



MONTANA STATE LIBRARY

NATURAL HERITAGE PROGRAM

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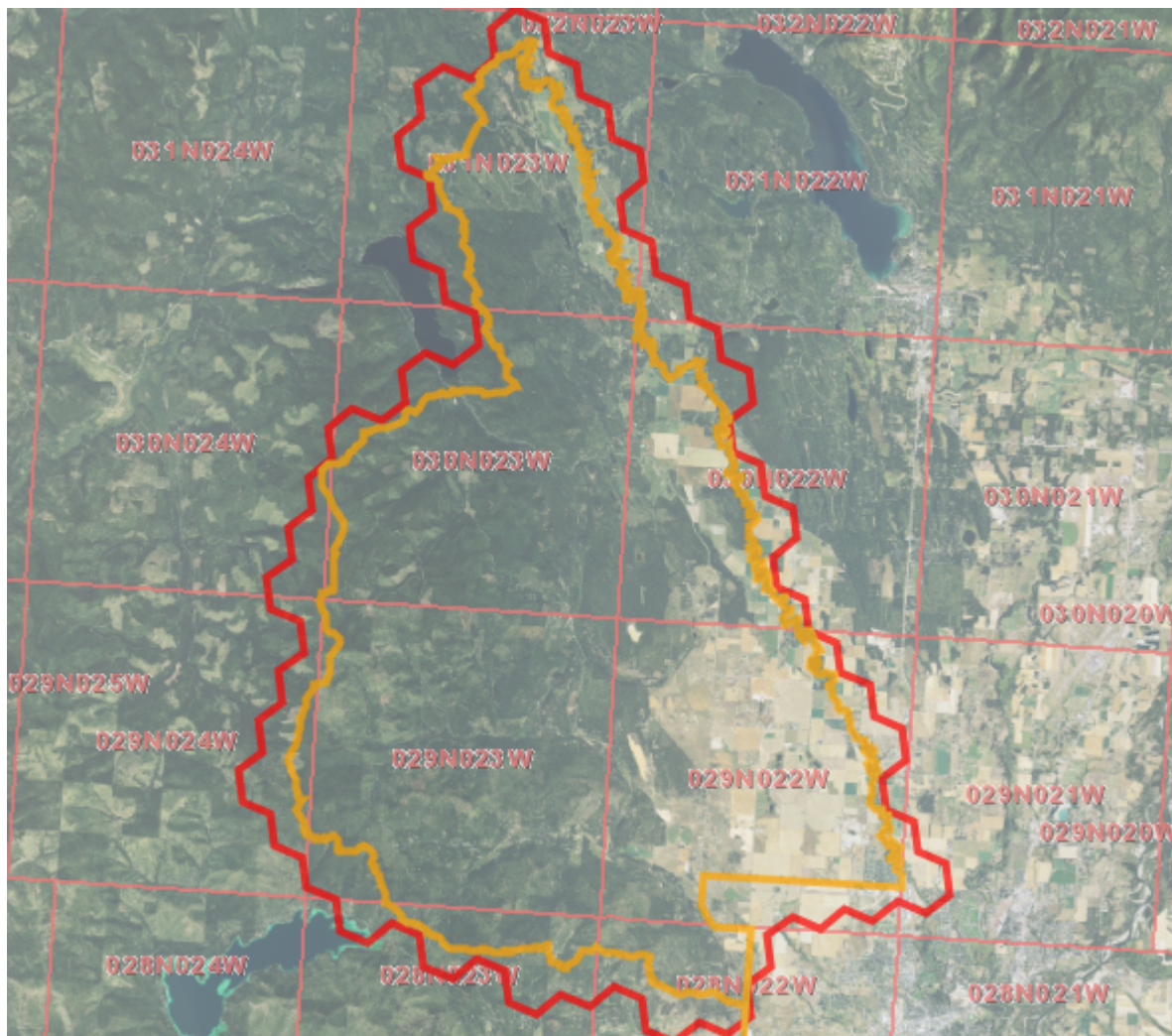


Latitude	Longitude
48.18320	-114.33312
48.49571	-114.61397

Summarized by:

RayKuhns LandscapeArea ES FINAL

(Custom Area of Interest)



Suggested Citation

Montana Natural Heritage Program. Environmental Summary Report.

for Latitude 48.18320 to 48.49571 and Longitude -114.33312 to -114.61397. Retrieved on 4/10/2024.

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



Environmental Summary

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Introduction to Environmental Summary Report

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

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

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



Latitude 48.18320 Longitude -114.33312
48.49571 -114.61397

Native Species

Summarized by: RayKuhns LandscapeArea ES FINAL (Custom Area of Interest)

Filtered by:

Native Species reports are filtered for Species with USFWS = LE: Listed endangered, LT: Listed threatened

or FWP SWAP = SGCN1, SGCN2

or Plant Threat Score = Very High

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

Species Occurrences

	USFWS Sec7	# SO	# Obs	Predicted Model	Range
F - Bull Trout (<i>Salvelinus confluentus</i>) SOC	7	1	+		
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S2 USFWS: LT; CH BLM: THREATENED FWP SWAP: SGCN2 Delineation Criteria Stream reaches and standing water bodies where the species is believed to be present based on the professional judgement of a fisheries biologist, potentially supported by habitat assessment, direct capture, or confirmed presence in adjacent areas. In order to reflect the importance of adjacent terrestrial habitats to survival, stream reaches are buffered 100 meters, standing water bodies greater than 1 acre are buffered 50 meters, and standing water bodies less than 1 acre are buffered 30 meters into the terrestrial habitat based on PACFISH/INFISH Riparian Conservation Area standards. (Last Updated: Mar 19, 2024) Predicted Models: 18% Suitable (native range) (deductive)					
F - Westslope Cutthroat Trout (<i>Oncorhynchus clarkii lewisi</i>) SOC		2	+		
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 USFS: Sensitive - Known in Forests (BD, BRT, KOOT, LOLO) Species of Conservation Concern in Forests (CG, HLC) BLM: SENSITIVE FWP SWAP: SGCN2 Delineation Criteria Stream reaches and standing water bodies where the species presence has been confirmed through direct capture or where they are believed to be present based on the professional judgement of a fisheries biologist due to confirmed presence in adjacent areas. In order to reflect the importance of adjacent terrestrial habitats to survival, stream reaches are buffered 100 meters, standing water bodies greater than 1 acre are buffered 50 meters, and standing water bodies less than 1 acre are buffered 30 meters into the terrestrial habitat based on PACFISH/INFISH Riparian Conservation Area standards. (Last Updated: Mar 08, 2024) Predicted Models: 16% Suitable (native range) (deductive)					
M - Northern Bog Lemming (<i>Synaptomys borealis</i>) SOC		1	1		
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, BRT, KOOT, LOLO) FWP SWAP: SGCN2, SGIN Delineation Criteria Wetlands with confirmed evidence of reproduction based on the presence of a resident animal of any age buffered by 100 meters in order to reflect importance of adjacent terrestrial habitats to the health of wetland habitats the species is dependent on. (Last Updated: May 06, 2022) Predicted Models: 1% Optimal (inductive), 1% Moderate (inductive), 25% Low (inductive)					
M - Grizzly Bear (<i>Ursus arctos</i>) SOC	7	1	13 +		
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 may be present when evaluating the potential impacts of a project and to work with the USFWS to develop and implement best management practices to minimize or eliminate project effects on the species. (Last Updated: Dec 22, 2023) Predicted Models: 77% Moderate (inductive), 22% Low (inductive)					
M - Canada Lynx (<i>Lynx canadensis</i>) SOC	7	2	3 +		
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 Delineation Criteria Areas designated as Critical Habitat for the species by the U.S. Fish and Wildlife Service on September 12, 2014 because they currently contain physical and biological features (e.g. boreal forests with snowshoe hare) essential to the conservation of the species and state and other lands within the outer boundaries of USFWS Critical Habitat polygons. (Last Updated: Dec 22, 2023) Predicted Models: 48% Moderate (inductive), 34% Low (inductive)					
A - Western Toad (<i>Anaxyrus boreas</i>) SOC		4	8		
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 Delineation Criteria Standing water bodies or portions of large water bodies with confirmed evidence of reproduction (calling adults, eggs, larvae or new metamorphs) buffered by 100 meters in order to reflect importance of adjacent terrestrial habitats to survival of breeding adults and newly metamorphosed juveniles. (Last Updated: Mar 20, 2024) Predicted Models: 36% Moderate (inductive), 64% Low (inductive)					
M - Wolverine (<i>Gulo gulo</i>) SOC	7	1	+		
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G4 State: S3 USFWS: LT USFS: Sensitive - Known in Forests (LOLO) BLM: SENSITIVE FWP SWAP: SGCN3 Delineation Criteria Confirmed area of occupancy supported by recent (post-1980), nearby (within 10 kilometers) observations of adults or juveniles. Tracking regions were defined by areas of primary habitat and adjacent female dispersal habitat as modeled by Inman et al. (2013). These regions were buffered by 1 kilometer in order to link smaller areas and account for potential inaccuracies in independent variables used in the model. (Last Updated: Dec 20, 2023) Predicted Models: 4% Moderate (inductive), 60% Low (inductive)					

B - Lewis's Woodpecker

(*Melanerpes lewis*)

SOC

3

4

S

M

[View in Field Guide](#)

[View Predicted Models](#)

[View Range Maps](#)

[Species of Concern - Native Species](#)



Global: **G4** State: **S2B** USFWS: **MBTA; BCC10; BCC17** USFS: **Species of Conservation Concern in Forests (HLC)**

BLM: **SENSITIVE** FWP SWAP: **SGCN2** PIF: **2**

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 300 meters in order to encompass the likely foraging area used by breeding adults around the nest tree and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Dec 28, 2023)

Predicted Models:

 2% Moderate (inductive),  28% Low (inductive)

Legend

Model Icons

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

Habitat Icons

- Common
- Occasional

Range Icons

- Native / Year-round
- Summer
- Winter
- Migratory
- Non-native
- Historical

Num Obs

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



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Native Species

Summarized by: **RayKuhns LandscapeArea ES FINAL** (*Custom Area of Interest*)

Filtered by:

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or **FWP SWAP = SGCN1, SGCN2**






or **Plant Threat Score = Very High**

Other Observed Species

	USFWS Sec7	# Obs	Predicted Model	Range
<div><div></div><div>B - Harlequin Duck (<i>Histrionicus histrionicus</i>) SOC</div></div>		1	<div></div>	<div>S</div> <div>M</div>
<div><div>View in Field Guide</div><div>View Predicted Models</div><div>View Range Maps</div></div> <div><div>Species of Concern - Native Species</div><div>Global: G4</div><div>State: S2B</div><div>USFWS: MBTA</div><div>USFS: Sensitive - Known in Forests (BD, KOOT, LOLO)</div><div>Sensitive - Migratory in Forests (BRT)</div><div>FWP SWAP: SGCN2</div><div>PIF: 1</div></div> <div><div>Predicted Models:</div><div><div></div>38% Low (inductive)</div></div>				
<div><div></div><div>B - Black Swift (<i>Cypseloides niger</i>) SOC</div></div>		2	<div></div>	<div>S</div> <div>M</div>
<div><div>View in Field Guide</div><div>View Predicted Models</div><div>View Range Maps</div></div> <div><div>Species of Concern - Native Species</div><div>Global: G4</div><div>State: S1B</div><div>USFWS: MBTA; BCC10</div><div>USFS: Sensitive - Known in Forests (BRT, KOOT)</div><div>Species of Conservation Concern in Forests (FLAT)</div><div>FWP SWAP: SGCN1, SGIN</div><div>PIF: 2</div></div> <div><div>Predicted Models:</div><div><div></div>28% Low (inductive)</div></div>				
<div><div></div><div>B - Caspian Tern (<i>Hydroprogne caspia</i>) SOC</div></div>		+	<div></div>	<div>S</div> <div>M</div>
<div><div>View in Field Guide</div><div>View Predicted Models</div><div>View Range Maps</div></div> <div><div>Species of Concern - Native Species</div><div>Global: G5</div><div>State: S2B</div><div>USFWS: MBTA</div><div>BLM: SENSITIVE</div><div>FWP SWAP: SGCN2</div><div>PIF: 2</div></div> <div><div>Predicted Models:</div><div><div></div>1% Low (inductive)</div></div>				
<div><div></div><div>F - Lake Trout (<i>Salvelinus namaycush</i>) SOC</div></div>		+	<div></div>	<div>N</div>
<div><div>View in Field Guide</div><div>View Predicted Models</div><div>View Range Maps</div></div> <div><div>Species of Concern - Native/Non-native Species - (depends on location or taxa)</div><div>Global: G5</div><div>State: S2</div><div>FWP SWAP: SGCN2</div></div> <div><div>Predicted Models:</div><div><div></div>18% Suitable (introduced range) (deductive)</div></div>				
<div><div></div><div>B - Gray-crowned Rosy-Finch (<i>Leucosticte tephrocotis</i>) SOC</div></div>		3	Not Assessed	<div>Y</div> <div>W</div> <div>M</div>
<div><div>View in Field Guide</div><div>View Range Maps</div></div> <div><div>Species of Concern - Native Species</div><div>Global: G5</div><div>State: S2</div><div>USFWS: MBTA</div><div>FWP SWAP: SGCN2, SGIN</div></div>				

Legend

Model Icons

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

Habitat Icons

-  Common
-  Occasional

Range Icons

-  Native / Year-round
-  Summer
-  Winter
-  Migratory
-  Non-native
-  Historical

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



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Native Species

Summarized by: **RayKuhns LandscapeArea ES FINAL** (*Custom Area of Interest*)















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or **FWP SWAP = SGCN1, SGCN2**

or **Plant Threat Score = Very High**

Other Potential Species

	USFWS Sec7	Predicted Model	Range
I - Margaritifera falcata (<i>Western Pearlshell</i>) SOC			
View in Field Guide View Predicted Models View Range Maps USFS: Sensitive - Known in Forests (BD, BRT, KOOT, LOLO) Species of Concern - Native Species Global: G5 State: S2 Species of Conservation Concern in Forests (CG, HLC) BLM: SENSITIVE FWP SWAP: SGCN2 Predicted Models:  1% Optimal (inductive),  13% Moderate (inductive),  53% Low (inductive)			
B - Yellow-billed Cuckoo (<i>Coccyzus americanus</i>) SOC	7		 
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:  1% Moderate (inductive),  28% Low (inductive)			
V - Silene spaldingii (<i>Spalding's Catchfly</i>) SOC	7		
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G2 State: S2 USFWS: LT Plant Threat Score: Very High CCVI: Extremely Vulnerable Predicted Models:  1% Moderate (inductive),  8% Low (inductive)			
A - Northern Leopard Frog (<i>Lithobates pipiens</i>) SOC			 
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S1,S4 USFS: Sensitive - Suspected in Forests (KOOT, LOLO) BLM: SENSITIVE FWP SWAP: SGCN1 Predicted Models:  30% Low (inductive)			

Structured Surveys

Summarized by: **RayKuhns LandscapeArea ES FINAL** (*Custom Area of Interest*)

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

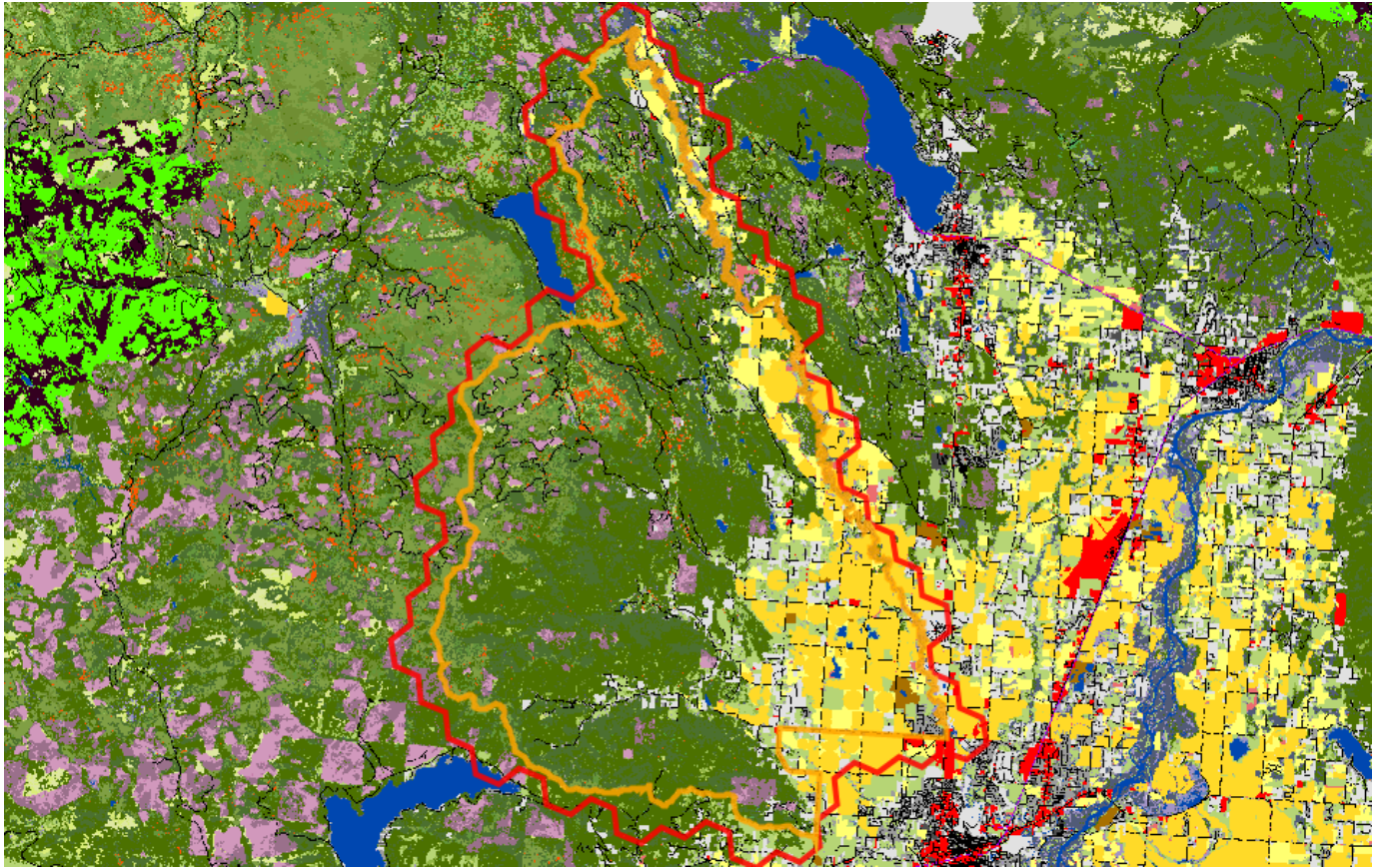
MTNHP does not typically manage information on structured surveys for plants; surveys for invasive species may be a future exception.

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

B-Bald Eagle Nest (<i>Bald Eagle Nest Survey</i>)	Survey Count: 43	Obs Count: 36	Recent Survey: 2019
B-Long-billed Curlew (<i>Long-billed Curlew, Road-based, Point Count</i>)	Survey Count: 10	Obs Count:	Recent Survey: 2012
B-Point Count (<i>Bird Point Count</i>)	Survey Count: 105	Obs Count: 1069	Recent Survey: 2008
B-Raptor nest (<i>Raptor Nest Survey</i>)	Survey Count: 4	Obs Count: 4	Recent Survey: 2018
B-Waterbird/Shorebird (<i>Colonial-nesting Waterbird/Shorebird/Waterfowl Surveys</i>)	Survey Count: 1	Obs Count:	Recent Survey: 2010
B-Winter Breeding Owl (<i>Late Winter Breeding Owl Survey</i>)	Survey Count: 12	Obs Count: 6	Recent Survey: 2019
E-Eastern Heath Snail (<i>Eastern Heath Snail Survey</i>)	Survey Count: 6	Obs Count:	Recent Survey: 2012
E-Eurasian Water-milfoil eDNA (<i>eDNA for Eurasian Water-milfoil</i>)	Survey Count: 1	Obs Count:	Recent Survey: 2014
E-Eurasian Water-milfoil Rake (<i>Rake tows/pulls for Eurasian Water-milfoil</i>)	Survey Count: 14	Obs Count: 15	Recent Survey: 2023
E-Invasive Mussel eDNA (<i>eDNA for Invasive Mussels</i>)	Survey Count: 1	Obs Count:	Recent Survey: 2014
E-Invasive Mussel Plankton Tow (<i>Plankton tows for veligers of Invasive Mussels</i>)	Survey Count: 58	Obs Count:	Recent Survey: 2023
E-Kicknet (<i>Kicknet Collection Survey for Invasive Mussels and Snails</i>)	Survey Count: 12	Obs Count:	Recent Survey: 2023
E-Noxious Weed, Road-based (<i>Noxious Weed Road-based Visual Surveys</i>)	Survey Count: 33	Obs Count: 230	Recent Survey: 2003
E-Noxious Weed, Visual (<i>Noxious Weed Visual Surveys</i>)	Survey Count: 1	Obs Count: 1	Recent Survey: 2006
E-Visual Aquatic Invasives (<i>Visual Encounter Surveys for Aquatic Invasives on Shorelines or Underwater</i>)	Survey Count: 14	Obs Count: 9	Recent Survey: 2023
F-Fish Electrofishing (<i>Fish Electrofishing Surveys</i>)	Survey Count: 1	Obs Count: 6	Recent Survey: 1993
F-Fish Other Survey (<i>Fish Other Survey (FWP Survey Type)</i>)	Survey Count: 2	Obs Count: 7	Recent Survey: 1958
F-Fish Trapping/Netting (<i>Fish Trapping or Netting Surveys</i>)	Survey Count: 2	Obs Count: 4	Recent Survey: 2022
I-Aquatic Invert Lotic Dipnet (<i>Invertebrate Lotic Site Dipnet and Visual Encounter Survey</i>)	Survey Count: 2	Obs Count: 2	Recent Survey: 1998
I-Odonates/Butterfly VES (<i>Visual Encounter Survey for Damselfly/Dragonfly/Butterfly</i>)	Survey Count: 1	Obs Count: 1	Recent Survey: 1976
M-Bat Acoustic (<i>Bat Acoustic Survey</i>)	Survey Count: 10	Obs Count: 20	Recent Survey: 2014
M-Bat Mistnet (<i>Bat Mistnet Survey</i>)	Survey Count: 5	Obs Count: 18	Recent Survey: 2014
M-Bat Roost (Active Season) (<i>Bat Roost (Active Season) Survey</i>)	Survey Count: 5	Obs Count: 4	Recent Survey: 2019
M-Bog Lemming Scat Board (<i>Northern Bog Lemming Scat DNA Sampling</i>)	Survey Count: 2	Obs Count: 5	Recent Survey: 2021
P-Algal scraping (<i>Algal Scraping</i>)	Survey Count: 5	Obs Count: 274	Recent Survey: 2022
P-USFS ECODATA Plot (<i>USFS ECODATA Ecological Inventory Survey Plot</i>)	Survey Count: 17	Obs Count: 74	Recent Survey: 1994

Land Cover

Summarized by: **RayKuhns LandscapeArea ES FINAL** (Custom Area of Interest)



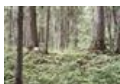
32%
(31,860
Acres)

Forest and Woodland Systems

Conifer-dominated forest and woodland (xeric-mesic)

Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest

This ecological system, composed of highly variable montane conifer forests, is found throughout Montana. It is associated with a submesic climate regime with annual precipitation ranging from 250 to 1,000 millimeters (10-39 inches), with most precipitation occurring during winter, and April through June. Winter snowpacks typically melt off in early spring at lower elevations. Elevations range from valley bottoms to 1,676 meters (5,500 feet) in northwestern Montana and up to 2,286 meters (7,500 feet) on warm aspects in southern Montana. In northwestern and west-central Montana, this ecosystem forms a forest belt on warm, dry to slightly moist sites. It generally occurs on gravelly soils with good aeration and drainage and a neutral to slightly acidic pH. In the western part of the state, it is seen mostly on well drained mountain slopes and valleys from lower treeline to up to 1,676 meters (5,500 feet). Immediately east of the Continental Divide, in north-central Montana, it occurs at montane elevations. Douglas-fir (*Pseudotsuga menziesii*) is the dominant conifer both as a seral and climax species. West of the Continental Divide, occurrences can be dominated by any combination of Douglas-fir and long-lived, seral western larch (*Larix occidentalis*), grand fir (*Abies grandis*), ponderosa pine (*Pinus ponderosa*) and lodgepole pine (*Pinus contorta*). Aspen (*Populus tremuloides*) and western white pine (*Pinus monticola*) have a minor status, with western white pine only in extreme western Montana. East of the Continental Divide, larch is absent and lodgepole pine is the co-dominant. Engelmann spruce (*Picea engelmannii*), white spruce, (*Picea glauca*) or their hybrid, become increasingly common towards the eastern edge of the Douglas-fir forest belt.



17%
(16,764
Acres)

Forest and Woodland Systems

Conifer-dominated forest and woodland (mesic-wet)

Rocky Mountain Mesic Montane Mixed Conifer Forest

These forests are generally dominated by western hemlock (*Tsuga heterophylla*), western red cedar (*Thuja plicata*), and grand fir (*Abies grandis*). They are found in areas influenced by incursions of mild, wet, Pacific maritime air masses west of the Continental Divide in Montana. Occurrences are found on all slopes and aspects but grow best on sites with high soil moisture, such as toeslopes and bottomlands. At the periphery of its distribution, this system is confined to moist canyons and cooler, moister aspects. Generally, these are moist, non-flooded or upland forest sites that are not saturated yearlong. In northwestern Montana, western hemlock and western red cedar forests occur on bottomland and northerly exposures between 609-1,585 meters (2,000-5,200 feet) on sites with an average annual precipitation of 635 millimeters (25 inches). These forests are common in extreme northwestern Montana, and extend eastward to the Continental Divide in the Lake McDonald drainage of Glacier National Park. Isolated stands of western hemlock occur in the Swan Valley, but are found most commonly in the Libby and Thompson Falls vicinities, west to the Idaho border. Western red cedar occurs extensively in the Mission Mountain ranges south to Missoula, and on lower flanks of the Swan Range north of Lion Creek. It is confined to the riparian zone of major streams on the east face of the Bitterroot Mountain Range. Grand fir, being less moisture dependent, occurs in more southerly and easterly sites than western red cedar and western hemlock. This system is similar to Rocky Mountain Dry-Mesic Mixed Montane Conifer Forest, which can be described as a seral phase of this system on appropriate sites west of the Continental Divide.



Human Land Use Agriculture

Cultivated Crops

10% (9,637 Acres)

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



Grassland Systems Montane Grassland

Rocky Mountain Lower Montane, Foothill, and Valley Grassland

7% (6,703 Acres)

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.



Forest and Woodland Systems

Conifer-dominated forest and woodland (mesic-wet)

Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland

4% (4,272 Acres)

These forests are similar to Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland (4242), but occur in locations with cold-air drainage or ponding, or where snowpacks linger late into the summer, such as north-facing slopes and high-elevation ravines. They are distinguished by their occurrence on mesic to wet microsites within the matrix of the drier (and warmer) subalpine spruce-fir or lodgepole pine forests. The microsites include north-facing slopes, swales or ravines, toeslopes, cold pockets, and other locations where available soil moisture is higher or lasts longer into the growing season. This system can extend down in elevation below the subalpine zone in places where cold-air ponding occurs, especially on north and east aspects. Elevations range from 884 to 1,981 meters (2,900-6,500 feet) west of the Continental Divide, and 1,585 to 2,682 meters (5,200-8,800 feet) east of the Continental Divide. Spruce is usually associated with subalpine fir and occurs either as a climax co-dominant or as a persistent, long-lived seral species in most upper elevation subalpine fir stands. Mountain hemlock (*Tsuga mertensiana*) occurs as small patches within the matrix of this mesic spruce-fir system, but only in the most maritime of environments of northwestern Montana, in the coldest and wettest sites. The shrub understory contains many ericaceous species such as rusty leaf menziesia (*Menziesia ferruginea*), dwarf huckleberry (*Vaccinium caespitosum*), mountain huckleberry (*Vaccinium membranaceum*), bilberry (*Vaccinium myrtillus*), grouse whortleberry (*Vaccinium scoparium*), pink mountain heath (*Phyllodoce empetrifloris*), black twinberry honeysuckle (*Lonicera involucrata*), gooseberry (*Ribes* species) and thimbleberry (*Rubus parviflorus*). The herbaceous understory contains mesic forbs, graminoids, and ferns and fern allies on the wettest sites. Moss cover is often high. Stand-replacing fires are less common in mesic spruce-fir forests than in dry-mesic forests.



Human Land Use Agriculture

Pasture/Hay

4% (3,732 Acres)

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.

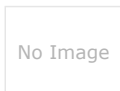


Human Land Use Developed

Developed, Open Space

4% (3,674 Acres)

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.



Human Land Use Developed

Other Roads

3% (3,428 Acres)

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



Recently Disturbed or Modified Harvested Forest

Harvested forest-tree regeneration

3% (2,907 Acres)

Land cover has been modified by logging. New growth is primarily trees.



3% (2,895 Acres)

Forest and Woodland Systems

Conifer-dominated forest and woodland (xeric-mesic)

Rocky Mountain Ponderosa Pine Woodland and Savanna

This system occurs on warm, dry, exposed sites in the foothills of the Rocky Mountains in west-central and central Montana, at the ecotone between grasslands or shrublands and more mesic coniferous forests. Elevations range from 1,066 to 1,676 meters (3,500-5,500 feet), with higher elevation examples mostly confined to central Montana. Occurrences are found on all slopes and aspects; however, moderately steep to very steep slopes or ridgetops are most common. True savanna types are infrequent; the system is more characteristically an open forest with a grassy understory. In the western part of the state, this system is seen mostly on dry slopes in the rainshadow of the Bitterroot Mountains. East of the Continental Divide, it is most widespread around Helena and Lewistown, although it occurs throughout mountain ranges as far east as the Little Rocky and Bearpaw Mountains. Ponderosa pine (*Pinus ponderosa*) is the dominant conifer. Douglas-fir (*Pseudotsuga menziesii*) and western larch (*Larix occidentalis*) may be present in the tree canopy in the more western areas, but are usually absent. In central Montana, limber pine (*Pinus flexilis*) and horizontal juniper (*Juniperus horizontalis*) are frequently components. Although the understory of ponderosa pine forests is often shrubby in other states, in Montana, habitats are mostly dominated by graminoids, although bitterbrush (*Purshia tridentata*), white snowberry (*Symphoricarpos albus*), and skunkbrush (*Rhus trilobata*) occur in forests on benchlands and rocky slopes in the central portion of the state. Understory vegetation is more typically grasses and forbs that resprout following low to moderate intensity surface fires. Prolonged drought, beetle kill and exotic invasion are rapidly changing the dynamics of this system.



2% (2,072 Acres)

Forest and Woodland Systems

Conifer-dominated forest and woodland (xeric-mesic)

Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland

Engelmann spruce (*Picea engelmannii*) and subalpine fir (*Abies lasiocarpa*) make up a substantial part of the montane and lower subalpine forests of the Montana Rocky Mountains and mountain island ranges of north-central and west-central Montana. Spruce is usually associated with fir and occurs as either a climax co-dominant or as a persistent, long-lived seral species in most upper elevation fir habitat types. Dry to mesic spruce-dominated forests range from 884-1,585 meters (2,900-5,200 feet) west of the Continental Divide, and 1585-2,073 meters (5,200-6,800 feet) east of the Continental Divide in the northern and central portions of the state. This system can be found at elevations up to 2,896 meters (9,500 feet) in southwestern Montana. Forests are found on gentle to very steep mountain slopes, high-elevation ridge tops and upper slopes, plateau-like surfaces, basins, alluvial terraces, well-drained benches, and inactive stream terraces. Tree canopy characteristics are relatively uniform. In northern Montana, Engelmann spruce hybridizes with its boreal counterpart, white spruce (*Picea glauca*). Douglas-fir (*Pseudotsuga menziesii*), lodgepole pine (*Pinus contorta*), and western larch (*Larix occidentalis*) (west of the Continental Divide) are seral but often present in these forests. The understory is comprised of a mixture of shrubs, forbs and graminoids tolerant of warmer and drier soil conditions than those found on the more mesic to wet spruce-fir system. The drier occurrences of this system are especially common on steep slopes at upper elevations throughout the eastern Rocky Mountains, whereas the more mesic occurrences form substantial cover west of the Continental Divide in the Flathead, Lolo, Bitterroot and Kootenai river drainages.



2% (2,005 Acres)

Forest and Woodland Systems

Conifer-dominated forest and woodland (xeric-mesic)

Rocky Mountain Lodgepole Pine Forest

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



2% (1,754 Acres)

Human Land Use Developed

Low Intensity Residential

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



2% (1,563 Acres)

Wetland and Riparian Systems

Floodplain and Riparian

Northern Rocky Mountain Lower Montane Riparian Woodland and Shrubland

This ecological system is found throughout the Rocky Mountain and Colorado Plateau regions. In Montana, sites occur at elevations of 609-1,219 meters (2,000-4,000 feet) west of the Continental Divide. East of the Continental Divide, this system ranges up to 1,676 meters (5,500 feet). It generally comprises a mosaic of multiple communities that are tree-dominated with a diverse shrub component. It is dependent on a natural hydrologic regime with annual to episodic flooding, so it is usually found within the flood zone of rivers, on islands, sand or cobble bars, and along 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. Black cottonwood (*Populus balsamifera* ssp. *trichocarpa*) is the key indicator species. Other dominant trees may include boxelder maple (*Acer negundo*), narrowleaf cottonwood (*Populus angustifolia*), eastern 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*), redbud dogwood (*Cornus sericea*), hawthorne (*Crataegus* species), chokecherry (*Prunus virginiana*), skunkbush sumac (*Rhus trilobata*), willows (*Salix* species), rose (*Rosa* species), silver buffaloberry (*Shepherdia argentea*), or snowberry (*Symphoricarpos* species).



2% (1,539 Acres)

Recently Disturbed or Modified Harvested Forest

Harvested forest-grass regeneration


Land cover has been modified by logging. New growth is primarily herbaceous species.


Additional Limited Land Cover


1% (1,259 Acres) ■ [Insect-Killed Forest](#)


1% (1,144 Acres) ■ [Alpine-Montane Wet Meadow](#)


1% (885 Acres) ■ [Open Water](#)


1% (663 Acres)  [Rocky Mountain Montane-Foothill Deciduous Shrubland](#)


<1% (500 Acres)  [Major Roads](#)


<1% (386 Acres)  [Commercial / Industrial](#)


<1% (297 Acres)  [Introduced Upland Vegetation - Annual and Biennial Forbland](#)


<1% (258 Acres)  [Quarries, Strip Mines and Gravel Pits](#)


<1% (219 Acres)  [Rocky Mountain Subalpine-Montane Mesic Meadow](#)


<1% (189 Acres)  [Aspen and Mixed Conifer Forest](#)


<1% (123 Acres)  [Rocky Mountain Subalpine Deciduous Shrubland](#)


<1% (69 Acres)  [Harvested forest-shrub regeneration](#)


<1% (65 Acres)  [Rocky Mountain Subalpine-Upper Montane Grassland](#)


<1% (63 Acres)  [Emergent Marsh](#)


<1% (34 Acres)  [Rocky Mountain Subalpine-Montane Fen](#)


<1% (33 Acres)  [High Intensity Residential](#)

<1% (28 Acres)  [Railroad](#)

<1% (26 Acres)  [Rocky Mountain Cliff, Canyon and Massive Bedrock](#)

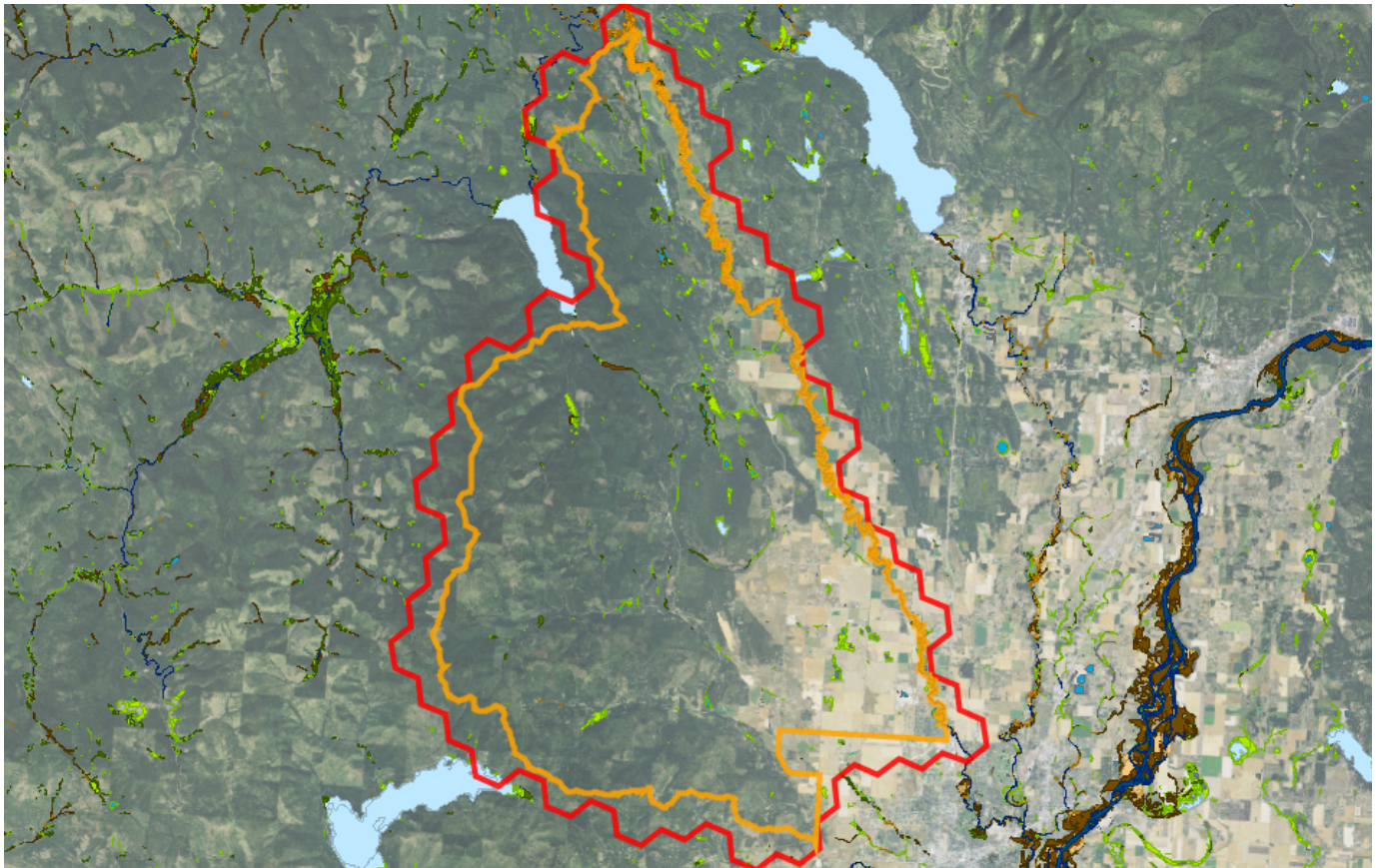
<1% (4 Acres)  [Aspen Forest and Woodland](#)

<1% (2 Acres)  [Rocky Mountain Subalpine Woodland and Parkland](#)

<1% (0 Acres)  [Rocky Mountain Conifer Swamp](#)

Wetland and Riparian



Summarized by: **RayKuhns LandscapeArea ES FINAL** (Custom Area of Interest)







Wetland and Riparian Mapping

P - Palustrine





UB - Unconsolidated Bottom			P - Palustrine, UB - Unconsolidated Bottom	
			<i>Wetlands where mud, silt or similar fine particles cover at least 25% of the bottom, and where vegetation cover is less than 30%.</i>	
F - Semipermanently Flooded	9 Acres			
(no modifier)	1 Acres	PUBF		
x - Excavated	8 Acres	PUBFx		
AB - Aquatic Bed			P - Palustrine, AB - Aquatic Bed	
			<i>Wetlands with vegetation growing on or below the water surface for most of the growing season.</i>	
F - Semipermanently Flooded	63 Acres			
(no modifier)	27 Acres	PABF		
b - Beaver	1 Acres	PABFb		
h - Diked/Impounded	18 Acres	PABFh		
x - Excavated	17 Acres	PABFx		
G - Intermittently Exposed	129 Acres			
(no modifier)	122 Acres	PABG		
h - Diked/Impounded	3 Acres	PABGh		
x - Excavated	4 Acres	PABGx		
US - Unconsolidated Shore			P - Palustrine, US - Unconsolidated Shore	
			<i>Wetlands with less than 75% areal cover of stones, boulders, or bedrock. AND with less than 30% vegetative cover AND the wetland is irregularly exposed due to seasonal or irregular flooding and subsequent drying.</i>	
A - Temporarily Flooded	1 Acres			
(no modifier)	1 Acres	PUSA		
C - Seasonally Flooded	16 Acres			
(no modifier)	16 Acres	PUSC		
x - Excavated	<1 Acres	PUSCx		
EM - Emergent			P - Palustrine, EM - Emergent	
			<i>Wetlands with erect, rooted herbaceous vegetation present during most of the growing season.</i>	
A - Temporarily Flooded	789 Acres			
(no modifier)	787 Acres	PEMA		
b - Beaver	1 Acres	PEMab		
h - Diked/Impounded	1 Acres	PEMAh		
B - Saturated	60 Acres			
(no modifier)	60 Acres	PEMB		
C - Seasonally Flooded	202 Acres			

(no modifier)	201 Acres	PEMC
x - Excavated	1 Acres	PEMCx
F - Semipermanently Flooded	20 Acres	
(no modifier)	18 Acres	PEMF
h - Diked/Impounded	2 Acres	PEMFh
x - Excavated	<1 Acres	PEMFx
<hr/>		
 SS - Scrub-Shrub		P - Palustrine, SS - Scrub-Shrub <i>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.</i>
A - Temporarily Flooded	194 Acres	
(no modifier)	194 Acres	PSSA
B - Saturated	30 Acres	
(no modifier)	30 Acres	PSSB
C - Seasonally Flooded	4 Acres	
(no modifier)	4 Acres	PSSC
<hr/>		
 FO - Forested		P - Palustrine, FO - Forested <i>Wetlands dominated by woody vegetation greater than 6 meters (20 feet) tall.</i>
A - Temporarily Flooded	5 Acres	
(no modifier)	5 Acres	PFOA




L - Lacustrine (Lakes)

1 - Limnetic		
 UB - Unconsolidated Bottom		L - Lacustrine (Lakes), 1 - Limnetic, UB - Unconsolidated Bottom <i>Deep waterbodies with mud or silt covering at least 25% of the bottom.</i>
H - Permanently Flooded	247 Acres	
(no modifier)	247 Acres	L1UBH
<hr/>		
2 - Littoral		
 UB - Unconsolidated Bottom		L - Lacustrine (Lakes), 2 - Littoral, UB - Unconsolidated Bottom <i>Shorelines where mud, silt or other fine particles comprise at least 25% of the substrate.</i>
H - Permanently Flooded	8 Acres	
(no modifier)	8 Acres	L2UBH
<hr/>		
 AB - Aquatic Bed		L - Lacustrine (Lakes), 2 - Littoral, AB - Aquatic Bed <i>Shorelines with vegetation growing on or below the water surface for most of the growing season.</i>
G - Intermittently Exposed	48 Acres	
(no modifier)	48 Acres	L2ABG
<hr/>		
 US - Unconsolidated Shore		L - Lacustrine (Lakes), 2 - Littoral, US - Unconsolidated Shore <i>Shorelines where there is 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.</i>
C - Seasonally Flooded	28 Acres	
(no modifier)	28 Acres	L2USC

R - Riverine (Rivers)

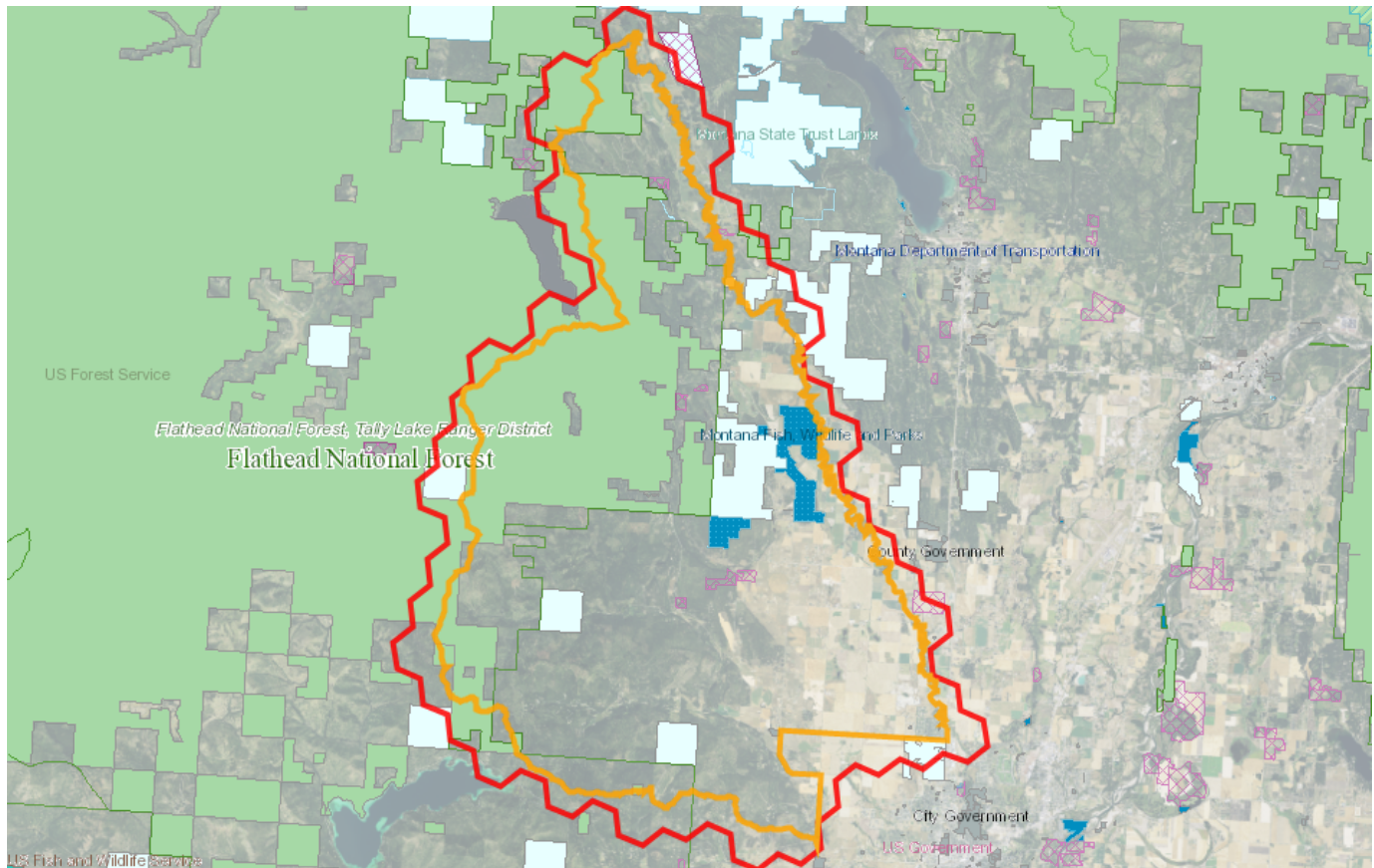
2 - Lower Perennial		
 UB - Unconsolidated Bottom		R - Riverine (Rivers), 2 - Lower Perennial, UB - Unconsolidated Bottom <i>Stream channels where the substrate is at least 25% mud, silt or other fine particles.</i>
H - Permanently Flooded	16 Acres	
(no modifier)	16 Acres	R2UBH
<hr/>		
 US - Unconsolidated Shore		R - Riverine (Rivers), 2 - Lower Perennial, US - Unconsolidated Shore <i>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.</i>
A - Temporarily Flooded	2 Acres	
(no modifier)	2 Acres	R2USA
<hr/>		
3 - Upper Perennial		
 UB - Unconsolidated Bottom		R - Riverine (Rivers), 3 - Upper Perennial, UB - Unconsolidated Bottom <i>Stream channels where the substrate is at least 25% mud, silt or other fine particles.</i>
H - Permanently Flooded	295 Acres	
(no modifier)	295 Acres	R3UBH
<hr/>		
 US - Unconsolidated Shore		R - Riverine (Rivers), 3 - Upper Perennial, US - Unconsolidated Shore <i>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.</i>
A - Temporarily Flooded	3 Acres	
(no modifier)	3 Acres	R3USA

Rp - Riparian

1 - Lotic		
 SS - Scrub-Shrub		Rp - Riparian, 1 - Lotic, SS - Scrub-Shrub <i>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.</i>
(no modifier)	378 Acres	Rp1SS
<hr/>		
 FO - Forested		Rp - Riparian, 1 - Lotic, FO - Forested <i>This riparian class has woody vegetation that is greater than 6 meters (20 feet) tall.</i>
(no modifier)	93 Acres	Rp1FO
<hr/>		
 EM - Emergent		Rp - Riparian, 1 - Lotic, EM - Emergent <i>Riparian areas that have erect, rooted herbaceous vegetation during most of the growing season.</i>
(no modifier)	19 Acres	Rp1EM

Land Management

Summarized by: **RayKuhns LandscapeArea ES FINAL** (Custom Area of Interest)



Land Management Summary

	Ownership	Tribal	Easements	Other Boundaries (possible overlap)
Public Lands	33,611 Acres (33%)			
Federal	26,859 Acres (27%)			
US Forest Service	26,859 Acres (27%)			
USFS Owned	26,859 Acres (27%)			
USFS Ranger Districts				40,406 Acres
Flathead National Forest, Tally Lake Ranger District				40,406 Acres
USFS National Forest Boundaries				40,407 Acres
Flathead National Forest				40,407 Acres
State	6,715 Acres (7%)			
Montana State Trust Lands	5,163 Acres (5%)			
MT State Trust Owned	5,163 Acres (5%)			
State Forests				5 Acres
Stillwater State Forest				5 Acres
Montana Fish, Wildlife and Parks	1,552 Acres (2%)			
MTFWP Owned	1,552 Acres (2%)			
MTFWP Fishing Access Sites				5 Acres
Bootjack Lake Fishing Access Site				5 Acres
MTFWP Wildlife Management Areas				1,552 Acres
Ray Kuhns Wildlife Management Area				1,552 Acres
Local	37 Acres (<1%)			
Local Government	37 Acres (<1%)			
Local Government Owned	37 Acres (<1%)			
Conservation Easements			607 Acres (1%)	
Private			607 Acres (1%)	
Montana Land Reliance			399 Acres (<1%)	
Flathead Land Trust			208 Acres (<1%)	
Private Lands or Unknown Ownership	66,832 Acres (66%)			



Biological Reports

Summarized by: **RayKuhns LandscapeArea ES FINAL** (*Custom Area of Interest*)






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

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

- Miller, K.B. and D.L. Gustafson. 1996. Distribution records of the Odonata of Montana. Bulletin of American Odonatology 3(4):75-88.
- Paugh, J. I. 2006. **Common Loon nesting ecology in northwest Montana**. M.Sc. Thesis. Bozeman, Montana: Montana State University. 90 p.
- Schabacker, J., S.J. Amish, and G. Luikart. 2014. **Water Sample Testing for Dreissenid Mussels: Environmental DNA for the Detection of Aquatic Invasive Species**. Appendix C of Northwest Montana Lakes Volunteer Monitoring Network 2016 Summary Report. NMLN - FWP - Whitefish Lake Institute.
- Schabacker, J., S.J. Amish, and G. Luikart. 2014. **Water Sample Testing for Eurasian Watermilfoil: Environmental DNA for the Detection of Aquatic Invasive Species**. Appendix C of Northwest Montana Lakes Volunteer Monitoring Network 2016 Summary Report. NMLN - FWP - Whitefish Lake Institute.

Legend

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)










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





Invasive and Pest Species

Summarized by: **RayKuhns LandscapeArea ES FINAL** (*Custom Area of Interest*)












Aquatic Invasive Species

# Obs	Predicted Model	Range
V - Iris pseudacorus (<i>Yellowflag Iris</i>) N2A/AIS		
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Aquatic Invasive Species - Non-native Species Global: GNR State: SNA Predicted Models:  4% Optimal (inductive),  16% Moderate (inductive),  36% Low (inductive)		
V - Potamogeton crispus (<i>Curly-leaf Pondweed</i>) 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:  52% Low (inductive)		
A - American Bullfrog (<i>Lithobates catesbeianus</i>) AIS		
View in Field Guide View Predicted Models View Range Maps Aquatic Invasive Species - Non-native Species Global: G5 State: SNA Predicted Models:  30% Low (inductive)		
V - Myriophyllum spicatum (<i>Eurasian Water-milfoil</i>) N2A/AIS		
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Aquatic Invasive Species - Non-native Species Global: GNR State: SNA Predicted Models:  25% Low (inductive)		
V - Nymphaea odorata (<i>American Water-lily</i>) AIS		
View in Field Guide View Predicted Models View Range Maps Aquatic Invasive Species - Non-native Species Global: G5 State: SNA Predicted Models:  46% Suitable (introduced range) (deductive)		
I - Faxonius virilis (<i>Virile Crayfish</i>) AIS		
1 +	Not Assessed	
View in Field Guide View Range Maps Aquatic Invasive Species - Native/Non-native Species - (depends on location or taxa) Global: G5 State: S5		

Noxious Weeds: Priority 1A

V - Centaurea solstitialis (<i>Yellow Starthistle</i>) N1A		
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1A - Non-native Species Global: GNR State: SNA Predicted Models:  23% Optimal (inductive),  21% Moderate (inductive),  16% Low (inductive)		
V - Isatis tinctoria (<i>Dyer's Woad</i>) N1A		
3		
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1A - Non-native Species Global: GNR State: SNA Predicted Models:  1% Optimal (inductive),  25% Moderate (inductive),  66% Low (inductive)		
V - Taeniatherum caput-medusae (<i>Medusahead</i>) N1A		
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1A - Non-native Species Global: G4G5 State: SNA Predicted Models:  21% Low (inductive)		

Noxious Weeds: Priority 1B

V - Cytisus scoparius (<i>Scotch Broom</i>) N1B		
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1B - Non-native Species Global: GNR State: SNA Predicted Models:  14% Optimal (inductive),  23% Moderate (inductive),  46% Low (inductive)		
V - Chondrilla juncea (<i>Rush Skeletonweed</i>) N1B		
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1B - Non-native Species Global: GNR State: SNA Predicted Models:  9% Optimal (inductive),  46% Moderate (inductive),  45% Low (inductive)		
V - Lythrum salicaria (<i>Purple Loosestrife</i>) N1B		
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1B - Non-native Species Global: G5 State: SNA Predicted Models:  5% Optimal (inductive),  25% Moderate (inductive),  16% Low (inductive)		
V - Polygonum cuspidatum (<i>Japanese Knotweed</i>) N1B		
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1B - Non-native Species Global: GNR State: SNA Predicted Models:  10% Moderate (inductive),  60% Low (inductive)		

<div> <div></div> <div>V - <i>Echium vulgare</i> (Blueweed) N1B</div> </div>	72	<div><div></div></div>	N
<div> <div>View in Field Guide</div> <div>View Predicted Models</div> <div>View Range Maps</div> </div> <div>Noxious Weed: Priority 1B - Non-native Species</div> <div>Global: GNR State: SNA</div> <div>Predicted Models: <div><div></div></div> 4% Moderate (inductive), <div><div></div></div> 50% Low (inductive)</div>			
<div> <div></div> <div>V - <i>Polygonum x bohemicum</i> (Bohemian Knotweed) N1B</div> </div>		<div><div></div></div>	N
<div> <div>View in Field Guide</div> <div>View Predicted Models</div> <div>View Range Maps</div> </div> <div>Noxious Weed: Priority 1B - Non-native Species</div> <div>Global: GNA State: SNA</div> <div>Predicted Models: <div><div></div></div> 1% Moderate (inductive), <div><div></div></div> 25% Low (inductive)</div>			

Noxious Weeds: Priority 2A

<div> <div></div> <div>V - <i>Hieracium aurantiacum</i> (Orange Hawkweed) N2A</div> </div>	72	<div><div></div></div>	N
<div> <div>View in Field Guide</div> <div>View Predicted Models</div> <div>View Range Maps</div> </div> <div>Noxious Weed: Priority 2A - Non-native Species</div> <div>Global: GNR State: SNA</div> <div>Predicted Models: <div><div></div></div> 96% Optimal (inductive), <div><div></div></div> 4% Moderate (inductive)</div>			
<div> <div></div> <div>V - <i>Hieracium praealtum</i> (Kingdevil Hawkweed) N2A</div> </div>		<div><div></div></div>	N
<div> <div>View in Field Guide</div> <div>View Predicted Models</div> <div>View Range Maps</div> </div> <div>Noxious Weed: Priority 2A - Non-native Species</div> <div>Global: GNR State: SNA</div> <div>Predicted Models: <div><div></div></div> 37% Optimal (inductive), <div><div></div></div> 47% Moderate (inductive), <div><div></div></div> 8% Low (inductive)</div>			
<div> <div></div> <div>V - <i>Senecio jacobaea</i> (Tansy Ragwort) N2A</div> </div>	12	<div><div></div></div>	N
<div> <div>View in Field Guide</div> <div>View Predicted Models</div> <div>View Range Maps</div> </div> <div>Noxious Weed: Priority 2A - Non-native Species</div> <div>Global: GNR State: SNA</div> <div>Predicted Models: <div><div></div></div> 20% Optimal (inductive), <div><div></div></div> 46% Moderate (inductive), <div><div></div></div> 34% Low (inductive)</div>			
<div> <div></div> <div>V - <i>Ranunculus acris</i> (Tall Buttercup) N2A</div> </div>	22	<div><div></div></div>	N
<div> <div>View in Field Guide</div> <div>View Predicted Models</div> <div>View Range Maps</div> </div> <div>Noxious Weed: Priority 2A - Non-native Species</div> <div>Global: G5 State: SNA</div> <div>Predicted Models: <div><div></div></div> 20% Optimal (inductive), <div><div></div></div> 28% Moderate (inductive), <div><div></div></div> 37% Low (inductive)</div>			
<div> <div></div> <div>V - <i>Rhamnus cathartica</i> (Common Buckthorn) N2A</div> </div>		<div><div></div></div>	N
<div> <div>View in Field Guide</div> <div>View Predicted Models</div> <div>View Range Maps</div> </div> <div>Noxious Weed: Priority 2A - Non-native Species</div> <div>Global: GNR State: SNA</div> <div>Predicted Models: <div><div></div></div> 4% Optimal (inductive), <div><div></div></div> 33% Moderate (inductive), <div><div></div></div> 31% Low (inductive)</div>			
<div> <div></div> <div>V - <i>Iris pseudacorus</i> (Yellowflag Iris) N2A/AIS</div> </div>		<div><div></div></div>	N
<div> <div>View in Field Guide</div> <div>View Predicted Models</div> <div>View Range Maps</div> </div> <div>Noxious Weed: Priority 2A - Aquatic Invasive Species - Non-native Species</div> <div>Global: GNR State: SNA</div> <div>Predicted Models: <div><div></div></div> 4% Optimal (inductive), <div><div></div></div> 16% Moderate (inductive), <div><div></div></div> 36% Low (inductive)</div>			
<div> <div></div> <div>V - <i>Hieracium caespitosum</i> (Meadow Hawkweed) N2A</div> </div>		<div><div></div></div>	N
<div> <div>View in Field Guide</div> <div>View Predicted Models</div> <div>View Range Maps</div> </div> <div>Noxious Weed: Priority 2A - Non-native Species</div> <div>Global: GNR State: SNA</div> <div>Predicted Models: <div><div></div></div> 3% Optimal (inductive), <div><div></div></div> 89% Moderate (inductive), <div><div></div></div> 8% Low (inductive)</div>			
<div> <div></div> <div>V - <i>Ventenata dubia</i> (Ventenata) N2A</div> </div>		<div><div></div></div>	N
<div> <div>View in Field Guide</div> <div>View Predicted Models</div> <div>View Range Maps</div> </div> <div>Noxious Weed: Priority 2A - Non-native Species</div> <div>Global: GNR State: SNA</div> <div>Predicted Models: <div><div></div></div> 1% Optimal (inductive), <div><div></div></div> 34% Moderate (inductive), <div><div></div></div> 35% Low (inductive)</div>			
<div> <div></div> <div>V - <i>Myriophyllum spicatum</i> (Eurasian Water-milfoil) N2A/AIS</div> </div>		<div><div></div></div>	N
<div> <div>View in Field Guide</div> <div>View Predicted Models</div> <div>View Range Maps</div> </div> <div>Noxious Weed: Priority 2A - Aquatic Invasive Species - Non-native Species</div> <div>Global: GNR State: SNA</div> <div>Predicted Models: <div><div></div></div> 25% Low (inductive)</div>			

Noxious Weeds: Priority 2B

<div> <div></div> <div>V - <i>Leucanthemum vulgare</i> (Oxeye Daisy) N2B</div> </div>	103	<div><div></div></div>	N
<div> <div>View in Field Guide</div> <div>View Predicted Models</div> <div>View Range Maps</div> </div> <div>Noxious Weed: Priority 2B - Non-native Species</div> <div>Global: GNR State: SNA</div> <div>Predicted Models: <div><div></div></div> 23% Optimal (inductive), <div><div></div></div> 77% Moderate (inductive)</div>			
<div> <div></div> <div>V - <i>Hypericum perforatum</i> (Common St. John's-wort) N2B</div> </div>	49	<div><div></div></div>	N
<div> <div>View in Field Guide</div> <div>View Predicted Models</div> <div>View Range Maps</div> </div> <div>Noxious Weed: Priority 2B - Non-native Species</div> <div>Global: GNR State: SNA</div> <div>Predicted Models: <div><div></div></div> 21% Optimal (inductive), <div><div></div></div> 79% Moderate (inductive)</div>			
<div> <div></div> <div>V - <i>Tanacetum vulgare</i> (Common Tansy) N2B</div> </div>	35	<div><div></div></div>	N
<div> <div>View in Field Guide</div> <div>View Predicted Models</div> <div>View Range Maps</div> </div> <div>Noxious Weed: Priority 2B - Non-native Species</div> <div>Global: GNR State: SNA</div> <div>Predicted Models: <div><div></div></div> 19% Optimal (inductive), <div><div></div></div> 55% Moderate (inductive), <div><div></div></div> 26% Low (inductive)</div>			
<div> <div></div> <div>V - <i>Linaria vulgaris</i> (Yellow Toadflax) N2B</div> </div>	30	<div><div></div></div>	N
<div> <div>View in Field Guide</div> <div>View Predicted Models</div> <div>View Range Maps</div> </div> <div>Noxious Weed: Priority 2B - Non-native Species</div> <div>Global: GNR State: SNA</div> <div>Predicted Models: <div><div></div></div> 8% Optimal (inductive), <div><div></div></div> 44% Moderate (inductive), <div><div></div></div> 47% Low (inductive)</div>			
<div> <div></div> <div>V - <i>Linaria dalmatica</i> (Dalmatian Toadflax) N2B</div> </div>		<div><div></div></div>	N
<div> <div>View in Field Guide</div> <div>View Predicted Models</div> <div>View Range Maps</div> </div> <div>Noxious Weed: Priority 2B - Non-native Species</div> <div>Global: G5 State: SNA</div> <div>Predicted Models: <div><div></div></div> 1% Optimal (inductive), <div><div></div></div> 35% Moderate (inductive), <div><div></div></div> 28% Low (inductive)</div>			

<div><div></div><div>V - Centaurea stoebe</div><div>(Spotted Knapweed)</div></div>	N2B	152	<div><div></div><div></div><div></div></div>	<div>N</div>	<div><div><div>View in Field Guide</div><div>View Predicted Models</div><div>View Range Maps</div></div><div>Noxious Weed: Priority 2B - Non-native Species</div><div>Global: GNR State: SNA</div><div>Predicted Models: <div><div></div>69% Moderate (inductive), <div><div></div>31% Low (inductive)</div></div></div></div>
<div><div></div><div>V - Cynoglossum officinale</div><div>(Common Hound's-tongue)</div></div>	N2B	29	<div><div></div><div></div><div></div></div>	<div>N</div>	<div><div><div>View in Field Guide</div><div>View Predicted Models</div><div>View Range Maps</div></div><div>Noxious Weed: Priority 2B - Non-native Species</div><div>Global: GNR State: SNA</div><div>Predicted Models: <div><div></div>56% Moderate (inductive), <div><div></div>44% Low (inductive)</div></div></div></div>
<div><div></div><div>V - Potentilla recta</div><div>(Sulphur Cinquefoil)</div></div>	N2B	8	<div><div></div><div></div><div></div></div>	<div>N</div>	<div><div><div>View in Field Guide</div><div>View Predicted Models</div><div>View Range Maps</div></div><div>Noxious Weed: Priority 2B - Non-native Species</div><div>Global: GNR State: SNA</div><div>Predicted Models: <div><div></div>42% Moderate (inductive), <div><div></div>58% Low (inductive)</div></div></div></div>
<div><div></div><div>V - Cirsium arvense</div><div>(Canada Thistle)</div></div>	N2B	139	<div><div></div><div></div><div></div></div>	<div>N</div>	<div><div><div>View in Field Guide</div><div>View Predicted Models</div><div>View Range Maps</div></div><div>Noxious Weed: Priority 2B - Non-native Species</div><div>Global: G5 State: SNA</div><div>Predicted Models: <div><div></div>28% Moderate (inductive), <div><div></div>72% Low (inductive)</div></div></div></div>
<div><div></div><div>V - Acroptilon repens</div><div>(Russian Knapweed)</div></div>	N2B		<div><div></div><div></div><div></div></div>	<div>N</div>	<div><div><div>View in Field Guide</div><div>View Predicted Models</div><div>View Range Maps</div></div><div>Noxious Weed: Priority 2B - Non-native Species</div><div>Global: GNR State: SNA</div><div>Predicted Models: <div><div></div>27% Moderate (inductive), <div><div></div>27% Low (inductive)</div></div></div></div>
<div><div></div><div>V - Convolvulus arvensis</div><div>(Field Bindweed)</div></div>	N2B	19	<div><div></div><div></div><div></div></div>	<div>N</div>	<div><div><div>View in Field Guide</div><div>View Predicted Models</div><div>View Range Maps</div></div><div>Noxious Weed: Priority 2B - Non-native Species</div><div>Global: GNR State: SNA</div><div>Predicted Models: <div><div></div>7% Moderate (inductive), <div><div></div>32% Low (inductive)</div></div></div></div>
<div><div></div><div>V - Euphorbia virgata</div><div>(Leafy Spurge)</div></div>	N2B	3	<div><div></div><div></div><div></div></div>	<div>N</div>	<div><div><div>View in Field Guide</div><div>View Predicted Models</div><div>View Range Maps</div></div><div>Noxious Weed: Priority 2B - Non-native Species</div><div>Global: GNR State: SNA</div><div>Predicted Models: <div><div></div>3% Moderate (inductive), <div><div></div>58% Low (inductive)</div></div></div></div>
<div><div></div><div>V - Lepidium draba</div><div>(Whitetop)</div></div>	N2B		<div><div></div><div></div><div></div></div>	<div>N</div>	<div><div><div>View in Field Guide</div><div>View Predicted Models</div><div>View Range Maps</div></div><div>Noxious Weed: Priority 2B - Non-native Species</div><div>Global: GNR State: SNA</div><div>Predicted Models: <div><div></div>3% Moderate (inductive), <div><div></div>36% Low (inductive)</div></div></div></div>
<div><div></div><div>V - Centaurea diffusa</div><div>(Diffuse Knapweed)</div></div>	N2B		<div><div></div><div></div><div></div></div>	<div>N</div>	<div><div><div>View in Field Guide</div><div>View Predicted Models</div><div>View Range Maps</div></div><div>Noxious Weed: Priority 2B - Non-native Species</div><div>Global: GNR State: SNA</div><div>Predicted Models: <div><div></div>58% Low (inductive)</div></div></div>

<div><div></div><div></div></div>	I - Mecinus janthiniformis <i>(Dalmatian Toadflax Stem-boring Weevil)</i> BIOCNTL	<div><div></div><div></div></div>	<div><div></div><div></div></div>	<div><div></div><div></div></div>
	<div><div>View in Field Guide</div><div>View Predicted Models</div><div>View Range Maps</div></div> <div><div>Biocontrol Species - Non-native Species</div><div>Global: GNR State: SNA</div><div>Predicted Models: <div><div></div>4% Moderate (inductive), <div><div></div>45% Low (inductive)</div></div></div></div>			
<div><div></div><div></div></div>	I - Agapeta zoegana <i>(Sulphur Knapweed Moth)</i> BIOCNTL	<div><div></div><div></div></div>	<div><div></div><div></div></div>	<div><div></div><div></div></div>
	<div><div>View in Field Guide</div><div>Biocontrol Species - Non-native Species</div><div>Global: GNR State: SNA</div></div>			

Introduction to Montana Natural Heritage Program



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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	Kristina 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	Adam Messer – MFWP GIS Coordinator amesser@mt.gov (406) 444-0095
Fisheries Data and Nongame Animal Data	Adam Messer – MFWP GIS Coordinator amesser@mt.gov (406) 444-0095
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	Stevie Burton stevie.burton@mt.gov (406) 594-7354 See https://fwp.mt.gov/conservation/living-with-wildlife/subdivision-recommendations
Regional Contacts 	<div> <div>Region 1</div> <div>(Kalispell)</div> <div>(406) 752-5501</div> <div>fwprg12@mt.gov</div> </div> <div> <div>Region 2</div> <div>(Missoula)</div> <div>(406) 542-5500</div> <div>fwprg22@mt.gov</div> </div> <div> <div>Region 3</div> <div>(Bozeman)</div> <div>(406) 577-7900</div> <div>fwprg3@mt.gov</div> </div> <div> <div>Region 4</div> <div>(Great Falls)</div> <div>(406) 454-5840</div> <div>fwprg42@mt.gov</div> </div> <div> <div>Region 5</div> <div>(Billings)</div> <div>(406) 247-2940</div> <div>fwprg52@mt.gov</div> </div> <div> <div>Region 6</div> <div>(Glasgow)</div> <div>(406) 228-3700</div> <div>fwprg62@mt.gov</div> </div> <div> <div>Region 7</div> <div>(Miles City)</div> <div>(406) 234-0900</div> <div>fwprg72@mt.gov</div> </div>

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

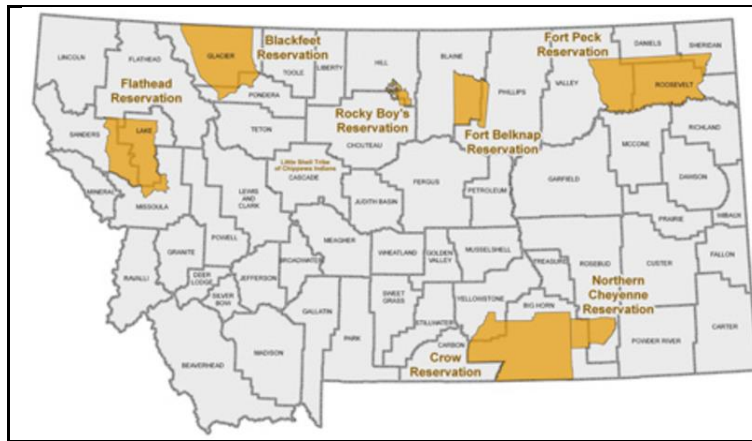
Information Planning and Conservation (IPAC) website: <https://ipac.ecosphere.fws.gov>

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 \(MISC\)](#)

[Western Montana Conservation Commission](#)

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

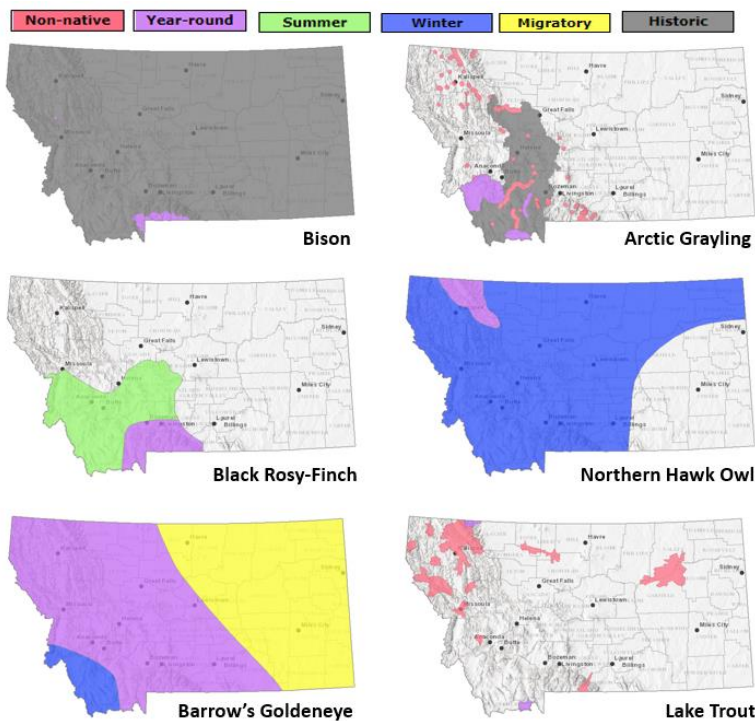
The location of a verified observation or specimen record typically known or assumed to represent a breeding population or a portion of a breeding population. Animal SO's are generally: (1) buffers of terrestrial point observations based on documented species' home range sizes; (2) buffers of stream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