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FINAL
ENVIRONMENTAL ASSESSMENT

Project Name:	Gallatin County on behalf of the Highline Canal Improvement Project
Proposed Implementation Date:	October 2023
Proponent:	Gallatin County
Location:	45.6124591, -111.2324658
County:	Gallatin

I. TYPE AND PURPOSE OF ACTION

The Highline Canal is located approximately 3 miles northwest of Gallatin Gateway. Irrigation water is diverted from the Gallatin River into the Highline Canal, where it runs 29 miles along the west side of the Gallatin Valley. The Highline Canal supplies irrigation water to more than 40 farmers and 14,000 acres of farmland.

Over the past 10 years, the canal has developed a critical seep caused by oversaturated soils, which resulted in a failure of the canal embankment in 2011 and more recently in June 2021. On June 17, 2021, the canal embankment failed resulting in an estimated 2,000 cubic yards of debris and sediment being washed down the hillside. The washout created a 3-foot-deep erosion scar in the hillside; covered Cottontail Road with a thick layer of sediment and damaged the road; filled several nearby ditches, streams, and culverts with debris and sediment; and resulted in a thick sediment fan measuring 600 feet long and 300 feet wide in the farm field below the hillside. The canal was non-functional and out of service for the entire 2021 prime irrigation season.

In addition to the economic impacts to local farmers, the increased sediment load created concerns related to water quality in Cockrell Ditch, Fish Creek, and the Gallatin River. The Cockrell Ditch is located approximately 400 ft downhill from the breach location and was buried by sediment. Fish Creek, located 0.25 miles away, is directly connected to the Cockrell Ditch and converges with the Gallatin River approximately 2 miles downstream of the breach location. The known sediment impacts to the Cockrell Ditch created concerns for the water quality in Fish Creek and the Gallatin River. As identified in the *Lower Gallatin Planning Area TMDLs and Framework Water Quality Improvement Plan*, dated March 2013, the Gallatin River is impaired for "low flow alterations". This impairment results when irrigation withdrawal management leads to base flows that are too low to support beneficial uses of the river or low flow conditions that may be unsupportive of fish and aquatic life conditions. Increased sedimentation in rivers and streams is known to adversely impact fish and aquatic life. The Gallatin River is also an important recreational fishery, agricultural resource, and recreational asset for Gallatin County and Montana.

The overall goals of this project are to restore functionality to the Highline Canal, provide a reliable and efficient supply of irrigation water to canal users, and eliminate damage to surface water and aquatic ecosystems from future canal failures.

To accomplish project goals, the project was broken out into three phases: Phase 1A, Phase 1B, and Phase 2. Phase 1A and Phase 1B have already been completed as noted below, and Phase 2 is a future phase of the project that this environmental assessment focuses on. Figures depicting project features and liner installation locations are attached.

The following summarizes the three project phases and associated objectives.

- **Phase 1A – Emergency Repair**: Completed between June 23, 2021, and July 9, 2021. This included emergency actions necessary to immediately repair the canal and mitigate damage caused by the breach. Emergency repair work consisted of:
  - Removing sediment from and repairing Cottontail Road.
  - Unburying and restoring function to Cockrell Ditch.
  - Removing debris and sediment (i.e., sediment fan) from the farm field.
  - Replacing washed out material on the hillside to repair erosion and the canal embankment.
- **Phase 1B – Liner Installation**: Completed between October 27, 2021, and November 24, 2021. To prevent a future breach, 2,000 liner feet (LF) of 36-millimeter-thick reinforced polyethylene canal liner was installed starting at the location of the 2011 breach and extended 2,000 LF down the canal.
- **Phase 2 – Liner Installation**: Future phase that includes installing an additional 1,400 LF of liner material that begins at the end of Phase 1B and extends 1,400 LF downstream where saturated soils are often observed in the embankment. Installation of this liner is expected to assure canal stability and avoid future breaches.

Phase 2 is expected to be begin upon Department of Natural Resource and Conservation (DNRC) approval of American Rescue Plan (ARPA) grant funding for the project. Reimbursement for costs incurred as part of Phase 1A- Emergency Repair are also part of the ARPA grant funding request. Procurement of a project engineer and preliminary engineering design for Phase 2, Liner Installation was projected to begin in October 2023 with completion of construction and project closeout by June 2024.

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.

Gallatin County, the Highline Canal Company, and DNRC have been involved with the project. The project consists of three phases, two of which have already been completed.

- Phase 1A, Emergency Repair - Completed between October 27, 2021, and November 24, 2021.
- Phase 1B, Liner Installation - Completed between October 27, 2021, and November 24, 2021.
- Phase 2, Liner Installation – Future phase.

No public involvement activities or project notices placed in any newspapers are known to have

been completed.

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.

The following summarizes the project funding:

- Phase 1A, Emergency Repair – Paid for by the Highline Canal Company. Reimbursement for the costs ($73,074) incurred as part of this work are also part of the DNRC ARPA grant funding request.
- Phase 1B, Liner Installation - Paid for by the Highline Canal Company ($158,110). A DNRC Renewable Resource Emergency Grant reimbursed $10,000 of the cost.
- Phase 2, Liner Installation – DNRC ARPA grant award ($205,274, includes Phase 1A reimbursement) and Gallatin County Minimum Allocation Grant ($48,000).

Gallatin County has provided a letter of commitment stating, "Therefore, contingent upon a fully executed State of Montana competitive ARPA contract for this project, the Commission will apply for a Minimum Allocation Grant to the sate in order to secure and commit matching funds of up to $48,000."

The applicant has not identified any permits required to complete the project.

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.

No known alternatives were considered during Phase 1A, Emergency Repair (June – July 2021) or Phase 1B, Liner Installation (October to November 2021). No alternatives are known to have been evaluated for future Phase 2, Liner Installation.

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.

Based on information provided in the DNRC ARPA grant application, the hillside scar that was

repaired as part of Phase 1A, Emergency Repair was 0.35 acres, and 3.1 acres of the farm field was impacted with washout material. The National Resources Conservation Service (NRCS) Web Soil Survey mapping application was used to map the project area and shows an area of interest of 31.6 acres. This acreage includes all three phases of the project, adjacent areas, and consists of the following soils:

- **Cabba-Reedwest-Anceney complex**
  - 13.0 acres, 41.3% of total area
  - Slope: 15-45%
  - Typical soil profile: 0-8 inches, cobbly clay loam
    8-17 inches, loam
    17-60 inches, unweathered bedrock
  - Not prime farmland
- **Reedwest-Cabba-Bowery complex**
  - 5.7 acres, 17.9% of total area
  - Slope: 15-45%
  - Typical soil profile: 0-5 inches, loam
    5-21 inches, loam
    21-26 inches, loam
    26-60 inches, weathered bedrock
  - Not prime farmland
- **Bowery loam**
  - 4.4 acres, 14.1% of total area
  - Slope: 2-8%
  - Typical soil profile: 0-22 inches, loam
    22-60 inches, clay loam
  - Farmland of statewide importance
- **Soapcreek silty clay loam**
  - 3.9 acres, 12.5% of total area
  - Slope: 0-2%
  - Typical soil profile: 0-15 inches, silty clay loam
    15-46 inches, silty clay loam
    46-60 inches, stratified fine sandy loam to silty clay
  - Prime farmland if irrigated
- **Lamoose silt loam**
  - 3.3 acres, 10.4% of total area
  - Slope: 0-2%
  - Typical soil profile: 0-9 inches, silt loam
    9-27 inches, silt loam
    27-60 inches, very gravelly loamy sand
  - Farmland of local importance
- **Cabbart-Amesha-Trimad complex**
  - 1.2 acres, 3.8% of total area
  - Slope: 15-45%
  - Typical soil profile: 0-3 inches, cobbly loam

3-19 inches, loam
19-60 inches, unweathered bedrock

- Not prime farmland

- **Amesha-Trimad complex**
  - 0.0 acres, 0% of total area
  - Slope: 15-45%
  - Typical soil profile: 0-7 inches, loam
    7-25 inches, silt loam
    25-59 inches, loam
  - Not prime farmland

Fragile, Compactable, or Unstable Soils
Canal embankment soils are known to become saturated, unstable, and subject to failure.

Special Reclamation Considerations
A preliminary engineering design has not yet been completed; therefore, no special reclamation considerations have been identified. Given that Phase 2 work is the same scope as has already been completed for Phase 1B, no special reclamation considerations are anticipated.

Unusual Geologic Features
No unusual geologic features have been identified.

Proposed Alternative – Potential temporary, short-term, direct adverse impacts to soils along the canal embankment from construction activities. The soils along the canal embankment where liner installation work will occur will be disturbed due to the nature of construction techniques required to install the liner material. Adverse impacts are expected to be localized to the areas along the edges of the canal and only impact soils necessary for access to and installation of the liner. No long-term direct, indirect, or cumulative adverse impacts are expected. Installation of liner material will have a beneficial impact by preventing canal embankment soils from becoming saturated and unstable and will prevent future breaches in the canal and resulting damages to the environment and property.

No Action Alternative – Potential direct, indirect, and cumulative adverse impacts to soil quality and stability. As demonstrated by the canal failure in 2011 and again in 2021, soils along the canal embankment will continue to be subject to saturation and failure from irrigation water in the canal. Future failures have the potential to adversely impact the environment by releasing excess sediment into surface water, creating erosion scars and instability to surrounding areas, and adversely impacting nearby properties through water or soil accumulation damage.

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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 Highline Canal diverts up to 188 cubic feet per second (cfs) of water from its intake on the Gallatin River, located approximately 3 miles southwest of Gallatin Gateway and runs for 29 canal miles alone the west side of the Gallatin Valley. Other water bodies within the larger project area include Cockrell Ditch located approximately 400 feet east (i.e., downslope), and Fish Creek located

approximately 0.25 miles east from the breach location. Fish Creek converges with the Gallatin River approximately 2 miles downstream from the breach location.

No impairments are identified for Fish Creek (Discover DEQ Throughout Montana and NEPAssist web mapping applications). As identified in the *Lower Gallatin Planning Area TMDLs and Framework Water Quality Improvement Plan*, dated March 2013, the Gallatin River is impaired for "low flow alterations". The Gallatin River is also an important recreational fishery, agricultural resource, and recreational asset for Gallatin County and Montana.

The Montana Bureau of Mine and Geology Ground Water Information Center (GWIC) web mapping shows that most of the wells within the project area are used for domestic purposes.

Proposed Alternative – No direct, indirect, or cumulative adverse impacts to water quality, quantity, or distribution are expected. The Phase 2 liner installation work is located along a segment of the canal that is west/northwest of both the Cockrell Ditch and Fish Creek on the opposite side of the hill from the prior breach locations. It is expected that flow in the canal would either be turned off or diverted around the work location during installation of the liner. If diverted, it is expected that best management practices (BMPs) would be implemented to prevent the release of soil and sediment to flowing portions of the canal. The physical location of the Phase 2 liner installation work appears to be preventative of any potential minor release of soil and sediment from flowing into the Cockrell Ditch or Fish Creek.

The project is expected to have direct, indirect, and cumulative beneficial impacts since the liner will reduce seepage loss and conserve water diverted from the Gallatin River and increase the quantity and distribution of irrigation water to canal users. Since water will be flowing through lined segments of the canal, sediment loading will also be reduced which will also improve water quality.

No Action Alternative – Potential continued adverse impact to water quality since soil and sediment may still be transported through the earthen lined canal contributing to increased sediment load within the canal system. Continued adverse impacts to water quantity and distribution since seepage losses will continue to occur, reducing the quantity of water that can efficiently be distributed to irrigation users and increasing the volume of water that must be diverted from the Gallatin River.

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6. AIR QUALITY:

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

The project is not located within any air quality non-attainment/maintenance areas (Discover DEQ Throughout Montana web mapping application and EPA NEPAssist web mapping application). The project is located within a potential open burning restriction area depending on the time of year.

Proposed Alternative – Potential temporary, short-term, direct adverse impacts to air quality may occur during construction from ground disturbance caused by construction activities. Any adverse impacts, particularly dust, are expected to be localized and only affect the immediate area surrounding the work area. The nearest residential structure is located immediately upslope, on the

top of the hill, from the Phase 2 liner installation work area (Google Earth imagery). Motorists traveling along Axtell Anceny Road may also be subject to dust. Dust suppression (i.e., water application) and/or other BMPs are expected to be implemented during the project to reduce adverse impacts from dust. Long-term adverse impacts are not expected. The project is short-term with construction projected to last two months.

No Action – No direct, indirect, or cumulative adverse impacts to air quality are expected.

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7. VEGETATION COVER, QUANTITY AND QUALITY:

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

The Montana Natural Heritage Program identifies land cover (>2%) within a 1-mile buffer of the project area as the following (total of 5,787.1 acres):

- Cultivated Crops, 39% (2,247 acres)
- Rocky Mountain Subalpine-Montane Mesic Meadow, 13% (764 acres)
- Rocky Mountain Lower Montane, Foothill, and Valley Grassland, 11% (795 acres)
- Alpine-Montane Wet Meadow, 9% (500 acres)
- Pasture/Hay, 8% (471 acres)
- Other Roads, 5% (271 acres)
- Rocky Mountain Lower Montane-Foothill Riparian Woodland and Shrubland, 4% (228 acres)
- Montane Sagebrush Steppe, 3% (193 acres)
- Low Intensity Residential, 2% (128 acres)
- Developed, Open Space, 2%, (91 acres)

Over 42% of land in Gallatin County is classified as farmland. Top crops produced in Gallatin County include hay and haylage, barley, spring wheat, winter wheat, potatoes, peas dry edible, lentils, canola, chickpeas, durum wheat, and other vegetables (Montana State University, Economic Impact of Agriculture, Gallatin County).

The Montana Natural Heritage Program provides the following information related to vascular plant species within a 1-mile radius of the project area. Any US Fish and Wildlife Service (USFWS) threated or endangered, United States Forest Service (USFS) species of conservation concern (SCC) or sensitive classifications, or Bureau of Land Management (BLM) threatened or sensitive species classifications are also identified below.

Confirmed As Occurring Or Observed Within A 1-Mile Radius Of The Project Area

Montana Special Status Species (SSS)

- None identified

Montana Species of Concern (SOC)

- None identified

Montana Potential Species of Concern (PSOC)

- None identified

Other Observed Species

Montana SSS

- None identified

Montana SOC

- None identified

Montana PSOC

- None identified

Potentially Present Species

Montana SSS

- None identified

Montana SOC

- Oregon Checker-mallow (*Sidalcea oregana*) – USFS SCC
- Crawe's Sedge (*Carex crawei*)
- Beaked Spikerush (*Eleocharis rostellata*) – USFS Sensitive
- Railhead Milkvetch (*Astragalus terminalis*) – BLM Sensitive
- Fleshy Stitchwort (*Stellaria crassifolia*)
- Pale-yellow Jewel-weed (*Impatiens aurella*)
- Platte Cinquefoil (*Potentilla plattensis*)
- Slender Indian Paintbrush (*Castilleja gracillima*)
- Mealy Primrose (*Primula incana*) – USFS Sensitive
- Wedge-leaf Saltbush (*Atriplex truncate*)
- Panic Grass (*Dichanthelium acuminatum*)
- Hiker's Gentian (*Gentianopsis simplex*) – USFS Sensitive

Montana PSOC

- High Northern Buttercup (*Ranunculus hyperboreus*)

Proposed Alternative – Direct temporary, short-term adverse impacts to vegetation cover, quantity, and quality along the canal embankment and access areas from construction activities associated with liner installation and access necessary to complete the work. Any adverse impacts are expected to be localized to the work areas and short-term since the project is expected to last two months. Disturbed areas are expected to either reestablish naturally by the seedbank in existing disturbed materials, natural distribution of seed from the surrounding native vegetation, or if the final engineering design calls for it, the spreading of a specified seed mix.

Long-term, direct, indirect, and cumulative beneficial impacts outweigh any potential short-term direct adverse impacts. Installing liner material will limit seepage losses that are currently saturating soils along the canal and causing them to be unstable. Failure of unstable soils will have direct adverse impacts to the vegetation within the failure area and indirect adverse impacts to any vegetation located downslope of a failure location. This has already been shown by the 2021 failure

which adversely impacted vegetation along the downslope bank of the canal and vegetation within the affected farm field.

No Action Alternative – Potential continued direct, indirect, and cumulative adverse impacts to vegetation cover, quantity, and quality both along the canal and downslope. Soil will continue to be subject to saturation from seepage losses and resulting instability can lead to potential failure. The vegetation cover, quantity, and quality of plant species that rely on these soils as growth media will continue to be threatened and potentially directly, indirect, and cumulatively adversely impacted if another canal embankment failure occurs.

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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 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, the project is not located within sage grouse habitat.

The Montana Natural Heritage Program confirmed bat roost (non-cave) important animal habitat (IAH) is confirmed as occurring or observed within a 1-mile radius of the project area.

The Montana Natural Heritage Program provides the following information related to terrestrial, avian, and aquatic life species within a 1-mile radius of the project area. Any USFWS threated or endangered, USFS SCC or sensitive species classifications, or BLM threatened or sensitive species classifications are also identified below.

Confirmed as Occurring or Observed Within a 1-Mile Radius of the Project Area

Montana Special Status Species (SSS)

- Bald Eagle (*Haliaeetus leucocephalus*) – USFS Sensitive, BLM Sensitive

Montana Species of Concern (SOC)

- Great Blue Heron (*Ardea herodias*)
- Bobolink (*Dolichonyx oryzivorus*)
- Evening Grosbeak (*Coccothraustes vespertinus*)
- Cassin's Finch (*Haemorhous cassinii*)
- Alberta Snowfly (*Isocapnia integra*)
- Grizzly Bear (*Ursus arctos*) – USFWS Threatened, BLM Threatened

Montana Potential Species of Concern (PSOC)

- None identified

Other Observed Species

Montana SSS

- None identified

Montana SOC

- Trumpeter Swan (*Cygnus buccinator*) – USFS Sensitive, BLM Sensitive
- Golden Eagle (*Aquila chrysaetos*) – BLM Sensitive
- Clark's Nutcracker (*Nucifraga columbiana*) – USFS SCC
- Greater Sage-Grouse (*Centrocercus urophasianus*) – USFS Sensitive, BLM Sensitive
- Franklin's Gull (*Leucophaeus pipixcan*) – BLM Sensitive
- Loggerhead Shrike (*Lanius ludovicianus*) – BLM Sensitive

Montana PSOC

- Rufous Hummingbird (*Selasphorus rufus*)
- Black-and-white Warbler (*Mniotilta varia*)
- Uinta Ground Squirrel (*Urocitellus armatus*)

Potentially Present Species

Montana SSS

- None identified

Montana SOC

- Northern Leopard Frog (*Lithobates pipiens*) – USFS Sensitive, BLM Sensitive
- Western Toad (*Anaxyrus boreas*) – USFS Sensitive, BLM Sensitive
- Veery (*Catharus fuscescens*) – BLM Sensitive
- Black-crowned Night-Heron (*Nycticorax nycticorax*)
- American White Pelican (*Pelecanus erythrorhynchos*)
- White-faced Ibis (*Plegadis chihi*) – BLM Sensitive
- Yellow-billed Cuckoo (*Coccyzus americanus*) – USFWS Partial Status Threatened, BLM Threatened
- Green-tailed Towhee (*Pipilo chlorurus*)
- Black Tern (*Chlidonias niger*) – BLM Sensitive
- Pileated Woodpecker (*Dryocopus pileatus*)
- Brewer's Sparrow (*Spizella breweri*) – BLM Sensitive
- American Bittern (*Botaurus lentiginosus*) – BLM Sensitive
- Long-billed Curlew (*Numenius americanus*) – BLM Sensitive
- Sage Thrasher (*Oreoscoptes montanus*) – BLM Sensitive
- Lewis's Woodpecker (*Melanerpes lewis*) – USFS SCC, BLM Sensitive
- Sharp-tailed Grouse (*Tympanuchus phasianellus*)
- Ferruginous Hawk (*Buteo regalis*) – BLM Sensitive
- Black-billed Cuckoo (*Coccyzus erythropthalmus*) – BLM Sensitive
- Black-necked Stilt (*Himantopus mexicanus*)
- Pinyon Jay (*Gymnorhinus cyanocephalus*)
- Harlequin Duck (*Histrionicus histrionicus*) – USFS Sensitive
- Sprague's Pipit (*Anthus spragueii*) – BLM Sensitive
- Meesia Moss (*Meesia triquetra*) – USFS Sensitive

- Yellowstone Cutthroat Trout (*Oncorhynchus clarkii bouvieri*) – USFS Sensitive, BLM Sensitive
- Suckley Cuckoo Bumble Bee (*Bombus suckleyi*)
- Monarch (*Danaus plexippus*)
- Hoary Bat (*Lasiurus cinereus*) – BLM Sensitive
- Dwarf Shrew (*Sorex nanus*)
- Little Brown Myotis (*Myotis lucifugus*)
- Preble's Shrew (*Sorex preblei*)
- Fringed Myotis (*Myotis thysanodes*) – BLM Sensitive
- Merriam's Shrew (*Sorex merriami*)
- Long-eared Myotis (*Myotis evotis*)
- Long-legged Myotis (*Myotis volans*)
- Spotted Bat (*Euderma maculatum*) – USFS Sensitive, BLM Sensitive
- Townsend's Big-eared Bat (*Corynorhinus townsendii*) – USFS Sensitive, BLM Sensitive
- Canada Lynx (*Lynx canadensis*) - USFWS Threatened, BLM Threatened
- Wolverine (*Gulo gulo*) – USFS Sensitive, BLM Sensitive
- Oregon Checker-mallow (*Sidalcea oregana*) – USFS SCC
- Crawe's Sedge (*Carex crawei*)
- Beaked Spikerush (*Eleocharis rostellata*) – USFS Sensitive
- Railhead Milkvetch (*Astragalus terminalis*) – BLM Sensitive
- Fleshy Stitchwort (*Stellaria crassifolia*)
- Pale-yellow Jewel-weed (*Impatiens aurella*)
- Platte Cinquefoil (*Potentilla plattensis*)
- Slender Indian Paintbrush (*Castilleja gracillima*)
- Mealy Primrose (*Primula incana*) – USFS Sensitive
- Wedge-leaf Saltbush (*Atriplex truncate*)
- Panic Grass (*Dichanthelium acuminatum*)
- Hiker's Gentian (*Gentianopsis simplex*) – USFS Sensitive

Montana PSOC

- Broad-tailed Hummingbird (*Selasphorus platycercus*)
- Hooded Merganser (*Lophodytes cucullatus*)
- Barrow's Goldeneye (*Bucephala islandica*)
- Short-eared Owl (*Asio flammeus*)
- Common Poorwill (*Phalaenoptilus nuttallii*)
- Ovenbird (*Seiurus aurocapilla*)
- North American Porcupine (*Erethizon dorsatum*)
- Wyoming Ground Squirrel (*Urocitellus elegans*)
- Western Spotted Skunk (*Spilogale gracilis*)
- Silver-haired Bat (*Lasionycteris noctivagans*)
- North American Water Vole (*Microtus richardsoni*)
- High Northern Buttercup (*Ranunculus hyperboreus*)

Proposed Alternative – Potential temporary, short-term, direct adverse impacts to terrestrial, avian, and aquatic life and habitats along segments of the canal where liner will be installed. People and heavy equipment will be present during construction of the project which may disturb and disrupt normal terrestrial, bird, and aquatic life habitat and activities within the immediate vicinity of work areas. Similar type terrestrial and bird habitat is readily available within the surrounding larger project work areas and similar type aquatic life habitat is readily available both upstream and downstream of segments to be lined (if irrigation water is turned on). Any adverse impacts are expected to be short-term with the project projected to take two months to complete. With exception of a polyethylene liner vs earthen bottom, postconstruction canal conditions are expected to be similar to, if not the same as, preconstruction conditions. Long-term, direct, indirect, and cumulative beneficial impacts outweigh the short-term direct adverse impacts. Installing liner material in the canal will ensure the embankment remains stabilized for the long term, thus protecting terrestrial, avian, and aquatic life habitats that would be adversely impacted by a failure of the canal embankment.

No Action Alternative – Potential direct, indirect, and cumulative adverse impacts to terrestrial, avian, and aquatic life and habitat. The canal embankment soils would continue to be subject to saturation and potential failure, which would adversely impact any terrestrial, avian, and aquatic life habits within the area.

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9. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:
Consider any federally listed threatened or endangered species or habitat identified in the project area. Determine effects to wetlands. Consider Sensitive Species or Species of special concern. Identify direct, indirect, and cumulative effects to these species and their habitat.

The Montana Natural Heritage Program identifies the following federally listed threatened and endangered species, sensitive species, SCC, SOC, or SSS as either confirmed or observed as occurring, other observed species, or potentially present in the project area or within a 1-mile radius of the project area:

Federally Listed Threatened or Endangered Species

Mammals

- Grizzly Bear (*Ursus arctos*) – USFWS Threatened, BLM Threatened, Montana SOC
- Canada Lynx (*Lynx canadensis*) - USFWS Threatened, BLM Threatened, Montana SOC

Birds

- Yellow-billed Cuckoo (*Coccyzus americanus*) - USFWS Partial Status Threatened, BLM Threatened, Montana SOC

Sensitive Species, Species of Conservation Concern (SCC), Species of Special Concern (SOC), or Special Status Species (SSS)

Vascular Plants

- Oregon Checker-mallow (*Sidalcea oregana*) – USFS SCC, Montana SOC
- Crawe's Sedge (*Carex crawei*) – Montana SOC
- Beaked Spikerush (*Eleocharis rostellata*) – USFS Sensitive, Montana SOC
- Railhead Milkvetch (*Astragalus terminalis*) – BLM Sensitive, Montana SOC

- Fleshy Stitchwort (*Stellaria crassifolia*) – Montana SOC
- Pale-yellow Jewel-weed (*Impatiens aurella*) – Montana SOC
- Platte Cinquefoil (*Potentilla plattensis*) – Montana SOC
- Slender Indian Paintbrush (*Castilleja gracillima*)
- Mealy Primrose (*Primula incana*) – USFS Sensitive, Montana SOC
- Wedge-leaf Saltbush (*Atriplex truncate*) – Montana SOC
- Panic Grass (*Dichanthelium acuminatum*) – Montana SOC
- Hiker's Gentian (*Gentianopsis simplex*) – USFS Sensitive, Montana SOC

Mammals

- Hoary Bat (*Lasiurus cinereus*) – BLM Sensitive, Montana SOC
- Dwarf Shrew (*Sorex nanus*) – Montana SOC
- Little Brown Myotis (*Myotis lucifugus*) – Montana SOC
- Preble's Shrew (*Sorex preblei*) – Montana SOC
- Fringed Myotis (*Myotis thysanodes*) – BLM Sensitive, Montana SOC
- Merriam's Shrew (*Sorex merriami*) – Montana SOC
- Long-eared Myotis (*Myotis evotis*) – Montana SOC
- Long-legged Myotis (*Myotis Volans*) – Montana SOC
- Spotted Bat (*Euderma maculatum*) – USFS Sensitive, BLM Sensitive, Montana SOC
- Townsend's Big-eared Bat (*Corynorhinus townsendii*) – USFS Sensitive, BLM Sensitive, Montana SOC
- Wolverine (*Gulo gulo*) – USFS Sensitive, BLM Sensitive, Montana SOC

Fish

- Yellowstone Cutthroat Trout (*Oncorhynchus clarkii bouvieri*) – USFS Sensitive, BLM Sensitive, Montana SOC

Invertebrates

- Alberta Snowfly (*Isocapnia integra*) - Montana SOC
- Suckley Cuckoo Bumble Bee (*Bombus suckleyi*) - Montana SOC
- Monarch (*Danaus plexippus*) - Montana SOC

Reptiles

- None identified

Amphibians

- Northern Leopard Frog (*Lithobates pipiens*) – USFS Sensitive, BLM Sensitive, Montana SOC
- Western Toad (*Anaxyrus boreas*) – USFS Sensitive, BLM Sensitive, Montana SOC

Birds

- Great Blue Heron *(Ardea herodias)* – Montana SOC
- Bobolink *(Dolichonyx oryzivorus)* – Montana SOC
- Evening Grosbeak *(Coccothraustes vespertinus)* – Montana SOC

- Cassin's Finch *(Haemorhous cassinii)* – Montana SOC
- Trumpeter Swan *(Cygnus buccinator)* – USFS Sensitive, BLM Sensitive, Montana SOC
- Golden Eagle *(Aquila chrysaetos)* – BLM Sensitive, Montana SOC
- Clark's Nutcracker *(Nucifraga columbiana)* – USFS SCC, Montana SOC
- Greater Sage-Grouse *(Centrocercus urophasianus)* – USFS Sensitive, BLM Sensitive, Montana SOC
- Franklin's Gull *(Leucophaeus pipixcan)* – BLM Sensitive, Montana SOC
- Loggerhead Shrike *(Lanius ludovicianus)* – BLM Sensitive, Montana SOC
- Veery (*Catharus fuscescens*) – BLM Sensitive, Montana SOC
- Black-crowned Night-Heron (*Nycticorax nycticorax*) – Montana SOC
- American White Pelican (*Pelecanus erythrorhynchos*) – Montana SOC
- White-faced Ibis (*Plegadis chihi*) – BLM Sensitive, Montana SOC
- Green-tailed Towhee (*Pipilo chlorurus*) – Montana SOC
- Black Tern (*Chlidonias niger*) – BLM Sensitive, Montana SOC
- Pileated Woodpecker (*Dryocopus pileatus*) – Montana SOC
- Brewer's Sparrow (*Spizella breweri*) – BLM Sensitive, Montana SOC
- American Bittern (*Botaurus lentiginosus*) – BLM Sensitive, Montana SOC
- Long-billed Curlew (*Numenius americanus*) – BLM Sensitive, Montana SOC
- Sage Thrasher (*Oreoscoptes montanus*) – BLM Sensitive, Montana SOC
- Lewis's Woodpecker (*Melanerpes lewis*) – USFS SCC, BLM Sensitive, Montana SOC
- Sharp-tailed Grouse (*Tympanuchus phasianellus*) – Montana SOC
- Ferruginous Hawk (*Buteo regalis*) – BLM Sensitive, Montana SOC
- Black-billed Cuckoo (*Coccyzus erythropthalmus*) – BLM Sensitive, Montana SOC
- Black-necked Stilt (*Himantopus mexicanus*) – Montana SOC
- Pinyon Jay (*Gymnorhinus cyanocephalus*) – Montana SOC
- Harlequin Duck (*Histrionicus histrionicus*) – USFS Sensitive, Montana SOC
- Sprague's Pipit (*Anthus spragueii*) – BLM Sensitive, Montana SOC

Critical Habitat

Per the Montana Natural Heritage Program, bat roost (non-cave) important animal habitat is 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 identifies freshwater emergent wetland, freshwater forested/shrub wetland, and forested/shrub riparian habitat present adjacent to or near liner installation work areas.

Proposed Alternative –

USFWS Federally Listed Threatened or Endangered Species and Critical Habitat

No direct, indirect, or cumulative adverse impacts to threatened and endangered species Grizzly Bear, Canada Lynx, or Yellow-billed Cuckoo are expected. The project is localized along the canal, embankment, and access areas and is limited in size and scope when compared to the much larger general habitat range of these species. There is similar type habitat readily available within the

surrounding area.

Sensitive Species, Species of Conservation Concern (SCC), Species of Special Concern (SOC), or Special Status Species (SSS) & Critical Habitat

No direct, indirect, or cumulative adverse impacts to other SCC, SOC, or SSS are expected. The project is localized along the canal, embankment, and access areas and is limited in size and scope. The project is projected to take two months, and there is similar type habitat for terrestrial, avian, and aquatic life readily available within the surrounding area during completion of the project.

Critical Habitat

No direct, indirect or cumulative adverse impacts to bat roost (non-cave) habitat. An irrigation canal and embankment area are not preferable bat habitat when compared to habitat available within the larger project area, but flying insects associated with the canal could draw bats to the project area. Construction work should be limited to daylight hours and no artificial lighting should be used outside of daylight hours that could lure in insects, providing an attractant to bats.

Wetlands and Riparian Zones

Potential direct adverse impacts to wetlands and forested/shrub riparian habitat along localized portions of the canal to be lined. Depending on final engineering design, the edge of wetland and forested/shrub riparian areas may be directly adversely impacted by liner installation activities. It is recommended that impacts to wetland and forested/shrub riparian habitat and mitigation measures be evaluated during the Phase 2, Liner Installation preliminary engineering design process.

No Action Alternative – No direct, indirect, or cumulative adverse impacts to federally listed threatened or endangered species, critical habitat, SCC, SOC, or SSS are expected. Potential direct adverse impacts to wetland and forested/shrub riparian areas located along, adjacent to, and downslope of the canal due to the threat of future failure and resulting impact to any wetland and riparian habitats within and downslope of the failure area.

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10. HISTORICAL AND ARCHAEOLOGICAL SITES:

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

The EPA NEPAssist web mapping application does not identify any National Register of Historic Places within the project area. The NEPAssist web mapping application does identify the old Rochambeau School as located approximately 0.3 miles northwest of the 2021 canal failure area. The Environmental Checklist submitted by the grant applicant states that "no historical properties, cultural or archaeological resources that have been identified in the area." However, it is not stated how this was determined, and it is not known if consultation with the State Historic Preservation Office (SHPO) is planned to be completed prior to construction of the project.

Proposed Alternative – No direct, indirect, or cumulative adverse impacts to historical and archaeological sites are expected. However, if previously unknown cultural or paleontological materials are identified during project related activities, all work will cease until a professional assessment of such resources can be made.

No Action Alternative – No direct, indirect, or cumulative adverse impacts to historical and

archaeological sites.

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11. AESTHETICS:

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

The area surrounding the project is primarily cultivated cropland, native vegetation, and low intensity residential. The nearest residential structure is located immediately upslope, on the top of the hill, from the Phase 2 liner installation work area and upslope from the 2021 canal failure location, emergency repair work, and prior liner installation locations (Google Earth imagery).

Phase 2 liner installation work would be visible by traffic along Axtell Anceny Road. No prominent topographic or scenic features have been identified.

Proposed Alternative – Potential temporary, short-term, direct adverse impacts on aesthetics due to noise and dust associated with general construction activities. Residents living within the area and motorist traveling on Axtell Anceny Road may hear noise, see dust, and see construction equipment throughout the duration of the Phase 2 Liner Installation project. Dust suppression and BMPs are planned to be implemented during the project to limit dust. Given the safety hazards associated with working at night, it is expected that construction will take place during daylight hours, thus no adverse impacts from light are expected. No long-term, direct, indirect, or cumulative adverse impacts to aesthetics are expected. Any adverse noise and dust impacts will be short-term and will only occur during construction activity. Liner material is being installed within the current profile of the canal and disturbed areas are expected to be restored. The canal is a human-made structure and post-construction aesthetics will resemble, if not be the same, as preconstruction aesthetics.

No Action Alternative – Potential adverse impact to aesthetics. The potential for future failure of the canal in soil saturated areas will remain if not addressed through the proposed construction. A future failure and resulting erosion scar(s), soil accumulation, road damage, and environmental and property damages will adversely impact the aesthetics of the area.

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

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

The project is expected to be short-term and performed by local contractors and project personnel living and working within Gallatin County and the local area. No limited resources that the project would require have been identified.

Proposed Alternative – No direct, indirect, or cumulative adverse impacts 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. Heavy construction equipment, liner material, BMPs, or any other project related materials are expected to be locally available and are not expected to be limited resources. No other activities nearby that the project would have a short-term or long-term adverse impact on have been identified.

The project is expected to have direct, indirect, and cumulative long-term beneficial impacts to land and water. Installing liner material in the canal will reduce seepage losses and sediment load and increase the efficiency, quantity, and quality of irrigation water delivered through the canal. This will result in less water needing to be diverted from the Gallatin River to meet irrigation demands. The more efficient delivery of water to irrigation users may have direct beneficial impacts to the land by having more water available to irrigate crops which may result in higher crop yields.

No Action Alternative – Continued direct adverse impacts to water resources due to continued seepage loses and sediment load to the canal system. More water will continue to need to be diverted from the Gallatin River to meet the irrigation flow and volume demands in an earthen canal when compared to a lined canal due to seepage loses.

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13. OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA:

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

Per the Discover DEQ Throughout Montana web mapping application, the project is located within the Lower Gallatin Watershed Restoration Planning Area.

The Discover DEQ Throughout Montana web mapping application does identify an active Storm Water Discharge Permit (MTR110215) associated with construction activity at Stock Ranch-Fish Creek located approximately 0.7 miles northwest of the project area.

No other current studies or plans within the project area have been identified. No other current private, state, or federal actions within the project area have been identified.

According to the Montana Natural Heritage Program, there have been a few structured surveys within the project area that include:

- Nocturnal Breeding Amphibian Calling Survey (2010)
- Kicknet Collection Survey for Invasive Mussels and Snails (2021)
- Noxious Weed Road-based Visual Surveys (2004)
- Noxious Weed Visual Surveys (2009)
- Visual Encounter Surveys for Aquatic Invasives on Shorelines or Underwater (2021)
- Fish Other Survey (FWP Survey Type) (1951)
- Visual Encounter Survey for Damselfly/Dragonfly/Butterfly (1987)
- Bat Roost (Active Season) Survey (2019)

Proposed Alternative – No direct, indirect, or cumulative adverse impacts on other environmental documents pertinent to the area are expected. Installation of liner material is expected to reduce sediment loading to the canal system and eliminate any potential future failures of the canal embankment and resulting release of soil and sediment to waterways within Gallatin County. This may have a direct beneficial impact to the Lower Gallatin Watershed Restoration Planning Area and resulting environmental documents.

No Action Alternative – No direct, indirect, or cumulative adverse impacts to other environmental

documents pertinent to the area are expected.

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.

No potential human health and safety risks within the larger area surrounding the project have been identified (Discover DEQ Throughout Montana web mapping application and EPA NEPAssist web mapping application).

Proposed Alternative – Potential direct adverse impact to human health and safety due to safety risks associated with the operation of heavy construction equipment, working on a construction site, slopes, and potentially working near water during construction of the project. Potential adverse impacts to human health and safety are expected to impact project personal only and not impact any nearby residences or motorists since the project will be localized to the area of the existing canal, canal embankment, and any access areas. It is expected that any construction contractor would develop a health and safety plan that identifies human health and safety risks associated with the project and mitigation measures prior to starting construction.

No Action Alternative – Potential direct adverse impact to human safety due to the potential for a future failure of the canal embankment and release of large volume of water and soil toward roadways, infrastructure, and private properties.

15. INDUSTRIAL, COMMERCIAL AND AGRICULTURE ACTIVITIES AND PRODUCTION:
Identify how the project would add to or alter these activities.

The Highline Canal supplies irrigation water to 40 farmers and 14,000 acres of farmland in Gallatin County. Based on the 2017 Census for Agricultural for Gallatin County, there are 700,462 acres of land in farms of which 81,251 acres (12%) are irrigated. In 2017, the total market value of agricultural products sold in Gallatin County was $112,104,000, of which $69,017,000 were crops. Top crops produced in Gallatin County include hay and haylage, barley, spring wheat, winter wheat, potatoes, peas dry edible, lentils, canola, chickpeas, durum wheat, and other vegetables (Montana State University, Economic Impact of Agriculture, Gallatin County).

Proposed Alternative – No direct, indirect, or cumulative adverse impacts to industrial, commercial, and agricultural activities and production. The project would result in direct, indirect, and cumulative beneficial impacts to users of the Highline Canal, agricultural production, and agricultural activities in Gallatin County. Lining portions of the canal will reduce seepage losses and increase the efficiency of water transfer through the canal. This may result in increased crop yields and revenues for canal users. It will also eliminate the potential for future failures of the canal embankment and resulting adverse impacts to irrigation users from the need to either shut down or disrupt the distribution of irrigation water to repair the canal. Ensuring that the canal can operate without risk of embankment failure will allow irrigators to have predictable and reliable

irrigation water for crop production, which will support industrial and commercial agricultural related businesses and activities.

No Action Alternative – Potential continued direct, indirect, and cumulative adverse impacts. The risk of a future canal embankment failure and resulting impacts from either having to shutdown the canal or disrupt irrigation water delivery to repair the canal would remain. The inability to deliver reliable irrigation water to 14,000 acres of farmland (i.e., 17% of the total 81,251 acres of irrigated farmland in Gallatin County) would have a direct, indirect, and cumulative adverse impact to irrigation users, and industrial, commercial, and agricultural activities and productions in Gallatin County due to reduced crop yields and lost revenues.

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16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:

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

The population of Gallatin County in 2020 was 118,960 (United States Census Bureau). Implementation of the project is expected to use standard construction equipment, materials, and supplies that are 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 Gallatin County and the local area.

Proposed Alternative – No direct, indirect, and cumulative adverse impacts to quantity and distribution of employment. Potentially short-term direct and indirect beneficial impacts to the local employment market and suppliers by creating a job opportunity for local contractors and material suppliers. It is not expected that the project would create, move, or eliminate jobs.

No Action Alternative – No direct, indirect, and cumulative adverse impacts to quantity or distribution of employment.

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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.

Over 42% of land in Gallatin County is classified as farmland (Montana State University, Economic Impact of Agriculture, Gallatin County). In 2019, the market value of all property in Gallatin County was approximately $22 billion. The taxable value of all property was $361 million. Agricultural property comprised $3.5 million (0.99%) of the taxable value of all property in the County (Montana State University Extension, Economic Impact of Agriculture, Carbon County, January 2021).

Based on Montana Cadastral, property ownership of the parcels on which Phase 2: Liner Installation work will occur is privately owned. Per the Montana Department of Revenue Electronic Property Record Card Application, the 2023 value of these parcels is:

- Type: IMP_R – Improved Property - Rural, market value $1,612,881, taxable value $22,186.
- Type: IMP_R – Improved Property – Rural, market value $792,357, taxable value $10,919.

Proposed Alternative – No direct, indirect, or cumulative adverse impacts to local and state tax base

and tax revenues. Direct, indirect, and cumulative beneficial impacts are expected. Installing liner material will eliminate seepage losses, and the threat of future embankment failure. It will also facilitate consistent and reliable irrigation water to users of the Highline Canal. This may result in increased crop production and increased local and state tax revenues associated with agricultural production and sales.

No Action Alternative – Potential direct, indirect, and cumulative adverse impacts to the local and state tax base and revenues. The risk of a future canal embankment failure and resulting impacts from either having to shut down the canal or disrupt irrigation water delivery to repair the canal would remain. If irrigation water is unreliable or unavailable, crop production may decrease resulting in decreased tax revenues associated with agricultural production and crop sales. Property values and tax revenues associated with farms serviced by the Highline Canal may also be directly adversely impacted. Availability of irrigation water is a resource that contributes to the value of land. If irrigation water is not available, the value of the land and associated taxes may decrease.

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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

Phase 2 of the project is located on private, rural property approximately 3 miles northwest of Gallatin Gateway. The nearest fire protection and school is located approximately 2 miles southeast Gallatin Gateway. The nearest police services are in Bozeman located approximately 9 miles northwest. The project area is accessed via rural roads and privately owned land.

Proposed Alternative – No direct, indirect, or cumulative adverse impacts to demand for government services are expected. Deliveries of equipment and materials necessary to construct the project are expected to use existing roadways and follow existing traffic patterns. Given the rural setting of the project, no increases to traffic are expected. Depending on access points and material staging locations, minor traffic control may be necessary on Axtell Anceny Road near project work areas. No changes to fire protection, police, schools, etc. are expected beyond basic fire control measures and equipment expected at any type of construction project (i.e., fire extinguisher, shovels, buckets, extra water).

No Action Alternative – No direct, indirect, and cumulative adverse impacts to demand for government services.

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19. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:

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

There are no known State, County, City, USFS, BLM, Tribal, and other zoning or management plans within the project area (Environmental Protection Agency NEPAssist and Montana DEQ Discover DEQ Throughout Montana web mapping applications).

Proposed Alternative – No direct, indirect, and cumulative adverse impacts to locally adopted environmental plans and goals.

No Action Alternative – No direct, indirect, and cumulative adverse impacts to locally adopted environmental plans and goals.

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20. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:
Identify any wilderness or recreational areas nearby or access routes through this tract. Determine the effects of the project on recreational potential within the tract. Identify direct, indirect, and cumulative effects to recreational and wilderness activities.

The area surrounding the project is primarily rural residential properties and cultivated cropland and not used for recreation. No wilderness or recreational areas within the larger project area have been identified.

Proposed Alternative – No direct, indirect, or cumulative adverse impacts to access to and quality of recreational and wilderness activities.

No Action Alternative – No direct, indirect, and cumulative adverse impact to access to and quality of recreational and wilderness activities.

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21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:
Estimate population changes and additional housing the project would require. Identify direct, indirect, and cumulative effects to population and housing.

The population of Gallatin County in 2020 was 118,960 with 52,835 housing units.

Proposed Alternative – No direct, indirect, or cumulative adverse impacts to the density and distribution of the population within Gallatin County are expected. Implementation of the project is expected to use standard construction equipment that is also expected to be locally available. Construction of the project will likely be performed by existing local contractors and project personnel living and working within Gallatin County and the local area; no additional housing is expected.

No Action Alternative – No direct, indirect, or cumulative adverse impacts to density and distribution of population and housing.

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22. SOCIAL STRUCTURES AND MORES:
Identify potential disruption of native or traditional lifestyles or communities.

The area surrounding the project is primarily used as rural residential properties and cultivated cropland (Montana Natural Heritage Program). No federally recognized Tribal land is within the project area. The larger project area was traditionally inhabited or used by the Shoshone-Bannock, Cheyenne, Salish, and Crow Tribes (Native Land Digital web mapping application).

Proposed Alternative – No direct, indirect, or cumulative adverse impacts to social structures and/or traditional lifestyles or communities are expected. The project is installing liner material in a man-made irrigation canal used for agricultural purposes. Current communities and lifestyles are expected to remain as is and not change because of the project.

Potential direct, indirect, and cumulative beneficial impacts to the existing agricultural community may result since the installation of liner material will eliminate seepage losses and allow for the more efficient and reliable delivery of irrigation water to canal users. The reliable delivery of irrigation water will support crop production and benefit the local agricultural community.

No Action Alternative – Potential direct, indirect, and cumulative adverse impacts to the local agricultural community serviced by the Highline Canal. The risk of a future canal embankment failure and resulting impacts from either having to shut down the canal or disrupt irrigation water delivery to repair the canal would remain. If irrigation water is unreliable or unavailable, crop production may decrease resulting in adverse impacts to the local agricultural community and revenues.

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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 primarily rural residential and cultivated farmland that supports an agriculturally based community.

Proposed Alternative – No direct, indirect, or cumulative adverse impacts to any unique quality of the project area, local residents, or nearby communities are expected. The project is installing liner in a man-made canal within the existing canal profile. The postconstruction project area is expected to resemble and function in the same manner as preconstruction conditions.

No Action Alternative – Potential direct, indirect, and cumulative adverse impacts to the local agriculturally based community. The canal will remain subject to seepage losses, saturated soils, and potential embankment failures. Future potential failures of the embank would result in the canal either being shut down, or disruptions in irrigation water delivery, to repair the canal. Any disruption to the delivery of irrigation water will adversely impact irrigation users and crop productions which will in turn adversely impact the local agricultural community.

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24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:

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

Over 42% of land in Gallatin County is classified as farmland (Montana State University, Economic Impact of Agriculture, Gallatin County). Top crops produced in Gallatin County include hay and haylage, barley, spring wheat, winter wheat, potatoes, peas dry edible, lentils, canola, chickpeas, durum wheat, and other vegetables (Montana State University, Economic Impact of Agriculture, Gallatin County). The future uses of land serviced by the Highline Canal are likely to remain the same as its current uses.

Per the United Stated Department of Agriculture, the 2017 Agricultural Census indicates that the total market value of agricultural products sold was $112,104,000 of which $69,017,000 was crops and $43,087,000 was livestock. The per farm average market value of products (crops plus livestock) sold was $99,826. The 14,000-acres of land irrigated by the Highline Canal contributes to the overall economics associated with agriculture in Gallatin County.

Proposed Alternative – No direct, indirect, or cumulative adverse impacts to other appropriate social and economic circumstances are expected. Direct, indirect, and cumulative beneficial impacts for users of the Highline Canal and associated agricultural related businesses are expected. The project will result in a lined ditch with less risk of failure that can reliably deliver water to irrigation users thus supporting crop production and economic revenues associated with agricultural production in Gallatin County.

No Action Alternative – Potential direct, indirect, and cumulative negative adverse impacts to the agricultural community serviced by the Highline Canal and associated agricultural economics. The 14,000-acres of land irrigated by the Highline Canal contributes to the overall economics associated with agriculture in Gallatin County. The canal will remain subject to failure in the future from seepage and saturated soils and potential shut down. The inability to efficiently supply irrigation water to users of the Highline Canal will directly and adversely impact crop production which will in turn adversely impact the overall economics associated with agriculture and crop production in Gallatin County.

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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 within the project area. Scattered, rural residential properties primarily rely on domestic groundwater supply wells for water (Montana Groundwater Information System web mapping application). Septic systems are commonly used in lieu of sewer infrastructure for rural residences.

Proposed Alternative – No direct, indirect, or cumulative adverse impacts to drinking water and/or clean water are expected since no water and/or sewer infrastructure has been identified within the project area.

No Action Alternative – No direct, indirect, or cumulative adverse impacts to drinking water and/or clean water are expected since no water and/or sewer infrastructure has been identified within the project area.

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26. ENVIRONMENTAL JUSTICE

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

In 2021, the median household income in Gallatin County was $78,910, and people in poverty was 8.8% which is a -2.6% change from 2016 to 2021 (Montana Department of Commerce).

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

No Action Alternative – No direct, indirect, or cumulative adverse impacts to environmental justice.

EA Prepared By:	**Name:**	Samantha Treu	**Date:**	11/14/2023
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V. FINDING

27. ALTERNATIVE SELECTED:

No known alternatives were considered during Phase 1A, Emergency Repair (June – July 2021) or Phase, 1B Liner Installation (October to November 2021). No alternatives are known to have been evaluated for future Phase 2, Liner Installation.

28. SIGNIFICANCE OF POTENTIAL IMPACTS:

Public Involvement, Agencies, Groups, or Individual Contacted

No public involvement activities or project notices placed in any newspapers are known to have been completed.

Alternative Development

No known alternatives were considered during Phase 1A, Emergency Repair (June – July 2021) or Phase 1B, Liner Installation (October to November 2021). No alternatives are known to have been evaluated for future Phase 2, Liner Installation.

Geology and Soil Quality, Stability, and Moisture

Potential temporary, short-term, direct adverse impacts to soils along the canal embankment from construction activities. The soils along the canal embankment where liner installation work will occur will be disturbed due to the nature of construction techniques required to install the liner material. Adverse impacts are expected to be localized to the areas along the edges of the canal and only impact soils necessary for access to and installation of the liner. No long-term direct, indirect, or cumulative adverse impacts are expected. Installation of liner material will have a beneficial impact by preventing canal embankment soils from becoming saturated and unstable and will prevent future breaches in the canal and resulting damages to the environment and property.

Water Quality, Quantity, and Distribution

No direct, indirect, or cumulative adverse impacts to water quality, quantity, or distribution are expected. The Phase 2 liner installation work is located along a segment of the canal that is west/northwest of both the Cockrell Ditch and Fish Creek on the opposite side of the hill from the prior breach locations. It is expected that flow in the canal would either be turned off or diverted around the work location during installation of the liner. If diverted, it is expected that best management practices (BMPs) would be implemented to prevent the release of soil and sediment to flowing portions of the canal. The physical location of the Phase 2 liner installation work appears to be preventative of any potential minor release of soil and sediment from flowing into the Cockrell Ditch or Fish Creek.

Air Quality

Potential temporary, short-term, direct adverse impacts to air quality may occur during construction from ground disturbance caused by construction activities. Any adverse impacts, particularly dust, are expected to be localized and only affect the immediate area surrounding the work area. The nearest residential structure is located immediately upslope, on the top of the hill, from the Phase 2 liner installation work area (Google Earth imagery). Motorists traveling along Axtell Anceny Road may also be subject to dust. Dust suppression (i.e., water application) and/or other BMPs are expected to be implemented during the project to reduce adverse impacts from dust. Long-term adverse impacts are not expected. The project is short-term with construction projected to last two months.

Vegetation Cover, Quantity, and Quality

Direct temporary, short-term adverse impacts to vegetation cover, quantity, and quality along the canal embankment and access areas from construction activities associated with liner installation and access necessary to complete the work. Any adverse impacts are expected to be localized to the work areas and short-term since the project is expected to last two months. Disturbed areas are expected to either reestablish naturally by the seedbank in existing disturbed materials, natural distribution of seed from the surrounding native vegetation, or if the final engineering design calls for it, the spreading of a specified seed mix.

Long-term, direct, indirect, and cumulative beneficial impacts outweigh any potential short-term direct adverse impacts. Installing liner material will limit seepage losses that are currently saturating soils along the canal and causing them to be unstable. Failure of unstable soils will have direct adverse impacts to the vegetation within the failure area and indirect adverse impacts to any vegetation located downslope of a failure location. This has already been shown by the 2021 failure which adversely impacted vegetation along the downslope bank of the canal and vegetation within the affected farm field.

Terrestrial, Avian, and Aquatic Life and Habitats

Potential temporary and short-term direct adverse impacts to terrestrial, avian, and aquatic life and habitats along segments of the canal where liner will be installed due to the nature of construction activities. People and heavy equipment will be present during construction of the project which may disturb and disrupt normal terrestrial, bird, and aquatic life habitat and activities within the immediate vicinity of work areas. Similar type terrestrial and bird habitat is readily available within the surrounding larger project work areas and similar type aquatic life habitat is readily available both upstream and downstream of segments to be lined (if irrigation water is turned on). Any adverse impacts are expected to be short-term with the project projected to take two months to complete. With exception of a polyethylene liner vs earthen bottom, postconstruction canal conditions are expected to be similar to, if not the same as, preconstruction conditions.

Long-term direct, indirect, and cumulative beneficial impacts outweigh the short-term direct adverse impacts. Installing liner material in the canal will ensure the embankment remains stabilized for the long term and does not fail thus protecting terrestrial, avian, and aquatic life habitats that would be adversely impacted by a failure of the canal embankment.

Unique, Endangered, Fragile, or Limited Environmental Resources

Wetlands and Riparian Zones

Potential direct adverse impacts to wetlands and forested/shrub riparian habitat along localized

portions of the canal to be lined. Depending on final engineering design, the edge of wetland and forested/shrub riparian areas may be directly adversely impacted by liner installation activities. It is recommended that impacts to wetland and forested/shrub riparian habitat and mitigation measures be evaluated during the Phase 2, Liner Installation preliminary engineering design process.

Critical Habitat

No direct, indirect, or cumulative adverse impacts to bat roost (non-cave) habitat. An irrigation canal and embankment area are not preferable bat habitat when compared to habitat available within the larger project area, but flying insects associated with the canal could draw bats to the project area. Construction work should be limited to daylight hours and no artificial lighting should be used outside of daylight hours that could lure in insects, providing an attractant to bats.

Aesthetics

Potential temporary, short-term, direct adverse impacts on aesthetics due to noise and dust associated with general construction activities. Residents living within the area and motorist traveling on Axtell Anceny Road may hear noise, see dust, and see construction equipment throughout the duration of the Phase 2 Liner Installation project. Dust suppression and BMPs are planned to be implemented during the project to limit dust. Given the safety hazards associated with working at night, it is expected that construction will take place during daylight hours, thus no adverse impacts from light are expected. No long-term, direct, indirect, or cumulative adverse impacts to aesthetics are expected. Any adverse noise and dust impacts will be short-term and will only occur during construction activity. Liner material is being installed within the current profile of the canal and disturbed areas are expected to be restored. The canal is a human-made structure and post-construction aesthetics will resemble, if not be the same, as preconstruction aesthetics.

Human Health and Safety

Potential direct adverse impact to human health and safety due to safety risks associated with the operation of heavy construction equipment, working on a construction site, slopes, and potentially working near water during construction of the project. Potential adverse impacts to human health and safety are expected to impact project personal only and not impact any nearby residences or motorists since the project will be localized to the area of the existing canal, canal embankment, and any access areas. It is expected that any construction contractor would develop a health and safety plan that identifies human health and safety risks associated with the project and mitigation measures prior to starting construction.

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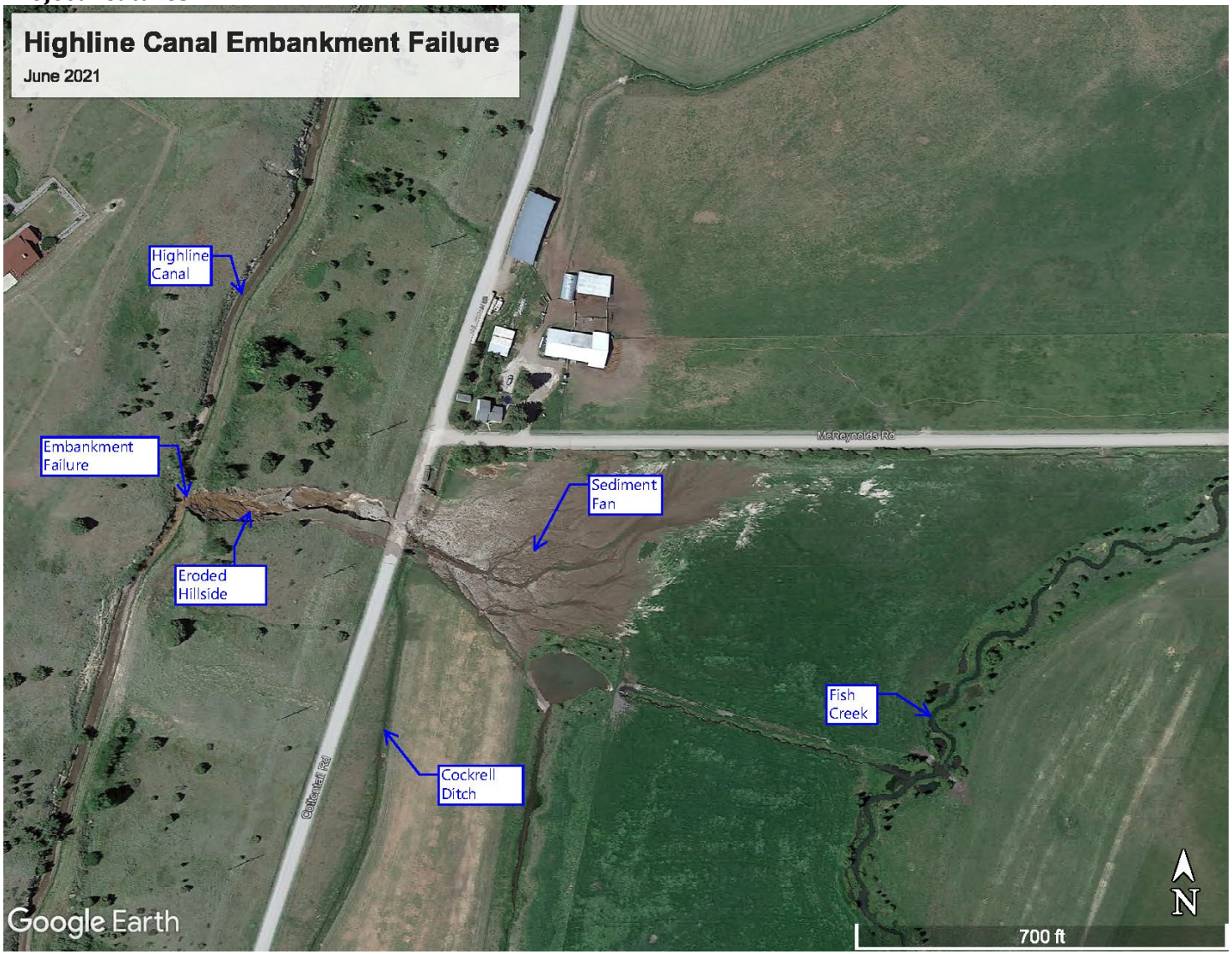
29. NEED FOR FURTHER ENVIRONMENTAL ANALYSIS:

This is the final environmental review. No further analysis is required to understand the environmental impacts of the proposed project construction and no significant impacts are anticipated to occur.

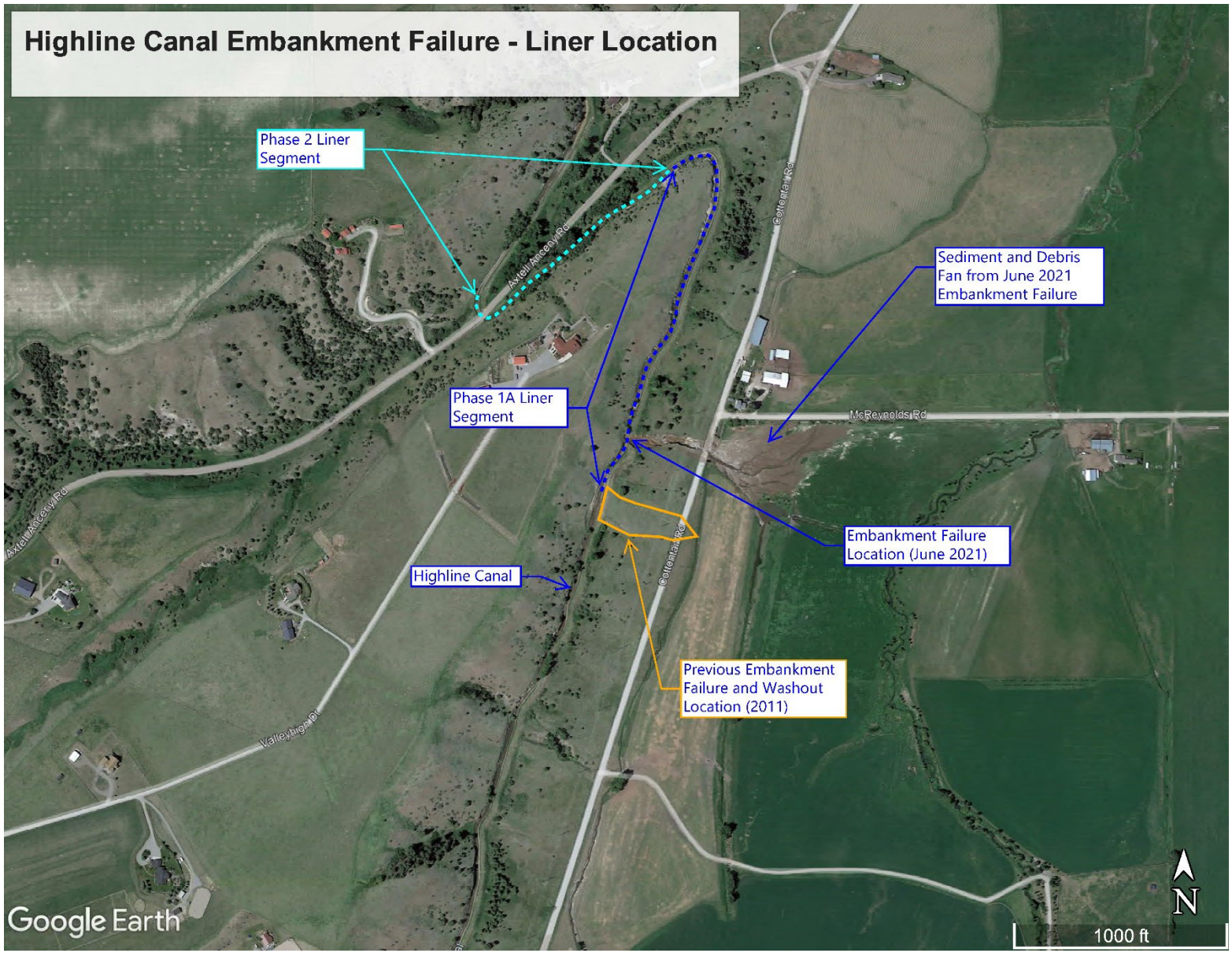
☐ EIS ☐ More Detailed EA ☒ No Further Analysis

EA Approved By:	**Name:** Mark W Bostrom **Title:** Division Administrator
Signature: Mark W Bostrom	**Date**: 12/27/2023

Project Features



Liner Installation Locations



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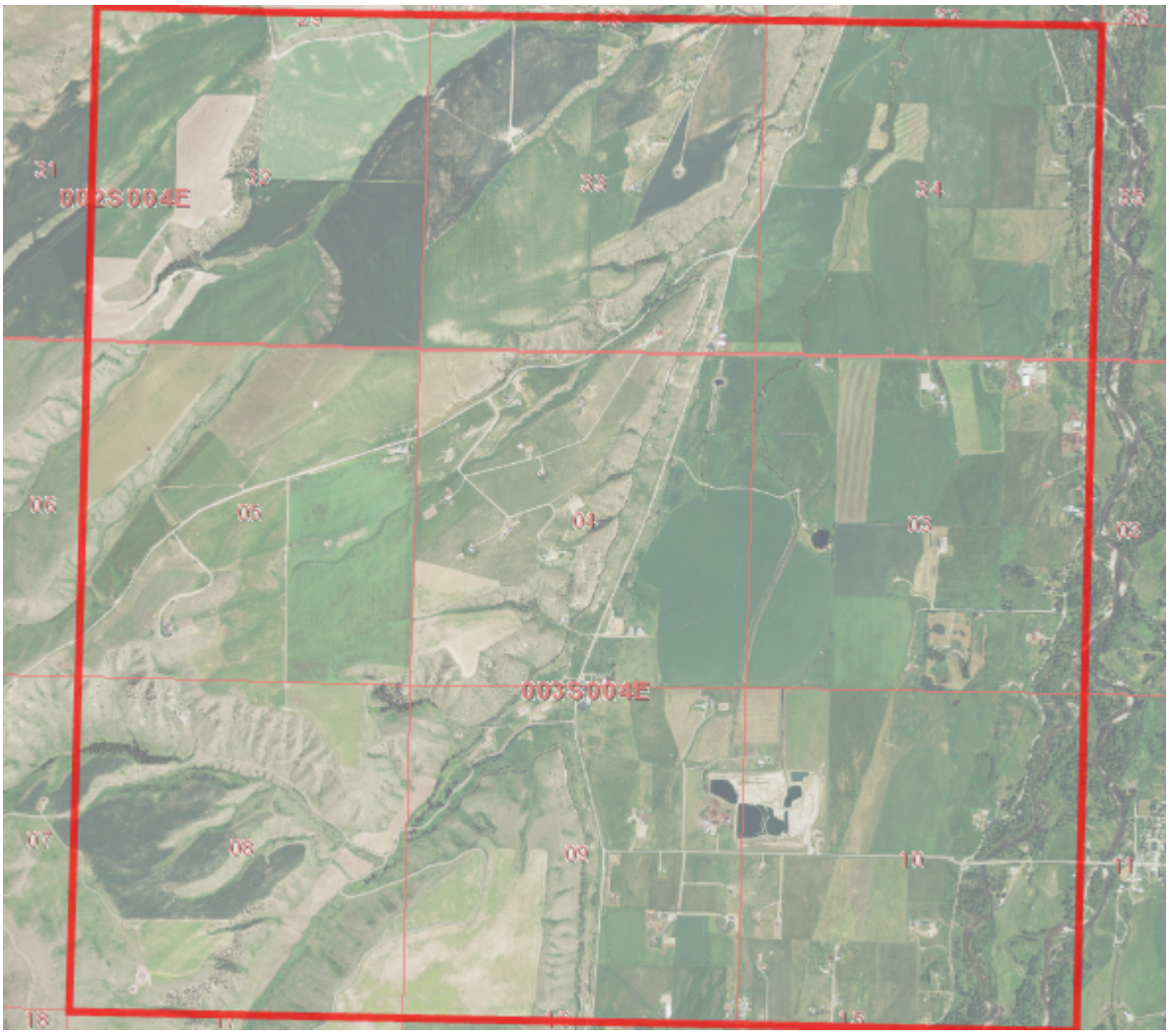
NATURAL HERITAGE PROGRAM mtnhp.org
1201 11th Ave ▫ P.O. Box 201800 ▫ Helena, MT 59620-1800 ▫ fax 406-444-0266 ▫ phone 406-444-3989

Environmental Summary

Latitude	Longitude
45.58287	-111.20716
45.62826	-111.26959

Summarized by:
003S004E004
(Buffered PLSS Section)



Suggested Citation
Montana Natural Heritage Program. Environmental Summary Report.
for Latitude 45.58287 to 45.62826 and Longitude -111.20716 to -111.26959. Retrieved on 10/23/2023.

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 the NatureServe network that is composed of over 60 member programs across North America that work to provide current and comprehensive distribution and status information on species and biological communities.

MONTANA STATE LIBRARY NATURAL HERITAGE PROGRAM

NATURESERVE

Table of Contents

Introduction to Environmental Summary Report

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

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

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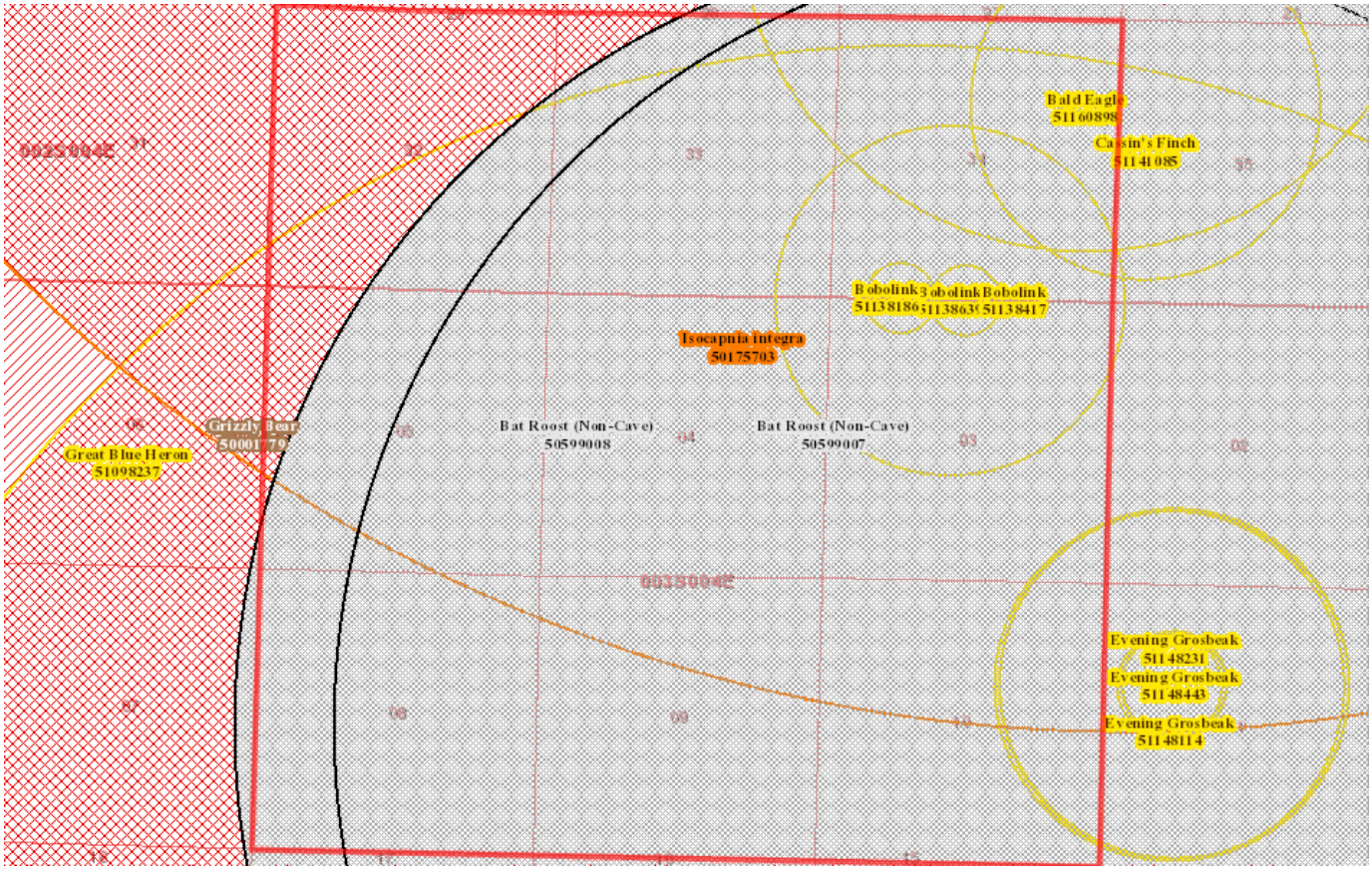
Model Icons	Habitat Icons	Range Icons	Num Obs
N Suitable (native range)	C Common	Y Native / Year-round	Count of obs with 'good precision' (<=1000m)
O Optimal Suitability	O Occasional	S Summer	+ indicates additional 'poor precision' obs (1001m-10,000m)
M Moderate Suitability		W Winter	
L Low Suitability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

Latitude	Longitude
45.58287	-111.20716
45.62826	-111.26959

Native Species

Summarized by: **003S004E004** *(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
B - Great Blue Heron *(Ardea herodias)* SOC		1	9		Y S M
B - Bobolink *(Dolichonyx oryzivorus)* SOC		3	4		S M
B - Bald Eagle *(Haliaeetus leucocephalus)* SSS		1	17		Y
M - Grizzly Bear *(Ursus arctos)* SOC		1			Y H

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: Jun 27, 2023)

Predicted Models: O 12% Optimal (inductive), M 5% Moderate (inductive), L 35% Low (inductive)

View in Field Guide **View Predicted Models** **View Range Maps**
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA; BCC10; BCC11; BCC17** FWP SWAP: **SGCN3** PIF: **3**

Delineation Criteria Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 150 meters in order to conservatively encompass male territory size reported for the species and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Jun 30, 2023)

Predicted Models: M 45% Moderate (inductive), L 54% Low (inductive)

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

Delineation Criteria Confirmed nesting area buffered by a minimum distance of 2,000 meters in order to be conservative about encompassing the breeding territory and area commonly used for renesting. Only nesting observations with a locational uncertainty of 1,000 meters or less will be used to delineate a nesting area. (Last Updated: Sep 05, 2023)

Predicted Models: M 17% Moderate (inductive), L 35% Low (inductive)

View in Field Guide **View Predicted Models** **View Range Maps**
Species of Concern - Native Species Global: **G4** State: **S2S3** USFWS: **LT** BLM: **THREATENED** FWP SWAP: **SGCN2-3**

Delineation Criteria Species Occurrence polygons represent areas delineated by the U.S. Fish and Wildlife Service (USFWS) that encompass both home ranges and potential transitory movements based on verified sightings. Within these areas, the USFWS wants project proponents to consider whether the species â€œmay be presentâ€ when evaluating the potential impacts of a project and to work with the USFWS to develop and implement best management practices to minimize or eliminate project effects on the species. (Last Updated: Jul 06, 2023)

Predicted Models: L 91% Low (inductive)

B - Evening Grosbeak *(Coccothraustes vespertinus)* SOC | 3 | 3 | Y | WM

Species of Concern - Native Species Global: **G5** State: **S3** USFWS: **MBTA; BCC10** FWP SWAP: **SGCN3**

Delineation Criteria Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 1,000 meters in order to encompass the maximum foraging distance from nests reported for the species and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Jun 30, 2023)

Predicted Models: L 5% Low (inductive)

B - Cassin's Finch *(Haemorhous cassinii)* SOC | 1 | 3 | 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**

Delineation Criteria Observations with evidence of breeding activity buffered by a minimum distance of 300 meters in order to be conservative about encompassing the courtship and foraging distance from nesting areas and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Jun 30, 2023)

Predicted Models: L 1% Low (inductive)

I - Isocapnia integra *(Alberta Snowfly)* SOC | 1 | Not Assessed | Y

View in Field Guide View Range Maps

Species of Concern - Native Species Global: **G4G5** State: **S2**

Delineation Criteria Confirmed breeding area based on the presence of a resident animal of any age. Point observation location is buffered by a minimum distance of 100 meters in order to encompass the home range of the individual as well as adjacent habitat likely to support other individuals and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Mar 22, 2016)

O - Bat Roost (Non-Cave) *(Bat Roost (Non-Cave))* IAH | 2 | Not Assessed

View in Field Guide

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

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

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

Latitude	Longitude
45.58287	-111.20716
45.62826	-111.26959

Native Species

Summarized by: **003S004E004** *(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

Other Observed Species

	USFWS Sec7	# Obs	Predicted Model	Range
M - Uinta Ground Squirrel *(Urocitellus armatus)* PSOC		1		Y
View in Field Guide **View Predicted Models** **View Range Maps**				
Potential Species of Concern - Native Species Global: **G5** State: **S3S4** FWP SWAP: **SGIN**				
Predicted Models: M 45% Moderate (inductive), L 4% Low (inductive)				
B - Rufous Hummingbird *(Selasphorus rufus)* PSOC		1		S M
View in Field Guide **View Predicted Models** **View Range Maps**				
Potential Species of Concern - Native Species Global: **G4** State: **S4B** USFWS: **MBTA; BCC10** PIF: **3**				
Predicted Models: M 20% Moderate (inductive), L 80% Low (inductive)				
B - Trumpeter Swan *(Cygnus buccinator)* SOC		1		Y M
View in Field Guide **View Predicted Models** **View Range Maps**				
Species of Concern - Native Species Global: **G4** State: **S3** USFWS: **MBTA** USFS: **Sensitive - Known in Forests (BD)** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **1**				
Predicted Models: M 16% Moderate (inductive), L 75% Low (inductive)				
B - Golden Eagle *(Aquila chrysaetos)* SOC		3		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: M 11% Moderate (inductive), L 83% Low (inductive)				
B - Clark's Nutcracker *(Nucifraga columbiana)* SOC		1		Y
View in Field Guide **View Predicted Models** **View Range Maps**				
Species of Concern - Native Species Global: **G5** State: **S3** USFWS: **MBTA** USFS: **Species of Conservation Concern in Forests (FLAT)** FWP SWAP: **SGCN3** PIF: **3**				
Predicted Models: M 4% Moderate (inductive), L 34% Low (inductive)				
B - Greater Sage-Grouse *(Centrocercus urophasianus)* SOC		1		Y
View in Field Guide **View Predicted Models** **View Range Maps**				
Species of Concern - Native Species Global: **G3G4** State: **S2** USFS: **Sensitive - Known in Forests (BD)** **Species of Conservation Concern in Forests (CG)** BLM: **SENSITIVE** FWP SWAP: **SGCN2** PIF: **1**				
Predicted Models: L 1% Low (inductive)				
B - Franklin's Gull *(Leucophaeus pipixcan)* SOC		1	Not Assessed	S M
View in Field Guide **View Range Maps**				
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA; BCC10; BCC11; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**				
B - Loggerhead Shrike *(Lanius ludovicianus)* SOC		1	Not Assessed	S M
View in Field Guide **View Range Maps**				
Species of Concern - Native Species Global: **G4** State: **S3B** USFWS: **MBTA** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**				
B - Black-and-white Warbler *(Mniotilta varia)* PSOC		1	Not Assessed	M
View in Field Guide **View Range Maps**				
Potential Species of Concern - Native Species Global: **G5** State: **S4B** USFWS: **MBTA**				

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

Habitat Icons
C Common
O Occasional

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

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

Latitude	Longitude
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Native Species

Summarized by: **003S004E004** *(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

Other Potential Species

B - Broad-tailed Hummingbird *(Selasphorus platycercus)* PSOC — USFWS Sec7 | Predicted Model | Range: S M

View in Field Guide | View Predicted Models | View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S4B** USFWS: **MBTA; BCC10** FWP SWAP: **SGIN**
Predicted Models: O 12% Optimal (inductive), M 22% Moderate (inductive), L 48% Low (inductive)

B - Veery *(Catharus fuscescens)* SOC — Range: 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: O 12% Optimal (inductive), M 16% Moderate (inductive), L 72% Low (inductive)

B - Hooded Merganser *(Lophodytes cucullatus)* PSOC — Range: Y M

View in Field Guide | View Predicted Models | View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S4** USFWS: **MBTA** FWP SWAP: **SGIN** PIF: **2**
Predicted Models: O 5% Optimal (inductive), M 12% Moderate (inductive), L 46% Low (inductive)

B - Black-crowned Night-Heron *(Nycticorax nycticorax)* SOC — Range: 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: O 5% Optimal (inductive), M 12% Moderate (inductive), L 22% Low (inductive)

V - Sidalcea oregana *(Oregon Checker-mallow)* SOC — Range: Y

View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species Global: **G5** State: **S2S3** USFS: **Species of Conservation Concern in Forests (CG)** Plant Threat Score: **High - Medium**
Predicted Models: O 5% Optimal (inductive), M 12% Moderate (inductive), L 4% Low (inductive)

I - Bombus suckleyi *(Suckley Cuckoo Bumble Bee)* SOC — Range: Y

View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species Global: **G2G3** State: **S1**
Predicted Models: M 91% Moderate (inductive), L 9% Low (inductive)

V - Carex crawei *(Crawe's Sedge)* SOC — Range: Y

View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species Global: **G5** State: **S2S3** Plant Threat Score: **Low**
Predicted Models: M 45% Moderate (inductive), L 54% Low (inductive)

V - Eleocharis rostellata *(Beaked Spikerush)* SOC — Range: Y

View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3** USFS: **Species of Conservation Concern in Forests (CG, FLAT, HLC)** Plant Threat Score: **Unknown**
CCVI: **Less Vulnerable**
Predicted Models: M 45% Moderate (inductive), L 19% Low (inductive)

M - Hoary Bat *(Lasiurus cinereus)* SOC — Range: S M

View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species Global: **G3G4** State: **S3B** BLM: **SENSITIVE** FWP SWAP: **SGCN3**
Predicted Models: M 39% Moderate (inductive), L 61% Low (inductive)

I - Danaus plexippus *(Monarch)* SOC — Range: S

View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species Global: **G4** State: **S2S3** USFWS: **C**
Predicted Models: M 39% Moderate (inductive), L 52% Low (inductive)

B - American White Pelican *(Pelecanus erythrorhynchos)* SOC — Range: S M

View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species Global: **G4** State: **S3B** USFWS: **MBTA** FWP SWAP: **SGCN3** PIF: **3**
Predicted Models: M 39% Moderate (inductive), L 43% Low (inductive)

V - Astragalus terminalis *(Railhead Milkvetch)* SOC — Range: Y

View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species Global: **G3** State: **S2S3** BLM: **SENSITIVE** Plant Threat Score: **Unknown** CCVI: **Moderately Vulnerable**
Predicted Models: M 31% Moderate (inductive), L 11% Low (inductive)

M - North American Porcupine *(Erethizon dorsatum)* PSOC — Range: Y

View in Field Guide | View Predicted Models | View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S3S4** FWP SWAP: **SGIN**
Predicted Models: M 28% Moderate (inductive), L 72% Low (inductive)

V - Stellaria crassifolia *(Fleshy Stitchwort)* SOC

Species of Concern - Native Species Global: **G5** State: **S2** Plant Threat Score: **No Known Threats**

Predicted Models: M 28% Moderate (inductive), L 17% 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 17% Moderate (inductive), L 83% Low (inductive)

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

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 17% Moderate (inductive), L 65% Low (inductive)

V - Impatiens aurella *(Pale-yellow Jewel-weed)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G4** State: **S3** Plant Threat Score: **No Known Threats**

Predicted Models: M 17% Moderate (inductive), L 28% Low (inductive)

B - White-faced Ibis *(Plegadis chihi)* SOC

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 17% Moderate (inductive), L 22% Low (inductive)

V - Potentilla plattensis *(Platte Cinquefoil)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G4** State: **S3** Plant Threat Score: **No Known Threats** CCVI: **Highly Vulnerable**

Predicted Models: M 16% Moderate (inductive), L 21% Low (inductive)

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

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **PS: LT; MBTA** BLM: **THREATENED** FWP SWAP: **SGCN3, SGIN** PIF: **2**

Predicted Models: M 13% Moderate (inductive), L 32% Low (inductive)

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

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 12% Moderate (inductive), L 62% 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: M 12% Moderate (inductive), L 54% Low (inductive)

M - Wyoming Ground Squirrel *(Urocitellus elegans)* PSOC

View in Field Guide View Predicted Models View Range Maps

Potential Species of Concern - Native Species Global: **G5** State: **S3S4**

Predicted Models: M 11% Moderate (inductive), L 80% 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 11% Moderate (inductive), L 52% Low (inductive)

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

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 10% Moderate (inductive), L 50% Low (inductive)

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

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 8% Moderate (inductive), L 42% Low (inductive)

V - Ranunculus hyperboreus *(High Northern Buttercup)* PSOC

View in Field Guide View Predicted Models View Range Maps

Potential Species of Concern - Native Species Global: **G5** State: **S3S4**

Predicted Models: M 7% Moderate (inductive), L 41% Low (inductive)

B - Black Tern *(Chlidonias niger)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G4G5** State: **S3B** USFWS: **MBTA; BCC10; BCC11; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**

Predicted Models: M 5% Moderate (inductive), L 34% Low (inductive)

B - Pileated Woodpecker *(Dryocopus pileatus)* SOC

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 5% Moderate (inductive), L 19% Low (inductive)

M - Fringed Myotis *(Myotis thysanodes)* 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 4% Moderate (inductive), L 78% Low (inductive)

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

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

Predicted Models: M 4% Moderate (inductive), L 72% Low (inductive)

B - American Bittern *(Botaurus lentiginosus)* SOC

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 4% Moderate (inductive), L 45% Low (inductive)

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

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: 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)

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

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: L 92% Low (inductive)

B - Sage Thrasher *(Oreoscoptes montanus)* SOC

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: L 85% Low (inductive)

M - Long-eared Myotis *(Myotis evotis)* SOC

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: L 83% 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: L 83% Low (inductive)

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

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: L 78% Low (inductive)

M - Spotted Bat *(Euderma maculatum)* SOC

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: L 76% 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 67% Low (inductive)

B - Ferruginous Hawk *(Buteo regalis)* SOC

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: L 57% Low (inductive)

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

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: L 50% Low (inductive)

B - Black-billed Cuckoo *(Coccyzus erythropthalmus)* SOC

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: L 46% Low (inductive)

B - Short-eared Owl *(Asio flammeus)* PSOC

View in Field Guide View Predicted Models View Range Maps

Potential Species of Concern - Native Species Global: **G5** State: **S4** USFWS: **MBTA; BCC11; BCC17** PIF: **3**

Predicted Models: L 45% 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: L 45% Low (inductive)

M - Townsend's Big-eared Bat *(Corynorhinus townsendii)* 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: L 43% Low (inductive)

B - Pinyon Jay *(Gymnorhinus cyanocephalus)* SOC

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

Predicted Models: L 43% Low (inductive)

B - Common Poorwill *(Phalaenoptilus nuttallii)* PSOC

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: L 42% Low (inductive)

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

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: L 39% Low (inductive)

V - Primula incana *(Mealy Primrose)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3** USFS: **Sensitive - Known in Forests (BD)** Plant Threat Score: **High** CCVI: **Highly Vulnerable**

Predicted Models: L 39% Low (inductive)

B - Harlequin Duck *(Histrionicus histrionicus)* SOC

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: L 39% Low (inductive)

B - Ovenbird *(Seiurus aurocapilla)* PSOC

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: L 39% Low (inductive)

V - Atriplex truncata *(Wedge-leaf Saltbush)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3** Plant Threat Score: **Unknown**

Predicted Models: L 34% Low (inductive)

V - Dichanthelium acuminatum *(Panic Grass)* SOC

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: L 32% Low (inductive)

A - Western Toad *(Anaxyrus boreas)* SOC

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: L 29% Low (inductive)

B - Meesia triquetra *(Meesia Moss)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G5** State: **S2** USFS: **Sensitive - Known in Forests (BRT, KOOT)** **Sensitive - Suspected in Forests (LOLO)** **Species of Conservation Concern in Forests (CG, FLAT)**

Predicted Models: L 28% Low (inductive)

M - Canada Lynx *(Lynx canadensis)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3** USFWS: **LT; CH** BLM: **THREATENED** FWP SWAP: **SGCN3**

Predicted Models: L 24% Low (inductive)

V - Gentianopsis simplex *(Hiker's Gentian)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G5** State: **S2** USFS: **Sensitive - Known in Forests (BD)** **Sensitive - Suspected in Forests (KOOT, LOLO)** **Species of Conservation Concern in Forests (CG)** Plant Threat Score: **Unknown** CCVI: **Extremely Vulnerable**

Predicted Models: L 20% Low (inductive)

M - Wolverine *(Gulo gulo)* 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: L 12% Low (inductive)

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

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native/Non-native Species - (depends on location or taxa) Global: **G5T4** State: **S2** BLM: **SENSITIVE** FWP SWAP: **SGCN2**

Predicted Models: I 13% Suitable (introduced range) (deductive)

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

View in Field Guide View Range Maps

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

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45.58287	-111.20716
45.62826	-111.26959

Structured Surveys

Summarized by: **003S004E004** *(Buffered PLSS Section)*

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

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

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

A-Nocturnal Calling Amphibian *(Nocturnal Breeding Amphibian Calling Survey)*	**Survey Count**: 6	**Obs Count**:	**Recent Survey**: 2010
E-Kicknet *(Kicknet Collection Survey for Invasive Mussels and Snails)*	**Survey Count**: 1	**Obs Count**:	**Recent Survey**: 2021
E-Noxious Weed, Road-based *(Noxious Weed Road-based Visual Surveys)*	**Survey Count**: 1	**Obs Count**: 4	**Recent Survey**: 2004
E-Noxious Weed, Visual *(Noxious Weed Visual Surveys)*	**Survey Count**: 2	**Obs Count**: 30	**Recent Survey**: 2009
E-Visual Aquatic Invasives *(Visual Encounter Surveys for Aquatic Invasives on Shorelines or Underwater)*	**Survey Count**: 1	**Obs Count**:	**Recent Survey**: 2021
F-Fish Other Survey *(Fish Other Survey (FWP Survey Type))*	**Survey Count**: 2	**Obs Count**: 1	**Recent Survey**: 1951
I-Odonates/Butterfly VES *(Visual Encounter Survey for Damselfly/Dragonfly/Butterfly)*	**Survey Count**: 2	**Obs Count**: 4	**Recent Survey**: 1987
M-Bat Roost (Active Season) *(Bat Roost (Active Season) Survey)*	**Survey Count**: 1	**Obs Count**: 1	**Recent Survey**: 2019

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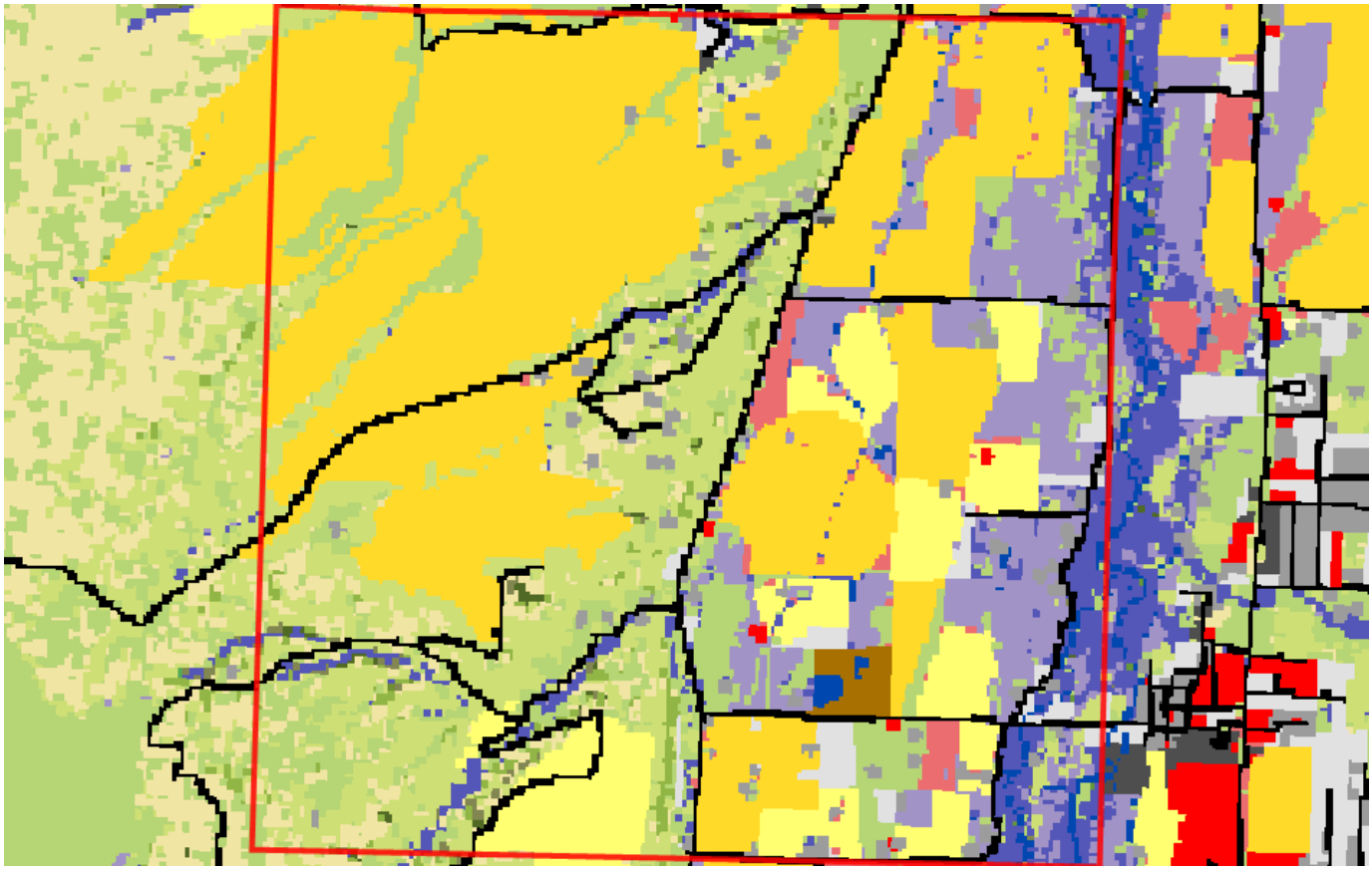
Land Cover

Summarized by: **003S004E004** *(Buffered PLSS Section)*



39% (*2,247 Acres*)

Human Land Use
Agriculture
Cultivated Crops

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

13% (*764 Acres*)

Grassland Systems
Montane Grassland
Rocky Mountain Subalpine-Montane Mesic Meadow

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

11% (**650 Acres**)

Rocky Mountain Lower Montane, Foothill, and Valley Grassland

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

9% (**500 Acres**)

Wetland and Riparian Systems
Wet meadow

Alpine-Montane Wet Meadow

These moderate-to-high-elevation systems are found throughout the Rocky Mountains, dominated by herbaceous species found on wetter sites with very low-velocity surface and subsurface flows. Occurrences range in elevation from montane to alpine at 1,000 to 3,353 meters (3,280-11,000 feet). This system typically occurs in cold, moist basins, seeps and alluvial terraces of headwater streams or as a narrow strip adjacent to alpine lakes (Hansen et al., 1996). Wet meadows are typically found on flat areas or gentle slopes, but may also occur on sub-irrigated sites with slopes up to 10 percent. In alpine regions, sites are typically small depressions located below late-melting snow patches or on snowbeds. The growing season may only last for one to two months. Soils of this system may be mineral or organic. In either case, soils show typical hydric soil characteristics, including high organic content and/or low chroma and redoximorphic features. This system often occurs as a mosaic of several plant associations, often dominated by graminoids such as tufted hairgrass (*Deschampsia caespitosa*), and a diversity of montane or alpine sedges such as small-head sedge (*Carex illota*), small-winged sedge (*Carex microptera*), black alpine sedge (*Carex nigricans*), Holmâ€™s Rocky Mountain sedge (*Carex scopulorum*) shortstalk sedge (*Carex podocarpa*) and Paysonâ€™s sedge (*Carex paysonis*). Drummondâ€™s rush (*Juncus drummondii*), Mertenâ€™s rush (*Juncus mertensianus*), and high elevation bluegrasses (*Poa arctica* and *Poa alpina*) are often present. Forbs such as arrow-leaf groundsel (*Senecio triangularis*), slender-sepal marsh marigold (*Caltha leptosepala*), and spreading globeflower (*Trollius laxus*) often form high cover in higher elevation meadows. Wet meadows are associated with snowmelt and are usually not subjected to high disturbance events such as flooding.

8% (**471 Acres**)

Human Land Use
Agriculture

Pasture/Hay

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

No Image

5% (**271 Acres**)

Human Land Use
Developed

Other Roads

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

4% (**228 Acres**)

Wetland and Riparian Systems
Floodplain and Riparian

Rocky Mountain Lower Montane-Foothill Riparian Woodland and Shrubland

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

3% (**193 Acres**)

Shrubland, Steppe and Savanna Systems
Sagebrush Steppe

Montane Sagebrush Steppe

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

2% (*128 Acres*)

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.

2% (*91 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.

Additional Limited Land Cover

1% (*73 Acres*) Introduced Upland Vegetation - Annual and Biennial Forbland

1% (*57 Acres*) Rocky Mountain Montane-Foothill Deciduous Shrubland

1% (*40 Acres*) Open Water

1% (*35 Acres*) Quarries, Strip Mines and Gravel Pits

<1% (*17 Acres*) Aspen Forest and Woodland

<1% (*11 Acres*) Rocky Mountain Montane Douglas-fir Forest and Woodland

<1% (*7 Acres*) Commercial / Industrial

<1% (*3 Acres*) High Intensity Residential

<1% (*1 Acres*) Rocky Mountain Lodgepole Pine Forest

<1% (*1 Acres*) Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland

<1% (*0 Acres*) Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland

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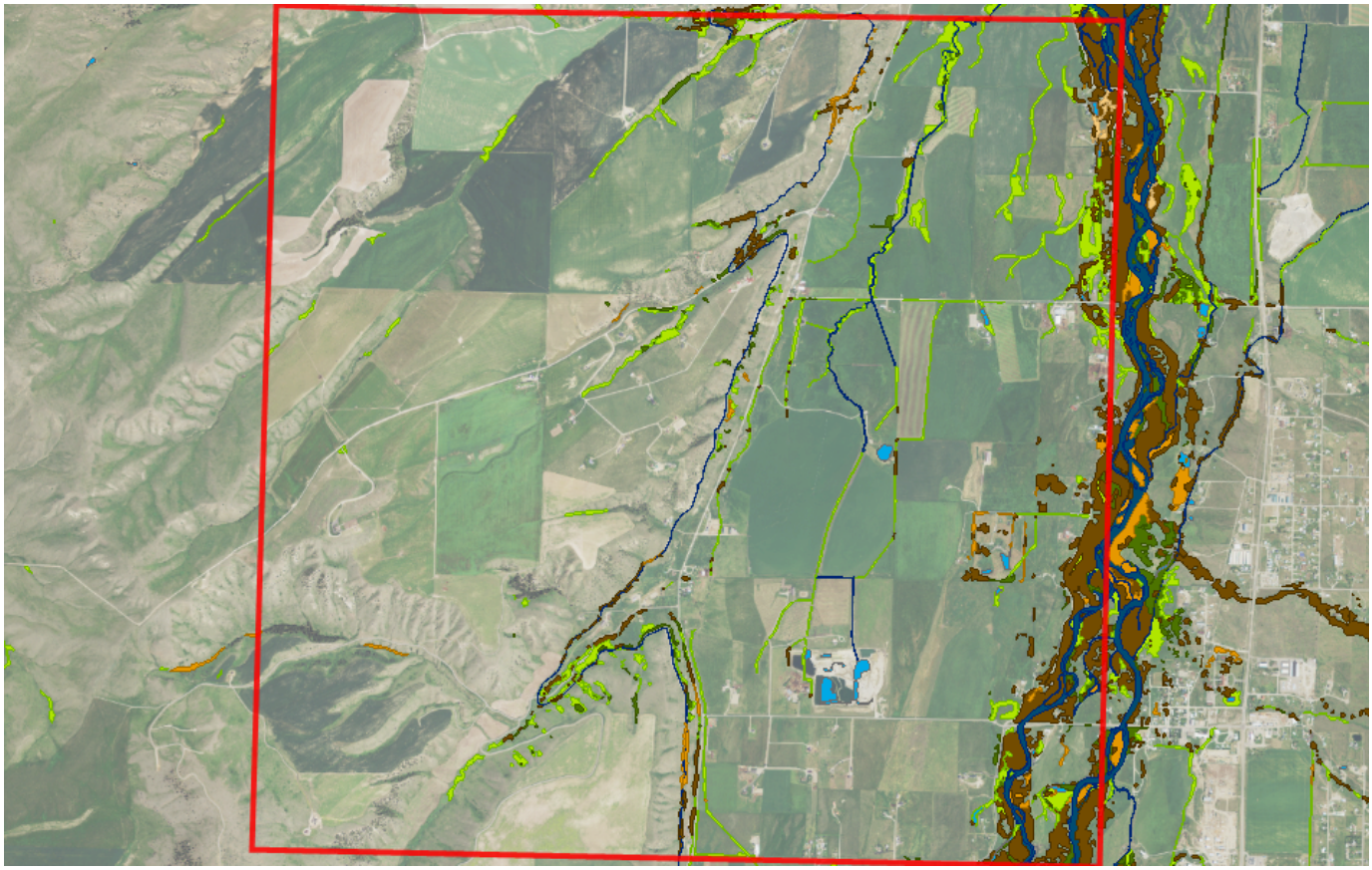
Wetland and Riparian

Summarized by: **003S004E004** *(Buffered PLSS Section)*



Wetland and Riparian Mapping

Explain

P - Palustrine

UB - Unconsolidated Bottom

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

F - Semipermanently Flooded	8 Acres	
x - Excavated	**8 Acres**	**PUBFx**

AB - Aquatic Bed

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

F - Semipermanently Flooded	4 Acres	
(no modifier)	**1 Acres**	**PABF**
h - Diked/Impounded	**1 Acres**	**PABFh**
x - Excavated	**2 Acres**	**PABFx**

EM - Emergent

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

A - Temporarily Flooded	86 Acres	
(no modifier)	**76 Acres**	**PEMA**
h - Diked/Impounded	**1 Acres**	**PEMAh**
x - Excavated	**9 Acres**	**PEMAx**
C - Seasonally Flooded	45 Acres	
(no modifier)	**21 Acres**	**PEMC**
h - Diked/Impounded	**1 Acres**	**PEMCh**
x - Excavated	**23 Acres**	**PEMCx**
F - Semipermanently Flooded	<1 Acres	
(no modifier)	**<1 Acres**	**PEMF**

SS - Scrub-Shrub

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

A - Temporarily Flooded	23 Acres	
(no modifier)	**21 Acres**	**PSSA**
x - Excavated	**2 Acres**	**PSSAx**
C - Seasonally Flooded	1 Acres	
x - Excavated	**1 Acres**	**PSSCx**

R - Riverine (Rivers)

2 - Lower Perennial

UB - Unconsolidated Bottom

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

H - Permanently Flooded 28 Acres

(no modifier) **28 Acres** R2UBH

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

US - Unconsolidated Shore

A - Temporarily Flooded 2 Acres

(no modifier) **2 Acres** R2USA

C - Seasonally Flooded 4 Acres

(no modifier) **4 Acres** R2USC

R - Riverine (Rivers), 2 - Lower Perennial, US - Unconsolidated Shore

Shorelines with less than 75% areal cover of stones, boulders, or bedrock and less than 30% vegetation cover. The area is also irregularly exposed due to seasonal or irregular flooding and subsequent drying.

4 - Intermittent

SB - Stream Bed

C - Seasonally Flooded 8 Acres

x - Excavated **8 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) **15 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) **159 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) **3 Acres** Rp1EM

Rp - Riparian, 1 - Lotic, EM - Emergent

Riparian areas that have erect, rooted herbaceous vegetation during most of the growing season.

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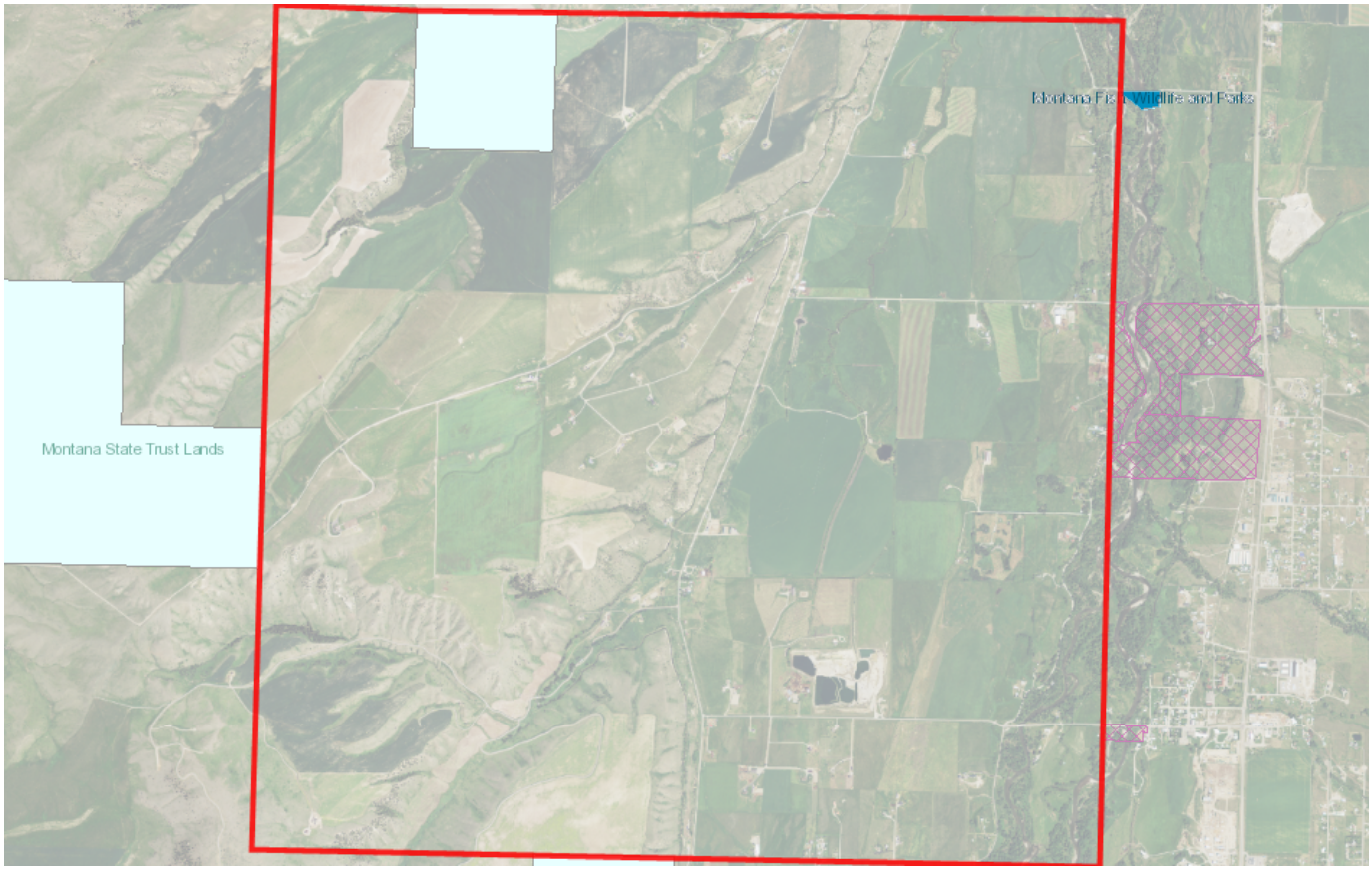
Latitude	Longitude
45.58287	-111.20716
45.62826	-111.26959

Land Management

Summarized by: **003S004E004** *(Buffered PLSS Section)*



Land Management Summary *Explain*

	Ownership	Tribal	Easements	Other Boundaries (possible overlap)
Public Lands	**160 Acres (3%)**			
State	**160 Acres (3%)**			
Montana State Trust Lands	**160 Acres (3%)**			
MT State Trust Owned	**160 Acres (3%)**			
Private Lands or Unknown Ownership	**5,625 Acres (97%)**			

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Biological Reports

Summarized by: **003S004E004** *(Buffered PLSS Section)*

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

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

- Greater Yellowstone Coordinating Committee. ***GYA Weed Mapping Update and Database Augmentation***. 2000-04.
- Hodgson, J.R. 1970. Ecological distribution of Microtus montanus and Microtus pennsylvanicus in an area of geographic sympatry in southwestern Montana. Ph.D. Dissertation. Bozeman, Montana: Montana State University. 65 p.

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

Habitat Icons
- Common
- Occasional

Range Icons
- Non-native

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

Latitude	Longitude
45.58287	-111.20716
45.62826	-111.26959

Invasive and Pest Species

Summarized by: **003S004E004** *(Buffered PLSS Section)*

	# Obs	Predicted Model	Range

Aquatic Invasive Species

V - Iris pseudacorus *(Yellowflag Iris)* 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: 27% Optimal (inductive), 25% Moderate (inductive), 47% Low (inductive)

V - Myriophyllum spicatum *(Eurasian Water-milfoil)* N2A/AIS

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

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

Predicted Models: 5% Moderate (inductive), 30% Low (inductive)

V - Potamogeton crispus *(Curly-leaf Pondweed)* N2B/AIS

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

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

Predicted Models: 56% Low (inductive)

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

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

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

Predicted Models: 44% Suitable (introduced range) (deductive)

Noxious Weeds: Priority 1A

V - Centaurea solstitialis *(Yellow Starthistle)* N1A

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

Noxious Weed: Priority 1A - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: 28% Optimal (inductive), 17% Moderate (inductive), 7% Low (inductive)

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

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

Noxious Weed: Priority 1A - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: 5% Optimal (inductive), 51% Moderate (inductive), 44% Low (inductive)

V - Taeniatherum caput-medusae *(Medusahead)* N1A

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

Noxious Weed: Priority 1A - Non-native Species Global: **G4G5** State: **SNA**

Predicted Models: 38% Low (inductive)

Noxious Weeds: Priority 1B

V - Echium vulgare *(Blueweed)* N1B

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

Noxious Weed: Priority 1B - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: 13% Optimal (inductive), 26% Moderate (inductive), 43% Low (inductive)

V - Lythrum salicaria *(Purple Loosestrife)* N1B

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

Noxious Weed: Priority 1B - Non-native Species Global: **G5** State: **SNA**

Predicted Models: 6% Optimal (inductive), 39% Moderate (inductive), 29% Low (inductive)

V - Polygonum cuspidatum *(Japanese Knotweed)* N1B

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

Noxious Weed: Priority 1B - Non-native Species Global: **GNRTNR** State: **SNA**

Predicted Models: 30% Moderate (inductive), 45% Low (inductive)

Noxious Weeds: Priority 2A

V - Iris pseudacorus *(Yellowflag Iris)* 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: 27% Optimal (inductive), 25% Moderate (inductive), 47% Low (inductive)

V - Ranunculus acris *(Tall Buttercup)* N2A

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

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

Predicted Models: 24% Optimal (inductive), 28% Moderate (inductive), 39% Low (inductive)

V - Rhamnus cathartica *(Common Buckthorn)* N2A

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

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

Predicted Models: 13% Optimal (inductive), 15% Moderate (inductive), 50% Low (inductive)

V - Ventenata dubia *(Ventenata)* N2A

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

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

Predicted Models: 5% Optimal (inductive), 77% Moderate (inductive), 18% Low (inductive)

V - Lepidium latifolium *(Perennial Pepperweed)* N2A

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

Predicted Models: M 12% Moderate (inductive), L 45% Low (inductive)

V - Senecio jacobaea *(Tansy Ragwort)* N2A

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 5% Moderate (inductive), L 34% Low (inductive)

V - Myriophyllum spicatum *(Eurasian Water-milfoil)* N2A/AIS

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 5% Moderate (inductive), L 30% Low (inductive)

V - Hieracium aurantiacum *(Orange Hawkweed)* N2A

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: L 24% Low (inductive)

Noxious Weeds: Priority 2B

V - Lepidium draba *(Whitetop)* N2B 1

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: O 17% Optimal (inductive), M 57% Moderate (inductive), L 25% Low (inductive)

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

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: O 12% Optimal (inductive), M 71% Moderate (inductive), L 17% Low (inductive)

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

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: O 12% Optimal (inductive), M 16% Moderate (inductive), L 72% 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: O 5% Optimal (inductive), M 12% Moderate (inductive), L 74% Low (inductive)

V - Centaurea stoebe *(Spotted Knapweed)* N2B 3

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 82% Moderate (inductive), L 18% Low (inductive)

V - Linaria dalmatica *(Dalmatian Toadflax)* N2B 1

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 82% Moderate (inductive), L 18% Low (inductive)

V - Centaurea diffusa *(Diffuse Knapweed)* N2B

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 82% Moderate (inductive), L 9% Low (inductive)

V - Cirsium arvense *(Canada Thistle)* N2B 2

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 63% Moderate (inductive), L 37% Low (inductive)

V - Euphorbia virgata *(Leafy Spurge)* N2B

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 52% Moderate (inductive), L 48% Low (inductive)

V - Convolvulus arvensis *(Field Bindweed)* N2B

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 52% Moderate (inductive), L 43% Low (inductive)

V - Tanacetum vulgare *(Common Tansy)* N2B

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 39% Moderate (inductive), L 48% Low (inductive)

V - Potentilla recta *(Sulphur Cinquefoil)* N2B

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 17% Moderate (inductive), L 83% 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: M 17% Moderate (inductive), L 66% Low (inductive)

V - Acroptilon repens *(Russian Knapweed)* N2B

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

Predicted Models: L 58% Low (inductive)

V - Potamogeton crispus *(Curly-leaf Pondweed)* N2B/AIS

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: L 56% Low (inductive)

V - Tamarix ramosissima *(Salt Cedar)* N2B

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: L 39% Low (inductive)

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

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: L 34% Low (inductive)

Regulated Weeds: Priority 3

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: M 19% Moderate (inductive), L 81% Low (inductive)

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: L 28% Low (inductive)

Biocontrol Species

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

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: O 43% Optimal (inductive), M 48% Moderate (inductive), L 9% Low (inductive)

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

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 91% Moderate (inductive), L 9% Low (inductive)

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

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 60% Moderate (inductive), L 31% Low (inductive)

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

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 17% Moderate (inductive), L 43% Low (inductive)

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

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 16% Moderate (inductive), L 40% Low (inductive)

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

View in Field Guide View Predicted Models View Range Maps

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

Predicted Models: M 13% Moderate (inductive), L 78% Low (inductive)

Introduction to Montana Natural Heritage Program

PO Box 201800 • 1201 11th Avenue • Helena, MT 59620-1800 • fax 406.444.0266 • phone 406.444.3989 • mtnhp.org

Introduction

The Montana Natural Heritage Program (MTNHP) is Montana's source for reliable and objective information on Montana's native species and habitats, emphasizing those of conservation concern. MTNHP was created by the Montana legislature in 1983 as part of the Natural Resource Information System (NRIS) at the Montana State Library (MSL). MTNHP is "a program of information acquisition, storage, and retrieval for data relating to the flora, fauna, and biological community types of Montana" (MCA 90-15-102). MTNHP's activities are guided by statute as well as through ongoing interaction with, and feedback from, principal data source agencies such as Montana Fish, Wildlife, and Parks, the Montana Department of Environmental Quality, the Montana Department of Natural Resources and Conservation, the Montana University System, the US Forest Service, and the US Bureau of Land Management. Since the first staff was hired in 1985, the Program has logged a long record of success, and developed into a highly respected, service-oriented program. MTNHP is widely recognized as one of the most advanced and effective of over 60 natural heritage programs that are distributed across North America.

Vision

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

Core Values

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

Confidentiality

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

Information Managed

Information managed at the Montana Natural Heritage Program is botanical, zoological, and ecological information that describes the distribution (e.g., observations, structured surveys, range polygons, predicted habitat suitability models), conservation status (e.g., global and state conservation status ranks, including threats), and other supporting information (e.g., accounts and references) on the biology and ecology of species and biological communities.

Data Use Terms and Conditions

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

Suggested Contacts for Natural Resource Management Agencies

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

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

Montana Fish, Wildlife, and Parks

Fish Species	Zachary Shattuck zshattuck@mt.gov (406) 444-1231 or Eric Roberts eroberts@mt.gov (406) 444-5334
American Bison Black-footed Ferret Black-tailed Prairie Dog Bald Eagle Golden Eagle Common Loon Least Tern Piping Plover Whooping Crane	Kristian Smucker KSmucker@mt.gov (406) 444-5209
Grizzly Bear Greater Sage Grouse Trumpeter Swan Big Game Upland Game Birds Furbearers	Brian Wakeling brian.wakeling@mt.gov (406) 444-3940
Managed Terrestrial Game Data	Cara Whalen– MFWP Data Analyst cara.whalen@mt.gov (406) 444-3759
Fisheries Data and Nongame Animal Data	Ryan Alger – MFWP Data Analyst ryan.alger@mt.gov (406) 444-5365
Wildlife and Fisheries Scientific Collector's Permits	https://fwp.mt.gov/buyandapply/commercialwildlifeandscientificpermits/scientific Kristina Smucker for Wildlife ksmucker@mt.gov (406) 444-5209 Dave Schmetterling for Fisheries dschmetterling@mt.gov (406) 542-5514
Fish and Wildlife Recommendations for Subdivision Development	Charlie Sperry csperry@mt.gov (406) 444-3888 See https://fwp.mt.gov/conservation/living-with-wildlife/subdivision-recommendations
Regional Contacts  	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: https://dnrc.mt.gov/Permits-Services

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

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

Bureau of Land Management

Montana Field Office Contacts:

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

United States Army Corps of Engineers
Montana Regulatory Office for federal permits related to construction in water and wetlands
https://www.nwo.usace.army.mil/Missions/Regulatory-Program/Montana/ (406) 441-1375

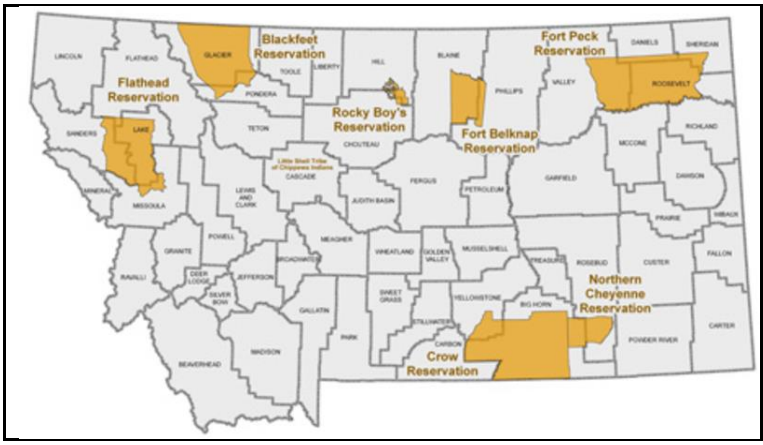
United States Environmental Protection Agency
Environmental information, notices, permitting, and contacts https://www.epa.gov/mt
Gateway to state resource locators https://www.envcap.org/srl/index.php

United States Fish and Wildlife Service
Information Planning and Conservation (IPAC) website: https://ipac.ecosphere.fws.gov
Montana Ecological Services Field Office: https://www.fws.gov/office/montana-ecological-services (406) 449-5225

United States Forest Service

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

Tribal Nations



[Assiniboine & Gros Ventre Tribes – Fort Belknap Reservation]
[Assiniboine & Sioux Tribes – Fort Peck Reservation]
[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 or plant observations that you would like to contribute, you can also submit them via Excel spreadsheets, geodatabases, iNaturalist, or a Survey123 form. Various methods of data submission are reviewed in this playlist of videos: https://www.youtube.com/playlist?list=PLRaydtZpHu2qOHPoSPq9cnM9uXGmEXACx

Observations

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

Species Occurrences

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

Plant Species Occurrences

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

Animal Species Occurrences

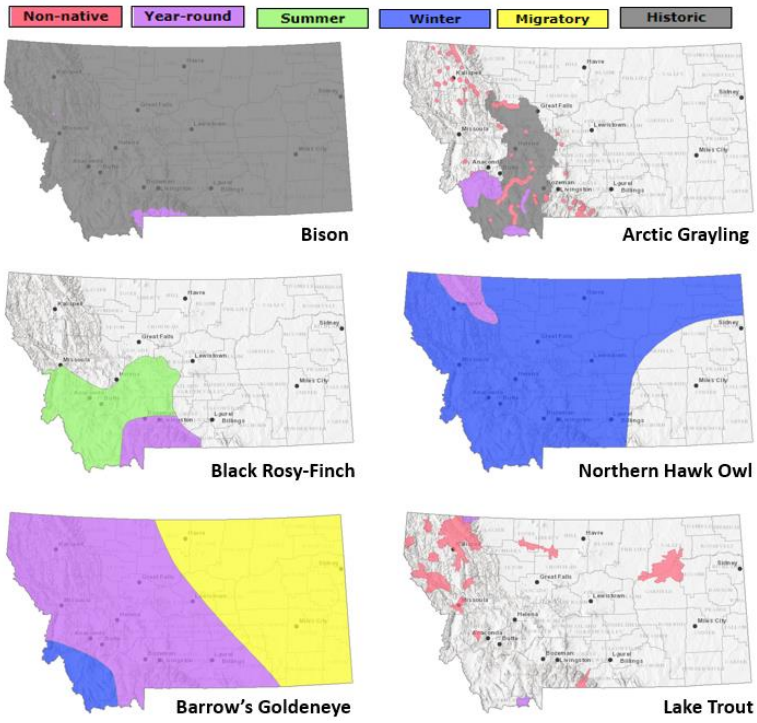
The location of a verified observation or specimen record typically known or assumed to represent a breeding population or a portion of a breeding population. Animal SO's are generally: (1) buffers of terrestrial point observations based on documented species' home range sizes; (2) buffers of stream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

Other Occurrence Polygons

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

Geographic Range Polygons

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



Predicted Suitable Habitat Models

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

Associated Habitats

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

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

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

Introduction to Land Cover

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

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

Literature Cited

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

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

Introduction to Wetland and Riparian

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

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

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

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

Literature Cited

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

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

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

Introduction to Land Management

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

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

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

Public Lands
Conservation Easements
Private Conservation Lands
Managed Areas

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

Introduction to Invasive and Pest Species

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

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

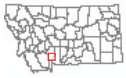
If you are aware of observation or survey datasets for invasive or pest species that the MTNHP is missing, please report them to the Program Coordinator bmaxell@mt.gov Program Botanist apipp@mt.gov or Senior Zoologist dbachen@mt.gov If you have animal or plant observations that you would like to contribute, you can also submit them via Excel spreadsheets, geodatabases, iNaturalist, or a Survey123 form. Various methods of data submission are reviewed in this playlist of videos:
https://www.youtube.com/playlist?list=PLRaydtZpHu2qOHPoSPq9cnM9uXGmEXACx

Additional Information Resources

- MTNHP Staff Contact Information
- Montana Field Guide
- MTNHP Species of Concern Report - Animals and Plants
- MTNHP Species Status Codes - Explanation
- MTNHP Predicted Suitable Habitat Models (for select Animals and Plants)
- MTNHP Request Information page
- Montana Cadastral
- Montana Code Annotated
- Montana Fisheries Information System
- Montana Fish, Wildlife, and Parks Subdivision Recommendations
- Montana GIS Data Layers
- Montana GIS Data Bundler
- Montana Greater Sage-Grouse Project Submittal Site
- Montana Ground Water Information Center
- Montana Index of Environmental Permits, 21st Edition (2018)
- Montana Environmental Policy Act (MEPA)
- Montana Environmental Policy Act Analysis Resource List
- Laws, Treaties, Regulations, and Agreements on Animals and Plants
- Montana Spatial Data Infrastructure Layers
- Montana State Historic Preservation Office Review and Compliance
- Montana Stream Permitting: a guide for conservation district supervisors and others
- Montana Water Information System
- Montana Web Map Services
- National Environmental Policy Act
- Penalties for Misuse of Fish and Wildlife Location Data (MCA 87-6-222)
- U.S. Fish and Wildlife Service Information for Planning and Consultation (Section 7 Consultation)
- Web Soil Survey Tool

MONTANA STATE LIBRARY
NATURAL HERITAGE PROGRAM
A program of the Montana State Library's Natural Resource Information System.

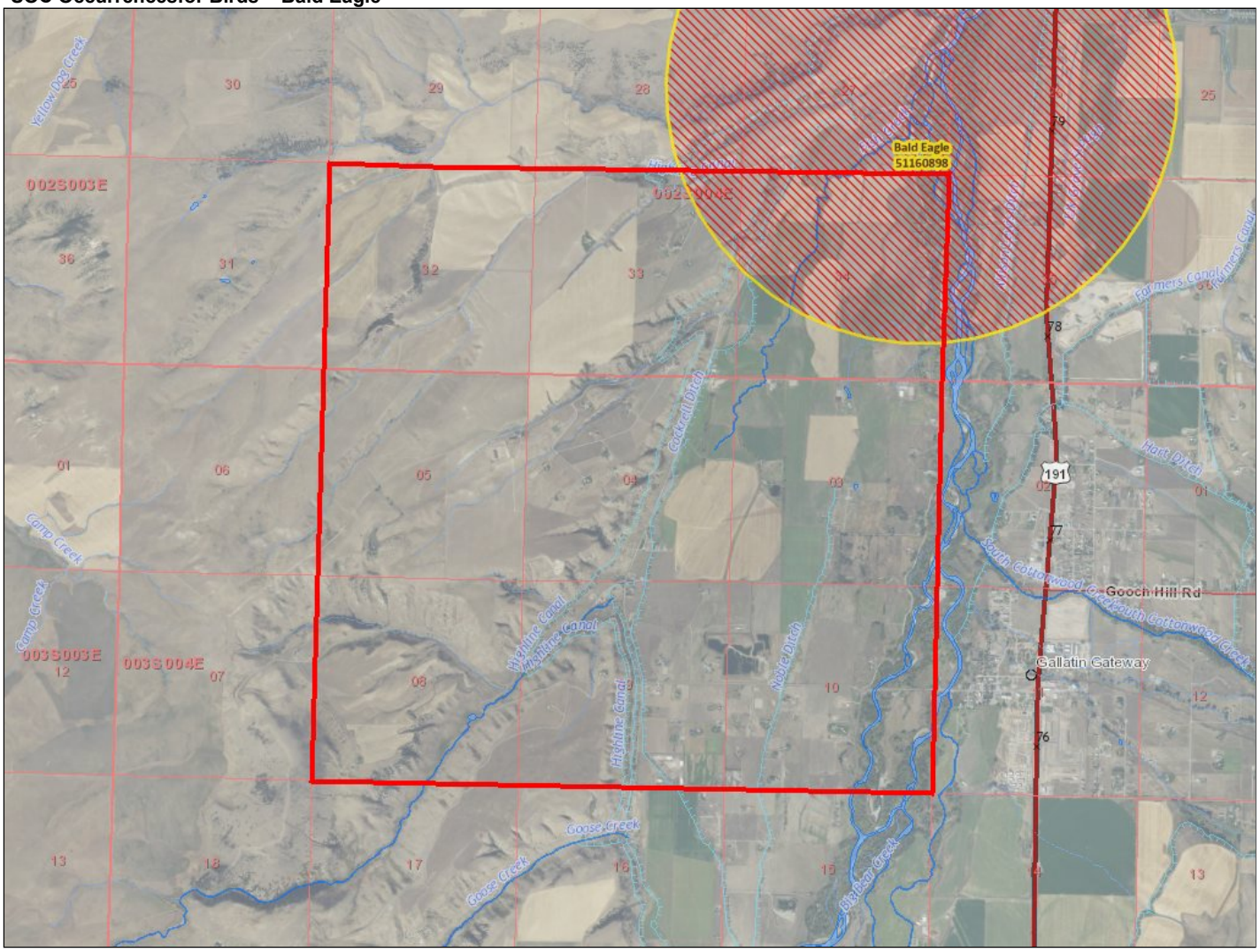
Latitude	Longitude
45.56532	-111.13677
45.64573	-111.33986



Montana SOC Occurrences Report

SOC Occurrencesfor Birds = Bald Eagle

Report generated 10/23/2023 10:35:21 AM



Birds - Bald Eagle *(Haliaeetus leucocephalus)*

SO Count: 1 **Obs Count**: 7 **Earliest Obs**: 2009 **Recent Obs**: 2020

Special Status Species
Native Species
Global Rank: G5
State Rank: S4

Agency Status
USFWS: BGEPA; MBTA
USFS: Sensitive - Known in Forests (BD, BRT, KOOT, LOLO)
BLM: SENSITIVE
FWP SWAP:
PIF: 2

Delineation Criteria
Confirmed nesting area buffered by a minimum distance of 2,000 meters in order to be conservative about encompassing the breeding territory and area commonly used for renesting. Only nesting observations with a locational uncertainty of 1,000 meters or less will be used to delineate a nesting area.

Last Updated
Sep 05, 2023

SO ID: 51160898 **Acres**: 3,095 **Obs Count**: 7 **Earliest Obs**: 2009 **Recent Obs**: 2020

Citation for this report:
Montana SOC Occurrences Report
SOC Occurrencesfor Birds = Bald Eagle
Within Lat/Long: (45.56532,-111.13677) to (45.64573,-111.33986)
Natural Heritage Map Viewer. Montana Natural Heritage Program.
Retrieved on October 23, 2023, from https://mtnhp.org/MapViewer/SOReport.aspx

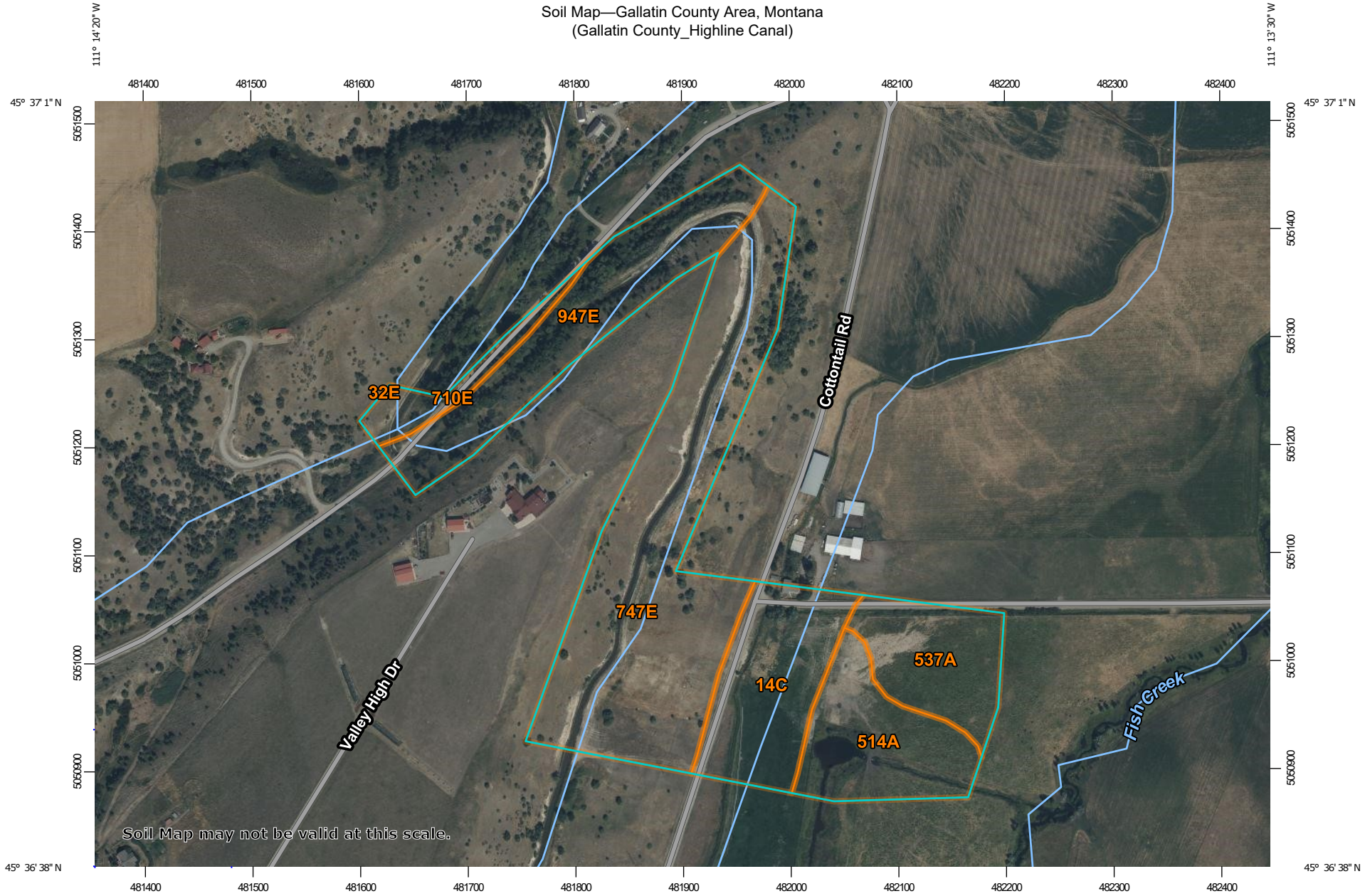
NEPAssist Report

Gallatin County_Highline Canal

Input Coordinates: 45.608541,-111.232713,45.613135,-111.237991,45.615116,-111.236403,45.618148,-111.233442,45.616497,-111.225031,45.608571,-111.225417,45.608541,-111.232713	
Project Area	0.31 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?	no
Within an impaired stream?	no
Within an impaired waterbody?	no
Within a waterbody?	no
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?	yes
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: 10/27/2023 11:11:13 AM

Soil Map—Gallatin County Area, Montana
(Gallatin County_Highline Canal)



Map Scale: 1:4,990 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Gallatin County Area, Montana
Survey Area Data: Version 27, Aug 25, 2023

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

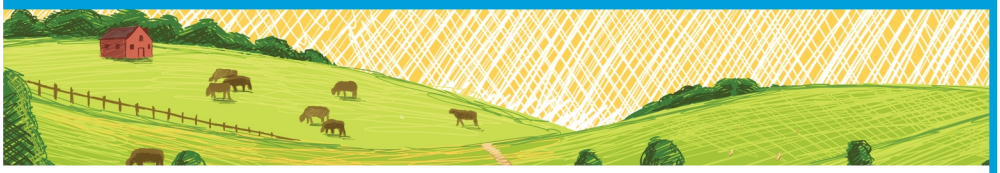
Date(s) aerial images were photographed: Aug 18, 2022—Aug 29, 2022

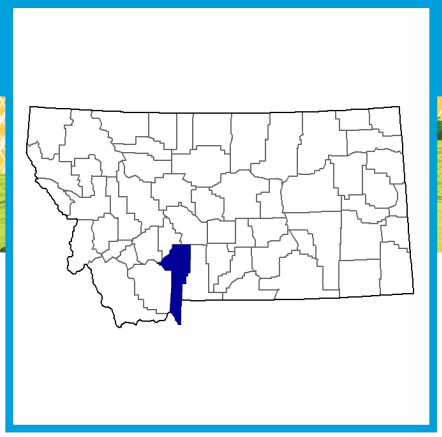
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
14C	Bowery loam, 2 to 8 percent slopes	4.4	14.1%
32E	Amesha-Trimad complex, 15 to 45 percent slopes	0.0	0.0%
514A	Soapcreek silty clay loam, 0 to 2 percent slopes	3.9	12.5%
537A	Lamoose silt loam, 0 to 2 percent slopes	3.3	10.4%
710E	Cabbart-Amesha-Trimad complex, 15 to 45 percent slopes	1.2	3.8%
747E	Cabba-Reedwest-Anceney complex, 15 to 45 percent slopes	13.0	41.3%
947E	Reedwest-Cabba-Bowery complex, 15 to 45 percent slopes	5.7	17.9%
Totals for Area of Interest		**31.6**	**100.0%**

2017 CENSUS OF AGRICULTURE *County Profile*





Gallatin County
Montana

Total and Per Farm Overview, 2017 and change since 2012

	2017	% change since 2012
Number of farms	1,123	-3
Land in farms (acres)	700,462	(Z)
Average size of farm (acres)	624	+3
Total	($)	
Market value of products sold	112,104,000	+6
Government payments	3,106,000	+13
Farm-related income	11,028,000	+78
Total farm production expenses	102,528,000	-2
Net cash farm income	23,709,000	+131
Per farm average	($)	
Market value of products sold	99,826	+10
Government payments (average per farm receiving)	17,351	+59
Farm-related income	24,025	+81
Total farm production expenses	91,299	+2
Net cash farm income	21,113	+139

3 Percent of state agriculture sales

Share of Sales by Type (%)

Crops	62
Livestock, poultry, and products	38

Land in Farms by Use (%) [a]

Cropland	30
Pastureland	63
Woodland	5
Other	2

Acres irrigated: 81,251
12% of land in farms

Land Use Practices (% of farms)

No till	7
Reduced till	5
Intensive till	13
Cover crop	4

Farms by Value of Sales

	Number	Percent of Total [a]
Less than $2,500	575	51
$2,500 to $4,999	89	8
$5,000 to $9,999	97	9
$10,000 to $24,999	83	7
$25,000 to $49,999	75	7
$50,000 to $99,999	39	3
$100,000 or more	165	15

Farms by Size

	Number	Percent of Total [a]
1 to 9 acres	139	12
10 to 49 acres	505	45
50 to 179 acres	173	15
180 to 499 acres	142	13
500 to 999 acres	51	5
1,000 + acres	113	10

USDA AGRICULTURE COUNTS
United States Department of Agriculture
National Agricultural Statistics Service
www.nass.usda.gov/AgCensus

2017 CENSUS OF AGRICULTURE *County Profile*

Market Value of Agricultural Products Sold

	Sales ($1,000)	Rank in State [b]	Counties Producing Item	Rank in U.S. [b]	Counties Producing Item
Total	**112,104**	**6**	**56**	**1,043**	**3,077**
Crops	**69,017**	**5**	**56**	**851**	**3,073**
Grains, oilseeds, dry beans, dry peas	23,938	18	54	1,077	2,916
Tobacco	-	-	-	-	323
Cotton and cottonseed	-	-	-	-	647
Vegetables, melons, potatoes, sweet potatoes	24,028	1	42	118	2,821
Fruits, tree nuts, berries	(D)	12	27	(D)	2,748
Nursery, greenhouse, floriculture, sod	6,808	2	35	322	2,601
Cultivated Christmas trees, short rotation woody crops	(D)	9	9	(D)	1,384
Other crops and hay	14,222	5	56	174	3,040
Livestock, poultry, and products	**43,087**	**19**	**56**	**1,051**	**3,073**
Poultry and eggs	30	24	53	1,424	3,007
Cattle and calves	23,469	31	56	686	3,055
Milk from cows	13,267	1	25	395	1,892
Hogs and pigs	77	21	54	979	2,856
Sheep, goats, wool, mohair, milk	(D)	21	55	(D)	2,984
Horses, ponies, mules, burros, donkeys	1,011	3	56	187	2,970
Aquaculture	-	-	13	-	1,251
Other animals and animal products	(D)	1	52	39	2,878

Total Producers [c] 1,969

Sex	
Male	1,144
Female	825
Age	
<35	136
35 – 64	1,136
65 and older	697
Race	
American Indian/Alaska Native	4
Asian	-
Black or African American	-
Native Hawaiian/Pacific Islander	-
White	1,957
More than one race	8
Other characteristics	
Hispanic, Latino, Spanish origin	17
With military service	166
New and beginning farmers	456

Percent of farms that:

Have internet access	88
Farm organically	1
Sell directly to consumers	6
Hire farm labor	24
Are family farms	95

Top Crops in Acres [d]

Forage (hay/haylage), all	56,136
Wheat for grain, all	39,501
Barley for grain	31,738
Vegetables harvested, all	6,368
Potatoes	6,286

Livestock Inventory (Dec 31, 2017)

Broilers and other meat-type chickens	32
Cattle and calves	41,043
Goats	890
Hogs and pigs	181
Horses and ponies	4,632
Layers	2,415
Pullets	127
Sheep and lambs	3,115
Turkeys	16

See 2017 Census of Agriculture, U.S. Summary and State Data, for complete footnotes, explanations, definitions, commodity descriptions, and methodology.
[a] May not add to 100% due to rounding. [b] Among counties whose rank can be displayed. [c] Data collected for a maximum of four producers per farm.
[d] Crop commodity names may be shortened; see full names at www.nass.usda.gov/go/cropnames.pdf. [e] Position below the line does not indicate rank.
(D) Withheld to avoid disclosing data for individual operations. (NA) Not available. (Z) Less than half of the unit shown. (-) Represents zero.

Property Record Card

Summary

Primary Information

Property Category: RP
Subcategory: Non-Qualified Ag
Geocode: 06-0697-04-1-78-01-0000
Assessment Code: 00RGF12732
Primary Owner:
NESHIEM PAULETTE R &
PO BOX 11403
BOZEMAN, MT 59719-1403
PropertyAddress: 608 VALLEY HIGH DR
BOZEMAN, MT 59715
COS Parcel: 4
NOTE: See the Owner tab for all owner information
Certificate of Survey: 874B
Subdivision:
Legal Description:
S04, T03 S, R04 E, C.O.S. 874B, PARCEL 4, ACRES 55.294
Last Modified: 10/1/2023 8:42:38 PM

General Property Information

Neighborhood: 206.004.S
Property Type: IMP_R - Improved Property - Rural
Living Units: 1
Levy District: 06-036413-35 13
Zoning:
Ownership %: 100
Linked Property:
No linked properties exist for this property
Exemptions:
No exemptions exist for this property
Condo Ownership:
General: 0
Limited: 0

Property Factors

Topography:
Fronting:
Utilities:
Parking Type:
Access:
Parking Quantity:
Location:
Parking Proximity:

Land Summary

Land Type	Acres	Value
Grazing	0.000	00.00
Fallow	0.000	00.00
Irrigated	0.000	00.00
Continuous Crop	0.000	00.00
Wild Hay	0.000	00.00
Farmsite	0.000	00.00
ROW	0.000	00.00
NonQual Land	54.294	2,991.00
Total Ag Land	54.294	2,991.00
Total Forest Land	0.000	00.00
Total Market Land	1.000	311,600.00

Deed Information:

Deed Date	Book	Page	Recorded Date	Document Number	Document Type

Owners

Party #1

Default Information: NESHIEM PAULETTE R &
PO BOX 11403
Ownership %: 100
Primary Owner: "Yes"
Interest Type: Conversion
Last Modified: 6/4/2008 9:46:33 AM

Other Names

Name	Type
MILLIKIN RAYMOND W	L Additional Legal Owners

Other Addresses

No other address

Appraisals

Appraisal History

Tax Year	Land Value	Building Value	Total Value	Method
2023	314591	1298290	1612881	COST
2022	147005	808590	955595	COST
2021	147005	808590	955595	COST

Market Land

Market Land Item #1

Method: Acre **Type:** 1 Ac. beneath Improvements (for dwlg on NQ Ag Land)
Width: **Depth:**
Square Feet: 00 **Acres:** 1

Valuation

Class Code: 2002 **Value:** 311600

Dwellings

Existing Dwellings

Dwelling Type	Style	Year Built
SFR	08 - Conventional	1997

Dwelling Information

Residential Type: SFR
Year Built: 1997
Effective Year: 2000
Story Height: 1.0
Grade: 6
Class Code: 3301
Year Remodeled: 0
Style: 08 - Conventional
Roof Material: 5 - Metal
Roof Type: 2 - Hip
Attic Type: 0
Exterior Walls: 1 - Frame
Exterior Wall Finish: 1 - Stucco
Degree Remodeled:

Mobile Home Details

Manufacturer:
Model:
Serial #:
Width: 0
Length: 0

Basement Information

Foundation: 2 - Concrete
Basement Type: 0 - None
Finished Area: 0
Quality:
Daylight:

Heating/Cooling Information

Type: Central
Fuel Type: 3 - Gas
System Type: 2 - Hot Water/Water Radiant
Heated Area: 0

Living Accomodations

Bedrooms: 3
Family Rooms: 0
Full Baths: 3
Half Baths: 1
Addl Fixtures: 6

Additional Information

Fireplaces: | **Stacks:** 1 | **Stories:** 1.0
Openings: 1 | **Prefab/Stove:** 3
Garage Capacity: 0 | **Cost & Design:** 0 | **Flat Add:** 0
% Complete: 0 | **Description:** | **Description:**

Dwelling Amenities

View: | **Access:**

Area Used In Cost

Basement: 0 | **Additional Floors:** 0 | **Attic:** 0
First Floor: 4538 | **Half Story:** 0 | **Unfinished Area:** 0
Second Floor: 0 | **SFLA:** 4538

Depreciation Information

CDU: | **Physical Condition:** Very Good (9) | **Utility:** Very Good (9)
Desirability: | **Property:** Very Good (9)
Location: Very Good (9)

Depreciation Calculation

Age: 22 | **Pct Good:** 0.87 | **RCNLD:** 1179410

Additions / Other Features

Additions

Lower	First	Second	Third	Area	Year	Cost
	19 - Garage, Frame, Finished			952	0	50851
	21 - Porch, Masonry, Open			180	0	8224
	21 - Porch, Masonry, Open			132	0	6031
	34 - Deck, Concrete			408	0	2411

Other Features

Quantity	Type	Value
1	CV - Central Vacuum System	2300

Other Buildings/Improvements

Outbuilding/Yard Improvement #1

Type: Residential | **Description:** RLA1 - Living Area (Sqft)
Quantity: 1 | **Year Built:** 1997 | **Grade:** A
Condition: | **Functional:** | **Class Code:** 3301

Dimensions

Width/Diameter: 16 | **Length:** 30 | **Size/Area:**
Height: | **Bushels:** | **Circumference:**

Outbuilding/Yard Improvement #2

Type: Residential | **Description:** RBQ1 - Barbecue, outdoor, brick/stone
Quantity: 1 | **Year Built:** 2011 | **Grade:** A
Condition: | **Functional:** | **Class Code:** 3301

Dimensions

Width/Diameter: | **Length:** | **Size/Area:**
Height: | **Bushels:** | **Circumference:**

Outbuilding/Yard Improvement #3

Type: Residential | **Description:** RRG1 - Garage, frame, detached, finished
Quantity: 1 | **Year Built:** 1997 | **Grade:** 5
Condition: | **Functional:** | **Class Code:** 3301

Dimensions

Width/Diameter: 48 | **Length:** 30 | **Size/Area:**
Height: | **Bushels:** | **Circumference:**

Outbuilding/Yard Improvement #4

Type: Residential **Description:** AAP1 - Pole Frame Bldg, 4 sides closed, metal
Quantity: 1 **Year Built:** 2005 **Grade:** A
Condition: **Functional:** **Class Code:** 3301

Dimensions

Width/Diameter: 50 **Length:** 50 **Size/Area:**
Height: **Bushels:** **Circumference:**

Outbuilding/Yard Improvement #5

Type: Residential **Description:** RPA2 - Concrete
Quantity: 1 **Year Built:** 2000 **Grade:** A
Condition: **Functional:** **Class Code:** 3301

Dimensions

Width/Diameter: 16 **Length:** 30 **Size/Area:**
Height: **Bushels:** **Circumference:**

Outbuilding/Yard Improvement #6

Type: Residential **Description:** RPA2 - Concrete
Quantity: 1 **Year Built:** 2000 **Grade:** A
Condition: **Functional:** **Class Code:** 3301

Dimensions

Width/Diameter: 11 **Length:** 64 **Size/Area:**
Height: **Bushels:** **Circumference:**

Commercial

Existing Commercial Buildings
No commercial buildings exist for this parcel

Ag/Forest Land

Ag/Forest Land Item #1

Acre Type: NQ - Non Qualified Ag Land **Irrigation Type:**
Class Code: 1701 **Timber Zone:**

Productivity

Quantity: 0 **Commodity:**
Units: Non Qual

Valuation

Acres: 54.294 **Per Acre Value:** 55.08
Value: 2991

Montana Cadastral

SEARCH

DATA

TOOLS

LEGEND

Try Cadastral Beta

Print Button workarounds

Take our Cadastral User Survey

Find Your Geocode

DISCLAIMER

HELP

Tax Year 2023

Print

Summary

Primary Information

Property Category: RP
Subcategory: Non-Qualified Ag
Geocode: 06-0697-04-1-78-01-0000
Assessment Code: 00RGF12732
Primary Owner:
NESHIEM PAULETTE R &
PO BOX 11403
BOZEMAN, MT 59719-1403
PropertyAddress: 608 VALLEY HIGH DR
BOZEMAN, MT 59715
COS Parcel: 4
NOTE: See the Owner tab for all owner information
Certificate of Survey: 874B
Subdivision:
Legal Description:
S04, T03 S, R04 E, C.O.S. 874B, PARCEL 4, ACRES 55.294
Last Modified: 10/1/2023 8:42:38 PM

General Property Information

Neighborhood: 206.004.S
Property Type: IMP_R - Improved Property - Rural
Living Units: 1
Levy District: 06-036413-35 13
Zoning:
Ownership %: 100
Linked Property:
No linked properties exist for this property

Owners

Appraisals

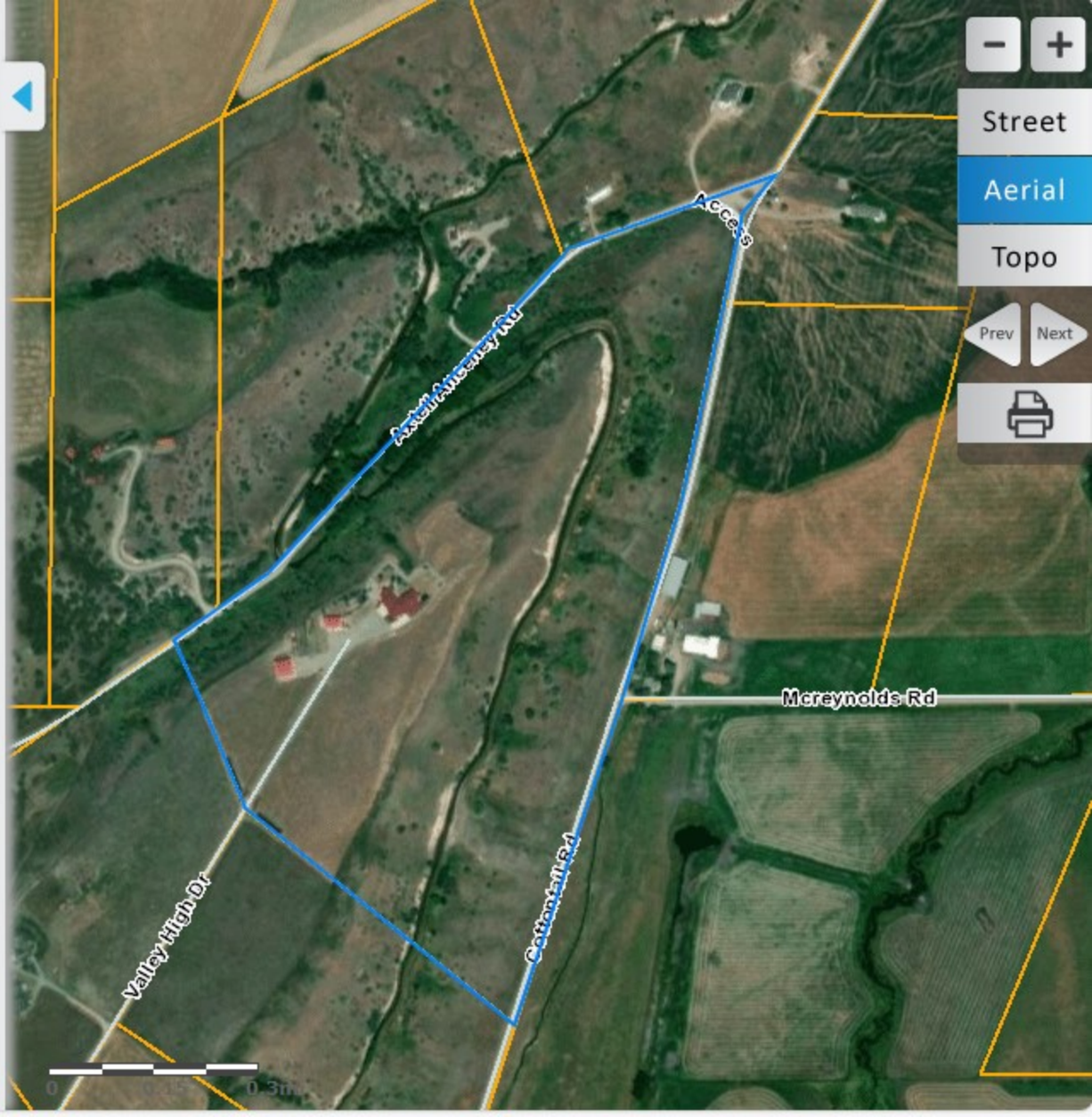
Market Land Info

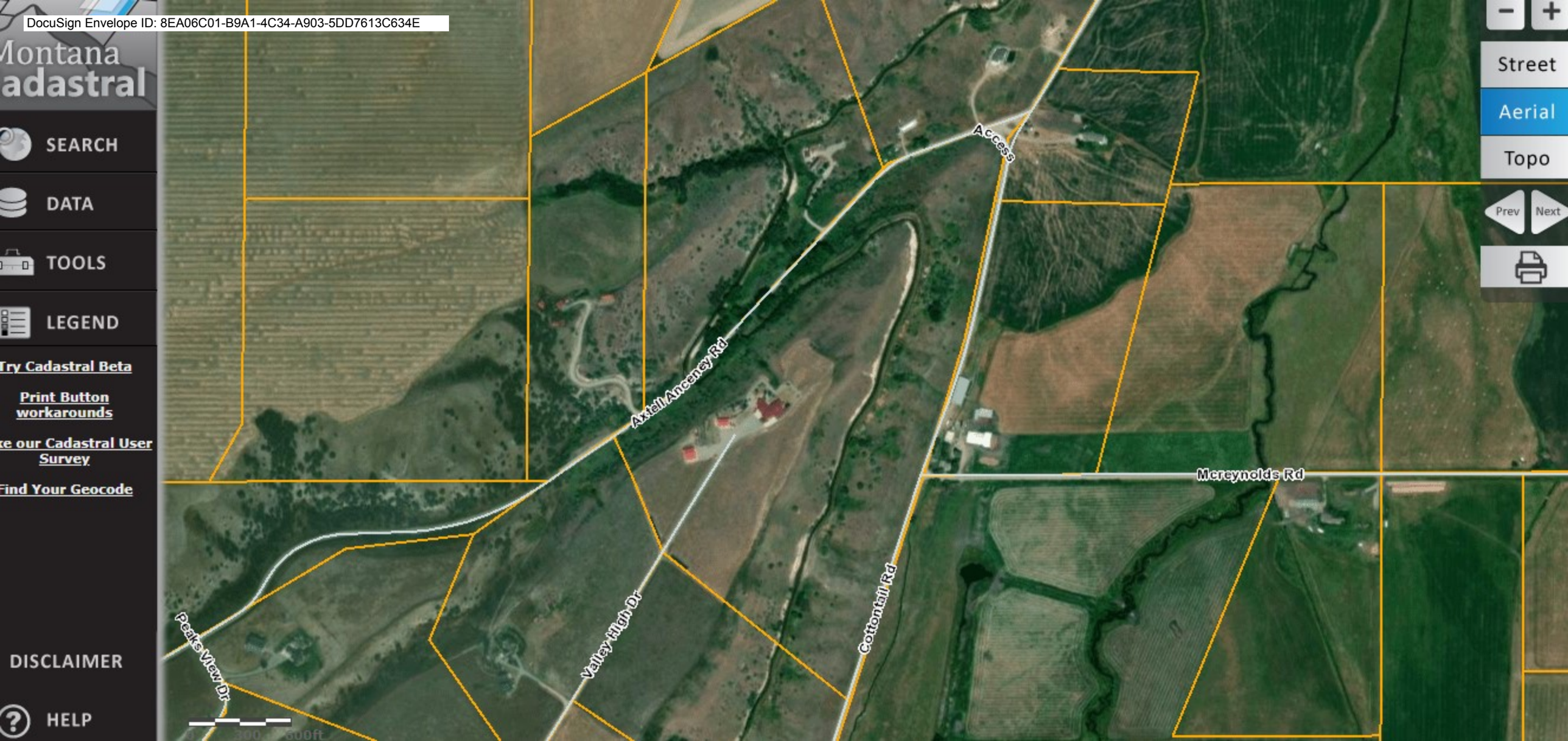
Dwellings

Other Buildings/Improvements

Commercial

Ag/Forest Land





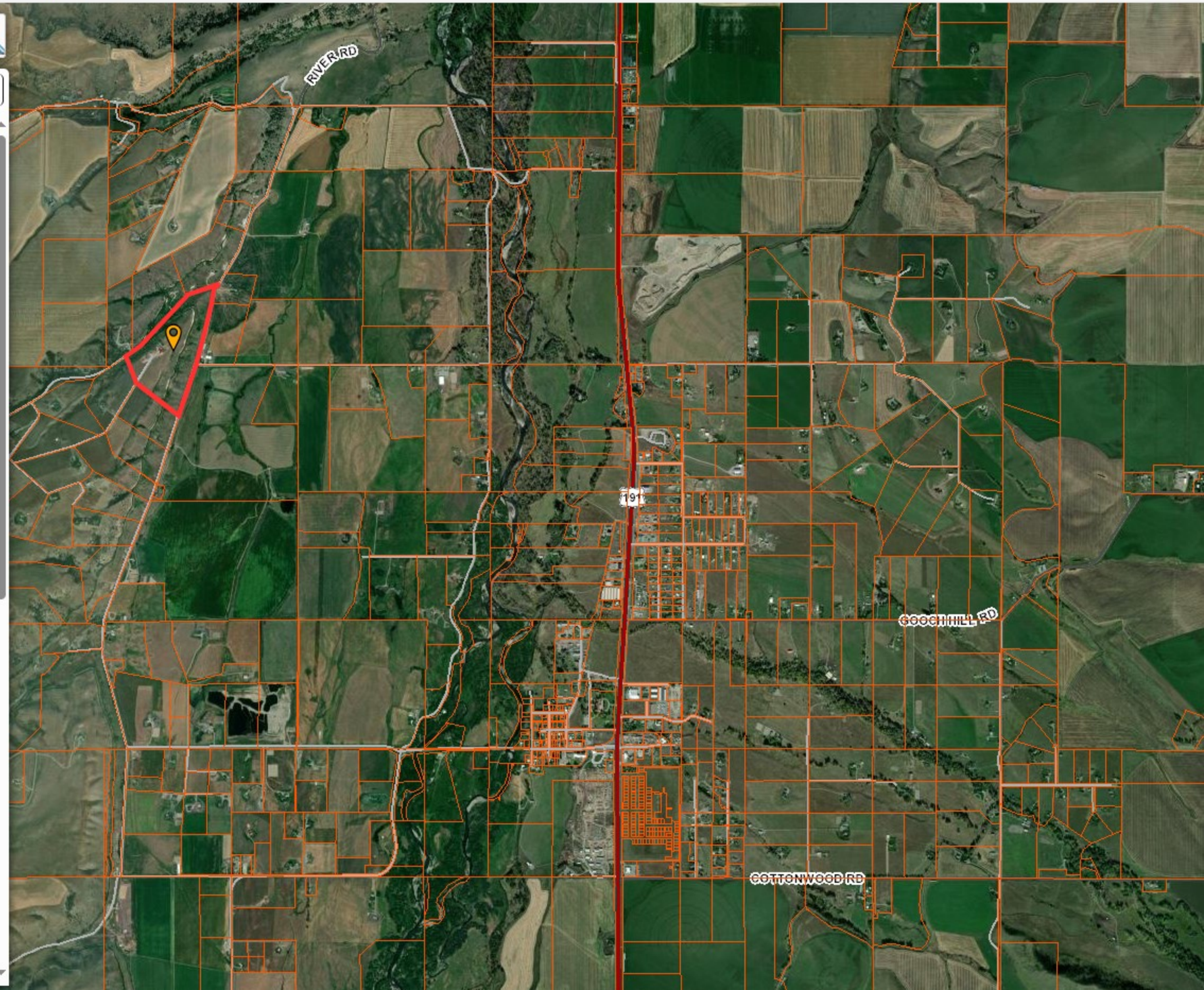
06-0697-04-1-78-01-0000

06-0697-04-1-78-01-0000

General Information	
Property Number	06-0697-04-1-78-01-0000
Assessment Code	00RGF12732
County	Gallatin
Levy District	06-036413
Neighborhood	206.004.S
Situs Address	608 VALLEY HIGH DR, BOZEMAN, MT 59715
Legal Description	S04, T03 S, R04 E, C.O.S. 874B, PARCEL 4, ACRES 55.294
Owner Name	NESHIEM PAULETTE R &
Property Last Updated	10/1/2023

Value History		
Year	**Market Value**	**Taxable Value**
2021	$955,595	$13,314
2022	$955,595	$13,314
2023	$1,612,881	$22,186

Property Characteristics			
Type	IMP_R - Improved Property - Rural		
Living Units	1		
Topography		**Utilities**	
Access			
Location			
Fronting			
Parking		**Parking Qty.**	
Parking Proximity			



06-0697-04-1-78-01-0000

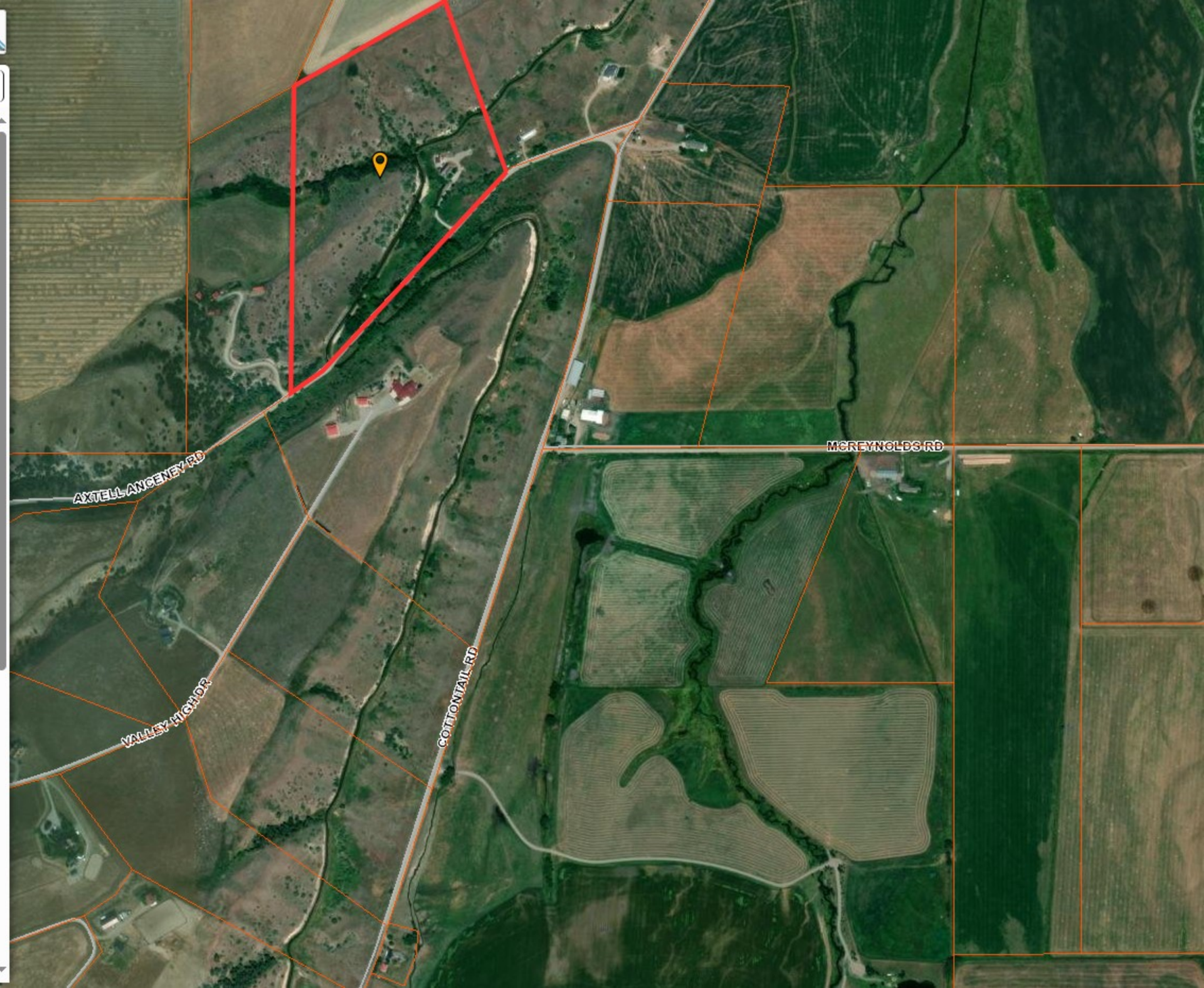
06-0797-33-4-02-25-0000

General Information	
Property Number	06-0797-33-4-02-25-0000
Assessment Code	00RGF22438
County	Gallatin
Levy District	06-036413
Neighborhood	206.004.S
Situs Address	2487 AXTELL ANCENEY RD, , MT
Legal Description	S33, T02 S, R04 E, C.O.S. 1121H, PARCEL 1, ACRES 30.175
Owner Name	LEE KATHRYN MEYER &
Property Last Updated	10/1/2023

Value History		
Year	**Market Value**	**Taxable Value**
2021	$440,455	$6,168
2022	$440,455	$6,168
2023	$792,357	$10,919

Property Characteristics				
Type	IMP_R - Improved Property - Rural			
Living Units				
Topography		**Utilities**		
Access				
Location				
Fronting				
Parking		**Parking Qty.**		
Parking Proximity				

Residential Dwellings



WILDLIFE HABITAT PROTECTION AREA SEARCH

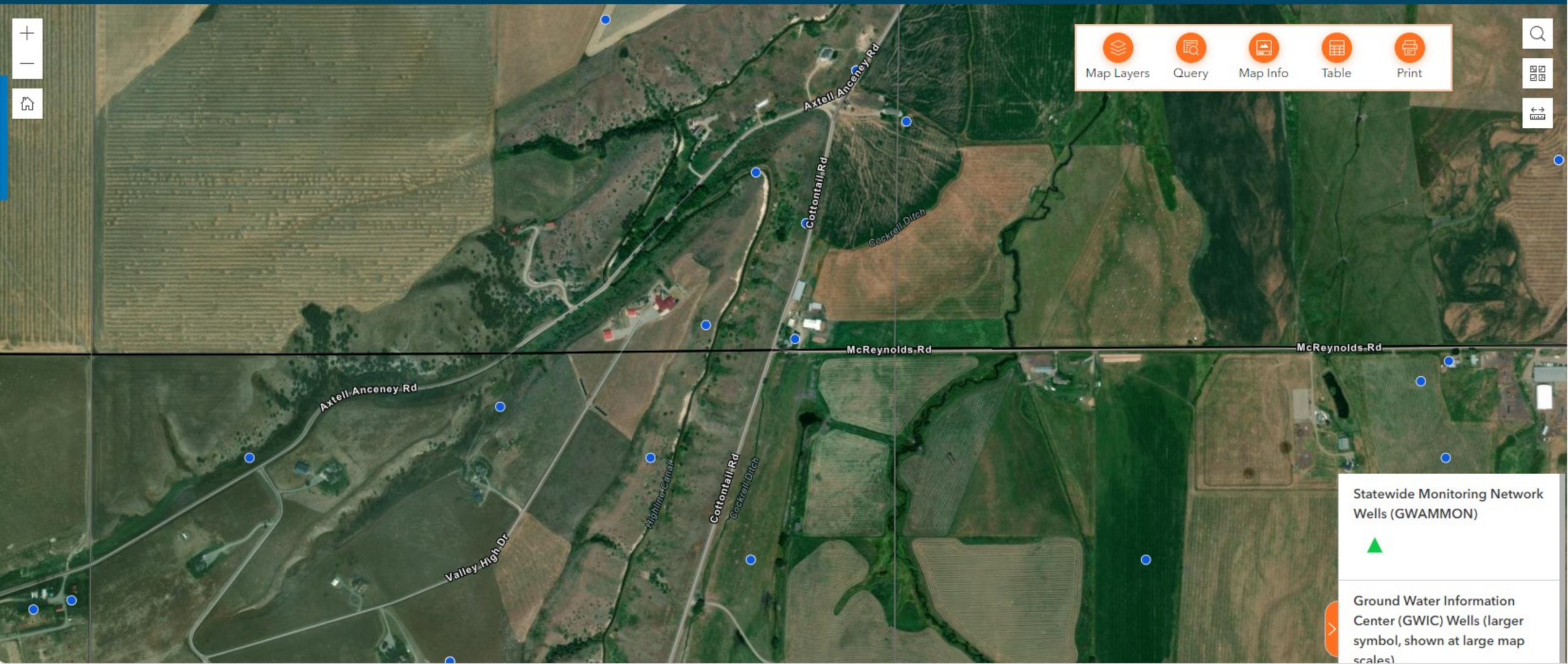
Select a Wildlife Habitat Protection Area on the map to view information. Or search for a Wildlife Habitat Protection Area from the dropdown below.

Visit a Wildlife Habitat Protection Area

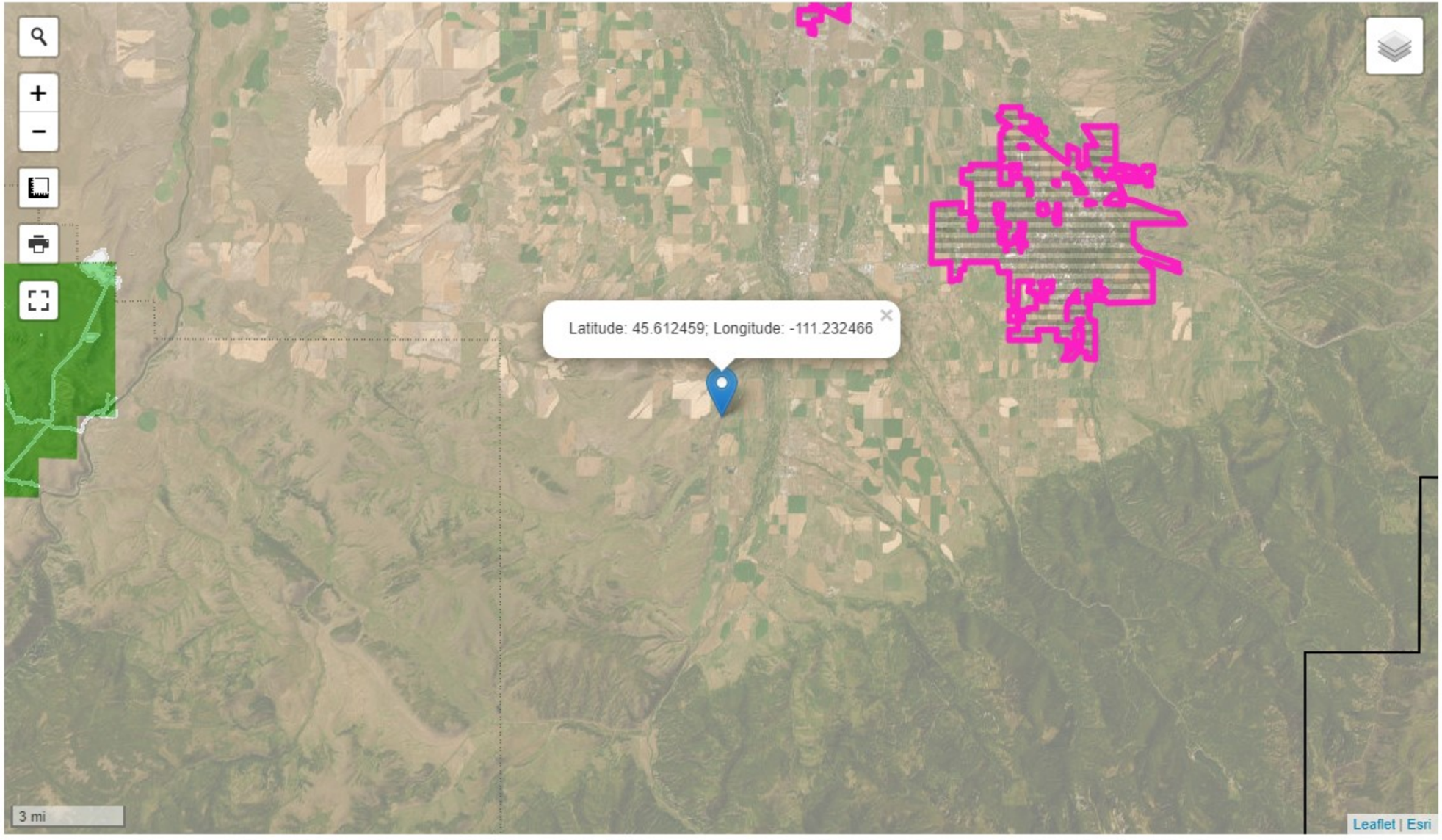
Select a Wildlife Habitat Protection Area

Groundwater Monitoring

Main Map | Hydrographs



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.



USFWS Critical Habitat

Properties

Use the selector above to switch between layers in the map.

Information

Symbology

USFWS Critical Habitat

Critical Habitat - Polygon Features - Final

Critical Habitat - Linear Features - Final

Critical Habitat - Polygon Features - Proposed

Critical Habitat - Linear Features - Proposed

Appearance

Blending

Normal

Transparency