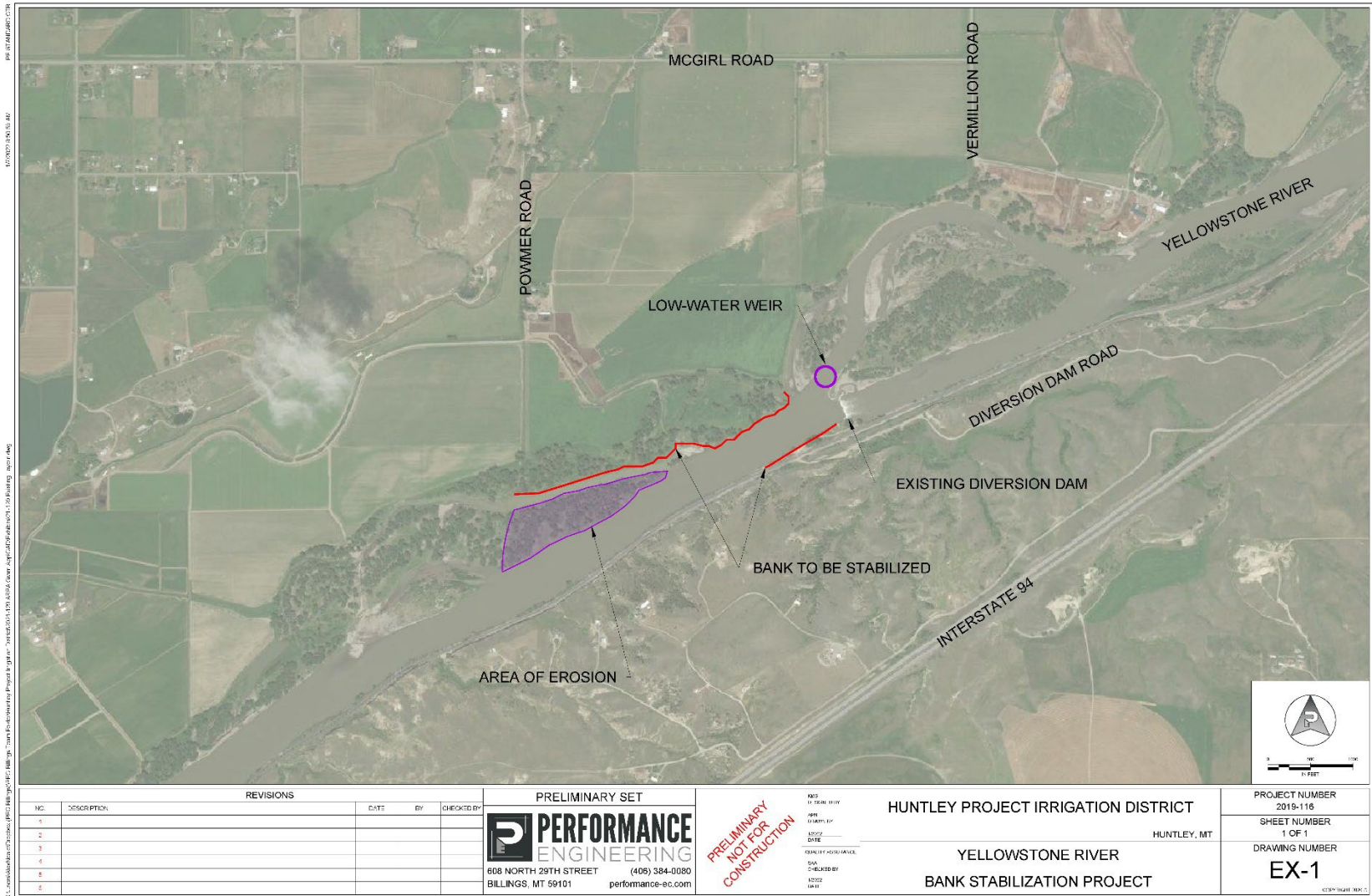
EIS

More Detailed EA

No Further Analysis

EA Approved By:	Name: Mark W Bostrom
	Title: Division Administrator
Signature:	<i>Mark W Bostrom</i> Date: 7/27/2023 1:02:35 PM MDT

Site Features and Proposed Work Areas



NO.	DESCRIPTION	DATE	BY	CHECKED BY
1				
2				
3				
4				
5				
6				

PRELIMINARY SET



PERFORMANCE ENGINEERING
 608 NORTH 29TH STREET (405) 384-0080
 BILLINGS, MT 59101 performance-ec.com

PRELIMINARY
NOT FOR
CONSTRUCTION

DESIGNED BY: _____
 DRAWN BY: _____
 CHECKED BY: _____
 DATE: _____

HUNTLEY PROJECT IRRIGATION DISTRICT
 HUNTLEY, MT

YELLOWSTONE RIVER
 BANK STABILIZATION PROJECT

PROJECT NUMBER
2015-116

SHEET NUMBER
1 OF 1

DRAWING NUMBER
EX-1

CSDE 2015-116-1

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MONTANA Natural Heritage Program

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



Latitude	Longitude
45.85577	-108.32057
45.90018	-108.38497

Summarized by:
002N027E034
(Buffered PLSS Section)



Suggested Citation

Montana Natural Heritage Program. Environmental Summary Report.
for Latitude 45.85577 to 45.90018 and Longitude -108.32057 to -108.38497. Retrieved on 4/21/2023.

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.



Environmental Summary

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Introduction to Environmental Summary Report

Environmental Summary Reports from the Montana Natural Heritage Program (MTNHP) provide information on species and biological communities to inform all stakeholders in environmental review, permitting, and planning processes. For information on environmental permits in Montana, please see permitting overviews by the [Montana Department of Environmental Quality](#), the [Montana Department of Natural Resources and Conservation](#), the [Index of Environmental Permits for Montana](#) and our [Suggested Contacts for Natural Resource Management Agencies](#). The report for your area of interest consists of introductory and related materials in this PDF and an Excel workbook with worksheets summarizing information managed in the MTNHP databases for: (1) species occurrences; (2) other observed species without species occurrences; (3) other species potentially present based on their range, presence of associated habitats, or predictive distribution model output if available; (4) structured surveys that follow a protocol capable of detecting one or more species; (5) land cover mapped as ecological systems; (6) wetland and riparian mapping; (7) land management categories; and (8) biological reports associated with plant and animal observations. If your area of interest corresponds to a statewide polygon layer (e.g., watersheds, counties, or public land survey sections) information summaries in your report will exactly match those boundaries. However, if your report is for a custom area, users should be aware that summaries do not correspond to the exact boundaries of the polygon they have specified, but instead are a summary across a layer of hexagons intersected by the polygon they specified as shown on the report cover. Summarizing by these hexagons which are one square mile in area and approximately one kilometer in length on each side allows for consistent and rapid delivery of summaries based on a uniform grid that has been used for planning efforts across 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.**



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



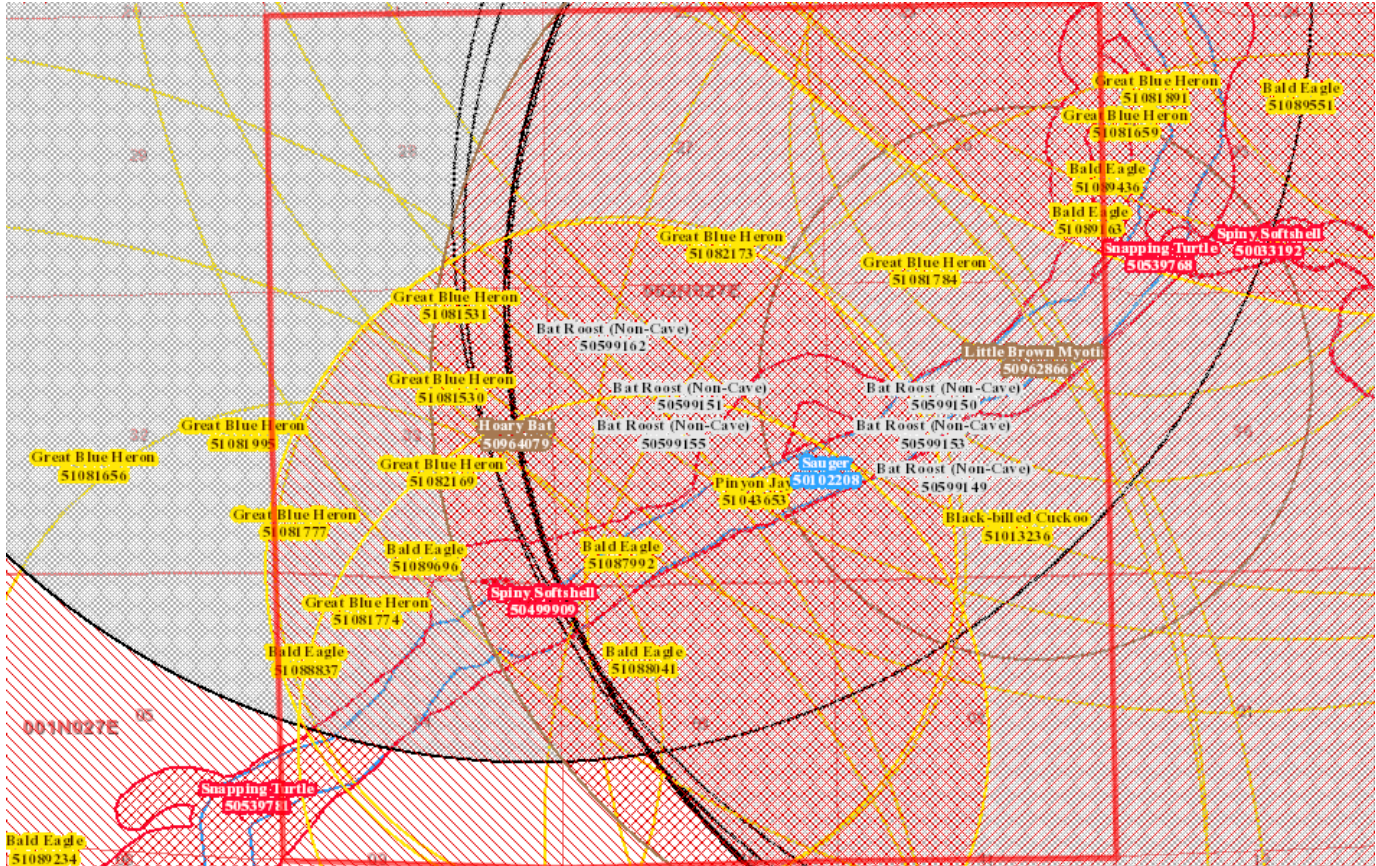
Latitude 45.85577 Longitude -108.32057
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Native Species

Summarized by: **002N027E034** (Buffered PLSS Section)

Filtered by:

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



Species Occurrences

	USFWS Sec7	# SO	# Obs	Predicted Model	Range
F - Sauger (<i>Sander canadensis</i>) SOC		1	2		
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: 56% Suitable (native range) (deductive)					
B - Black-billed Cuckoo (<i>Coccyzus erythrophthalmus</i>) SOC		1			
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, 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: Dec 30, 2022) Predicted Models: 31% Optimal (inductive), 43% Moderate (inductive), 26% Low (inductive)					
B - Great Blue Heron (<i>Ardea herodias</i>) SOC		11	1		
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: Mar 22, 2023) Predicted Models: 20% Optimal (inductive), 34% Moderate (inductive), 42% Low (inductive)					
B - Bald Eagle (<i>Haliaeetus leucocephalus</i>) SSS		6	35		
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 re-nesting. Only nesting observations with a locational uncertainty of 1,000 meters or less will be used to delineate a nesting area. (Last Updated: Mar 23, 2023) Predicted Models: 20% Optimal (inductive), 33% Moderate (inductive), 41% Low (inductive)					

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: Dec 22, 2022)

Predicted Models: 12% Optimal (inductive), 73% Moderate (inductive), 15% Low (inductive)

M - Hoary Bat (*Lasiurus cinereus*) SOC

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

Species of Concern - Native Species Global: **G3G4** State: **S3B** BLM: **SENSITIVE** FWP SWAP: **SGCN3**

Delineation Criteria Confirmed area of occupancy based on the documented presence (mistnet captures, definitively identified acoustic recordings, and definitively identified roosting individuals) of adults or juveniles during the active season. Point observation location is buffered by a minimum distance of 3,500 meters in order to be conservative about encompassing the maximum reported foraging distance for the congeneric *Lasiurus borealis* and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Dec 23, 2022)

Predicted Models: 67% Moderate (inductive), 33% Low (inductive)

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

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

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

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: Dec 22, 2022)

Predicted Models: 65% Moderate (inductive), 35% Low (inductive)

R - Spiny Softshell (*Apalone spinifer*) 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**

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: 25% Moderate (inductive), 30% Low (inductive)

B - Pinyon Jay (*Gymnorhinus cyanocephalus*) SOC

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

Species of Concern - Native Species Global: **G3** State: **S3** USFWS: **MBTA; BCC10; BCC17** FWP SWAP: **SGCN3**

Delineation Criteria Observations with evidence of breeding activity buffered by a minimum distance of 4,500 meters in order to be conservative about encompassing the home ranges reported for flocks and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Jan 04, 2023)

Predicted Models: 15% Moderate (inductive), 44% Low (inductive)

O - Bat Roost (Non-Cave) (*Bat Roost (Non-Cave)*) IAH

[View in Field Guide](#)

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

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



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



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Native Species

Summarized by: **002N027E034 (Buffered PLSS Section)**

Filtered by:

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Other Observed Species

Species	USFWS Sec7	# Obs	Predicted Model	Range
F - Burbot (<i>Lota lota</i>) PSOC View in Field Guide View Predicted Models View Range Maps Potential Species of Concern - Native Species Global: G5 State: S4 Predicted Models: 56% Suitable (native range) (deductive)		7		
F - Brassy Minnow (<i>Hybognathus hankinsoni</i>) PSOC View in Field Guide View Predicted Models View Range Maps Potential Species of Concern - Native Species Global: G5 State: S4 Predicted Models: 52% Suitable (native range) (deductive)		1		
A - Northern Leopard Frog (<i>Lithobates pipiens</i>) SOC View in Field Guide View Predicted Models View Range Maps USFS: Sensitive - Known in Forests (KOOT) Species of Concern - Native Species Global: G5 State: S1,S4 Sensitive - Suspected in Forests (BRT, LOLO) BLM: SENSITIVE FWP SWAP: SGCN1 Predicted Models: 54% Moderate (inductive), 46% Low (inductive)		5		
M - Silver-haired Bat (<i>Lasiorycteris noctivagans</i>) PSOC View in Field Guide View Predicted Models View Range Maps Potential Species of Concern - Native Species Global: G3G4 State: S4 Predicted Models: 34% Moderate (inductive), 66% Low (inductive)		1		
B - Ovenbird (<i>Seiurus aurocapilla</i>) 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: 20% Moderate (inductive), 76% Low (inductive)		1		
F - Brook Stickleback (<i>Culaea inconstans</i>) 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: 68% Suitable (introduced range) (deductive)		3		
I - Argia emma (<i>Emma's Dancer</i>) PSOC View in Field Guide View Range Maps Potential Species of Concern - Native Species Global: G5 State: S3S5		1	Not Assessed	
I - Enallagma praevarum (<i>Arroyo Bluet</i>) PSOC View in Field Guide View Range Maps Potential Species of Concern - Native Species Global: G5 State: S3S5		1	Not Assessed	



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



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Native Species

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Other Potential Species

Species Name	USFWS Sec7	Predicted Model	Range
B - Yellow-billed Cuckoo (<i>Coccyzus americanus</i>) 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: 30% Optimal (inductive), 65% Moderate (inductive), 5% Low (inductive)			
R - Western Milksnake (<i>Lampropeltis gentilis</i>) 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: 23% Optimal (inductive), 77% Moderate (inductive)			
B - Eastern Screech-Owl (<i>Megascops asio</i>) 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: 20% Optimal (inductive), 72% Moderate (inductive), 8% Low (inductive)			
B - Dickcissel (<i>Spiza americana</i>) 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: 1% Optimal (inductive), 73% Moderate (inductive), 26% Low (inductive)			
B - Chimney Swift (<i>Chaetura pelagica</i>) 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: 1% Optimal (inductive), 18% Moderate (inductive), 61% Low (inductive)			
M - North American Porcupine (<i>Erethizon dorsatum</i>) 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: 91% Moderate (inductive), 9% Low (inductive)			
M - Western Spotted Skunk (<i>Spilogale gracilis</i>) 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: 87% Moderate (inductive), 13% Low (inductive)			
B - American White Pelican (<i>Pelecanus erythrorhynchos</i>) 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: 74% Moderate (inductive), 26% Low (inductive)			
I - Bombus suckleyi (<i>Suckley Cuckoo Bumble Bee</i>) SOC			
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G2G3 State: S1 Predicted Models: 63% Moderate (inductive), 37% Low (inductive)			
M - Eastern Red Bat (<i>Lasiurus borealis</i>) SOC			
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G3G4 State: S3B BLM: SENSITIVE Predicted Models: 63% Moderate (inductive), 33% Low (inductive)			
M - Townsend's Big-eared Bat (<i>Corynorhinus townsendii</i>) SOC			
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G4 State: S3 USFS: Sensitive - Known in Forests (BD, BRT, KOOT, LOLO) BLM: SENSITIVE FWP SWAP: SGCN3 Predicted Models: 57% Moderate (inductive), 42% Low (inductive)			
B - Plumbeous Vireo (<i>Vireo plumbeus</i>) 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: 51% Moderate (inductive), 49% Low (inductive)			
M - Fringed Myotis (<i>Myotis thysanodes</i>) 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: 46% Moderate (inductive), 53% Low (inductive)			

M - Long-eared Myotis (<i>Myotisotis</i>) SOC	Global: G5 State: S3	Predicted Models: M 45% Moderate (inductive), L 55% Low (inductive)
M - Spotted Bat (<i>Euderma maculatum</i>) SOC	Global: G4 State: S3 USFWS: Sensitive - Known in Forests (BD) BLM: SENSITIVE FWP SWAP: SGCN3, SGIN	Predicted Models: M 36% Moderate (inductive), L 64% Low (inductive)
B - Cassin's Kingbird (<i>Tyrannus vociferans</i>) PSOC	Global: G5 State: S4B USFWS: MBTA	Predicted Models: M 30% Moderate (inductive), L 70% Low (inductive)
B - Veery (<i>Catharus fuscescens</i>) SOC	Global: G5 State: S3B USFWS: MBTA BLM: SENSITIVE FWP SWAP: SGCN3 PIF: 2	Predicted Models: M 30% Moderate (inductive), L 70% Low (inductive)
M - Hayden's Shrew (<i>Sorex haydeni</i>) PSOC	Global: G5 State: S3S4	Predicted Models: M 29% Moderate (inductive), L 56% Low (inductive)
B - Bobolink (<i>Dolichonyx oryzivorus</i>) SOC	Global: G5 State: S3B USFWS: MBTA; BCC10; BCC11; BCC17 FWP SWAP: SGCN3 PIF: 3	Predicted Models: M 23% Moderate (inductive), L 65% Low (inductive)
B - White-faced Ibis (<i>Plegadis chihi</i>) SOC	Global: G5 State: S3B USFWS: MBTA BLM: SENSITIVE FWP SWAP: SGCN3 PIF: 2	Predicted Models: M 22% Moderate (inductive), L 52% Low (inductive)
M - Pallid Bat (<i>Antrozous pallidus</i>) SOC	Global: G4 State: S3 BLM: SENSITIVE FWP SWAP: SGCN3	Predicted Models: M 20% Moderate (inductive), L 76% Low (inductive)
M - Merriam's Shrew (<i>Sorex merriami</i>) SOC	Global: G4 State: S3 FWP SWAP: SGCN3	Predicted Models: M 19% Moderate (inductive), L 81% Low (inductive)
V - Carex crawei (<i>Crawe's Sedge</i>) SOC	Global: G5 State: S2S3 Plant Threat Score: Low	Predicted Models: M 18% Moderate (inductive), L 67% Low (inductive)
R - Greater Short-horned Lizard (<i>Phrynosoma hernandesi</i>) SOC	Global: G5 State: S3 BLM: SENSITIVE FWP SWAP: SGCN3, SGIN	Predicted Models: M 18% Moderate (inductive), L 31% Low (inductive)
B - Common Poorwill (<i>Phalaenoptilus nuttallii</i>) PSOC	Global: G5 State: S4B USFWS: MBTA FWP SWAP: SGIN PIF: 3	Predicted Models: M 14% Moderate (inductive), L 86% Low (inductive)
B - Rufous Hummingbird (<i>Selasphorus rufus</i>) PSOC	Global: G4 State: S4B USFWS: MBTA; BCC10 PIF: 3	Predicted Models: M 12% Moderate (inductive), L 82% Low (inductive)
R - Plains Hog-nosed Snake (<i>Heterodon nasicus</i>) SOC	Global: G5 State: S2 BLM: SENSITIVE FWP SWAP: SGCN2, SGIN	Predicted Models: M 11% Moderate (inductive), L 89% Low (inductive)
B - Broad-tailed Hummingbird (<i>Selasphorus platycercus</i>) PSOC	Global: G5 State: S4B USFWS: MBTA; BCC10 FWP SWAP: SGIN	Predicted Models: M 11% Moderate (inductive), L 89% Low (inductive)
B - American Bittern (<i>Botaurus lentiginosus</i>) SOC	Global: G5 State: S3B USFWS: MBTA BLM: SENSITIVE FWP SWAP: SGCN3 PIF: 3	Predicted Models: M 11% Moderate (inductive), L 62% Low (inductive)
B - Short-eared Owl (<i>Asio flammeus</i>) PSOC	Global: G5 State: S4 USFWS: MBTA; BCC11; BCC17 PIF: 3	Predicted Models: M 7% Moderate (inductive), L 62% Low (inductive)

- A - Great Plains Toad** (*Anaxyrus cognatus*) **SOC**
Global: **G5** State: **S2** BLM: **SENSITIVE** FWP SWAP: **SGCN2**
Predicted Models: **M** 6% Moderate (inductive), **L** 63% Low (inductive)
- M - Long-legged Myotis** (*Myotis volans*) **SOC**
[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Species of Concern - Native Species Global: **G4G5** State: **S3**
Predicted Models: **M** 5% Moderate (inductive), **L** 95% 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: **M** 5% Moderate (inductive), **L** 85% Low (inductive)
- B - Green-tailed Towhee** (*Pipilo chlorurus*) **SOC**
[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA** FWP SWAP: **SGCN3** PIF: **3**
Predicted Models: **M** 3% Moderate (inductive), **L** 34% Low (inductive)
- V - Physaria brassicoides** (*Double Bladderpod*) **SOC**
[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Species of Concern - Native Species Global: **G5** State: **S3** Plant Threat Score: **No Known Threats**
Predicted Models: **M** 3% Moderate (inductive), **L** 32% 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: **M** 2% Moderate (inductive), **L** 84% Low (inductive)
- B - Black-necked Stilt** (*Himantopus mexicanus*) **SOC**
[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA** FWP SWAP: **SGCN3** PIF: **3**
Predicted Models: **M** 2% Moderate (inductive), **L** 72% Low (inductive)
- V - Eupatorium maculatum** (*Spotted Joe-pye-weed*) **SOC**
[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Species of Concern - Native Species Global: **G5** State: **S1S2** Plant Threat Score: **No Known Threats** CCVI: **Moderately Vulnerable**
Predicted Models: **M** 2% Moderate (inductive), **L** 64% Low (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** 1% Moderate (inductive), **L** 86% Low (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: **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 - Barrow's Goldeneye** (*Bucephala islandica*) **PSOC**
[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Potential Species of Concern - Native Species Global: **G5** State: **S4** USFWS: **MBTA** FWP SWAP: **SGIN** PIF: **2**
Predicted Models: **L** 74% 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** 67% 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** 63% 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** 56% Low (inductive)
- V - Stellaria crassifolia** (*Fleshy Stitchwort*) **SOC**
[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Species of Concern - Native Species Global: **G5** State: **S2** Plant Threat Score: **No Known Threats**
Predicted Models: **L** 54% 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** 51% Low (inductive)

V - Astragalus geyeri (*Geyer's Milkvetch*) **SOC** Y

[Species of Concern - Native Species](#) Global: **G4** State: **S2** Plant Threat Score: **No Known Threats** CCVI: **Highly Vulnerable**

Predicted Models: 45% Low (inductive)

B - Golden Eagle (*Aquila chrysaetos*) **SOC** Y

[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: 44% Low (inductive)

B - Black-crowned Night-Heron (*Nycticorax nycticorax*) **SOC** S M

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

[Species of Concern - Native Species](#) Global: **G5** State: **S3B** USFWS: **MBTA** FWP SWAP: **SGCN3** PIF: **3**

Predicted Models: 44% Low (inductive)

V - Cypripedium parviflorum (*Small Yellow Lady's-slipper*) **PSOC** Y

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

Potential Species of Concern - Native Species Global: **G5** State: **S3S4** USFS: **Sensitive - Known in Forests (KOOT, LOLO)**
Sensitive - Suspected in Forests (BRT) Species of Conservation Concern in Forests (CG, HLC)

Predicted Models: 41% Low (inductive)

B - Sage Thrasher (*Oreoscoptes montanus*) **SOC** S M

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

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

Predicted Models: 38% Low (inductive)

B - Brewer's Sparrow (*Spizella breweri*) **SOC** 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: 37% Low (inductive)

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

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

[Species of Concern - Native Species](#) Global: **G5** State: **S3** USFWS: **MBTA; BCC10** FWP SWAP: **SGCN3** PIF: **3**

Predicted Models: 36% Low (inductive)

V - Mimulus floribundus (*Floriferous Monkeyflower*) **SOC** Y

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

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

Predicted Models: 34% Low (inductive)

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

[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: 29% Low (inductive)

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

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

[Species of Concern - Native Species](#) Global: **G4** State: **S2B** USFWS: **MBTA; BCC10; BCC17** USFS: **Species of Conservation Concern in Forests (HLC)**
BLM: **SENSITIVE** FWP SWAP: **SGCN2** PIF: **2**

Predicted Models: 29% Low (inductive)

B - Franklin's Gull (*Leucophaeus pipixcan*) **SOC** S M

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

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

Predicted Models: 24% Low (inductive)

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

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

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

Predicted Models: 23% Low (inductive)

M - Preble's Shrew (*Sorex preblei*) **SOC** Not Assessed; Y

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

[Species of Concern - Native Species](#) Global: **G4** State: **S3** FWP SWAP: **SGCN3**

B - Ferruginous Hawk (*Buteo regalis*) **SOC** Not Assessed; S M

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

[Species of Concern - Native Species](#) Global: **G4** State: **S3B** USFWS: **MBTA; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**

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

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

[Species of Concern - Native Species](#) Global: **G1** State: **S1** USFWS: **LE; XN** BLM: **ENDANGERED** FWP SWAP: **SGCN1**

V - Senecio integerrimus var. scribneri (*Scribner's Ragwort*) **SOC** Not Assessed; Y

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

[Species of Concern - Native Species](#) Global: **G5T2T3** State: **S2S3** Plant Threat Score: **No Known Threats** CCVI: **Less Vulnerable**

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

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

[Species of Concern - Native Species](#) Global: **G3** State: **S2B** USFWS: **MBTA; BCC10; BCC11; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN2** PIF: **1**

B - Whooping Crane (*Grus americana*) **SOC** 7 Not Assessed

[View in Field Guide](#)

[Species of Concern - Native Species](#) Global: **G1** State: **S1M** USFWS: **LE; MBTA** BLM: **ENDANGERED** FWP SWAP: **SGCN1**

B - Hooded Merganser (<i>Lophodytes cucullatus</i>) PSOC	Global: G5 State: S4 USFWS: MBTA FWP SWAP: SGIN PIF: 2	Not Assessed	M
I - Argia vivida (<i>Vivid Dancer</i>) PSOC		Not Assessed	Y
View in Field Guide View Range Maps Potential Species of Concern - Native Species	Global: G5 State: S3S5		
I - Enallagma clausum (<i>Alkali Bluet</i>) PSOC		Not Assessed	Y
View in Field Guide View Range Maps Potential Species of Concern - Native Species	Global: G5 State: S2S4		
I - Gomphurus externus (<i>Plains Clubtail</i>) PSOC		Not Assessed	Y
View in Field Guide View Range Maps Potential Species of Concern - Native Species	Global: G5 State: S2S4		
I - Rhionaeschna californica (<i>California Darner</i>) PSOC		Not Assessed	Y
View in Field Guide View Range Maps Potential Species of Concern - Native Species	Global: G5 State: S3S5		
V - Bacopa rotundifolia (<i>Roundleaf Water-hyssop</i>) SOC		Not Assessed	Y
View in Field Guide View Range Maps Species of Concern - Native Species	Global: G5 State: S3? Plant Threat Score: No Known Threats CCVI: Moderately Vulnerable		
B - Common Tern (<i>Sterna hirundo</i>) SOC		Not Assessed	M
View in Field Guide View Range Maps Species of Concern - Native Species	Global: G5 State: S3B USFWS: MBTA BLM: SENSITIVE FWP SWAP: SGCN3 PIF: 2		
B - Piping Plover (<i>Charadrius melodus</i>) SOC		Not Assessed	M
View in Field Guide View Range Maps Species of Concern - Native Species	Global: G3 State: S2B USFWS: LT; CH; MBTA BLM: THREATENED FWP SWAP: SGCN2 PIF: 1		
M - Grizzly Bear (<i>Ursus arctos</i>) SOC		Not Assessed	H
View in Field Guide View Range Maps Species of Concern - Native Species	Global: G4 State: S2S3 USFWS: LT BLM: THREATENED FWP SWAP: SGCN2-3		
I - Polygonia progne (<i>Gray Comma</i>) SOC		Not Assessed	Y
View in Field Guide View Range Maps Species of Concern - Native Species	Global: G5 State: S2		
V - Rorippa calycina (<i>Persistent-sepal Yellow-cress</i>) SOC		Not Assessed	H
View in Field Guide View Range Maps Species of Concern - Native Species	Global: G3 State: SH Plant Threat Score: No Known Threats CCVI: Highly Vulnerable		
B - Chestnut-collared Longspur (<i>Calcarius ornatus</i>) SOC		Not Assessed	S M
View in Field Guide View Range Maps Species of Concern - Native Species	Global: G5 State: S2B USFWS: MBTA; BCC11; BCC17 BLM: SENSITIVE FWP SWAP: SGCN2 PIF: 2		
B - Thick-billed Longspur (<i>Rhynchophanes mccownii</i>) SOC		Not Assessed	S M
View in Field Guide View Range Maps Species of Concern - Native Species	Global: G4 State: S3B USFWS: MBTA; BCC10; BCC11; BCC17 BLM: SENSITIVE FWP SWAP: SGCN3 PIF: 2		
M - Bison (<i>Bos bison</i>) SOC		Not Assessed	H
View in Field Guide View Range Maps Species of Concern - Native Species	Global: G4 State: S2 FWP SWAP: SGCN2		
B - Sprague's Pipit (<i>Anthus spragueii</i>) SOC		7 Not Assessed	S M
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		
I - Enallagma civile (<i>Familial Bluet</i>) PSOC		Not Assessed	Y
View in Field Guide View Range Maps Potential Species of Concern - Native Species	Global: G5 State: S2S4		
I - Rhionaeschna multicolor (<i>Blue-eyed Darner</i>) PSOC		Not Assessed	Y
View in Field Guide View Range Maps Potential Species of Concern - Native Species	Global: G5 State: S2S4		
B - Caspian Tern (<i>Hydroprogne caspia</i>) SOC		Not Assessed	M
View in Field Guide View Range Maps Species of Concern - Native Species	Global: G5 State: S2B USFWS: MBTA BLM: SENSITIVE FWP SWAP: SGCN2 PIF: 2		
B - Forster's Tern (<i>Sterna forsteri</i>) SOC		Not Assessed	M
View in Field Guide View Range Maps Species of Concern - Native Species	Global: G5 State: S3B USFWS: MBTA BLM: SENSITIVE FWP SWAP: SGCN3 PIF: 2		
B - Horned Grebe (<i>Podiceps auritus</i>) SOC		Not Assessed	M
View in Field Guide View Range Maps Species of Concern - Native Species	Global: G5 State: S3B USFWS: MBTA BLM: SENSITIVE FWP SWAP: SGCN3 PIF: 2		
I - Aeshna constricta (<i>Lance-tipped Darner</i>) PSOC		Not Assessed	Y
View in Field Guide View Range Maps Potential Species of Concern - Native Species	Global: G5 State: S1S3		
I - Argia alberta (<i>Paiute Dancer</i>) PSOC		Not Assessed	Y
View in Field Guide View Range Maps Potential Species of Concern - Native Species	Global: G4 State: S2S3		

DocuSign Envelope ID: 5672720D-0539-4E50-8552-16309B7CB097		Not Assessed	Y
Potential Species of Concern - Native Species Global: G5 State: S2S3			
B - Clark's Grebe (<i>Aechmophorus clarkii</i>)	SOC	Not Assessed	M
View in Field Guide View Range Maps Species of Concern - Native Species Global: G5 State: S3B USFWS: MBTA; BCC10; BCC11 FWP SWAP: SGCN3 PIF: 3			
B - Common Loon (<i>Gavia immer</i>)	SOC	Not Assessed	M
View in Field Guide View Range Maps Species of Concern - Native Species Global: G5 State: S3B USFWS: MBTA USFS: Sensitive - Known in Forests (KOOT, LOLO) FWP SWAP: SGCN3 PIF: 1			
B - Trumpeter Swan (<i>Cygnus buccinator</i>)	SOC	Not Assessed	M
View in Field Guide View Range Maps Species of Concern - Native Species Global: G4 State: S3 USFWS: MBTA USFS: Sensitive - Known in Forests (BD) BLM: SENSITIVE FWP SWAP: SGCN3 PIF: 1			
V - Phlox andicola (<i>Plains Phlox</i>)	PSOC	Not Assessed	Y
View in Field Guide View Range Maps Potential Species of Concern - Native Species Global: G4 State: S3S4			
V - Physaria ludoviciana (<i>Silver Bladderpod</i>)	SOC	Not Assessed	Y
View in Field Guide View Range Maps Species of Concern - Native Species Global: G5 State: S2S3 Plant Threat Score: No Known Threats			
B - Northern Goshawk (<i>Accipiter gentilis</i>)	SOC	Not Assessed	Y WM
View in Field Guide View Range Maps Species of Concern - Native Species Global: G5 State: S3 USFWS: MBTA FWP SWAP: SGCN3 PIF: 2			
V - Eriogonum caespitosum (<i>Mat Buckwheat</i>)	SOC	Not Assessed	Y
View in Field Guide View Range Maps Species of Concern - Native Species Global: G5 State: S2S3 Plant Threat Score: No Known Threats			
V - Senecio eremophilus (<i>Desert Groundsel</i>)	SOC	Not Assessed	Y
View in Field Guide View Range Maps Species of Concern - Native Species Global: G5 State: S1S2 Plant Threat Score: No Known Threats			
B - Red Knot (<i>Calidris canutus</i>)	SSS	7	Not Assessed
View in Field Guide Special Status Species - Native Species Global: G4 State: SNA USFWS: LT; MBTA BLM: THREATENED			



Natural Heritage Program

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



Latitude Longitude
45.85577 -108.32057
45.90018 -108.38497

Structured Surveys

Summarized by: **002N027E034** (*Buffered PLSS Section*)

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

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

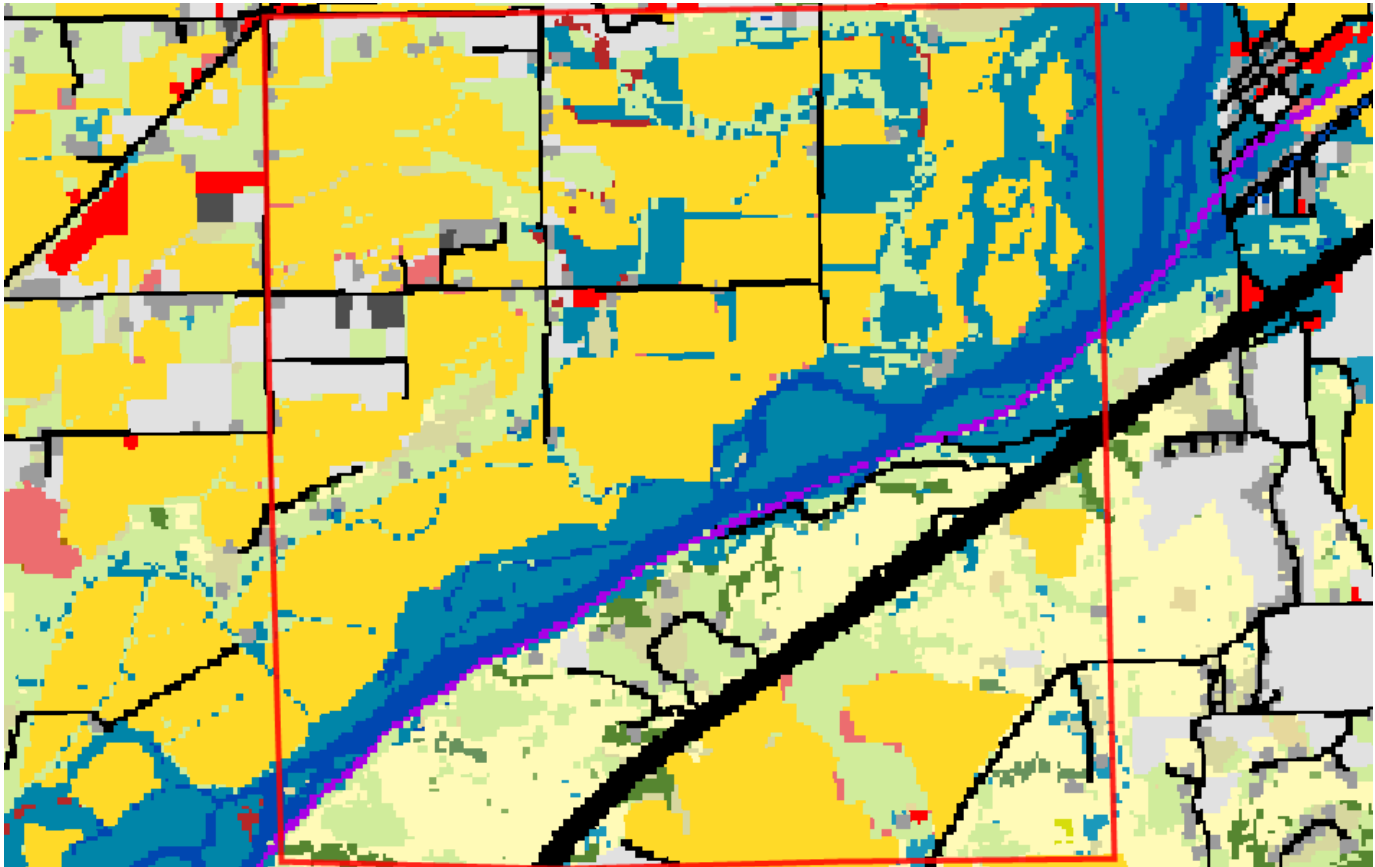
Within the report area you have requested, structured surveys are summarized by the number of each type of structured survey protocol that has been conducted, the number of species detections/observations resulting from these surveys, and the most recent year a survey has been conducted.

AR-Amphibian/Reptile Lentic (<i>Lentic Amphibian/Reptile Surveys</i>)	Survey Count: 10	Obs Count: 13	Recent Survey: 2013
B-Bald Eagle Nest (<i>Bald Eagle Nest Survey</i>)	Survey Count: 21	Obs Count: 15	Recent Survey: 2020
E-Bull Frog Surveillance (<i>American Bull Frog Audio/Visual Surveillance</i>)	Survey Count: 31	Obs Count: 19	Recent Survey: 2016
E-Noxious Weed, Road-based (<i>Noxious Weed Road-based Visual Surveys</i>)	Survey Count: 13	Obs Count: 14	Recent Survey: 2003
E-Visual Aquatic Invasives (<i>Visual Encounter Surveys for Aquatic Invasives on Shorelines or Underwater</i>)	Survey Count: 17	Obs Count:	Recent Survey: 2012
F-Fish Electrofishing (<i>Fish Electrofishing Surveys</i>)	Survey Count: 5	Obs Count: 66	Recent Survey: 2009
F-Fish Other Survey (<i>Fish Other Survey (FWP Survey Type)</i>)	Survey Count: 8	Obs Count: 18	Recent Survey: 2009
F-Fish Trapping/Netting (<i>Fish Trapping or Netting Surveys</i>)	Survey Count: 5	Obs Count: 48	Recent Survey: 2011
I-Odonates/Butterfly VES (<i>Visual Encounter Survey for Damselfly/Dragonfly/Butterfly</i>)	Survey Count: 2	Obs Count: 5	Recent Survey: 1994
M-Bat Mistnet (<i>Bat Mistnet Survey</i>)	Survey Count: 1	Obs Count: 4	Recent Survey: 2005
P-Algal scraping (<i>Algal Scraping</i>)	Survey Count: 2	Obs Count: 107	Recent Survey: 2012
R-Turtle Trapping (<i>Turtle Trapping Surveys</i>)	Survey Count: 6	Obs Count: 3	Recent Survey: 2019



Land Cover

Summarized by: **002N027E034** (Buffered PLSS Section)



Human Land Use Agriculture

Cultivated Crops

37% (2,206
Acres)

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.



Wetland and Riparian Systems Floodplain and Riparian

Great Plains Floodplain

15% (899
Acres)

This system occurs along the Missouri and Yellowstone Rivers and their larger tributaries, including parts of the Little Missouri, Clark'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 system'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.



13% (783 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 curisetata*) 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.



12% (727 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 cheatgrass is typically not as abundant as in the Intermountain West, possibly due to a colder climate. The natural fire regime of this ecological system maintains a patchy distribution of shrubs, preserving the steppe character. Shrubs may increase following heavy grazing and/or with fire suppression. In central and eastern Montana, complexes of prairie dog towns are common in this ecological system.



4% (259 Acres)

Wetland and Riparian Systems
Open Water**Open Water**

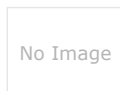
All areas of open water, generally with less than 25% cover of vegetation or soil



4% (218 Acres)

Human Land Use
Developed**Developed, Open Space**

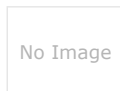
Vegetation (primarily grasses) planted in developed settings for recreation, erosion control, or aesthetic purposes. Impervious surfaces account for less than 20% of total cover. This category often includes highway and railway rights of way and graveled rural roads.



3% (188 Acres)

Human Land Use
Developed**Other Roads**

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



3% (151 Acres)

Human Land Use
Developed**Interstate**

National Highway System (NHS) limited access highways and their shoulders and rights of way.



2% (122 Acres)

Grassland Systems
Lowland/Prairie Grassland**Great Plains Sand Prairie**

The sand prairies constitute a very unique system within the western Great Plains. The unifying and controlling feature for this system is that coarse-textured soils predominate and the dominant grasses are well-adapted to this condition. In the northwestern portion of the system's range, stand size corresponds to the area of exposed caprock sandstone, and small patches predominate, but larger patches are found embedded in the encompassing Great Plains Mixed Grass Prairie, and usually occupy higher positions in local landscapes where former caprock formations have eroded into more subdued and planar topography. In most of eastern Montana, substrates supporting this system have weathered in place from sandstone caprock. Soils can be relatively thin or deep due to varying amounts of downslope movement of weathered sands. Needle and thread (*Hesperostipa comata*) is the dominant grass species. Other frequent species include little bluestem (*Schizachyrium scoparium*), often occurring with threadleaf sedge (*Carex filifolia*) and dominating both sandy sites and actively eroding sites. Prairie sandreed (*Calamovilfa longifolia*), sand bluestem (*Andropogon hallii*) and big bluestem (*Andropogon gerardii*) are sporadically distributed and found generally on the coarsest-textured sands. Other graminoids include bluebunch wheatgrass (*Pseudoroegneria spicata*), sun sedge (*Carex inops* ssp. *heliophila*), and purple threeawn (*Aristida purpurea*). Characteristic forbs differ by occurrence, but species of scurf pea (*Psoralidium* species) and Indian breadroot (*Pediomelum*) species are common. Communities of silver sage (*Artemisia cana* ssp. *cana*) or skunkbush sumac (*Rhus trilobata*) can occur within this system. Wind erosion, fire and grazing constitute the other major dynamic processes that can influence this system.




2% (97 Acres)

Human Land Use
Developed**Low Intensity Residential**

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

Additional Limited Land Cover1% (69 Acres) **Great Plains Ponderosa Pine Woodland and Savanna**

1% (49 Acres)  [Railroad](#)

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<1% (24 Acres)  [Introduced Upland Vegetation - Annual and Biennial Forbland](#)

<1% (21 Acres)  [Introduced Riparian and Wetland Vegetation](#)

<1% (17 Acres)  [Rocky Mountain Foothill Limber Pine - Juniper Woodland](#)

<1% (15 Acres)  [High Intensity Residential](#)

<1% (7 Acres)  [Great Plains Wooded Draw and Ravine](#)

<1% (6 Acres)  [Great Plains Badlands](#)

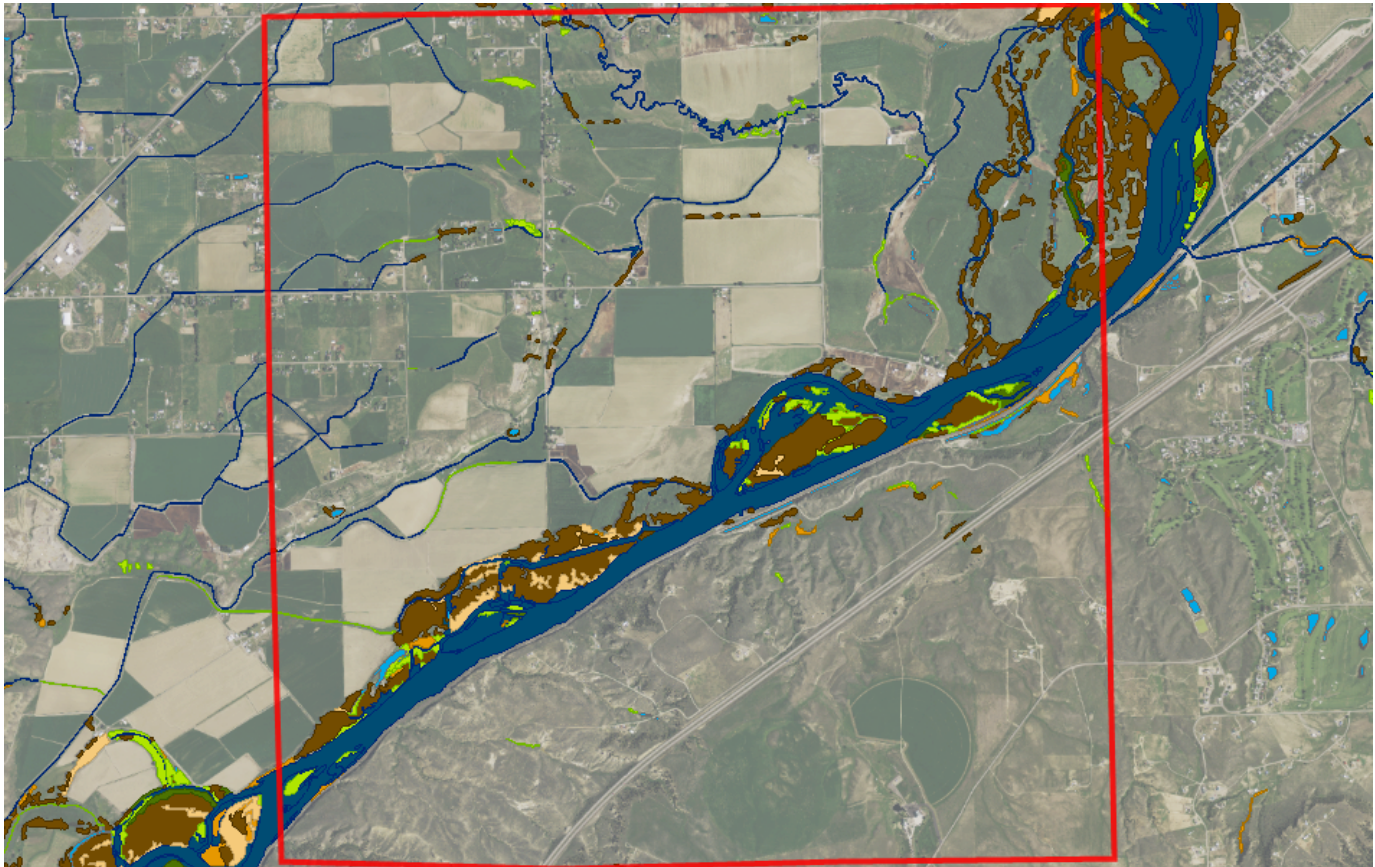
<1% (5 Acres)  [Commercial / Industrial](#)

<1% (2 Acres)  [Rocky Mountain Lower Montane-Foothill Shrubland](#)



Wetland and Riparian

Summarized by: **002N027E034** (Buffered PLSS Section)



Wetland and Riparian Mapping

[Explain](#)

P - Palustrine

AB - Aquatic Bed

F - Semipermanently Flooded	18 Acres
(no modifier)	7 Acres PABF
h - Diked/Impounded	4 Acres PABFh
x - Excavated	7 Acres PABFx

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

US - Unconsolidated Shore

A - Temporarily Flooded	1 Acres
(no modifier)	1 Acres PUSA
C - Seasonally Flooded	1 Acres
(no modifier)	1 Acres PUSC

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

EM - Emergent

A - Temporarily Flooded	37 Acres
(no modifier)	32 Acres PEMA
x - Excavated	5 Acres PEMAx
C - Seasonally Flooded	8 Acres
(no modifier)	7 Acres PEMC
h - Diked/Impounded	1 Acres PEMCh

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

SS - Scrub-Shrub

A - Temporarily Flooded	8 Acres
(no modifier)	8 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	23 Acres
(no modifier)	23 Acres R2UBF
H - Permanently Flooded	205 Acres
(no modifier)	205 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	78 Acres
(no modifier)	78 Acres R2USA
C - Seasonally Flooded	12 Acres
(no modifier)	12 Acres R2USC

R - Riverine (Rivers), 2 - Lower Perennial, US - ad 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	
A - Temporarily Flooded	1 Acres
x - Excavated	1 Acres R4SBAx
C - Seasonally Flooded	24 Acres
(no modifier)	6 Acres R4SBC
x - Excavated	18 Acres R4SBCx

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

Rp - Riparian

1 - Lotic

SS - Scrub-Shrub	
(no modifier)	12 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)	242 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)	22 Acres Rp1EM

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

2 - Lentic

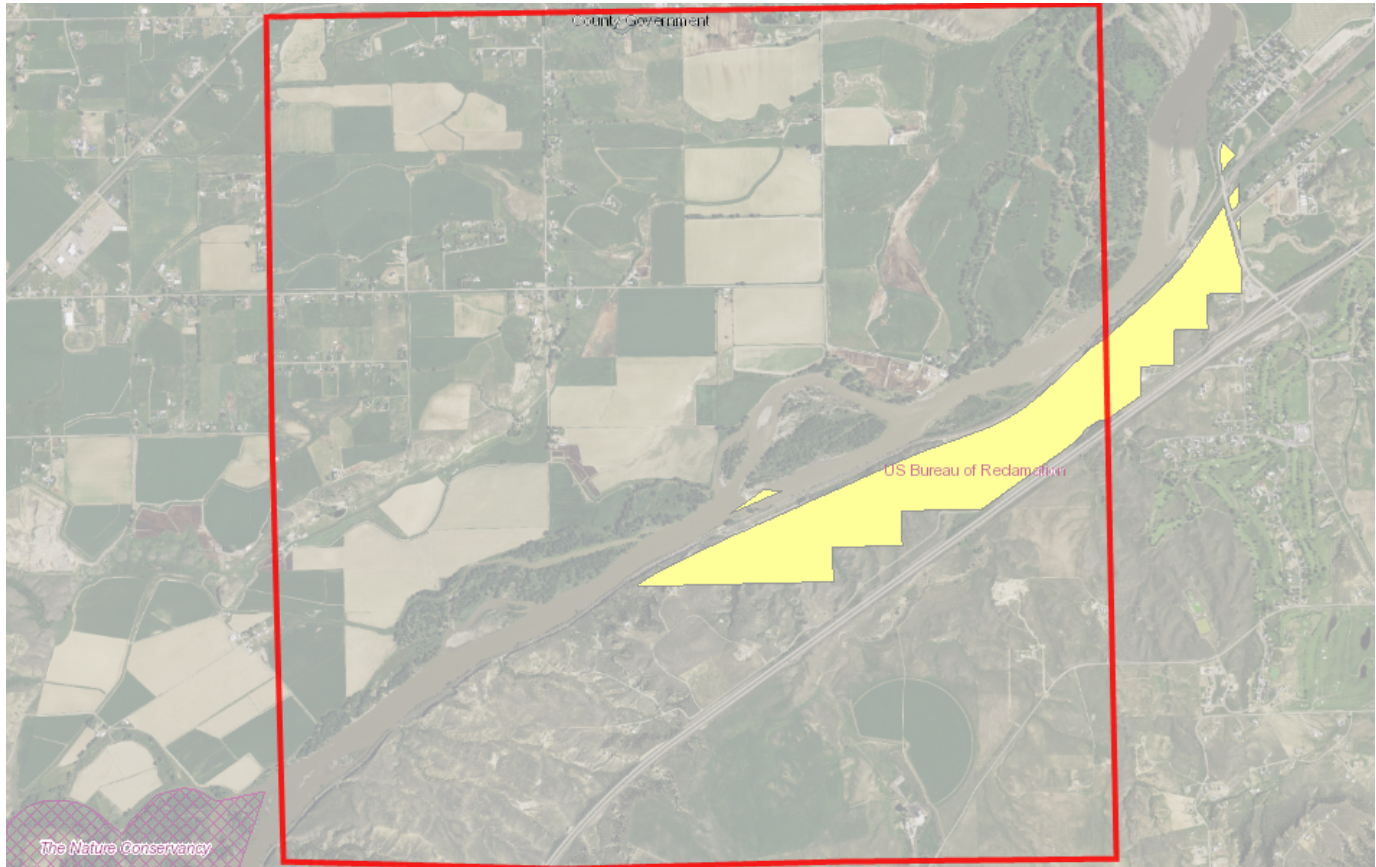
FO - Forested	
(no modifier)	1 Acres Rp2FO

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



Land Management

Summarized by: **002N027E034** (Buffered PLSS Section)



Land Management Summary		Explain		
	Ownership	Tribal	Easements	Other Boundaries (possible overlap)
Public Lands	245 Acres (4%)			
Federal	242 Acres (4%)			
US Bureau of Reclamation	242 Acres (4%)			
USBR Owned	242 Acres (4%)			
Local	3 Acres (<1%)			
Local Government	3 Acres (<1%)			
Local Government Owned	3 Acres (<1%)			
Private Lands or Unknown Ownership	5,651 Acres (96%)			




Biological Reports

Summarized by: **002N027E034** (*Buffered PLSS Section*)

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

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

- Rauscher, R.L. 2000. ***Amphibian and reptile survey on selected Montana Bureau of Reclamation impoundments***. Unpublished report, Montana Fish, Wildlife & Parks Non-game Program. 12 pp + maps, tables.
-  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.



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 45.85577
Longitude -108.32057
45.90018 -108.38497


Invasive and Pest Species


Summarized by: **002N027E034** (Buffered PLSS Section)

	# Obs	Predicted Model	Range
Aquatic Invasive Species			
<input type="checkbox"/> A - American Bullfrog (<i>Lithobates catesbeianus</i>) AIS	28		
View in Field Guide View Predicted Models View Range Maps Aquatic Invasive Species - Non-native Species Global: G5 State: SNA Predicted Models: 44% Optimal (inductive), 27% Moderate (inductive), 29% Low (inductive)			
<input type="checkbox"/> V - Myriophyllum spicatum (<i>Eurasian Water-milfoil</i>) N2A/AIS			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Aquatic Invasive Species - Non-native Species Global: GNR State: SNA Predicted Models: 62% Low (inductive)			
<input type="checkbox"/> V - Butomus umbellatus (<i>Flowering-rush</i>) 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: 56% Low (inductive)			
<input type="checkbox"/> V - Nymphaea odorata (<i>American Water-lily</i>) AIS			
View in Field Guide View Predicted Models View Range Maps Aquatic Invasive Species - Non-native Species Global: G5 State: SNA Predicted Models: 70% Suitable (introduced range) (deductive)			
<input type="checkbox"/> F - Common Carp (<i>Cyprinus carpio</i>) AIS	5		
View in Field Guide View Predicted Models View Range Maps Aquatic Invasive Species - Non-native Species Global: G5 State: SNA Predicted Models: 56% Suitable (introduced range) (deductive)			
Noxious Weeds: Priority 1A			
<input type="checkbox"/> V - Centaurea solstitialis (<i>Yellow Starthistle</i>) N1A			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1A - Non-native Species Global: GNR State: SNA Predicted Models: 51% Optimal (inductive), 44% Moderate (inductive), 5% Low (inductive)			
<input type="checkbox"/> V - Isatis tinctoria (<i>Dyer's Woad</i>) N1A			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1A - Non-native Species Global: GNR State: SNA Predicted Models: 2% Optimal (inductive), 63% Moderate (inductive), 35% Low (inductive)			
<input type="checkbox"/> V - Taeniatherum caput-medusae (<i>Medusahead</i>) N1A			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1A - Non-native Species Global: G4G5 State: SNA Predicted Models: 39% Low (inductive)			
Noxious Weeds: Priority 1B			
<input type="checkbox"/> V - Lythrum salicaria (<i>Purple Loosestrife</i>) N1B			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1B - Non-native Species Global: G5 State: SNA Predicted Models: 63% Optimal (inductive), 22% Moderate (inductive), 15% Low (inductive)			
<input type="checkbox"/> V - Polygonum cuspidatum (<i>Japanese Knotweed</i>) N1B			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1B - Non-native Species Global: GNRTNR State: SNA Predicted Models: 32% Moderate (inductive), 64% Low (inductive)			
<input type="checkbox"/> V - Polygonum x bohemicum (<i>Bohemian Knotweed</i>) N1B			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1B - Non-native Species Global: GNA State: SNA Predicted Models: 1% Moderate (inductive)			
<input type="checkbox"/> V - Echium vulgare (<i>Blueweed</i>) N1B			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1B - Non-native Species Global: GNR State: SNA Predicted Models: 100% Low (inductive)			
Noxious Weeds: Priority 2A			
<input type="checkbox"/> V - Rhamnus cathartica (<i>Common Buckthorn</i>) N2A			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Non-native Species Global: GNR State: SNA Predicted Models: 9% Optimal (inductive), 63% Moderate (inductive), 24% Low (inductive)			
<input type="checkbox"/> V - Ventenata dubia (<i>Ventenata</i>) N2A			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Non-native Species Global: GNR State: SNA Predicted Models: 1% Optimal (inductive), 75% Moderate (inductive), 24% Low (inductive)			




V - Hieracium praealtum (<i>Kingdevil Hawkweed</i>) N2A	Global: GNR State: SNA		
Noxious Weed: Priority 2A - Non-native Species Global: GNR State: SNA Predicted Models: 1% Optimal (inductive), 41% Moderate (inductive), 23% Low (inductive)			
V - Lepidium latifolium (<i>Perennial Pepperweed</i>) N2A			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Non-native Species Global: GNR State: SNA Predicted Models: 1% Moderate (inductive), 72% Low (inductive)			
V - Myriophyllum spicatum (<i>Eurasian Water-milfoil</i>) N2A/AIS			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Aquatic Invasive Species - Non-native Species Global: GNR State: SNA Predicted Models: 62% Low (inductive)			
V - Butomus umbellatus (<i>Flowering-rush</i>) 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: 56% Low (inductive)			
Noxious Weeds: Priority 2B			
V - Tamarix ramosissima (<i>Salt Cedar</i>) N2B		23	
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predicted Models: 44% Optimal (inductive), 21% Moderate (inductive), 35% Low (inductive)			
V - Convolvulus arvensis (<i>Field Bindweed</i>) N2B		9	
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predicted Models: 3% Optimal (inductive), 90% Moderate (inductive), 7% Low (inductive)			
V - Linaria dalmatica (<i>Dalmatian Toadflax</i>) N2B			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: G5 State: SNA Predicted Models: 1% Optimal (inductive), 93% Moderate (inductive), 6% Low (inductive)			
V - Lepidium draba (<i>Whitetop</i>) N2B			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predicted Models: 1% Optimal (inductive), 88% Moderate (inductive), 11% Low (inductive)			
V - Centaurea stoebe (<i>Spotted Knapweed</i>) N2B		22	
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predicted Models: 100% Moderate (inductive)			
V - Cirsium arvense (<i>Canada Thistle</i>) N2B		90	
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: G5 State: SNA Predicted Models: 94% Moderate (inductive), 6% Low (inductive)			
V - Cynoglossum officinale (<i>Common Hound's-tongue</i>) N2B			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predicted Models: 88% Moderate (inductive), 12% Low (inductive)			
V - Euphorbia virgata (<i>Leafy Spurge</i>) N2B		28	
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predicted Models: 88% Moderate (inductive), 12% Low (inductive)			
V - Acroptilon repens (<i>Russian Knapweed</i>) N2B		9	
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predicted Models: 73% Moderate (inductive), 27% Low (inductive)			
V - Tanacetum vulgare (<i>Common Tansy</i>) N2B			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predicted Models: 44% Moderate (inductive), 52% Low (inductive)			
V - Centaurea diffusa (<i>Diffuse Knapweed</i>) N2B			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predicted Models: 33% Moderate (inductive), 67% Low (inductive)			
V - Potentilla recta (<i>Sulphur Cinquefoil</i>) N2B			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predicted Models: 3% Moderate (inductive), 97% Low (inductive)			
V - Berteroa incana (<i>Hoary False-allyssum</i>) N2B			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predicted Models: 95% Low (inductive)			



V - Hypericum perforatum (*Common St. John's-wort*) **N2B**
Global: **GNR** State: **SNA**
Noxious Weed: Priority 2B - Non-native Species
Predicted Models:  72% 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:  66% Low (inductive)



V - Linaria vulgaris (*Yellow Toadflax*) **N2B**
[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**
Predicted Models:  26% 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:  9% Optimal (inductive),  45% Moderate (inductive),  46% Low (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:  11% Moderate (inductive),  68% Low (inductive)


Biocontrol Species


I - Oberea erythrocephala (*Red-headed Leafy Spurge Stem Borer*) **BIOCNTL**
[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Biocontrol Species - Non-native Species Global: **GNR** State: **SNA**
Predicted Models:  71% Moderate (inductive),  29% Low (inductive)

I - Aphthona lacertosa (*Brown-legged Leafy Spurge Flea Beetle*) **BIOCNTL**
[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Biocontrol Species - Non-native Species Global: **GNR** State: **SNA**
Predicted Models:  60% Moderate (inductive),  31% Low (inductive)

I - Mecinus janthiniformis (*Dalmatian Toadflax Stem-boring Weevil*) **BIOCNTL**
[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Biocontrol Species - Non-native Species Global: **GNR** State: **SNA**
Predicted Models:  55% Moderate (inductive),  45% Low (inductive)

I - Aphthona nigriscutis (*Black Dot Leafy Spurge Flea Beetle*) **BIOCNTL**
[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Biocontrol Species - Non-native Species Global: **GNR** State: **SNA**
Predicted Models:  73% Low (inductive)

I - Mecinus janthinus (*Yellow Toadflax Stem-boring Weevil*) **BIOCNTL**
[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Biocontrol Species - Non-native Species Global: **GNR** State: **SNA**
Predicted Models:  44% Low (inductive)

I - Cyphocleonus achates (*Knapweed Root Weevil*) **BIOCNTL**
[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Biocontrol Species - Non-native Species Global: **GNR** State: **SNA**
Predicted Models:  35% Low (inductive)

Introduction to Montana Natural Heritage Program



P.O. Box 201800 • 1515 East Sixth Avenue • Helena, MT 59620-1800 • fax 406.444.0266 • phone 406.444.5363 • mtnhp.org

INTRODUCTION

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

Data Use Terms and Conditions

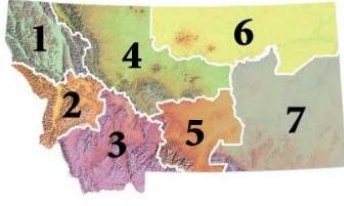
- Montana Natural Heritage Program (MTNHP) products and services are based on biological data and the objective interpretation of those data by professional scientists. MTNHP does not advocate any particular philosophy of natural resource protection, management, development, or public policy.
- MTNHP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

Suggested Contacts for Natural Resource Management Agencies

As required by Montana statute (MCA 90-15), the Montana Natural Heritage Program works with state, federal, tribal, nongovernmental organizations, and private partners to ensure that the latest animal and plant distribution and status information is incorporated into our databases so that it can be used to inform a variety of permitting and planning processes and management decisions. We encourage you to contact state, federal, and tribal resource management agencies in the area where your project is located and review the permitting overviews by the [Montana Department of Environmental Quality](#), the [Montana Department of Natural Resources and Conservation](#) and the [Index of Environmental Permits for Montana](#) for guidelines relevant to your efforts. In particular, we encourage you to contact the Montana Department of Fish, Wildlife, and Parks for the latest data and management information regarding hunted and high-profile management species and to use the U.S. Fish and Wildlife Service's [Information Planning and Consultation \(IPAC\) website](#) regarding U.S. Endangered Species Act listed Threatened, Endangered, or Candidate species.

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

Montana Fish, Wildlife, and Parks

Fish Species	Zachary Shattuck zshattuck@mt.gov (406) 444-1231 or Eric Roberts eroberts@mt.gov (406) 444-5334
American Bison Black-footed Ferret Black-tailed Prairie Dog Bald Eagle Golden Eagle Common Loon Least Tern Piping Plover Whooping Crane	Kristian Smucker KSmucker@mt.gov (406) 444-5209
Grizzly Bear Greater Sage Grouse Trumpeter Swan Big Game Upland Game Birds Furbearers	Brian Wakeling Brian.Wakeling@mt.gov (406) 444-3940
Managed Terrestrial Game 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/cadd/conservation-districts/the-310-law>

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

Bureau of Land Management

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

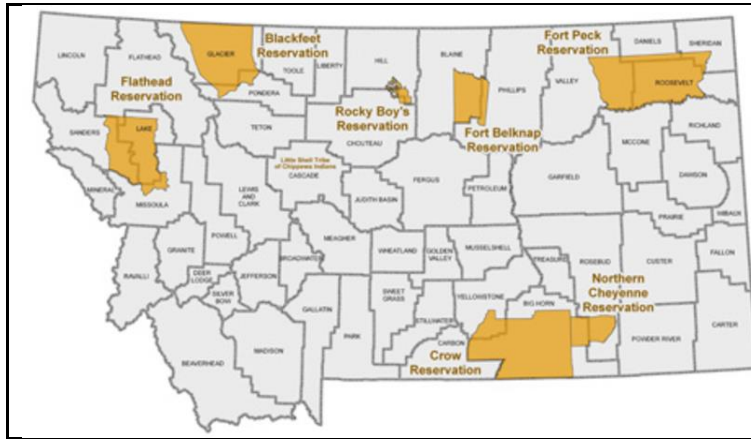
Information Planning and Conservation (IPAC) website: <https://ecos.fws.gov/ipac/>

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

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](#)

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.

Species Occurrences

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

Plant Species Occurrences

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

Animal Species Occurrences

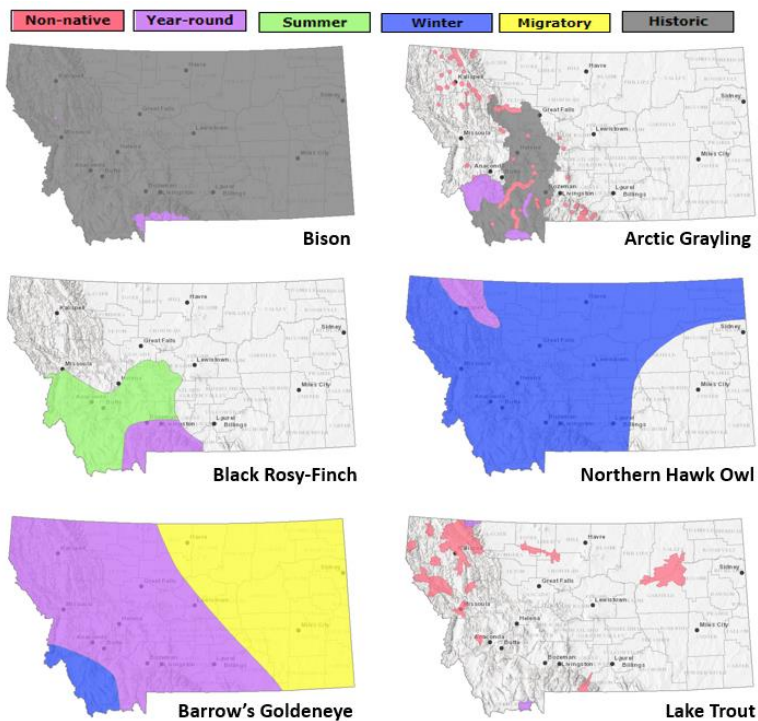
The location of a verified observation or specimen record typically known or assumed to represent a breeding population or a portion of a breeding population. Animal SO's are generally: (1) buffers of terrestrial point observations based on documented species' home range sizes; (2) buffers of stream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

Other Occurrence Polygons

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

Geographic Range Polygons

Geographic range polygons are still under development for most plant and invertebrate species. Native year-round, summer, winter, migratory and historic geographic range polygons as well as polygons for introduced



populations have been defined for most vertebrate animal species for which there are enough observations, surveys, and knowledge of appropriate seasonal habitat use to define them (see examples to left). These native or introduced range polygons bound the extent of known or likely occupied habitats for non-migratory and relative sedentary species and the regular extent of known or likely occupied habitats for migratory and long-distance dispersing species; polygons may include unsuitable intervening habitats. For most species, a single polygon can represent the year-round or seasonal range, but breeding ranges of some colonial nesting water birds and some introduced species are represented more patchily when supported by data. Some ranges are mapped more broadly than actual distributions in order to be visible on statewide maps (e.g., fish).

Predicted Suitable Habitat Models

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

Associated Habitats

Within the boundary of the intersected hexagons, we provide the approximate percentage of commonly or occasionally associated habitat for vertebrate animal species that regularly breed, overwinter, or migrate through the state; a detailed list of commonly and occasionally associated habitats is provided in individual species accounts in the [Montana Field Guide](#). We assigned common or occasional use of each of the ecological

systems mapped in Montana by: (1) using personal knowledge and reviewing literature that summarizes the breeding, overwintering, or migratory habitat requirements of each species; (2) evaluating structural characteristics and distribution of each ecological system relative to the species' range and habitat requirements; (3) examining the observation records for each species in the state-wide point observation database associated with each ecological system; and (4) calculating the percentage of observations associated with each ecological system relative to the percent of Montana covered by each ecological system to get a measure of numbers of observations versus availability of habitat. Species that breed in Montana were only evaluated for breeding habitat use, species that only overwinter in Montana were only evaluated for overwintering habitat use, and species that only migrate through Montana were only evaluated for migratory habitat use. In general, species were listed as associated with an ecological system if structural characteristics of used habitat documented in the literature were present in the ecological system or large numbers of point observations were associated with the ecological system. However, species were not listed as associated with an ecological system if there was no support in the literature for use of structural characteristics in an ecological system, even if point observations were associated with that system. Common versus occasional association with an ecological system was assigned based on the degree to which the structural characteristics of an ecological system matched the preferred structural habitat characteristics for each species as represented in the scientific literature. The percentage of observations associated with each ecological system relative to the percent of Montana covered by each ecological system was also used to guide assignment of common versus occasional association.

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

Introduction to Land Cover

Land Use/Land Cover is one of 15 [Montana Spatial Data Infrastructure](#) framework layers considered vital for making statewide maps of Montana and understanding its geography. The layer records all Montana natural vegetation, land cover and land use, classified from satellite and aerial imagery, mapped at a scale of 1:100,000, and interpreted with supporting ground-level data. The baseline map is adapted from the Northwest ReGAP (NWGAP) project land cover classification, which used 30m resolution multi-spectral Landsat imagery acquired between 1999 and 2001. Vegetation classes were drawn from the Ecological System Classification developed by NatureServe (Comer et al. 2003). The land cover classes were developed by Anderson et al. (1976). The NWGAP effort encompasses 12 map zones. Montana overlaps seven of these zones. The two NWGAP teams responsible for the initial land cover mapping effort in Montana were Sanborn and NWGAP at the University of Idaho. Both Sanborn and NWGAP employed a similar modeling approach in which Classification and Regression Tree (CART) models were applied to Landsat ETM+ scenes. The Spatial Analysis Lab within the Montana Natural Heritage Program was responsible for developing a seamless Montana land cover map with a consistent statewide legend from these two separate products. Additionally, the Montana land cover layer incorporates several other land cover and land use products (e.g., MSDI Structures and Transportation themes and the Montana Department of Revenue Final Land Unit classification) and reclassifications based on plot-level data and the latest NAIP imagery to improve accuracy and enhance the usability of the theme. Updates are done as partner support and funding allow, or when other MSDI datasets can be incorporated. Recent updates include fire perimeters and agricultural land use (annually), energy developments such as wind, oil and gas installations (2014), roads, structures and other impervious surfaces (various years): and local updates/improvements to specific ecological systems (e.g., central Montana grassland and sagebrush ecosystems). Current and previous versions of the Land Use/Land Cover layer with full metadata are available for download at the Montana State Library's [Geographic Information Clearinghouse](#)

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

Literature Cited

- Anderson, J.R. E.E. Hardy, J.T. Roach, and R.E. Witmer. 1976. A land use and land cover classification system for use with remote sensor data. U.S. Geological Survey Professional Paper 964.
- Comer, P., D. Faber-Langendoen, R. Evans, S. Gawler, C. Josse, G. Kittel, S. Menard, M. Pyne, M. Reid, K. Schulz, K. Snow, and J. Teague. 2003. Ecological systems of the United States: A working classification of U.S. terrestrial systems. NatureServe, Arlington, VA.

Introduction to Wetland and Riparian

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

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.

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

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](#)

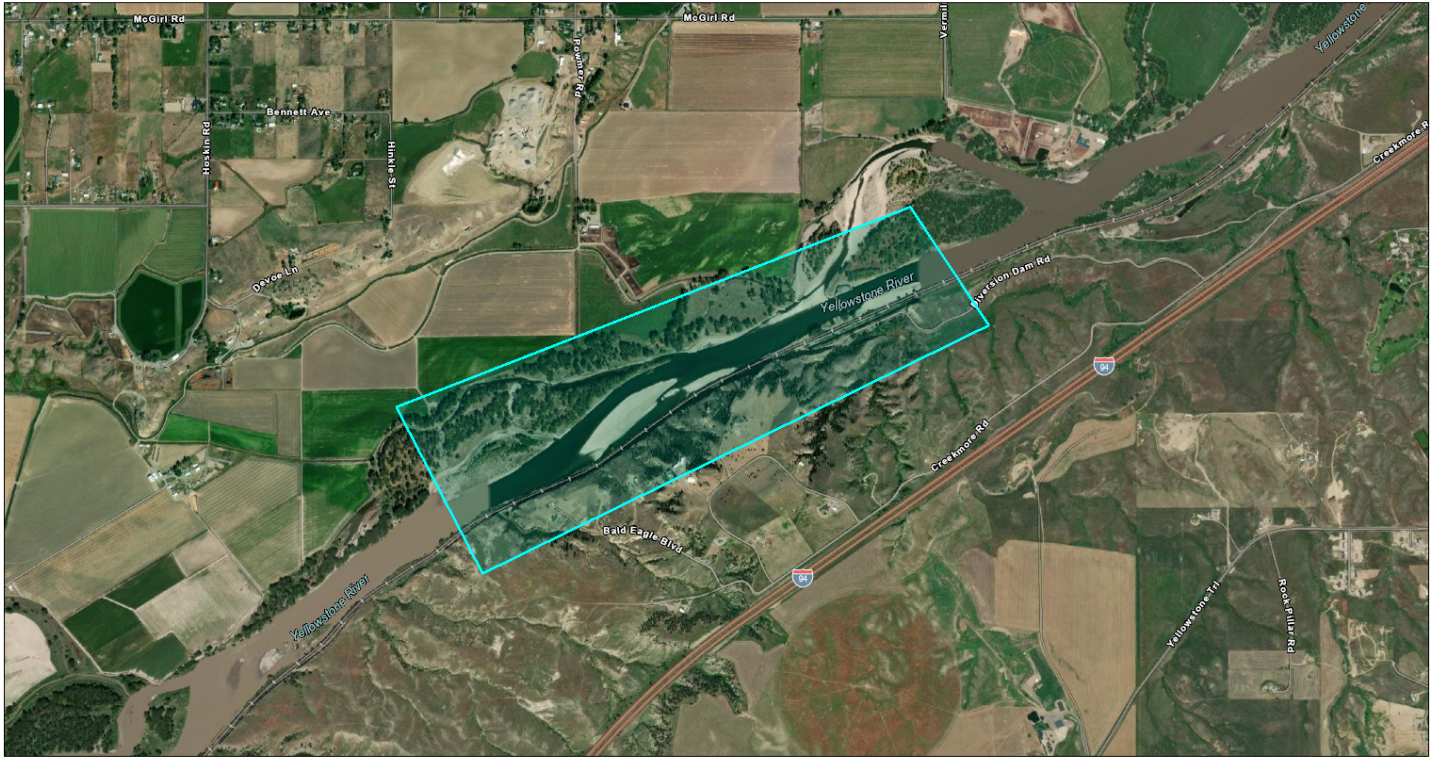
[National Environmental Policy Act](#)

[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](#)

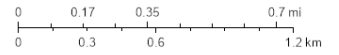
NEPAssist Report



May 26, 2023

Project 1

1:22,274



Montana State Library, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, Maxar

Input Coordinates: 45.870576,-108.373463,45.878404,-108.344581,45.873773,-108.340161,45.864061,-108.368613,45.870576,-108.373463

Project Area	0.67 sq mi
Within an Ozone 8-hr (1997 standard) Non-Attainment/Maintenance Area?	no
Within an Ozone 8-hr (2008 standard) Non-Attainment/Maintenance Area?	no
Within a Lead (2008 standard) Non-Attainment/Maintenance Area?	no
Within a SO2 1-hr (2010 standard) Non-Attainment/Maintenance Area?	no
Within a PM2.5 24hr (2006 standard) Non-Attainment/Maintenance Area?	no
Within a PM2.5 Annual (1997 standard) Non-Attainment/Maintenance Area?	no
Within a PM2.5 Annual (2012 standard) Non-Attainment/Maintenance Area?	no
Within a PM10 (1987 standard) Non-Attainment/Maintenance Area?	no
Within a Federal Land?	yes
Within an impaired stream?	yes
Within an impaired waterbody?	no
Within a waterbody?	yes
Within a stream?	yes
Within an NWI wetland?	Available Online
Within a Brownfields site?	no
Within a Superfund site?	no
Within a Toxic Release Inventory (TRI) site?	no
Within a water discharger (NPDES)?	yes
Within a hazardous waste (RCRA) facility?	no
Within an air emission facility?	no

Within a school?	no
Within an airport?	no
Within a hospital?	no
Within a designated sole source aquifer?	no
Within a historic property on the National Register of Historic Places?	no
Within a Toxic Substances Control Act (TSCA) site?	no
Within a Land Cession Boundary?	yes
Within a tribal area (lower 48 states)?	no
Within the service area of a mitigation or conservation bank?	yes
Within the service area of an In-Lieu-Fee Program?	yes
Within a Public Property Boundary of the Formerly Used Defense Sites?	no
Within a Munitions Response Site?	no
Within an Essential Fish Habitat (EFH)?	no
Within a Habitat Area of Particular Concern (HAPC)?	no
Within an EFH Area Protected from Fishing (EFHA)?	no
Within a Bureau of Land Management Area of Critical Environmental Concern?	no
Within an ESA-designated Critical Habitat Area per U.S. Fish & Wildlife Service?	no
Within an ESA-designated Critical Habitat river, stream or water feature per U.S. Fish & Wildlife Service?	no

Created on: 5/26/2023 2:19:36 PM

5370 Creekmore Rd huntley

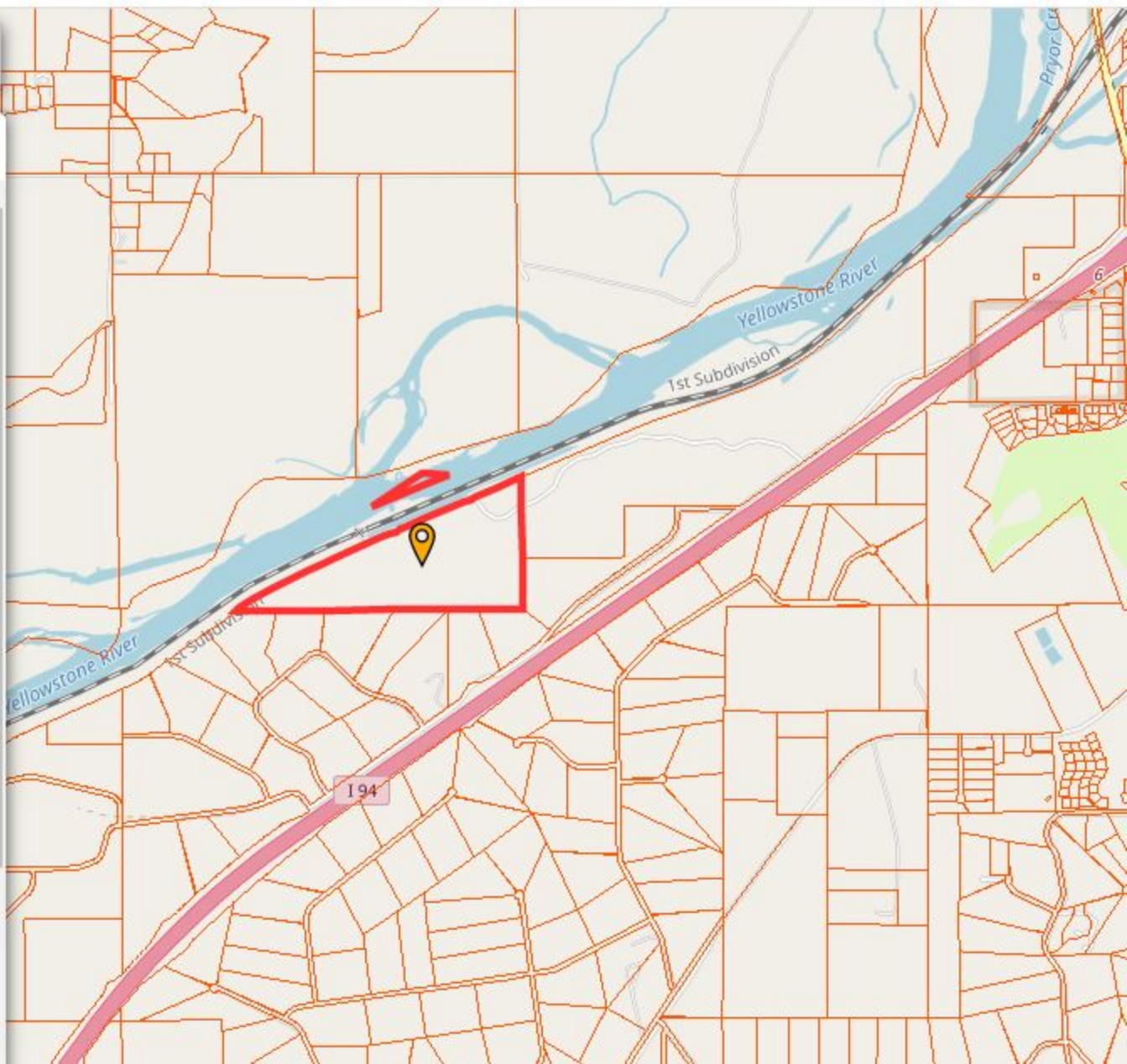
03-1134-34-4-03-01-0000

General Information

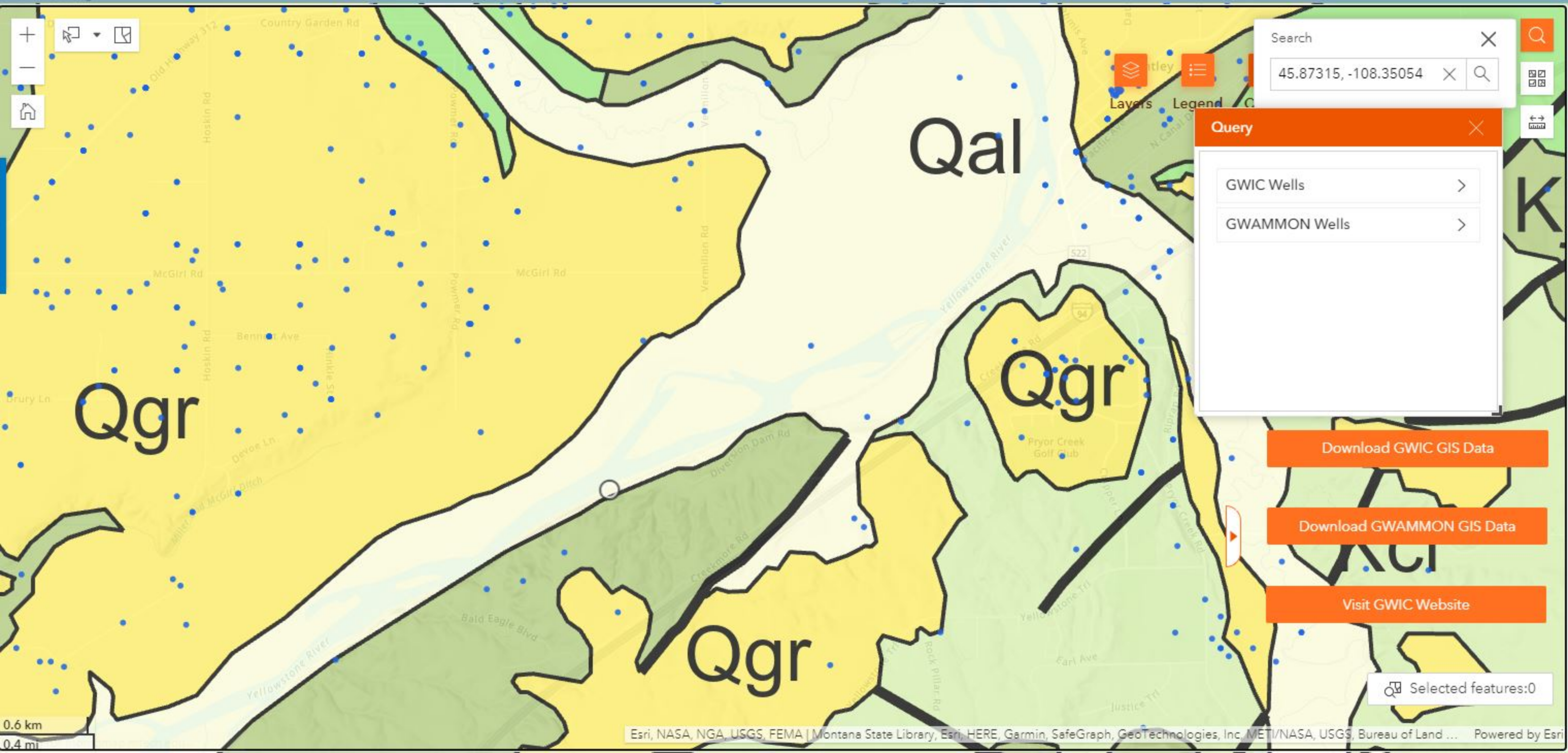
Property Number	03-1134-34-4-03-01-0000
Assessment Code	000X004560
County	Yellowstone
Levy District	03-0982
Neighborhood	203.002
Situs Address	
Legal Description	S34, T02 N, R27 E, LTS 11-13 77.70 AC (03)
Owner Name	USDI-BUREAU OF RECLAMATION
Property Last Updated	9/20/2022

Value History

Year	Market Value	Taxable Value
2020	\$2,054	\$0
2021	\$2,208	\$0
2022	\$2,208	\$0



Land Classification	Acres	Production Rate (tons/ac or bushels/ac)	Unit Price/Ton or Bushel	Total Value
Alternative 1 - No Action				
Sugar Beets	0	32	\$40.00	\$0.00
Malt Barley	0	85	\$4.40	\$0.00
Corn	0	23	\$4.20	\$0.00
Alfalfa	0	2	\$145.00	\$0.00
Wheat	0	52	\$4.65	\$0.00
Pasture/Native Grasses	30,000	1	\$0.00	\$0.00
Total Value				\$0
Alternative 2, 3 & 4 - Rip Rap & Weir Repair, New Diversion & Intake, and Pump Station				
Sugar Beets	6,000	32	\$40.00	\$7,680,000.00
Malt Barley	6,000	85	\$4.40	\$2,244,000.00
Corn	4,500	23	\$4.20	\$434,700.00
Alfalfa	7,500	2	\$145.00	\$2,175,000.00
Wheat	3,000	52	\$4.65	\$725,400.00
Pasture/Native Grasses	3,000	1	\$3.00	\$9,000.00
Total Value				\$13,268,100
Diff. from Alt. 1				\$13,268,100
50-Year Present Value (Equal Payment) (P/A,i.N = 15.762)				\$209,131,792



Search
 45.87315, -108.35054

Query

- GWIC Wells >
- GWAMMON Wells >

Download GWIC GIS Data

Download GWAMMON GIS Data

Visit GWIC Website

Selected features:0

0.6 km
0.4 mi

Use this map to view and explore types of sage grouse habitat designated as core (dark green), general (light green), connectivity (light blue), habitats of BLM priority areas (yellow) 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.





Territories Languages Treaties

Search your address, or toggle switches above to add shapes. Click around! [Think critically about this map.](#)

Huntley, Montana, United States

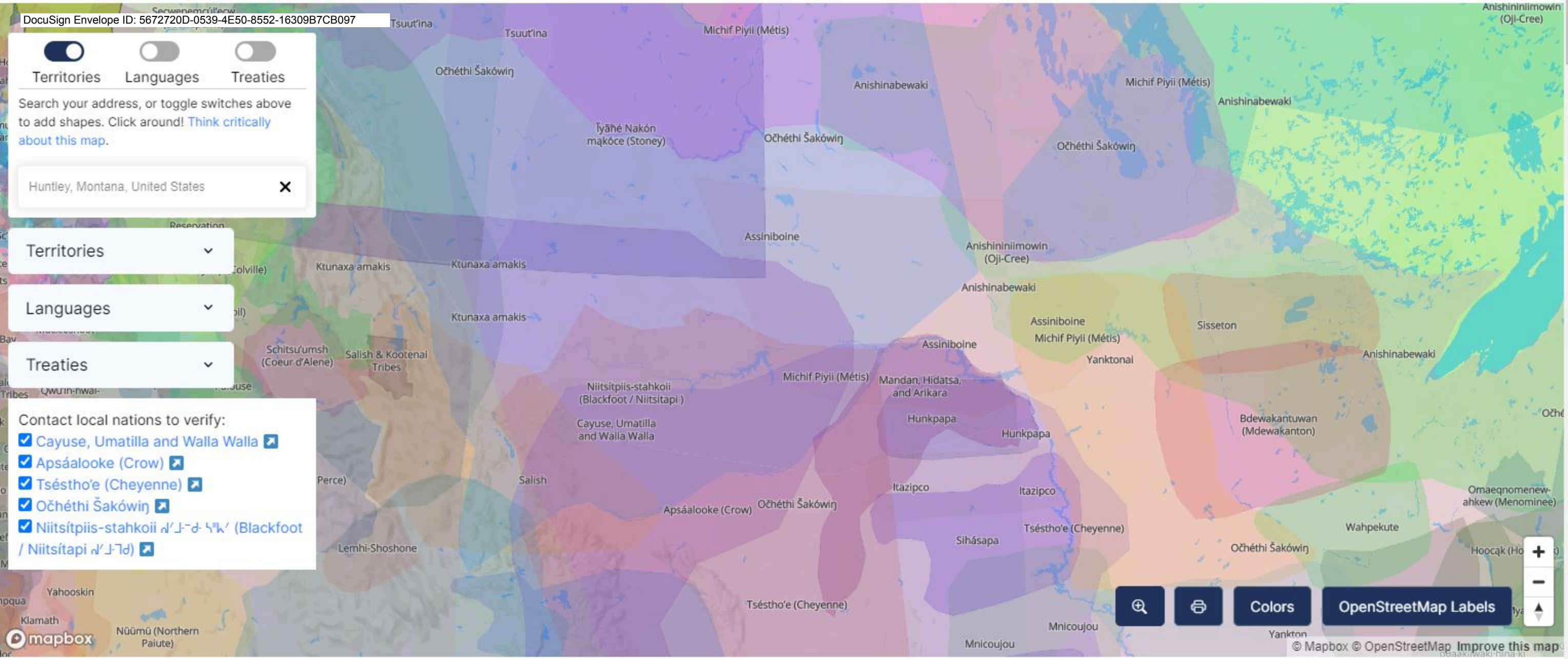
Territories

Languages

Treaties

Contact local nations to verify:

- Cayuse, Umatilla and Walla Walla
- Apsáalooke (Crow)
- Tsésthó'e (Cheyenne)
- Očhéthi Šakówiŋ
- Niitsítapiis-stahkoił / Niitsítapi



Map navigation and controls:

- Search icon
- Print icon
- Colors button
- OpenStreetMap Labels button
- Mapbox logo
- Mapbox © OpenStreetMap Improve this map

Outdoor Recreation Satellite Account (ORSA)

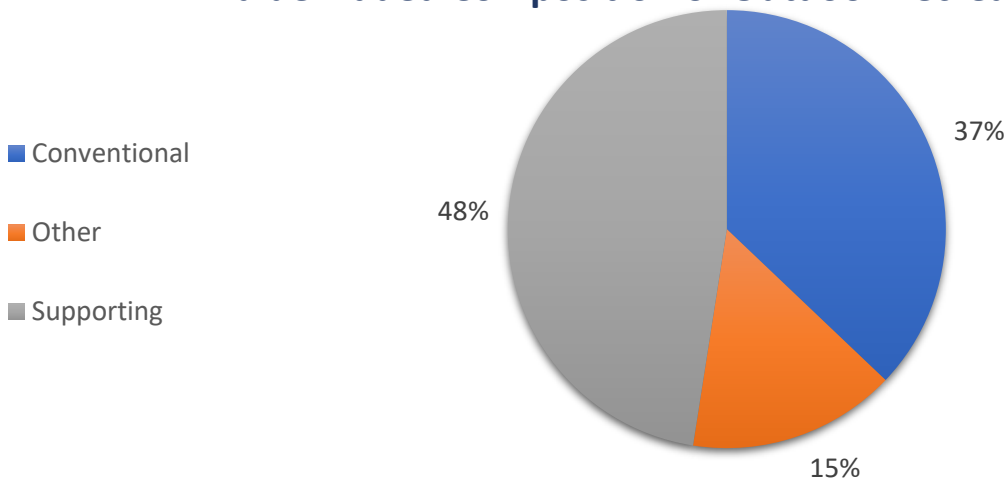


2021—Montana

Value added [gross domestic product]		Employment		Compensation	
ORSA total	Share of state	ORSA total	Share of state	ORSA total	Share of state
\$2.6 billion	4.4%	27,584 jobs	5.4%	\$1.2 billion	3.6%

Value Added by Select ORSA Activity [Thousands of dollars]				
Activity	2019	2020	2021	State rank
Boating/Fishing	158,909	182,674	163,099	38
RVing	121,687	140,128	160,381	35
Hunting/Shooting/Trapping	65,512	72,513	85,062	37
Equestrian	61,986	51,369	58,410	37
Snow Activities	64,634	54,781	54,694	19
Motorcycling/ATVing	28,450	31,726	37,906	40
Climbing/Hiking/Tent Camping	26,772	29,000	35,018	36
Bicycling	6,995	8,414	9,648	41
Recreational Flying	4,812	3,473	4,342	40

Value-Added Composition of Outdoor Recreation Activities



Conventional ORSA activities include traditional outdoor activities, such as camping, hiking, boating, and hunting.

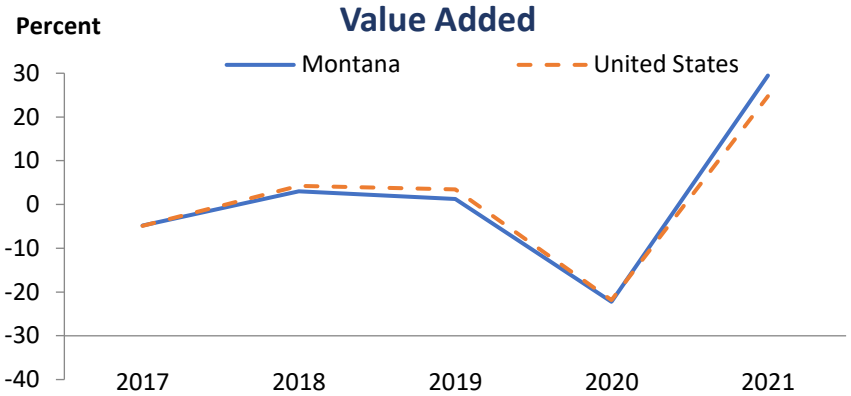
Other ORSA activities include those that take place outside, such as gardening and outdoor concerts.

Supporting ORSA activities are those that contribute to the core activities and include such things as construction, travel and tourism, local trips, and government expenditures.

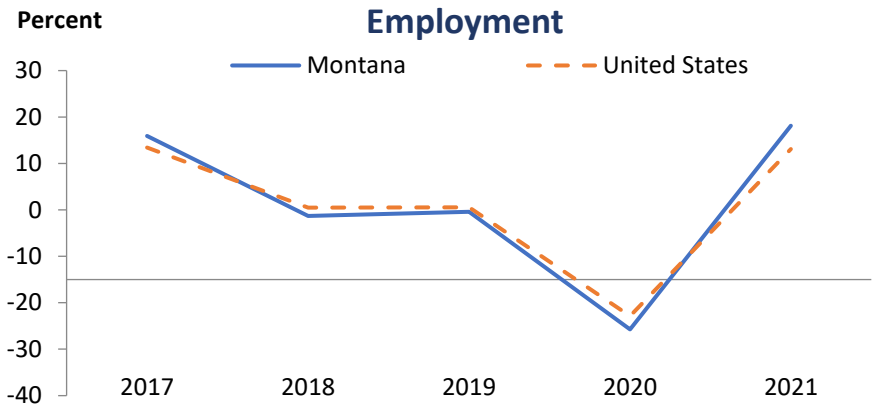
Outdoor Recreation Satellite Account (ORSA)



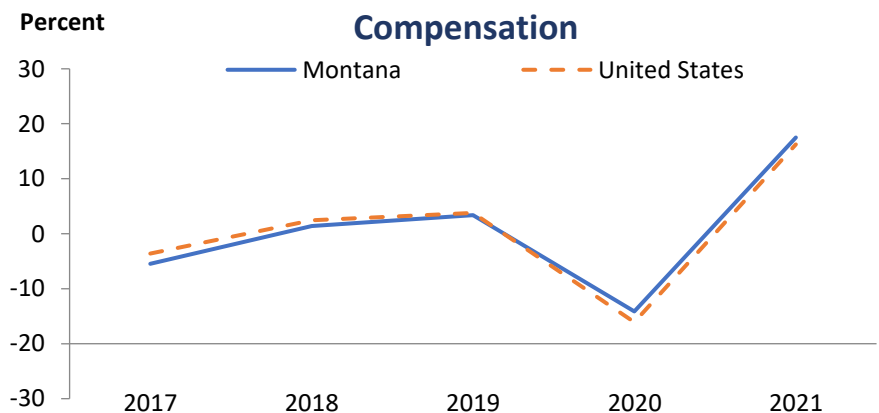
In 2021, Montana ranked 41st among all states in ORSA value added and 5th among all states in ORSA value-added growth. Since 2020, ORSA value added has grown 29.5 percent in Montana, compared with an increase of 24.7 percent for the United States.



In 2021, Montana ranked 41st among all states in ORSA employment and 6th among all states in ORSA employment growth. Since 2020, ORSA employment has grown 18.1 percent in Montana, compared with an increase of 13.1 percent for the United States.



In 2021, Montana ranked 42nd among all states in ORSA compensation and 15th among all states in ORSA compensation growth. Since 2020, ORSA compensation has grown 17.5 percent in Montana, compared with an increase of 16.2 percent for the United States. Average compensation per wage-and-salary job in Montana ORSA industries was \$42,524 in 2021, compared with \$63,767 for all salaried jobs in the state.

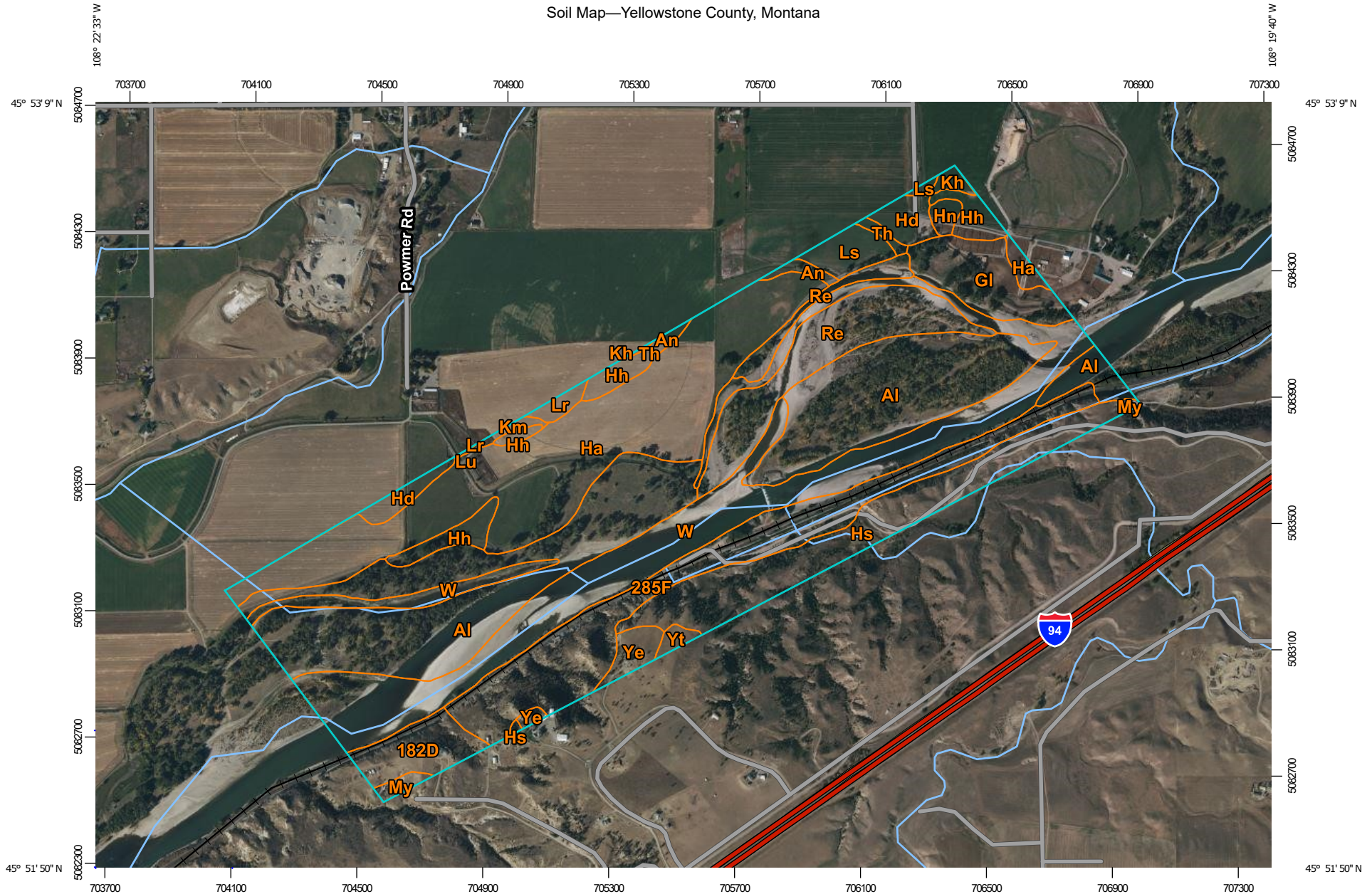


ORSA value added consists of the gross output of an industry less its intermediate inputs; the contribution of an industry to gross domestic product.

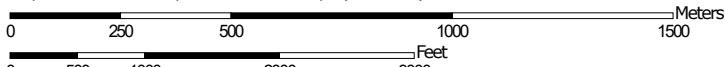
ORSA employment consists of all wage-and-salary jobs in which workers are engaged in the production of ORSA goods and services.

ORSA compensation consists of the remuneration (including wages and salaries as well as benefits, such as employer contributions to pension and health funds) payable to employees in return for their ORSA work during a given year.

Soil Map—Yellowstone County, Montana



Map Scale: 1:17,100 if printed on A landscape (11" x 8.5") sheet.




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



Soil Map—Yellowstone County, Montana

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)




















Soils







 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features






-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

Water Features

 Streams and Canals

Transportation

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

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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

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

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

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

Soil Survey Area: Yellowstone County, Montana
 Survey Area Data: Version 20, Aug 26, 2022

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

Date(s) aerial images were photographed: Jun 22, 2021—Oct 4, 2021

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

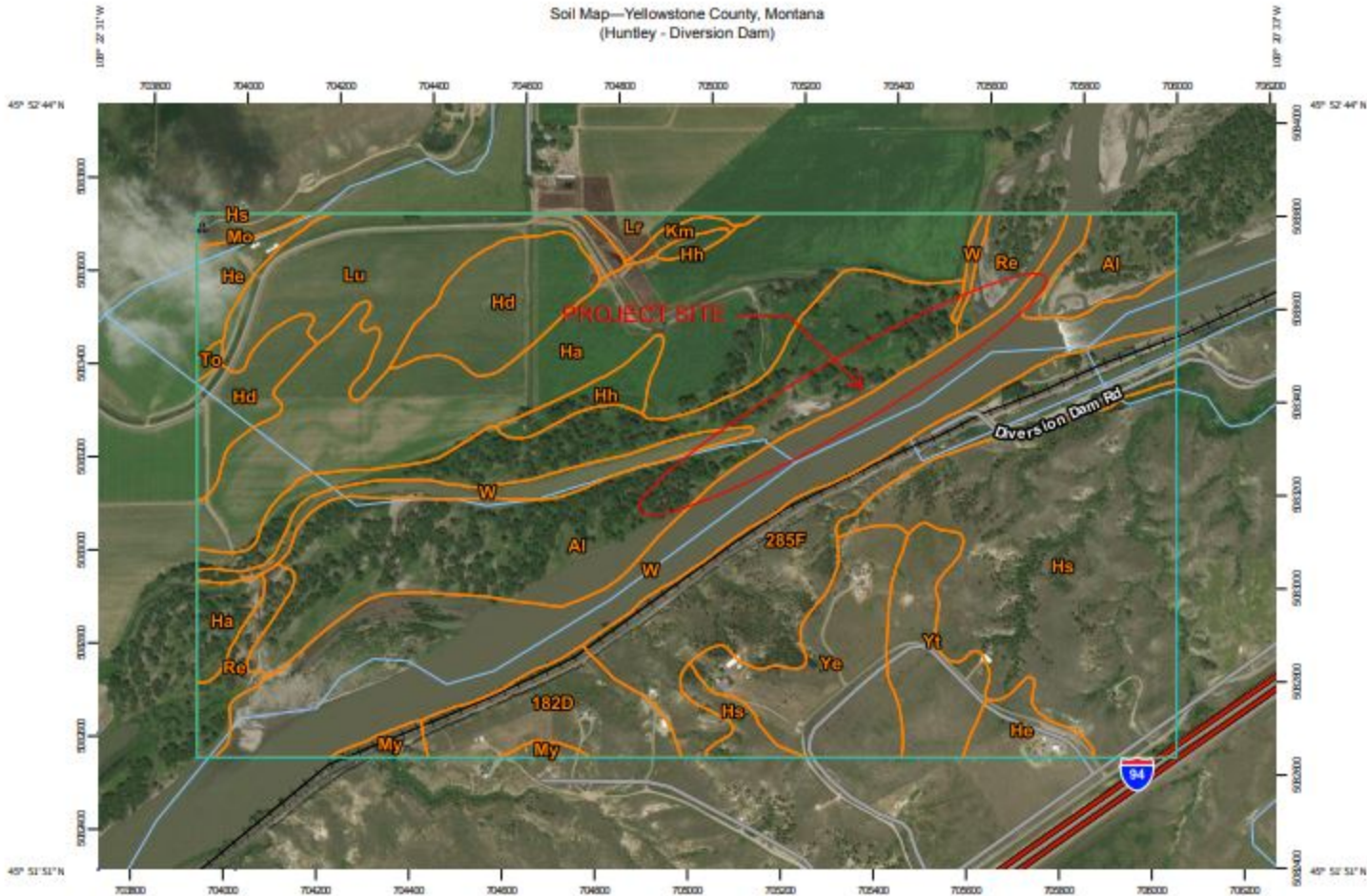
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
182D	Cabbart-Delpoint loams, 4 to 15 percent slopes	13.8	2.3%
285F	Blacksheep, dry-Cabbart, dry-Rock outcrop, complex, 8 to 60 percent slopes	60.5	10.2%
Al	Alluvial land, mixed	146.9	24.7%
An	Alluvial land, wet	3.0	0.5%
Gl	Glenberg loam, 0 to 1 percent slopes	20.0	3.4%
Ha	Haverson loam, 0 to 1 percent slopes	105.6	17.7%
Hd	Haverson silty clay loam, 0 to 1 percent slopes	9.6	1.6%
Hh	Haverson-Hysham loams, 0 to 1 percent slopes	15.5	2.6%
Hn	Haverson loam, gravelly variant, 0 to 1 percent slopes	2.2	0.4%
Hs	Hilly, gravelly land	46.9	7.9%
Kh	Keiser and Hesper silty clay loams, 0 to 1 percent slopes	1.8	0.3%
Km	Kyle silty clay, 1 to 4 percent slopes	1.4	0.2%
Lr	Lohmiller silty clay, 0 to 1 percent slopes	2.5	0.4%
Ls	Lohmiller soils, seeped, 0 to 2 percent slopes	8.0	1.3%
Lu	Lohmiller-Hysham silty clay loams, 0 to 1 percent slopes	0.2	0.0%
My	Midway-Shale outcrop complex, 4 to 35 percent slopes	2.3	0.4%
Re	Riverwash	41.0	6.9%
Th	Toluca clay loam, 1 to 4 percent slopes	1.3	0.2%
W	Water	105.0	17.6%
Ye	Yegen sandy loam, 4 to 10 percent slopes	5.9	1.0%
Yt	Yegen and Toluca soils, 7 to 15 percent slopes	1.8	0.3%
Totals for Area of Interest		595.0	100.0%

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
182D	Cabbart-Delpoint loams, 4 to 15 percent slopes	19.5	3.2%
285F	Blacksheep, dry-Cabbart, dry-Rock outcrop, complex, 8 to 60 percent slopes	52.8	8.6%
Al	Alluvial land, mixed	106.6	17.4%
Ha	Haverson loam, 0 to 1 percent slopes	94.4	15.4%
Hd	Haverson silty clay loam, 0 to 1 percent slopes	29.5	4.8%
He	Haverson silty clay loam, 1 to 3 percent slopes	13.3	2.2%
Hh	Haverson-Hysham loams, 0 to 1 percent slopes	6.7	1.1%
Hs	Hilly, gravelly land	89.0	14.6%
Km	Kyle silty clay, 1 to 4 percent slopes	1.7	0.3%
Lr	Lohmiller silty clay, 0 to 1 percent slopes	3.4	0.6%
Lu	Lohmiller-Hysham silty clay loams, 0 to 1 percent slopes	32.7	5.4%
Mo	McRae loam, 4 to 7 percent slopes	2.6	0.4%
My	MLRA 58A Midway-Shale outcrop complex, 4 to 35 percent slopes	3.4	0.5%
Re	Riverwash	14.4	2.3%
To	Toluca and Wanetta clay loams, 2 to 4 percent slopes	0.7	0.1%
W	Water	95.5	15.6%
Ye	Yegen sandy loam, 4 to 10 percent slopes	28.2	4.6%
Yl	Yegen and Toluca soils, 7 to 15 percent slopes	17.1	2.8%
Totals for Area of Interest		611.4	100.0%

Soil Map—Yellowstone County, Montana
(Huntley - Diversion Dam)



Map Scale: 1:11,600 if printed on a landscape (11" x 8.5") sheet.

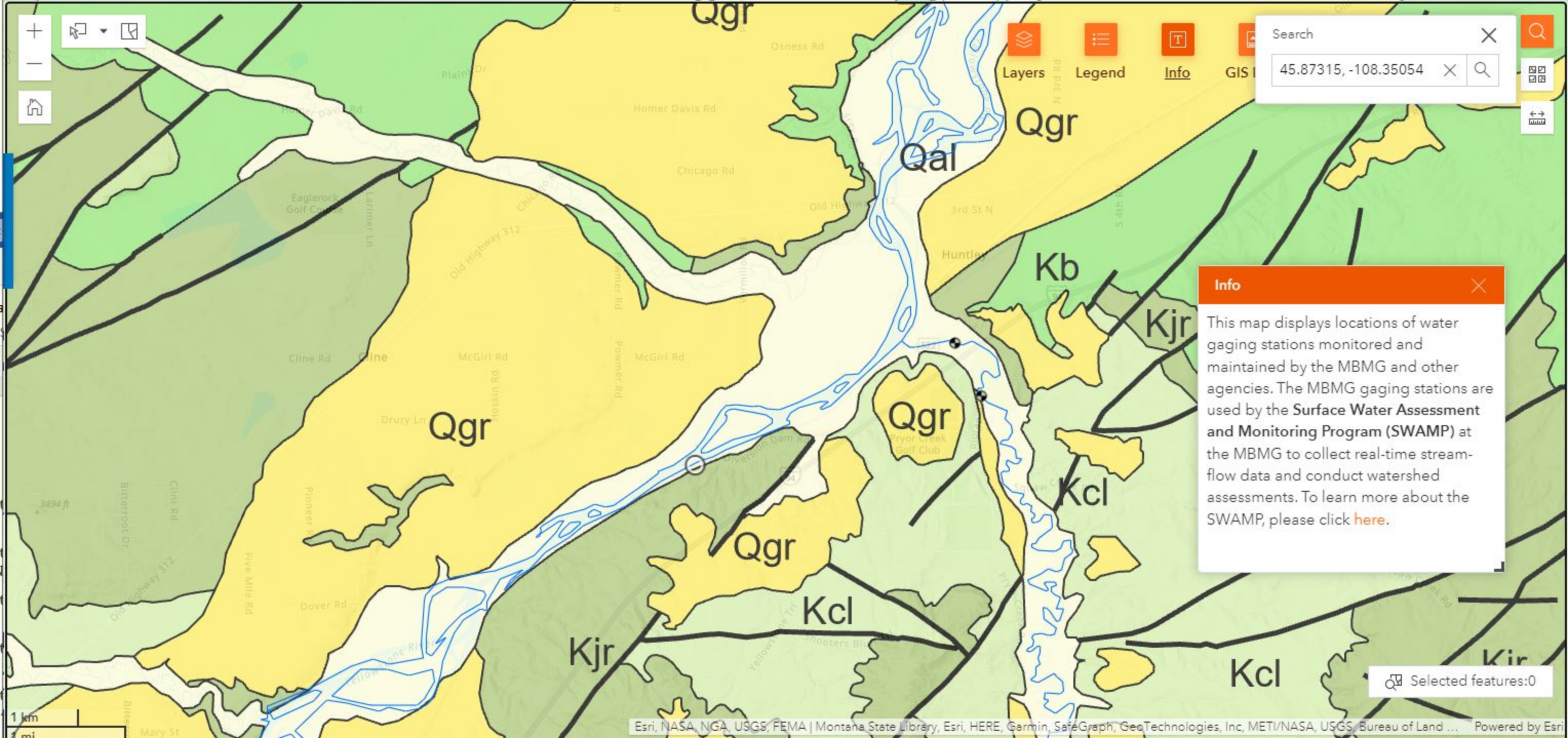
0 150 300 600 900 Meters
0 500 1000 2000 3000 Feet

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

	USFWS Sec7	# SO	# Obs	Predicted Model	Range
F - Sauger (<i>Sander canadensis</i>) SOC		1	2		
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: 56% Suitable (native range) (deductive)					
B - Black-billed Cuckoo (<i>Coccyzus erythrophthalmus</i>) SOC		1			
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, 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: Dec 30, 2022) Predicted Models: 31% Optimal (inductive), 43% Moderate (inductive), 26% Low (inductive)					
B - Great Blue Heron (<i>Ardea herodias</i>) SOC		11	1		
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: Mar 22, 2023) Predicted Models: 20% Optimal (inductive), 34% Moderate (inductive), 42% Low (inductive)					
B - Bald Eagle (<i>Haliaeetus leucocephalus</i>) \$\$\$		6	35		
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 re-nesting. Only nesting observations with a locational uncertainty of 1,000 meters or less will be used to delineate a nesting area. (Last Updated: Mar 23, 2023) Predicted Models: 20% Optimal (inductive), 33% Moderate (inductive), 41% Low (inductive)					
R - Snapping Turtle (<i>Chelydra serpentina</i>) SOC		1			
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: Dec 22, 2022) Predicted Models: 12% Optimal (inductive), 73% Moderate (inductive), 15% Low (inductive)					
M - Hoary Bat (<i>Lasiurus cinereus</i>) SOC		1	1		
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G3G4 State: S3B 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 during the active season. Point observation location is buffered by a minimum distance of 3,500 meters in order to be conservative about encompassing the maximum reported foraging distance for the congeneric <i>Lasiurus borealis</i> and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Dec 23, 2022) Predicted Models: 67% Moderate (inductive), 33% Low (inductive)					
M - Little Brown Myotis (<i>Myotis lucifugus</i>) SOC		1	1		
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: Dec 22, 2022) Predicted Models: 65% Moderate (inductive), 35% Low (inductive)					
R - Spiny Softshell (<i>Apalone spinifera</i>) SOC		1	7		
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: 25% Moderate (inductive), 30% Low (inductive)					
B - Pinyon Jay (<i>Gymnorhinus cyanocephalus</i>) SOC		1	2		
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G3 State: S3 USFWS: MBTA; BCC10; BCC17 FWP SWAP: SGCN3 Delineation Criteria Observations with evidence of breeding activity buffered by a minimum distance of 4,500 meters in order to be conservative about encompassing the home ranges reported for flocks and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Jan 04, 2023) Predicted Models: 15% Moderate (inductive), 44% Low (inductive)					



Search



Info

This map displays locations of water gaging stations monitored and maintained by the MBMG and other agencies. The MBMG gaging stations are used by the **Surface Water Assessment and Monitoring Program (SWAMP)** at the MBMG to collect real-time stream-flow data and conduct watershed assessments. To learn more about the SWAMP, please click [here](#).

Selected features:0

5370 Creekmore Rd huntley

03-1034-03-2-03-06-0000

General Information

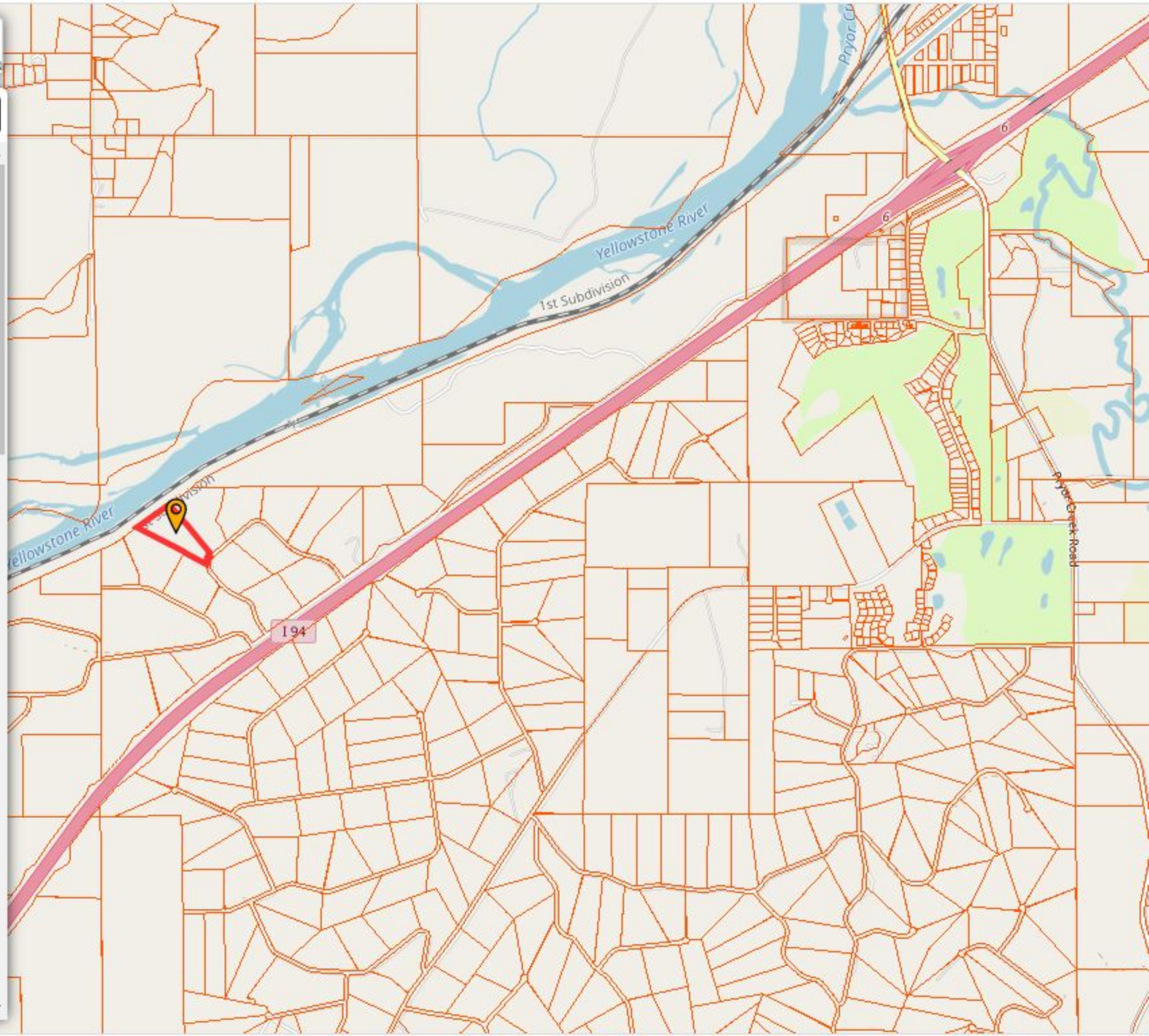
Property Number	03-1034-03-2-03-06-0000
Assessment Code	000D078490
County	Yellowstone
Levy District	03-0982
Neighborhood	203.002
Situs Address	5165 CREEKMORE RD, HUNTLEY, MT 59037
Legal Description	S03, T01 N, R27 E, C.O.S. 1250, PARCEL 11, AMD IN 2 & 3-1N-27E & IN 35-2N-27E
Owner Name	RINK, LEROY SHELDON & HEIDI
Property Last Updated	9/20/2022

Value History

Year	Market Value	Taxable Value
2020	\$764,466	\$10,385
2021	\$817,203	\$11,101
2022	\$842,283	\$11,440

Property Characteristics

Type	IMP_R - Improved Property - Rural
Living Units	1



5370 Creekmore Rd huntley

03-1034-03-2-03-11-0000

General Information

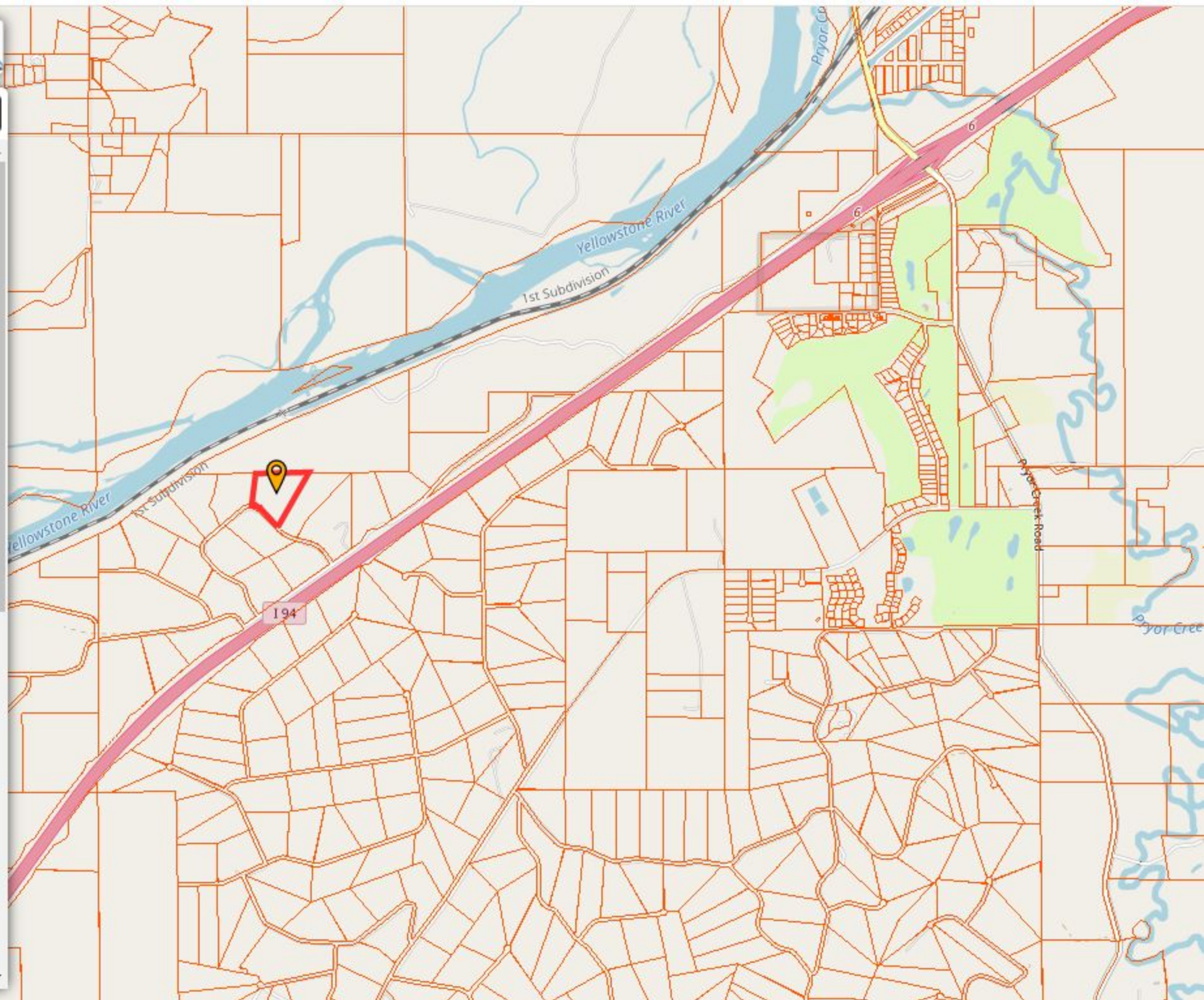
Property Number	03-1034-03-2-03-11-0000
Assessment Code	000D078460
County	Yellowstone
Levy District	03-0982
Neighborhood	203.002
Situs Address	5301 CREEKMORE LOOP, HUNTLEY, MT 59037
Legal Description	S03, T01 N, R27 E, 1250, PARCEL 008, TR 8 COS 1250 AMD IN SECS 2 & 3-1N-27E & IN 35-2N-27E
Owner Name	SCHOUVILLER, LE ROY F
Property Last Updated	9/20/2022

Value History

Year	Market Value	Taxable Value
2020	\$260,900	\$2,182
2021	\$283,700	\$2,490
2022	\$284,200	\$3,837

Property Characteristics

Type	IMP_R - Improved Property - Rural
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Institute for Tourism and Recreation Research

4-2023

The Montana Travel Industry - 2022 Summary

Melissa Weddell

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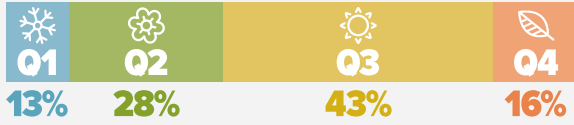
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2022 DATA THE MONTANA TRAVEL INDUSTRY

12.5 MILLION VISITORS SPENT \$5.82 BILLION

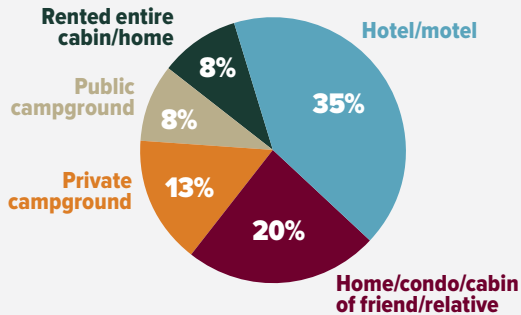
WHEN ARE TRAVELERS COMING TO MONTANA?



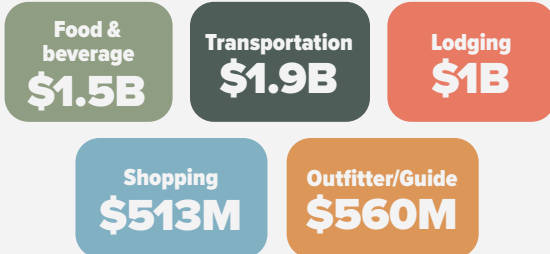
4 OUT OF 5 NONRESIDENTS had visited Montana before

Montana visitors spend an average of **5 NIGHTS & \$207/DAY**

Lodging choices



Spending Categories



NONRESIDENT CONTRIBUTION

43,900 Jobs Supported

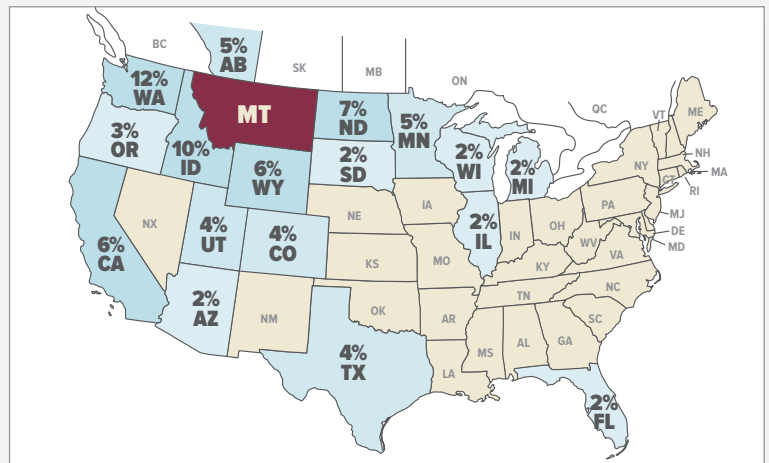
1-IN-13 MONTANA WORKERS is supported by out-of-state travel

\$1.4B Employee Compensation (Direct)

\$5.2B Industry Output (Direct)

TOURISM REDUCES THE AVERAGE TAX BURDEN on every Montana household **BY OVER \$721**

WHERE NONRESIDENTS ARE COMING FROM



An estimated \$43 million gross lodging tax revenue (4%) went to the general fund in 2022

Source: MT Department of Commerce

THE MONTANA TRAVEL INDUSTRY ENHANCES THE ECONOMIC VITALITY OF OUR COMMUNITIES AND QUALITY OF LIFE

MORE INFO -->



The Institute for Tourism & Recreation Research (ITRR) conducts travel and recreation research in Montana, primarily focusing on the nonresident travel survey conducted throughout the state. ITRR's mission is to provide leadership, direction, and information to assist the tourism and recreation industries in making informed decisions about planning, marketing, policy, and management. www.itrr.umt.edu

2022 DATA THE MONTANA TRAVEL INDUSTRY

MONTANA'S OUTDOOR RECREATION ECONOMY

- **GREW NEARLY 30%** from 2020-2021
- Accounted for **4.4% STATE GDP**

Source: US Bureau of Economic Analysis (BEA) 2021

LARGEST VALUE ADDED OUTDOOR RECREATION ACTIVITIES



**Boating/
Fishing**



RVing



**Hunting/Shooting/
Trapping**

Source: US Bureau of Economic Analysis (BEA) 2021

97% of travelers report Montana met or exceeded expectations

their reasons



Beauty of State



Friendliness of Residents

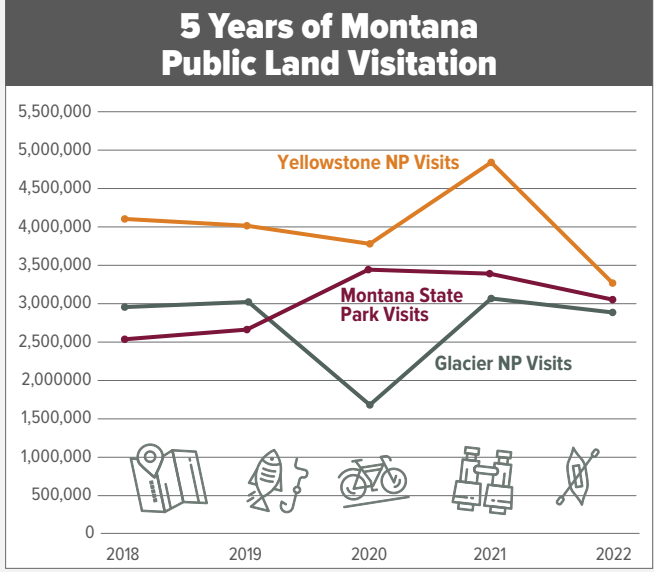


Abundance of Wildlife


89% of nonresidents plan to return in the next 2 years

TOP MONTANA SITES VISITED BY NONRESIDENTS


- Glacier National Park 31%**
- Yellowstone National Park 23%**
- Montana State Parks 9%**
- Hot springs 6%**
- Ghost towns 5%**




TOP NONRESIDENT ACTIVITIES




42% Day Hiking




29% Wildlife Watching



26% Nature Photography



47% Scenic Driving



26% Car/RV Camping

74% of residents who camped in Montana did so on public lands

In 2022, ITRR surveyed 7,496 nonresidents and 11,537 residents which produces on-going quarterly economic, travel and recreation analysis for the state of Montana.



ITRR was established in 1987 to conduct objective research in tourism and recreation for the state of Montana and is housed in the W.A. Franke College of Forestry and Conservation at The University of Montana-Missoula. ITRR disseminates valid, reliable, and objective research designed to assist public agencies, businesses, and non-profit firms who provide visitor services or manage parks, recreation areas, and other facilities used by visitors. We are proud to celebrate 35 years of providing leadership, direction, and information to assist the tourism and recreation industries. www.itrr.umt.edu

5370 Creekmore Rd huntley

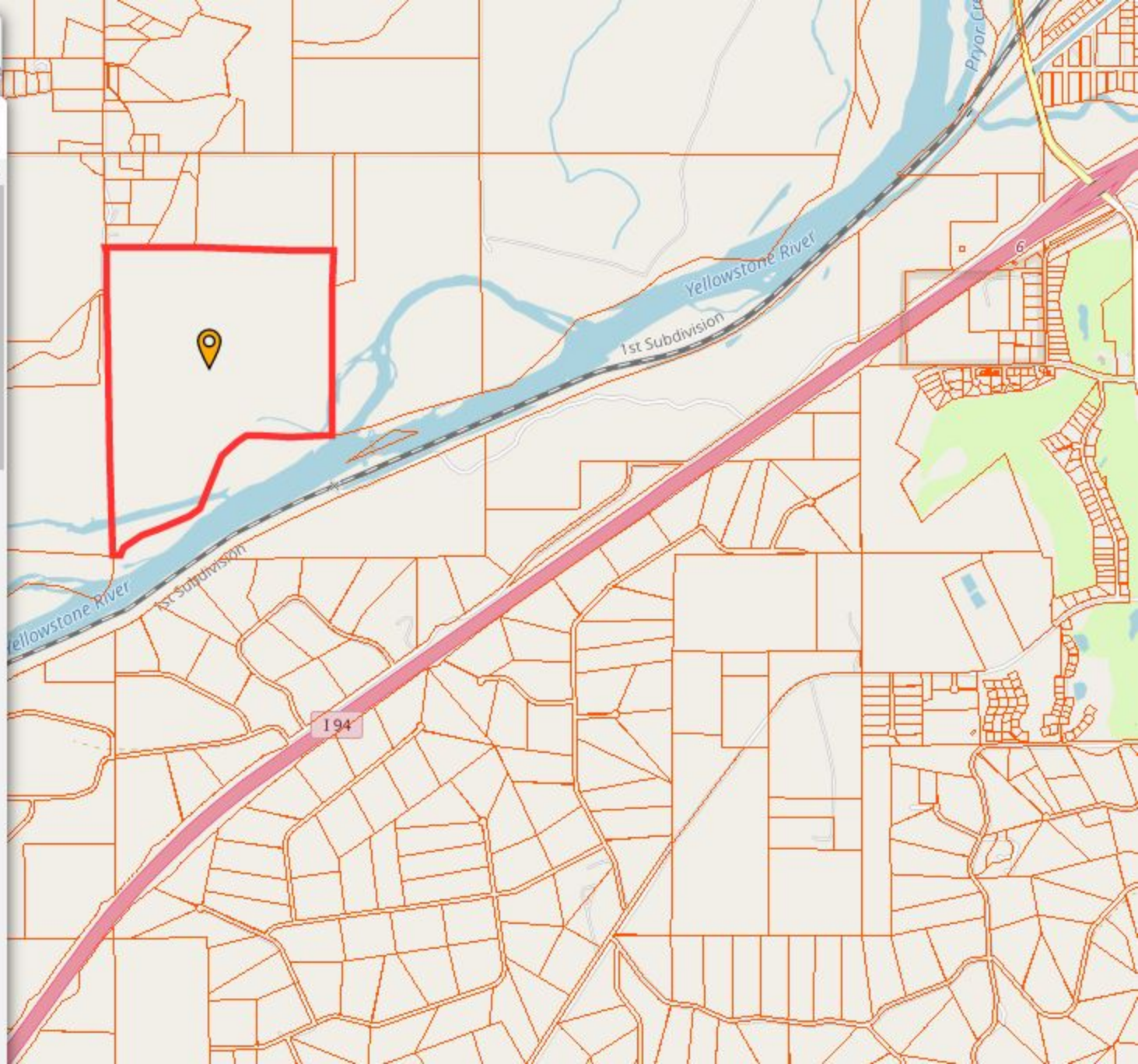
03-1134-34-3-03-01-0000

General Information

Property Number	03-1134-34-3-03-01-0000
Assessment Code	000D078340
County	Yellowstone
Levy District	03-0987
Neighborhood	203.002.1
Situs Address	4329 POWMER RD, BILLINGS, MT 59105
Legal Description	S34, T02 N, R27 E, S2NW, NWSW, LOTS 3 & 4, FRAC W2SWNE, & FRAC W2 LOT 2 222.40 AC
Owner Name	JOHN & LISA STRECKER REV LIVING TRUST
Property Last Updated	9/20/2022

Value History

Year	Market Value	Taxable Value
2020	\$479,223	\$8,123
2021	\$476,863	\$7,843
2022	\$476,863	\$7,843



Grassland Systems

Lowland/Prairie Grassland



13% (783 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.



12% (727 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 cheatgrass is typically not as abundant as in the Intermountain West, possibly due to a colder climate. The natural fire regime of this ecological system maintains a patchy distribution of shrubs, preserving the steppe character. Shrubs may increase following heavy grazing and/or with fire suppression. In central and eastern Montana, complexes of prairie dog towns are common in this ecological system.



4% (259 Acres)

Wetland and Riparian Systems

Open Water

Open Water

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



4% (218 Acres)

Human Land Use

Developed

Developed, Open Space

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



3% (188 Acres)

Human Land Use

Developed

Other Roads

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



3% (151 Acres)

Human Land Use

Developed

Interstate

National Highway System (NHS) limited access highways and their shoulders and rights of way.



2% (122 Acres)

Grassland Systems

Lowland/Prairie Grassland

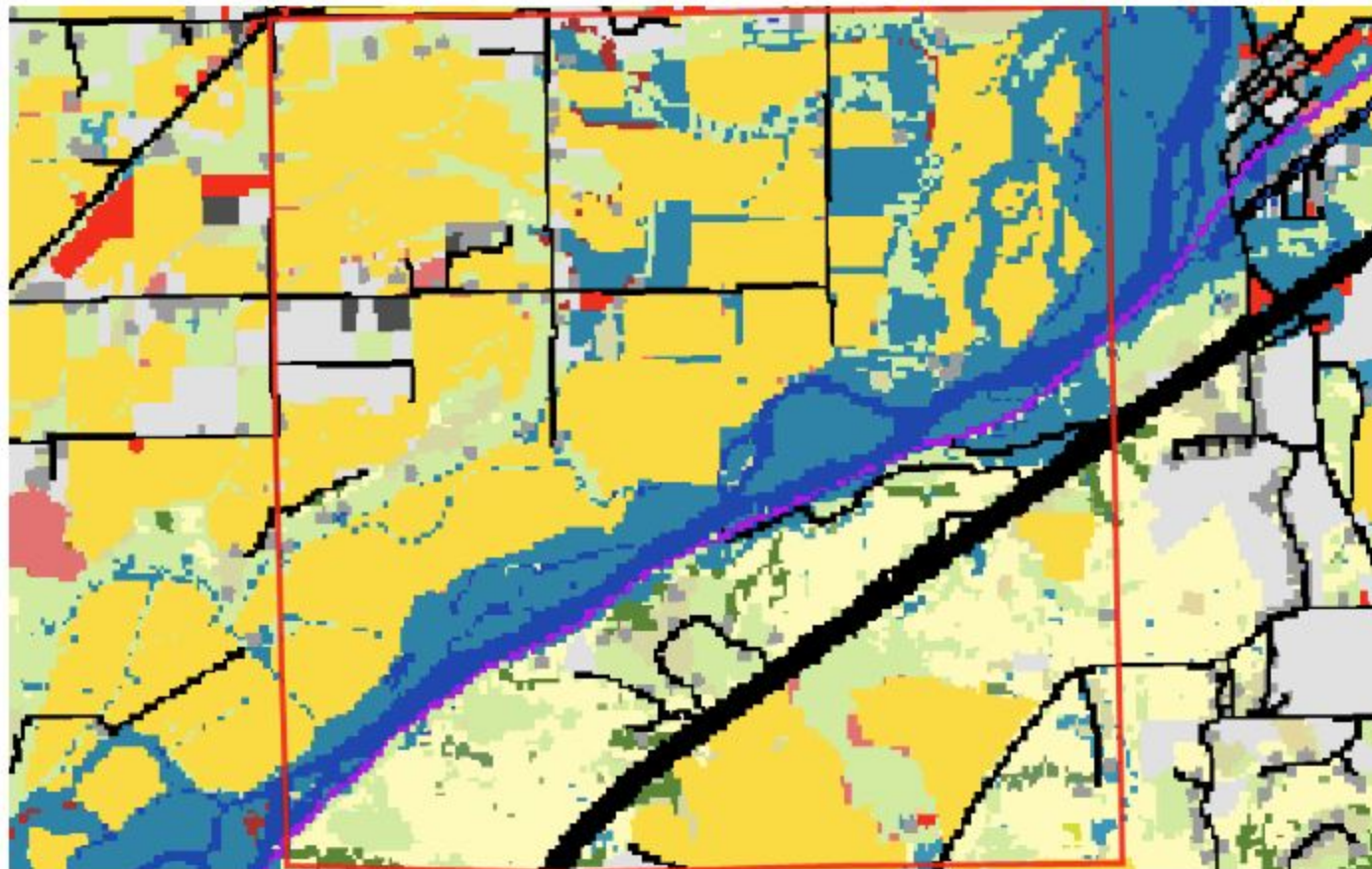
Great Plains Sand Prairie

The sand prairies constitute a very unique system within the western Great Plains. The unifying and controlling feature for this system is that coarse-textured soils predominate and the dominant grasses are well-adapted to this condition. In the northwestern portion of the system's range, stand size corresponds to the area of exposed caprock sandstone, and small patches predominate, but larger patches are found embedded in the encompassing Great Plains Mixed Grass Prairie, and usually occupy higher positions in local landscapes where former caprock formations have eroded into more subdued and planar topography. In most of eastern Montana, substrates supporting this system have weathered in place from sandstone caprock. Soils can be relatively thin or deep due to varying amounts of downslope movement of weathered sands. Needle and thread (*Hesperostipa comata*) is the dominant grass species. Other frequent species include little bluestem (*Schizachyrium scoparium*), often occurring with threadleaf sedge (*Carex filifolia*) and dominating both sandy sites and actively eroding sites. Prairie sandreed (*Calamovilfa longifolia*), sand bluestem (*Andropogon hallii*) and big bluestem (*Andropogon gerardii*) are sporadically distributed and found generally on the coarsest-textured sands. Other graminoids include bluebunch wheatgrass (*Pseudoroegneria spicata*), sun sedge (*Carex inops* ssp. *heliophila*), and purple threeawn (*Aristida purpurea*). Characteristic forbs differ by occurrence, but species of scurf pea (*Psoraleidium* species) and Indian breadroot (*Pediomelum*) species are common. Communities of silver sage (*Artemisia cana* ssp. *cana*) or skunkbush sumac (*Rhus trilobata*) can occur within this system. Wind erosion, fire and grazing constitute the other major dynamic processes that can influence this system.



Land Cover

Summarized by: **002N027E034** (Buffered PLSS Section)



Human Land Use

Agriculture

Cultivated Crops

37% (2,206 Acres)

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.



Wetland and Riparian Systems

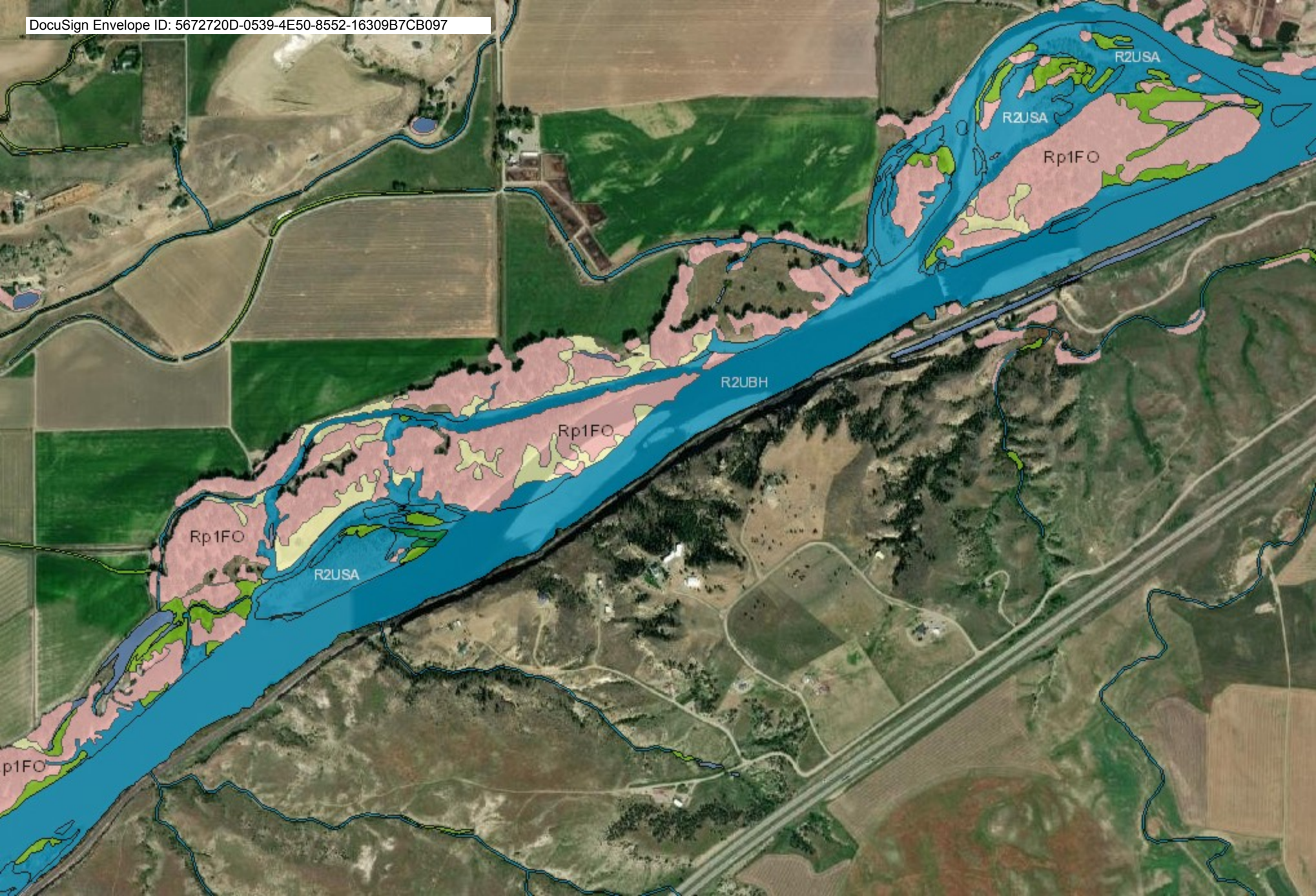
Floodplain and Riparian

Great Plains Floodplain

15% (899 Acres)

This system occurs along the Missouri and Yellowstone Rivers and their larger tributaries, including parts of the Little Missouri, Clark'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 system'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.



Montana Income and Poverty

Small Area Income and Poverty Estimates (SAIPE)

2021
current year



Income

Poverty

Rank

Table

Median Household Income

United States

\$69,717

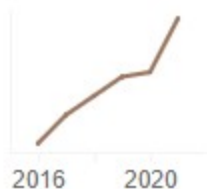
▲ \$12,100 (21.0%)
Change 2016 to 2021



Montana

\$63,357

▲ \$13,092 (26.0%)
Change 2016 to 2021

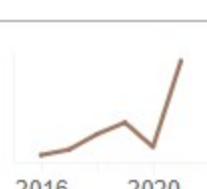


Select a County

Yellowstone

\$69,182

▲ \$11,831 (20.6%)
Change 2016 to 2021



Median Household Income by State

Median Household Income by County



522

S 12th St

Pryor Creek Golf Club

White Buffalo

Yellowstone Trl
Louis Dr

Rock Pillar Rd

Yellowstone Trl

Creekmore Rd

Diversion Dam Rd

Creekmore Rd

Pomeroy Rd

McGill Rd

Vermillion Rd

Watt Ave

Hinkle St

Ln

Yellowstone River

Yellowstone River

Yellowstone River

94

94

Montana Income and Poverty

Small Area Income and Poverty Estimates (SAIPE)

2021

current year



Income

Poverty

Rank

Table

People in Poverty

United States

12.8%

▼ -1.2% (-2,875,820)
Change from 2016 to 2021



Montana

12.0%

▼ -1.4% (-6,529)
Change from 2016 to 2021

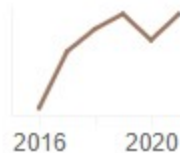


Select a County

Yellowstone

11.3%

▲ 2.5% (4,942)
Change from 2016 to 2021



People in Poverty by State

People in Poverty by County