DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

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DRAFT

ENVIRONMENTAL ASSESSMENT

Project Name:	Crazy Mountain Cattle 3rd Wheel Line Pivot Installation
Proposed Implementation Date	Winter 2022/2023 – or upon funding approval and supplies
Proponent:	Crazy Mountain Cattle Company
Location:	Section 01, Township 1S, Range 12E
County:	Sweet Grass

I. TYPE AND PURPOSE OF ACTION

Crazy Mountain Cattle Company (herein, the proponent) is proposing to use Montana Department of Natural Resources and Conservation (DNRC) Conservation and Resource Development Division (CARDD) private loan funding to develop previously flood and wheel line irrigated land into center pivot irrigated land.

The proponent proposes to develop 132 acres of its current mixed praireland and agricultural land to plant hay, which would serve as a forage species for cattle, or other livestock. The project implementation would include power development for pump, procuring material, site prep for installation of mainline, installing mainline, install pivot, and cleanup.

The property is surrounded on nearly all sides by hundreds of acres of private, agricultural properties. The property is located in Section 01, Township 1S, Range 12E, and approximately 12 miles southwest of the town of Big Timber, Montana. The proponent proposes to begin implementation Winter 2022/2023, or upon funding approval and supplies.

Responsibly irrigating the property will reduce water waste and power consumption, prevent soil erosion, reduce fuel for fires, reduce noxious weed growth, and improve wildlife habitat (including fowl, deer, and honeybees).

DNRC will approve the loan to provide funding for the Crazy Mountain Cattle 3rd Wheel Line Pivot Installation Project.

II. PROJECT DEVELOPMENT

1. **PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED:**
   Provide a brief chronology of the scoping and ongoing involvement for this project. List number of individuals contacted, number of responses received, and newspapers in which notices were placed and for how long. Briefly summarize issues received from the public.

The proponent did not submit letters of support or provide public comment. The proposed action is occurring on their private lands, and it is unknown to what extent their water development may

impact surrounding lands.

DNRC will post a draft of this Environmental Assessment for public comment for two weeks on the DNRC – Public Notices webpage. In addition, the MEPA Coordinator will provide a letter of notice for public comment to the applicant and send notice to applicable/affected entities.

For any comments submitted by the public, the MEPA Coordinator will review and work with the Grant Manager and applicant to adequately address those comments.

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2. OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:
Examples: cost-share agreement with U.S. Forest Service, 124 Permit, 3A Authorization, Air Quality Major Open Burning Permit.

The proposed project area (POU) will be a new irrigated area designated in the water right(s) or outside the area historically irrigated with the existing water right and may require an authorization from DNRC to change the water right.

The Montana Sage Grouse Habitat Conservation Program's website was used to verify if the proposed project area is located in a protected area. Using the website's mapping feature, it was determined that the project is in an EO-General Habitat Area. A formal inquiry will be submitted to the conservation program prior to administering the grant.

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

1) Alternative 1 (*Preferred Alternative*): Install an electric pump center pivot

    a. Irrigation sprinkler pivots are known have high water use efficiency as they distribute water more uniformly while using less water overall. This more efficient distribution increases crop production but allows for less manual labor compared with flood irrigation (e.g., reduces the need to either open flood gates or distribute piping). Because pivots can precisely control the amount of water on a field, the soil moisture also increases. This is an important consideration for harvest and second cutting.

    b. The pipeline will cause some initial soil disturbance due to construction and digging.

    c. This option would be more favorable for instream flows as compared to flood irrigation, because there is no ditch loss or evaporation in the pipeline. Thus, more water would be returned to the stream.

2) Alternative 2: Flood irrigation

    a. Flood irrigation can be advantageous in areas where the topography is relatively flat or gentle slopes that can be leveled[1].

[1]Brown, P.W. 2008. Flood vs. pivot irrigation for forage crops: what are the advantages and disadvantages? Proceedings, 2008 California

b. Flood irrigation techniques are more suited to fine soil types with low infiltration rates.

c. Flood irrigation techniques typically have lower efficiency and therefore more water is required to adequately provide water for crops. Thus, irrigators often use their entire water rights for application and leave little water for instream use.

3) Alternative 3: No Action

a. The applicant would continue to divert water into a ditch for flood irrigation, which would mean continued increased labor and labor costs, and they would not irrigate a potentially new crop area. Crop production would also continue to be low or even decrease with the inefficient distribution of irrigated water.

b. This solution does not meet the goals of the applicant in terms of increasing crop production and decreasing labor and associated labor costs.

III. IMPACTS ON THE PHYSICAL ENVIRONMENT

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

4. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:

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

The location of the proposed area is within Cenozoic sedimentary deposits, which contain largely Quaternary alluviums and alluvial fan geologic units[2]. DNRC used the NRCS Web Soil Survey mapping application and identified Ethridge clay loams (68.1% of proposed area; 4 to 8% slopes), Nesda-McIlwaine loams (14.8% of proposed area; 0 to 2% slopes), and Sixbeacon-Reedpoint complex (13.3% of proposed area; 15 to 60% slopes; see attached NRCS Soil Report, date accessed 11/29/2022). The Ethridge clay loam alluvium is considered well-drained and nonsaline to very slightly saline. The Nesda-McIlwaine sandy and gravelly alluvium is considered well-drained and nonsaline to very slightly saline. The Sixbeacon-Reedpoint complex gravelly alluvium is considered well-drained and nonsaline to very slightly saline. All dominant soil groups have a hydrological soil rating of Class C or lower, indicating that the capacity to absorb water is low and that a switch from flood irrigation to pivot irrigation may have a beneficial effect for the soils in reducing water runoff and loss.

Proposed Alternative – Potentially minor, short-term, adverse impacts to the soils during the construction of the mainline. Cumulative adverse impacts may occur with the future pivot installation and the tire tracks associated with the pivot wheels.

Alfalfa & Forage Symposium and Western Seed Conference, San Diego, CA, 2-4 December, 2008.

[2]MacLaurin, C., Mahoney, J.B., Guy, A., Forgette, M., Kjos, A., Wittkop, C., Kohel, C., Balgord, E., Barber, B., and Ihinger, P.D. 2010. Geologic map of the Dunn Creek, 7.5' quadrangle, west-central Montana. EDMAP 9, scale: 1:24,000.

No Action – There will be no impacts to the project plot.

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

The applicant is proposing to use their acquired water rights from the Duck Creek tributary of the Yellowstone River. Duck Creek has a mean monthly flow ranging from 7.36 $ft^3\ s^{-1}$ (recorded in December) to 38.7 $ft^3\ s^{-1}$ (recorded in May; based on USGS custom StreamStats report, data accessed 12/01/2022). Based on the StreamStats report, the following table summarizes the mean monthly discharge during the irrigation season (Table data from custom USGS StreamStats report, data accessed 12/01/2022):

Period of Record	***Average Flow ($ft^3\ s^{-1}$)***
March	15.9
April	23.7
May	38.7
June	38.4
July	13.6
August	7.45
September	7.51
October	9.63
November	9.15

Duck Creek is within the Upper Missouri River Basin and part of the Missouri Headwaters watershed (DEQ Water Quality Standards Attainment Record; 2020). Montana Department of Environmental Quality (DEQ) lists Ducks Creek as a class B-1 stream, or those waters which 'are to be maintained suitable for drinking, culinary, and food processing purpose after conventional treatment; bathing, swimming and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply.'

Groundwater depths in the immediate project area are relatively shallow, ranging from 17 to 103 feet in depth (static water level; Montana Bureau of Mines and Geology, Groundwater Information Center (GWIC) mapping application - http://mbmg.mtech.edu/mapper/mapper.asp?view=Wells&; date accessed: 12/01/2022).

Proposed Alternative – This project would have potentially adverse, cumulative impacts to the quantity, or distribution of water as the proponent would be using their water rights directly from Duck Creek. The Missouri River basin overall is experiencing increasing drought conditions. There are generally beneficial impacts to the water quantity and quality as installing a center pivot generally provides a more uniform application of water than flood irrigation, in turn producing less irrigation runoff, and subsequently any excess sediment or nutrients/pathogens.

No Action – No impacts to the supply, quality, or distribution of water as the project proponent would not implement an irrigated cropland area.

6. AIR QUALITY:

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

The project area is not listed as impaired in air quality particulates per the Montana DEQ Air Quality Nonattainment Status list (Source: Montana DEQ Air Quality Website visit).

Proposed Alternative & No Action – No impact to surrounding air quality. If there are any air quality impacts associated with construction, these impacts will likely be minor and short-term.

7. VEGETATION COVER, QUANTITY AND QUALITY:

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

The project area is primarily within private, Big Sagebrush Steppe; Rocky Mountain Lower Montane, Foothill, and Valley Grassland; and Cultivated Cropland (approximately 89% drawn area of interest; Montana Natural Heritage Program Map Environmental Summary Report – date retrieved 12/01/2022). Cultivated cropland and low intensity residential/roads make up much of the surrounding area, with minimal Northern Rocky Mountain Lower Montana Riparian Woodland and Shrubland making up the remainder of the land cover types for the drawn area of interest. There are 3 plant Species of Concern that may occur in the project area: the Beaked Spikerush (*Eleocharis rostellata*), Panic Grass (*Dichanthelium acuminatum*), and Crawe's Sedge (*Carex crawei*; Montana Natural Heritage Program Map Plant Species of Concern by Township and Range – date retrieved 12/01/2022).

Proposed Alternative – Potentially adverse, long-term impacts as the proponent will plant the current native grassland into a cultivated cropland area, reducing any potential beneficial habitat for native plant species. However, there may be beneficial impacts as targeted crop production may in turn protect sensitive or fragile plant species by reducing extensive erosion associated with grazing.

No Action – The local grassland community will not be significantly impacted if there was no change to the environment.

8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:

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

The project area is primarily within private, Big Sagebrush Steppe; Rocky Mountain Lower Montane, Foothill, and Valley Grassland; and Cultivated Cropland (approximately 89% drawn area of interest; Montana Natural Heritage Program Map Environmental Summary Report – date retrieved 12/01/2022). Cultivated cropland and low intensity residential/roads make up much of the surrounding area, with minimal Northern Rocky Mountain Lower Montana Riparian Woodland and Shrubland making up the remainder of the land cover types for the drawn area of interest. There are 3 plant Species of Concern that may occur in the project area: the Beaked Spikerush (*Eleocharis rostellata*), Panic Grass (*Dichanthelium acuminatum*), and Crawe's Sedge (*Carex crawei*; Montana Natural Heritage Program Map Plant Species of Concern by Township and Range – date retrieved 12/01/2022).

The project area falls within an Executive Order – General habitat area for Sage Grouse, and but will not likely impact sage grouse habitat as the proposed project area has been previously disturbed agricultural land (DNRC Montana Sage Grouse Habitat Conservation Map). The project area does not appear to be impacting any Federal crucial and/or critical habitat areas; https://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e265ad4fe09893cf75b8dbfb77) however, there have been Golden Eagle (*Aquila chrysaetos*), Bald Eagle (*Haliaeetus leucocephalus*), and Eastern Red Bat (*Lasiurus borealis*) observed in the project area and within the nearby vicinity. Golden Eagle and Bald Eagle fall under the Migratory Bird Treaty Act. The region is in the Pacific Flyway for migratory birds (Montana Fish, Wildlife and Parks, Migratory Bird Flyways web mapping application. Date Accessed: 12/01/2022).

Proposed Alternative – Potentially adverse, long-term impacts as the proponent will plant the current native grassland into a cultivated cropland area, reducing any potential beneficial habitat for native plant species. However, there may be beneficial impacts as targeted crop production may in turn protect sensitive or fragile plant and animal species by reducing extensive erosion associated with other equine grazing and movements.

No Action – No impact to terrestrial, avian, or aquatic life and habitats.

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

DNRC used the National Wetlands Inventory (NWI) website to determine if wetlands were present within the project area or within the lands adjacent to the project location (map attached in this assessment). This search indicated there are wetlands and forested/shrub riparian areas present within the proposed project area and in the surrounding landscape.

There are 10 species of concern listed as potentially using the area as viable habitat. (Source: Montana Fish, Wildlife, and Parks FishMT; Montana Natural Heritage Program Species of Concern Report – date accessed 12/01/2022). DNRC also used the U.S. Fish and Wildlife Service IPaC tool to generate a resource list summarizing any endangered or threatened species that are known or expected to be near the project area. The IPaC list generated three (3) Federally listed species as potentially occurring in the greater project area: the Canada Lynx (*Lynx* canadensis), North American wolverine (*Gulo gulo luscus*), and Monarch Butterfly (*Danaus plexippus*; USFWS IPaC report. Date accessed: 12/01/2022).

Proposed Alternative – Potentially minimal beneficial and adverse impacts as the project would install a pivot on previously open ground, which may serve as beneficial habitat in its current state. However, the planting of hay may provide some habitat cover. The listed species mentioned above are not likely using the area as human activities likely cause avoidance of use by these species. The wetlands in are not within the immediate vicinity of the proposed location and are not likely to be impacted given the distance and usage of the project area.

No Action – Likely no impact to current unique, endangered, or fragile species.

10. HISTORICAL AND ARCHAEOLOGICAL SITES:

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

The project area is primarily on private, grasslands and cropland with no known historic or archeological resources in the area.

Proposed Alternative – No impact is expected as there have been no historic or archaeological resources identified in the proposed project area; however, given there has never been a SHPO survey, it is unknown if there are potential cultural resources that could be disturbed while installing the pipeline. In addition, using a pivot system creates increased crop production, which could obscure other cultural resources. If previously unknown cultural or paleontological materials are identified during project related activities, the DNRC grant manager will be notified, and all work will cease until a professional assessment of such resources can be made.

No Action – No impact to historical or archaeological sites.

11. AESTHETICS:

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

The project area is on rural private property which is comprised primarily of cultivated cropland and/or Big Sagebrush Steppe and Rocky Mountain Lower Montane, Foothill, and Valley Grassland. In addition, the project area is approximately 12 miles southwest of the town of Big Timber, Sweetgrass County, Montana, and well outside more populated, residential areas.

Proposed Alternative – No impact is expected to visual quality, nor will the project cause nuisance (e.g., glare, fumes) as the proposed area is on private lands.

No Action – No impact to aesthetics.

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

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

The project area is primarily on private pastureland and will be developing future pivot irrigation.

Proposed Alternative – Potentially adverse impacts as using the pivot would increase the demand for energy or gas, depending on the proponent's decision for using either power source. In addition, there would a demand on water resources.

No Action – There would continue to be a demand on land resource use with the continued bovine grazing of the proposed area.

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

Project proponent provided their recent water rights application/acquisition for the new use.

IV. IMPACTS ON THE HUMAN POPULATION

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

14. HUMAN HEALTH AND SAFETY:
Identify any health and safety risks posed by the project.

The project implements floodplain irrigation on private crop- and pastureland.

Proposed Alternative – Potentially beneficial as the project proposes to use a pivot irrigation system controlled by either a remote application or going to the pivot point to start the pivot. The pump control will be wired to automatically start from the pivot point (or remote control) as well as shut off the pump if inadequate pressures are observed. The operator selects the depth of the required application or the speed, verifies directions, and presses start.

No Action – No impact to human health and safety.

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

The project is on rural grazing and agricultural land and the project would propose to irrigate 123 acres out of their total 670 acres for alfalfa and hay production. As of 2021, the national average price for all hay was $186 per ton (USDA Crop Value 2021 Summary Report). The total production of hay in 2017 for Sweet Grass County was 14, 517 tons.

Proposed Alternative – Potentially beneficial as the pivot increases both water efficiency and distribution. The increase in water efficiency and distribution will likely produce more alfalfa and thus more revenues.

No Action – The project proponent will continue to use floodplain irrigation for their current crop production, which provides less water efficiency and distribution is poor. The poor distribution may prove additionally detrimental during drought, due to excessive evaporation or other natural loss, and thus significantly impacting crop production.

16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:
Estimate the number of jobs the project would create, move or eliminate. Identify direct, indirect, and cumulative effects to the employment market.

The landowners (applicant) install and maintain the current infrastructure on the farmlands.

Proposed Alternative – Potentially beneficial, short-term impact as the installation would be performed by local contractors. In addition, the additional production of hay may create more transportation need.

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

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17. LOCAL AND STATE TAX BASE AND TAX REVENUES:
Estimate tax revenue the project would create or eliminate. Identify direct, indirect, and cumulative effects to taxes and revenue.

Current value from the applicant's grazing and irrigated land is approximately $165,081 (Montana Cadastral Ag/Forest Land value estimates, https://svc.mt.gov/msl/mtcadastral/. Date accessed: 12/01/2022). The appraised value of the land and buildings owned by the applicant on the proposed project area appear to have been $436,021 in 2021 and 2022 (Montana Cadastral Ag/Forest Land value estimates, https://svc.mt.gov/msl/mtcadastral/. Date accessed: 12/01/2022).

Proposed Alternative – Potentially beneficial as the proposed alternative will provide more efficient water delivery and distribution, thus increasing crop production. Given the crop product (hay and alfalfa) could be sold within either Big Timber, Livingston, or the greater Bozeman area, there is likely local and state revenue benefit through the selling of hay for livestock.

No Action – No impact is expected to local and state tax base and tax revenues.

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

DNRC does not expect an impact to governmental services as the project would occur entirely on private pastureland.

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19. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:
List State, County, City, USFS, BLM, Tribal, and other zoning or management plans, and identify how they would affect this project.

DNRC does not expect an impact to locally adopted environmental plans or goals as the project would occur entirely on private pastureland; however, more efficient water application does benefit the objectives outlined in the 2015 State Water Plan issued by the DNRC.

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

DNRC does not expect an impact to access or quality of recreational areas as the project would occur entirely on private pastureland and is not located near any publicly accessed areas.

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

DNRC does not expect an impact to density or distribution of population or housing as the project would be converting private pasture to irrigated cropland and would not be building any additional housing.

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

The proposed area is surrounded entirely by cultivated cropland and agricultural lifestyles.

Proposed Alternative – Potentially beneficial as the project applicant proposes to convert pastureland to cropland, following the same trend as the surrounding area.

No Action – No impact to social structures.

23. CULTURAL UNIQUENESS AND DIVERSITY:
How would the action affect any unique quality of the area?

Similar to the 'Archaeological Resources' section above, DNRC does not expect any impacts to cultural uniqueness or diversity.

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

DNRC does not expect additional impact to other social or economic circumstances.

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

DNRC used the Montana DEQ data mapping application and did not find any drinking water and/or clean water services in the immediate area. In addition, given the applicant proposes to use the water for irrigation purposes, DNRC does not expect any impacts to drinking water and/or clean water infrastructure.

26. ENVIRONMENTAL JUSTICE

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

DNRC used the NEPAssist Online Mapping tool to assess any disproportionate risk to minority or low-income populations and found the project area to be within the 50-60 percentile for RMP Facility Proximity and Wastewater Discharge Indicators. For all other Environmental Justice (EJ) Indices, the project area was within less than the 50th percentile.

Proposed Alternative and *No Action*: Potentially no impact to minority or low-income populations given the project area is not located within immediate EJ Indices and is occurring entirely within private land.

EA Prepared By:	**Name:**	Samantha Treu	**Date:**	12/01/2022
	Title:	MEPA Coordinator samantha.treu@mt.gov	**Email:**	

V. FINDING

27. ALTERNATIVE SELECTED:

1) Alternative 1 (*Preferred Alternative*): Install an electric pump center pivot

    a. Irrigation sprinkler pivots are known have high water use efficiency as they distribute water more uniformly while using less water overall. This more efficient distribution increases crop production but allows for less manual labor compared with flood irrigation (e.g., reduces the need to either open flood gates or distribute piping). Because pivots can precisely control the amount of water on a field, the soil moisture also increases. This is an important consideration for harvest and second cutting.

    b. The pipeline will cause some initial soil disturbance due to construction and digging.

This option would be more favorable for instream flows as compared to flood irrigation, because there is no ditch loss or evaporation in the pipeline. Thus, more water would be returned to the stream.

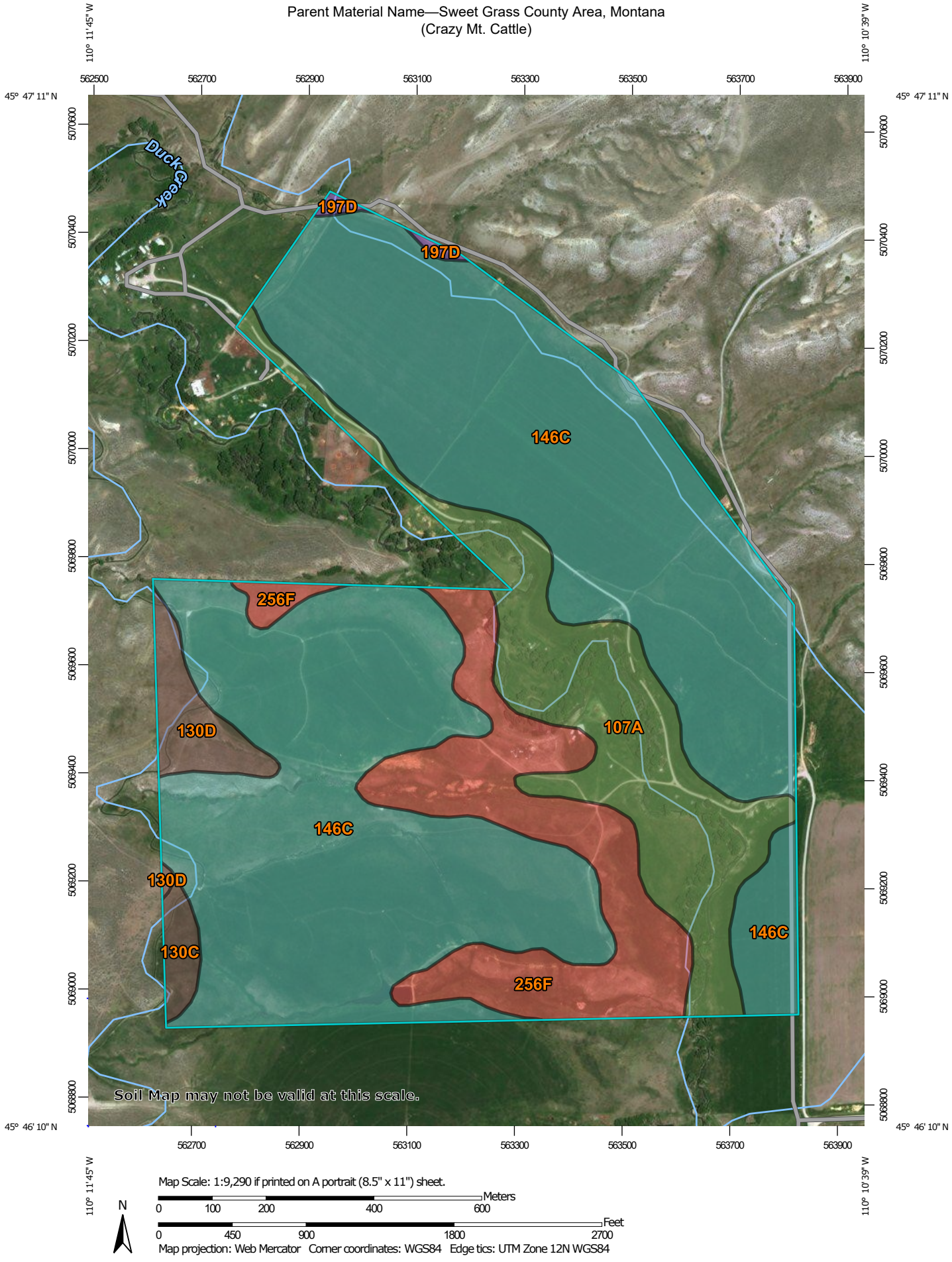
28. SIGNIFICANCE OF POTENTIAL IMPACTS:

DNRC does not expect any significant adverse impacts and any impacts associated with construction of the mainline will likely be minimal and relegated to the immediate area. In addition, the future planting of hay or alfalfa will likely recover any soil disturbance and mitigate the erosion that may occur because of digging the pivot pipeline.

29. NEED FOR FURTHER ENVIRONMENTAL ANALYSIS:

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

EA Approved By:	**Name:** mbostrom2@mt.gov **Title:** Division Administrator
Signature: DocuSigned by: Mark W Bostrom BE7A1C50B2AE4DE...	**Date**: 1/3/2023 | 2:44:14 PM MST



MAP LEGEND

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

Soils

Soil Rating Polygons
- alluvium
- clayey alluvium
- clayey residuum weathered from sandstone and shale
- gravelly alluvium
- sandy and gravelly alluvium
- Not rated or not available

Soil Rating Lines
- alluvium
- clayey alluvium
- clayey residuum weathered from sandstone and shale
- gravelly alluvium
- sandy and gravelly alluvium
- Not rated or not available

Soil Rating Points
- alluvium
- clayey alluvium
- clayey residuum weathered from sandstone and shale
- gravelly alluvium
- sandy and gravelly alluvium
- Not rated or not available

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Sweet Grass County Area, Montana
Survey Area Data: Version 21, Aug 30, 2022

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

Date(s) aerial images were photographed: Jul 14, 2010—Nov 7, 2016

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

Parent Material Name

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
107A	Nesda-McIlwaine loams, 0 to 2 percent slopes	sandy and gravelly alluvium	48.0	14.8%
130C	Tanna-Hinterland clay loams, 2 to 8 percent slopes	clayey residuum weathered from sandstone and shale	3.4	1.0%
130D	Tanna-Hinterland clay loams, 8 to 15 percent slopes	clayey residuum weathered from sandstone and shale	8.2	2.5%
146C	Ethridge clay loam, 4 to 8 percent slopes	alluvium	221.5	68.1%
197D	Work-Castner complex, 8 to 15 percent slopes	clayey alluvium	1.1	0.3%
256F	Sixbeacon-Reedpoint complex, 15 to 60 percent slopes	gravelly alluvium	43.1	13.3%
Totals for Area of Interest			**325.3**	**100.0%**

Description

Parent material name is a term for the general physical, chemical, and mineralogical composition of the unconsolidated material, mineral or organic, in which the soil forms. Mode of deposition and/or weathering may be implied by the name.

The soil surveyor uses parent material to develop a model used for soil mapping. Soil scientists and specialists in other disciplines use parent material to help interpret soil boundaries and project performance of the material below the soil. Many soil properties relate to parent material. Among these properties are proportions of sand, silt, and clay; chemical content; bulk density; structure; and the kinds and amounts of rock fragments. These properties affect interpretations and may be criteria used to separate soil series. Soil properties and landscape information may imply the kind of parent material.

For each soil in the database, one or more parent materials may be identified. One is marked as the representative or most commonly occurring. The representative parent material name is presented here.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

IPaC resource list

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

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

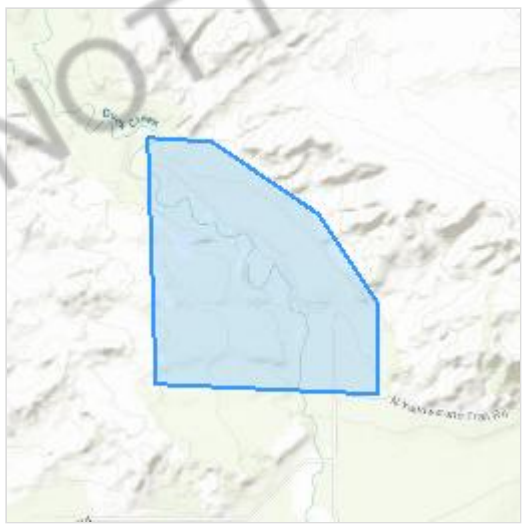
Project information

NAME

Crazy Mt. Cattle

LOCATION

Sweet Grass County, Montana



DESCRIPTION

None

Local office

Montana Ecological Services Field Office

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

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

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

Endangered species

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

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

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

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

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

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

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

Commerce.

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

Mammals

NAME	STATUS
Canada Lynx Lynx canadensis There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3652	Threatened
North American Wolverine Gulo gulo luscus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5123	Proposed Threatened

Insects

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

Critical habitats

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

There are no critical habitats at this location.

Migratory birds

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

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

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

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

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

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

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31
California Gull *Larus californicus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Pinyon Jay Gymnorhinus cyanocephalus — Breeds Feb 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9420

Probability of Presence Summary

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

Probability of Presence (■)

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

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

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

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

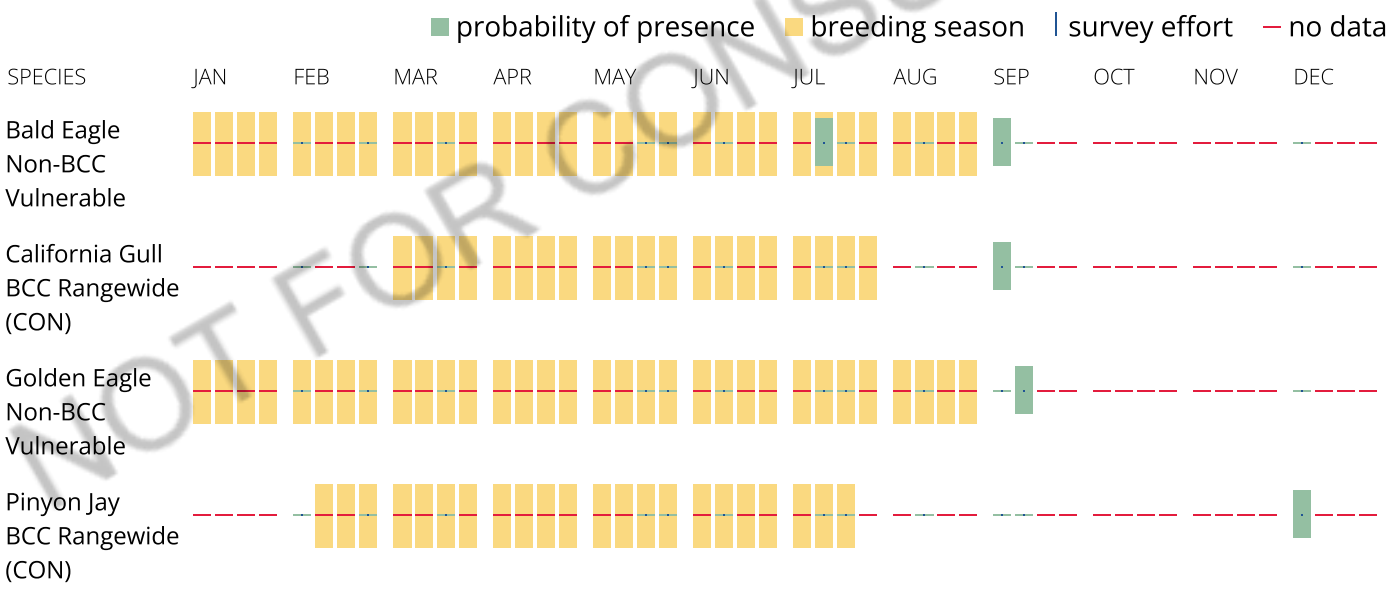
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

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

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

No Data (–)
A week is marked as having no data if there were no survey events for that week.

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



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

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

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

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

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

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

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

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

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

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

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

What are the levels of concern for migratory birds?

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

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

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

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

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

Coastal Barrier Resources System

Projects within the John H. Chafee Coastal Barrier Resources System (CBRS) may be subject to the restrictions on Federal expenditures and financial assistance and the consultation requirements of the Coastal Barrier Resources Act (CBRA) (16 U.S.C. 3501 et seq.). For more information, please contact the local Ecological Services Field Office or visit the CBRA Consultations website. The CBRA website provides tools such as a flow chart to help determine whether consultation is required and a template to facilitate the consultation process.

There are no known coastal barriers at this location.

Data limitations

The CBRS boundaries used in IPaC are representations of the controlling boundaries, which are depicted on the official CBRS maps. The boundaries depicted in this layer are not to be considered authoritative for in/out determinations close to a CBRS boundary (i.e., within the "CBRS Buffer Zone" that appears as a hatched area on either side of the boundary). For projects that are very close to a CBRS boundary but do not clearly intersect a unit, you may contact the Service for an official determination by following the instructions here: https://www.fws.gov/service/coastal-barrier-resources-system-property-documentation

Data exclusions

CBRS units extend seaward out to either the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS data, therefore projects in the offshore areas of units (e.g., dredging, breakwaters, offshore wind energy or oil and gas projects) may be subject to CBRA even if they do not intersect the CBRS data. For additional information, please contact CBRA@fws.gov.

Facilities

National Wildlife Refuge lands

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

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

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

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

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

Data limitations

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

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

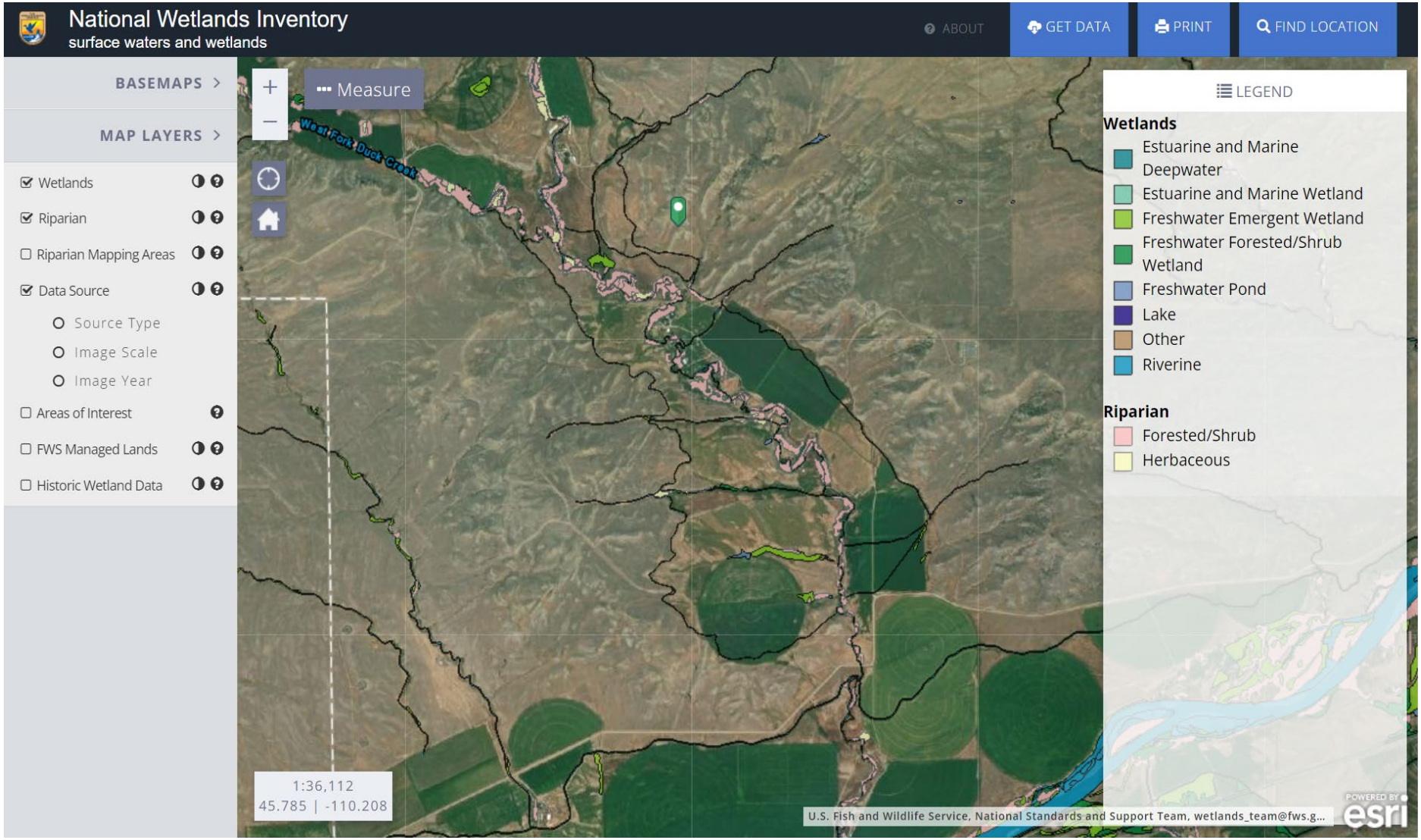
Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

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

Data precautions

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



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

Montana Field Guide

Other Potential Species from Environmental Summary

Suggested Citation Format: Custom Field Guide from https://mtnhp.org/MapViewer for (insert the title text above to indicate the filters you selected). Retrieved on 12/1/2022.

Offline Field Guide

Note: This PDF version of the Montana Field Guide is intended to assist in offline identification and field work. It is not intended to replace the online Field Guide, as that version contains more information and is updated daily. For the most up-to-date information on Montana species, please visit **FieldGuide.mt.gov**

The Montana Natural Heritage Program is part of the Montana State Library's Natural Resource Information System. Since 1985, it has served as a neutral and non-regulatory provider of easily accessible information on Montana's species and biological communities to inform all stakeholders in environmental review, permitting, and planning processes. The program is part of NatureServe, a network of over 80 similar programs in states, provinces, and nations throughout the Western Hemisphere, working to provide current and comprehensive distribution and status information on species and biological communities.

MONTANA Natural Heritage Program
MONTANA State Library
NATURESERVE

Western Spotted Skunk

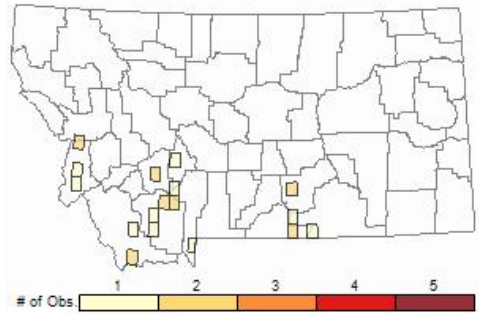
Spilogale gracilis

View in Field Guide

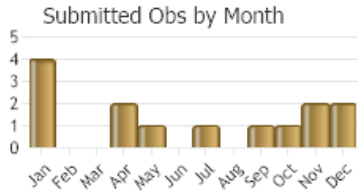
Potential Species of Concern
Native Species
Global Rank: G5
State Rank: SU

Agency Status
USFWS:
USFS:
BLM:
FWP SWAP: SGIN

Range: Native



 # Observations: 24



General Description

The Western Spotted Skunk is a small, relatively slender skunk with glossy black fur interrupted with distinct white stripes on the forward part of the body. The posterior part of the body has two interrupted white bands with one white spot on each side of the rump and two more at the base of the tail. The pattern of white lines and spots is individually unique. The top of the tail is black and the underside is extensively white. The tip of the tail is white. A white spot is present on the forehead and another in front of each ear. External measurements in males average 411 millimeters in total length, 122 millimeters for the tail and 50 millimeters for the hind foot. In females, external measurements average 387 millimeters in total length, 116 millimeters for the tail, and 47 millimeters for the hind foot. Males weigh about 630 grams, whereas females weigh about 450 grams (Foresman 2012).

Diagnostic Characteristics

The distinctive black and white pattern of spots and stripes and much smaller size of the Western Spotted Skunk distinguish them from the more common Stripped Skunk (*Mephitis mephitis*), which have two solid white stripes along the side of the body and are nearly twice as large.

The color pattern resembles that of the Eastern Spotted Skunk, but the white markings are more extensive. The black and white stripes on the upper back are nearly equal in width whereas in the Eastern Spotted Skunk the black areas are much more extensive than the white. The tip of the tail is white while the tail tips of Eastern Spotted Skunks are black. In addition to external characteristics, the breeding cycle of the spotted skunks are different (see Reproduction below).

Only Western Spotted Skunks and Striped Skunks are known to occur in Montana, however Eastern Spotted Skunks may also occur in the southeastern part of the state (Foresman 2012).

Habitat

The habitat of the Western Spotted Skunk in Montana is not well known, but they have been found in arid, rocky and brushy canyons and hillsides. Information from other portions of its range suggest that when they are inactive or bearing young they occupy a den in rocks, burrows, hollow logs, brush piles, or under buildings.

Beaked Spikerush

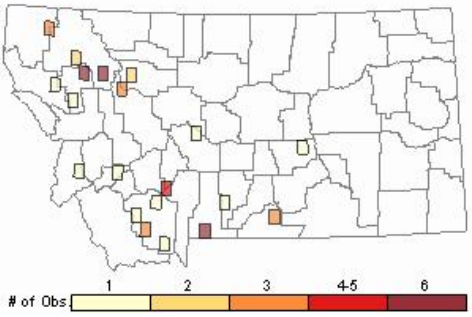
Eleocharis rostellata

View in Field Guide

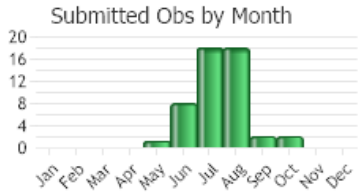
Species of Concern
Native Species
Global Rank: G5
State Rank: S3

Agency Status
USFWS:
USFS: SENSITIVE
BLM:
MNPS Threat Rank: 2
C-value: 9

Range Native



 # Observations: 49



General Description

PLANTS: Cespitose, perennial herbs with erect or arching stems reaching 10 to 80 cm tall. Plants have short shallow rhizomes and may also root at the stem tip by means of an apical bulbil. Source: Lesica et al. 2012.

LEAVES: Leaves are bladeless and reduced to 2 sheaths on the lower stem. The sheath of the distal leaf is firm and persistent. Leaf tip obtuse to subacute without a tooth-like projection. Source: Lesica et al. 2012.

INFLORESCENCE: A 4 to 15 mm long single spikelet with few to many flowers. Florets are tightly packed and spirally arranged. Source: Lesica et al. 2012.

The specific epithet *rostellata* originates from the Latin adjective *rostellatus* meaning "equipped with a beak" or "beaklike" (Arsenijevic et al. 1995). *Eleocharis* is made up of the two Greek words *hele-* and *-charis* meaning "marsh" and "grace" respectively (Merriam-Webster).

Phenology

Beaked Spikerush flowers in July; mature fruits develop from July to August (Smith *in* Flora of North America (FNA) 2002).

Diagnostic Characteristics

Montana has eight *Eleocharis* species. They are generally mat-forming wetland herbs with inflorescences consisting of a single, solitary spikelet (Lesica et al. 2012).

Beaked Spikerush - *Eleocharis rostellata*, SOC
*Habit: A low-growing, tufted (cespitose) perennial. Stems are erect or arching and rooting at the tips.
*Stems: More or less flat, some arching to the ground and rooting at the tips. Plants are 10-80 cm tall.
*Spikelets: 4-10 mm long with few to many flowers.
*Achenes: Grayish-green, about 2 mm long. The upper portion of the achene is conical and confluent with the lower portion that is 3-sided to nearly round in cross section.
*Stigmas: 3

Creeping Spikerush - *Eleocharis palustris*,
*Habit: An erect, rhizomatous perennial.
*Stems: More or less cylindrical stems that are 7-90 cm tall with purple bases.
*Spikelets: 5-25 mm long with numerous flowers.
*Achenes: A yellow to brown, smooth, obovate achene that is 2-3 mm long. The upper portion of the achene is pyramidal in shape and appearing separated from the lower portion which is orbicular to lenticular in shape.
*Stigmas: 2

Few-flower Spikerush - *Eleocharis quinqueflora*,
*Habit: An erect, short-rhizomatous perennial.
*Stems: 5-25 cm tall and tufted.
*Spikelets: 4-8 mm long and usually with 5 flowers.
*Achenes: Brown, smooth, narrowly obovate, and 2-3 mm long. The upper portion of the achene forms a distinct beak that is confluent with the lower portion that is 3-sided.
*Stigmas: 3

Habitat

Eleocharis rostellata prefers wet, often alkaline soils, associated with warm springs or fens in the valley and foothills zones of Montana (Lesica et al. 2012). It may also occur in various other types of alkaline wetlands including salt and brackish marshes, tidal flats, alkaline seeps, bogs, stream margins, hot spring edges, and swamps (Carey 1994).

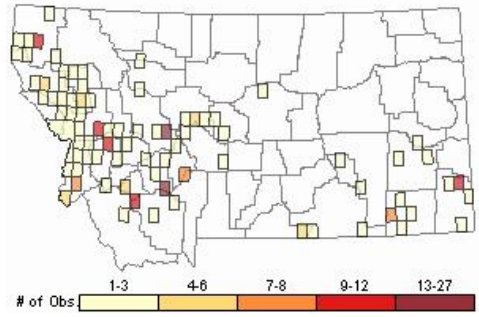
Fringed Myotis

Myotis thysanodes

View in Field Guide

Species of Concern
Native Species
Global Rank: G4
State Rank: S3

Agency Status
USFWS:
USFS:
BLM: SENSITIVE
FWP SWAP: SGCN3



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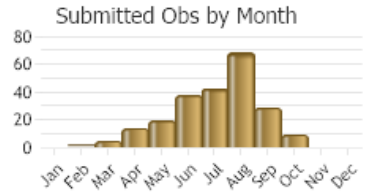


General Description

The Fringed Myotis is a member of the long-eared myotis group. Although similar to Western Long-eared Myotis (*Myotis evotis*), it is the only species with a well-developed fringe of hairs on the posterior margin of the uropatagium, and is larger than most other *Myotis*, except in ear size. The robust calcar is not distinctly keeled. The skull is relatively large, with a well-developed sagittal crest, and 38 teeth (dental formula: I 2/3, C 1/1, P 3/3, M 3/3). Color of the pelage varies from yellowish-brown to darker olivaceous tones; color tends to be darker in northern populations. The ears and membranes are blackish-brown and tend to contrast with the pelage. Length of the head and body is 43 to 59 millimeters, length of the tail is 34 to 45 millimeters, length of the ear is 16 to 20 millimeters, length of the forearm is 40 to 47 millimeters, and weight is 5.4 to 10.0 grams. Females are significantly larger in head, body and forearm size (O'Farrell and Studier 1980, Nagorsen and Brigham 1993, Foresman 2012).

Diagnostic Characteristics

The presence of a well-developed fringe of hairs along the posterior edge of the uropatagium is unique among the *Myotis* found in Montana, including the other long-eared species. The forearm is longer (usually more than 40 millimeters) than all other species of *Myotis* except some individuals of *M. evotis* (a long-eared species) and *M. volans* (a short-eared species with a keeled calcar). The skull is broader than other *Myotis* species, with a distance across the upper molars more than 6.2 millimeters.

Habitat

The few Montana records indicate that the habitats in Montana that are used by the Fringed Myotis are similar to other regions in the interior West (Foresman 2012). It has been captured in ponderosa pine and Douglas-fir forest while foraging over willow/cottonwood areas along creeks and over pools, and taken in caves (Lewis and Clark Caverns); one individual was captured in an urban setting in Missoula (Hoffmann et al. 1969, Butts 1993, Dubois 1999).

Habitat information gathered from range-wide studies state the Fringed Myotis is found primarily in desert shrublands, sagebrush-grassland, and woodland habitats (ponderosa pine forest, oak and pine habitats, Douglas-fir), although it has been recorded in spruce-fir habitat in New Mexico. It also occurs at low elevations along the Pacific Coast, and in badlands in the northern Great Plains (Jones et al. 1983, Humes et al. 1999). It roosts in caves, mines, rock crevices, buildings, and other protected sites. Nursery colonies occur in caves, mines, and sometimes buildings (Easterla 1973, O'Farrell and Studier 1980, Jones et al. 1983). Fringed Myotis in riparian areas tend to be more active over intermittent streams with wider channels (5.5 to 10.5 meters) than ones with channels less than 2.0 meters wide (Seidman and Zabel 2001).

Merriam's Shrew

Sorex merriami

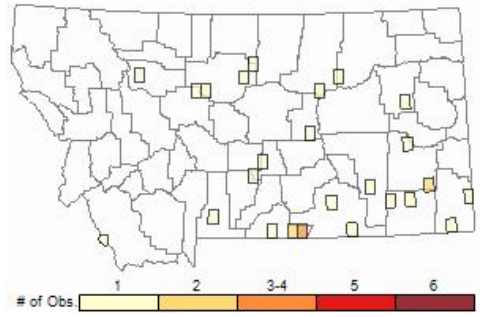
View in Field Guide

No photos are currently available

Species of Concern
Native Species
Global Rank: G4
State Rank: S3

Agency Status
USFWS:
USFS:
BLM:
FWP SWAP: SGCN3

Range Native



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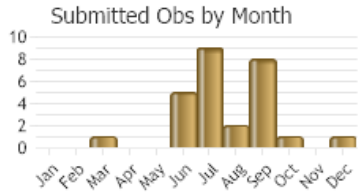


General Description

Merriam's Shrew is a relatively small, pale shrew. The upperparts in summer are grayish drab, becoming paler on the flanks, with nearly white underparts (faintly tinged with buff). In winter the pelage is brighter, drab above, and paler below. The tail is distinctly bicolored, sparsely haired, drab above, and white below. Ranges in external measurements (in millimeters) are: total length 88 to 107, tail length 33 to 42, hind foot 11 to 13, and mass 3.3 to 6.5 grams. Condylobasal length of the skull is 15.0 to 17.1 millimeters, and maxillary breadth is 4.9 to 5.6 millimeters. The skull has 32 teeth (dental formula: I 3/1, C 1/1, P 3/1, M 3/3); the 5 upper teeth with single cusps that are posterior to the first incisor are termed the unicuspids (U), and include 2 incisors, 1 canine, and 2 premolars. The medial edge of the first incisor lacks a tine; U3 is as large or larger than U4 (Armstrong and Jones 1971, Junge and Hoffmann 1981, Verts and Carraway 1998, Foresman 2012).

Diagnostic Characteristics

Merriam's Shrew differs from other members of the genus in Montana by the combination of small size, pale coloration, lack of a medial tine on I1, broad palate (maxillary breadth more than 5.0 millimeters), and U3 as large or larger than U4. Habitat of occurrence, when used in conjunction with the preceding, is also useful for identifying this species (Junge and Hoffmann 1981, Mullican and Carraway 1990). A key based on dentaries identifies the unique characteristics for this species (Carraway 1995), including height of the coronoid process more than 3.9 millimeters, length of C1-M3 more than 4.3 millimeters, and length of dentary usually greater than 6.6 millimeters. These characters separate *S. merriami* from *S. nanus, S. preblei*, and *S. hoyi*, each of which may occur in sympatry.

Habitat

Merriam's Shrews in Montana have been captured mostly in arid sagebrush-grassland habitats (Hoffmann et al. 1969, Pefaur and Hoffmann 1971, MacCracken et al. 1985, Foresman 2012), but also in non-native grasses and forbs, such as timothy and sweet clover (Hooper 1944). It has also been taken in poorly developed riparian habitat at creekside in a shrub-steppe and grassland region (Dood 1980). Bare ground was more than 20% in a Carter County capture location (MacCracken et al. 1985); and on a north-facing grassland slope (elevation of 1040 meters) (Pefaur and Hoffmann 1971).

Across its range, Merriam's Shrew is identified as occupying arid Upper Sonoran and Lower Transition life zones. It has been captured in sagebrush-steppe, pine woodland, mountain mahogany, open ponderosa pine stands, spruce-aspen stands, forb-dominated mine-reclamation land, bunchgrass grassland, and dunes (Hudson and Bacon 1956, Brown 1967, Allred 1973, George 1990, Kirkland et al. 1997, Verts and Carraway 1998, Benedict et al. 1999, Nagorsen et al. 2001, Hafner and Stahlecker 2002). Merriam's Shrew seems to prefer drier habitats than do other shrews, and may also utilize burrows and runways of various microtines and other mice (Armstrong and Jones 1971). Shrub cover in British Columbia was as low as 5% (Nagorsen et al. 2001), and ranged from 28 to 71% in Idaho (Allred 1973), sometimes with 30% juniper cover.

Panic Grass

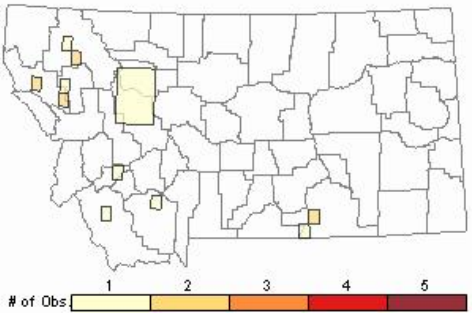
Dichanthelium acuminatum

View in Field Guide

Species of Concern
Native Species
Global Rank: G5
State Rank: S2S3

Agency Status
USFWS:
USFS:
BLM:
MNPS Threat Rank: 2
C-value: 9

Range Native



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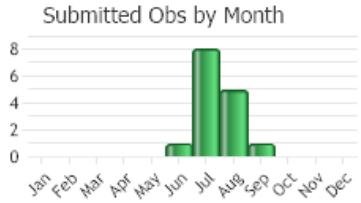


General Description

PLANTS: Cool season, bunched, perennial grass, 10-30 cm tall. Plants have a large showy, dark panicle which greatly exceeds the cauline leaves at reproductive maturity.

LEAVES: Basal and cauline alike, generally 5 to 10 mm wide, the 4-7 cauline with a ligule of long (2-6mm) hairs. Fall shoots arising from all but the upper nodes.

INFLORESCENCE: A diffuse, open panicle. The panicle may appear dark due to the second glume becoming purplish at maturity. **Spikelets** 1.5–2 mm long with 1 fertile floret. **Glumes** hairy and unequal in length. First glume 0.5–0.75 mm long and second glume 1.5–2 mm long. **Lemmas** are blunt, globe-like. **Palea** is enclosed in the floret.

Montana plants are subspecies *sericeum* (Lesica et al. 2012).

Sources: Lesica et al. 2012; Freckman & Lelong *in* FNA 2007; Flora of the Great Plains (1986).

Diagnostic Characteristics

Dichanthelium has been segregated from ***Panicum***. Montana has 3 species of *Dichanthelium*. Members of *Dichanthelium*:
* Develop a rosette of short, broad basal leaves during the cool season, while *Panicum* species do not.
* Grow during the cool and warm seasons, whereas, *Panicum* species grow in the warm season.
* Produce cleistogamous (self-pollinating) florets, which are often found on small axillary inflorescences during the late summer to fall.

Panic Grass – *Dichanthelium acuminatum* subsp. *sericeum*, native, SOC
* Stems 10-30 cm tall.
* Spikelets 1.5-2.5 mm long.
* At maturity the larger second glume is often purplish.
* Upper and lower leaf surfaces hairy.
* Ligules 2-6 tall.
* Often in wet soils around hot springs.

Wilcox's Panic Grass – *Dichanthelium wilcoxianum*, native
* Stems 10-20 cm tall.
* Spikelets less than 2.5 mm long.
* Upper and lower leaf surfaces hairy.
* Ligules 1.0 mm or less tall.
* Grasslands and open Ponderosa Pine forests in eastern Montana.

Scribner's Panic Grass – *Dichanthelium oligosanthes* var. *scribnerianum*, native, SOC
* Stems 20-50 cm tall.

* Spikelets 2-5 mm long.
* Upper leaf surface is glabrous. Lower leaf surface is hairy.
* Ligules 1-3 mm tall.
* Disturbed sites and open understory in northwest and southeast Montana.

Switchgrass (*Pancium virgatum*) is a rhizomatous, perennial grass while Montana's other ***Panicum*** species are annuals.

Habitat

Often forming dense stands on wet soils around edges of hot springs (Lesica et al. 2012).

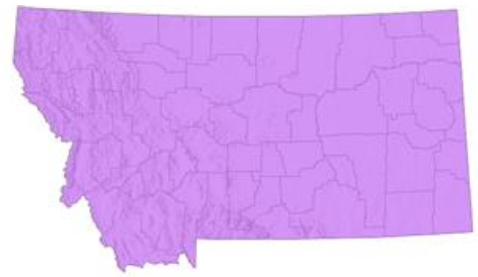
Suckley Cuckoo Bumble Bee

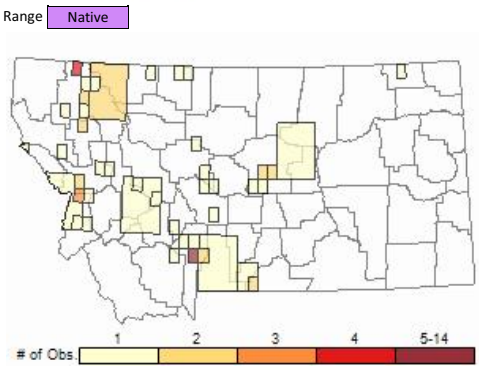
Bombus suckleyi

View in Field Guide

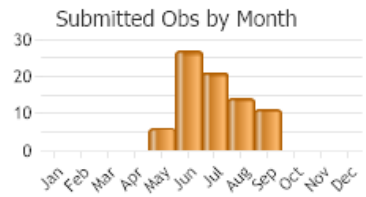
Species of Concern
Native Species
Global Rank: G2G3
State Rank: S1

Agency Status
USFWS:
USFS:
BLM:





 # Observations: 81



General Description

For definitions and diagrams of bumble bee morphology please see the Montana State Entomology Collection's Bumble Bee Morphology page. Medium sized and short-tongued: queens 18-23 mm (no workers). Outer surface of hind-leg tibia convex and densely hairy, lacks a pollen basket. Hair short and even, black on the face, predominantly yellow on sides of the thorax, black continuously along midline to anterior region of T4. Males 13-16 mm, hair color on sides of thorax yellow, T2 extensively yellow, T4 mostly yellow sometimes with narrow area of black hairs along midline, T7 black, antenna medium length, flagellum 3x longer than the scape (Williams et al. 2014).

Phenology

Queens reported April through August, males June through October (Koch et al. 2012, Williams et al 2014). In California, queens reported late May to late October, males early July to late September (Thorp et al. 1983).

Diagnostic Characteristics

Please see the Montana State Entomology Collection's Key to Female Bumble Bees in Montana. Outer surface of the hind tibia convex, densely hairy and lacking a pollen basket separates *B. suckleyi* from other *Bombus* except other cuckoo bumble bees. Predominantly black occiput separates *B. suckleyi* from other western cuckoo bumble bees, which have predominantly yellow hairs covering the occiput (Koch et al. 2012).

Habitat

Reported in grassland and shrub-steppe along the Snake River Plain of southeastern Washington, and in conifer forest uplands nearby (Mayer et al. 2000). In the Lower Fraser Valley of British Columbia, they were not detected in commercial berry (*Vaccinium, Rhubus*) fields, instead preferring native vegetation, and found in greater numbers as distance from commercial operations increased (MacKenzie and Winston 1984). Present in montane to subalpine mesic and wet meadows in Colorado (Macior 1974).

Pinyon Jay

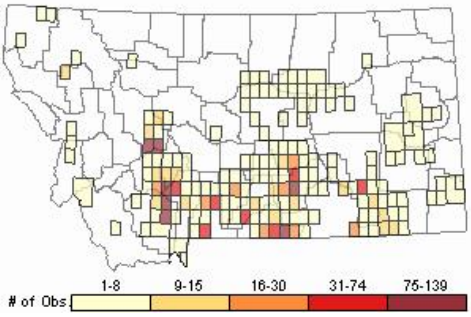
Gymnorhinus cyanocephalus

View in Field Guide

Species of Concern
Native Species
Global Rank: G3
State Rank: S3

Agency Status
USFWS: MBTA; BCC10; BCC17
USFS:
BLM:
FWP SWAP: SGCN3
PIF:

Range Year-round



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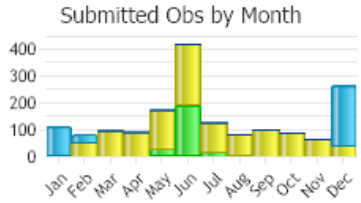


General Description

Pinyon Jays are small-medium and crestless, about 26-29 cm in total length. The bill is more pointed and the tail shorter than in other jays. Adult plumage is entirely dull blue, except chin, throat and breast region streaked whitish, and inner webs of primaries black. Sexes are alike in appearance, except crown is slightly deeper blue in males and female bill is slightly longer.

For a comprehensive review of the conservation status, habitat use, and ecology of this and other Montana bird species, please see Marks et al. 2016, Birds of Montana.

Diagnostic Characteristics

Distinguished from all other sympatric jays by the combination of overall blue color, shorter tail, and lack of crest.

Habitat

Pinyon Jays are closely associated with pinyon-juniper habitat in the southwestern U.S., but in Montana they occur in low-elevation ponderosa pine and limber pine-juniper woodlands. They build bulky cup nests of twigs and grasses and place them on horizontal limbs of pines. The few nests reported from Montana have been in ponderosa pines (Cameron 1907) or limber pines (T. McEneaney, personal communication).

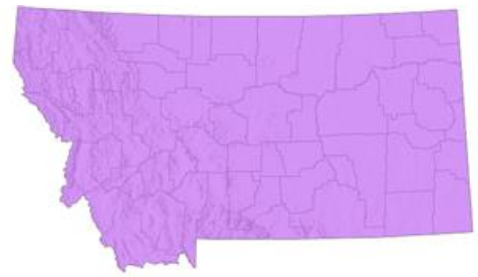
Crawe's Sedge

Carex crawei

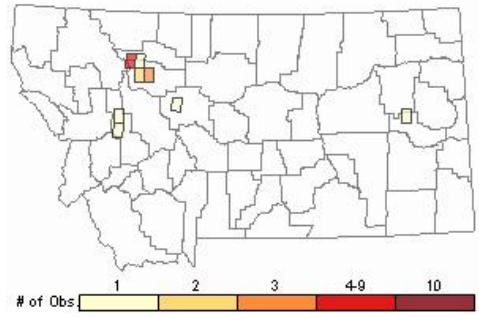
View in Field Guide

Species of Concern
Native Species
Global Rank: G5
State Rank: S2S3

Agency Status
USFWS:
USFS:
BLM:
MNPS Threat Rank: 3
C-value: 6



Range Native



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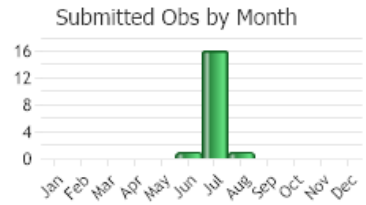


General Description

Rhizomatous. Stems erect, 5–20 cm. Leaves basal and cauline; blades 1–4 mm wide. Inflorescence of 2 to 5 well-separated spikes; the lowest bract shorter than the inflorescence. Spikes ascending; the uppermost male, 1–2 cm long; the lower female, 8–20 mm long, pedunculate, sometimes arising from the base. Perigynia spreading to ascending, green to tan, glabrous, ovoid, 2.5–3.5 mm long with an obscure beak; stigmas 3. Female scales ovate, tan with pale margins and a green midvein, shorter and narrower then the perigynia. Achene 3-sided, partly filling the perigynium (Lesica et al. 2012. Manual of Montana Vascular Plants. BRIT Press. Fort Worth, TX).

Phenology

The fruit matures in July.

Diagnostic Characteristics

Carex is a large genus in Montana; the following collection of characters separate Crawe's sedge from others in the state. Crawe's sedge has 3-sided achenes and a slender, terminal male spike less than 20 mm long. It has erect, rather than spreading or drooping, female spikes, and the glabrous, yellow-green perigynia do not have distinct beaks. Of the similar species, *Carex livida* has whitish perigynia and always grows in peat, and both *Carex lanuginosa* and *C. lasiocarpa* have hairy perigynia.

Habitat

Crawe's sedge grows in wet, gravelly or sandy soil along streams or pond margins, often where there is some natural wave or flow disturbance. It occurs in the valleys and montane foothills, especially where the dominant parent material is calcareous. Common associates include *Carex oederi*, *C. lanuginosa*, *C. aurea*, *Juncus balticus*, and *Potentilla fruticosa.*

Dwarf Shrew
Sorex nanus

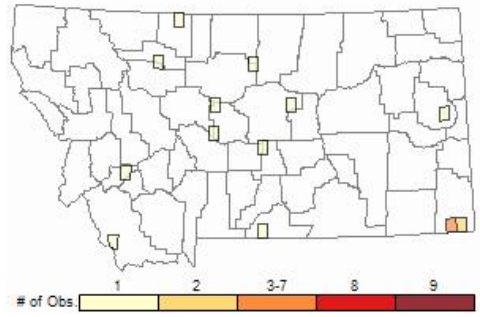
View in Field Guide

No photos are currently available

Species of Concern
Native Species
Global Rank: G4
State Rank: S2S3

Agency Status
USFWS:
USFS:
BLM:
FWP SWAP: SGCN2-3

Range Native



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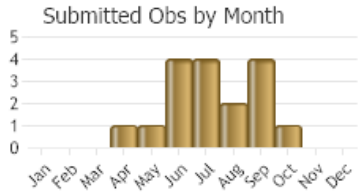


General Description

The Dwarf Shrew is a small, grayish-brown shrew. Summer pelage is brown above, gray and somewhat buffy below; the tail is indistinctly bicolored to the tip, dark above and buff below; the winter pelage is paler and grayer, especially dorsally. Ranges in external measurements (in millimeters) are: total length 82 to 105, tail length 27 to 45, mass 1.8 to 3.2 grams. Condylobasal length of the skull is less than 15.2 millimeters. The skull has 32 teeth (dental formula: I 3/1, C 1/1, P 3/1, M 3/3); the 5 upper teeth with single cusps that are posterior to the first incisor are termed the unicuspids (U), and include 2 incisors, 1 canine, and 2 premolars. There is a medial tine on I1, and U3 and U5 are smaller than U4 (Hoffmann and Owen 1980, Junge and Hoffmann 1981).

Diagnostic Characteristics

The Dwarf Shrew differs from other shrews in Montana through a combination of the following: small body size, medial tine on I1, U3 smaller than U4, and condylobasal length less than 15.2 millimeters (Junge and Hoffmann 1981). This species differs from *S. tenellus* in averaging slightly smaller and having slightly darker pelage (Hoffmann and Owen 1980). On each half of the lower jaw (dentary), the height of the coronoid process is usually less than 3.1 millimeters, the angle of insertion of I1 is more than 8 degrees from the horizontal ramus of the dentary, and the length of the dentary is usually less than 6.5 millimeters (Carraway 1995).

Habitat

In general, the Dwarf Shrew is found in a variety of habitats, including rocky areas and meadows in alpine tundra and subalpine coniferous forest (spruce-fir), rocky slopes and meadows in lower-elevation forest (e.g., ponderosa pine, aspen, Douglas-fir) with a mixed shrub component, sedge marsh, subalpine meadow, arid sagebrush slopes, arid shortgrass prairie, dry stubble fields, and pinyon-juniper woodland (Hoffmann and Owen 1980, Berna 1990, Kirkland et al. 1997, Rickart and Heaney 2001, Hafner and Stahlecker 2002).

Habitats where Dwarf Shrews have been documented in Montana are similar in variety to those occupied elsewhere in the global range. Many have been taken in rocky locations in alpine terrain and subalpine talus (2 to 10 centimeters diameter) bordered by spruce-fir, lodgepole pine, or Douglas-fir and aspen; lesser numbers have been captured in montane grassland, sagebrush-grassland with 22% bare ground, and prairie riparian habitat dominated by green ash, rose, and timothy (Hoffmann and Taber 1960, Pattie and Verbeek 1967, Hoffmann et al. 1969, Thompson 1977, MacCracken et al. 1985, Foresman 2012).

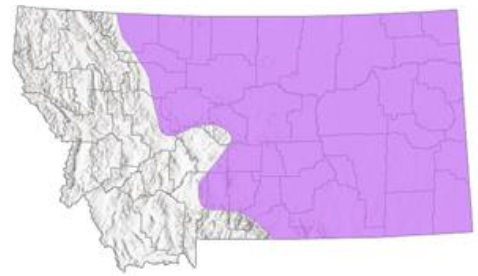
Hayden's Shrew

Sorex haydeni

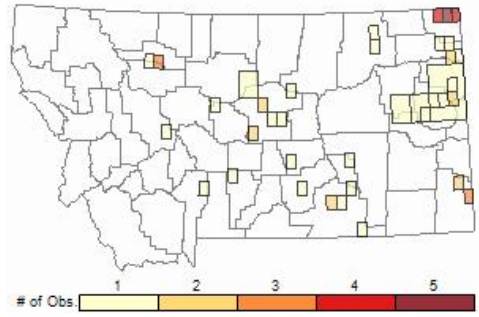
View in Field Guide

Potential Species of Concern
Native Species
Global Rank: G5
State Rank: S3S4

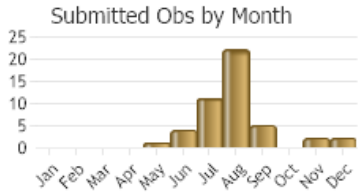
Agency Status
USFWS:
USFS:
BLM:



Range Native



 # Observations: 58



General Description

Also known as the prairie shrew, Hayden's shrew is small (total length about 8 cm) and brown across the back, blending to lighter brown on the sides and a whitish belly. Its tail is short relative to other species, and has a tuft of hair at its tip, brownish when viewed from below. (Foresman 2012)

Diagnostic Characteristics

Easily confused with the masked shrew (*Sorex cinereus*), though careful observation of the habitat where an individual is found may help distinguish the two. Positive identification requires detailed analysis of the skull. (Foresman 2012)

Habitat

At the northern limits of its range in Canada, prefers drier, grassier habitats than does *S. cinereus*; in areas where the two species coexist, habitat segregation may occur (Foresman 2012).

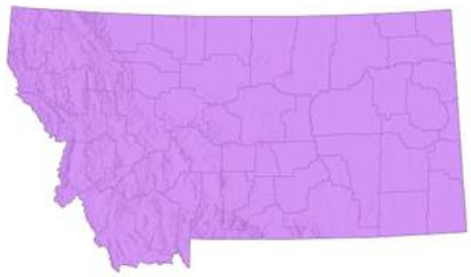
North American Porcupine

Erethizon dorsatum

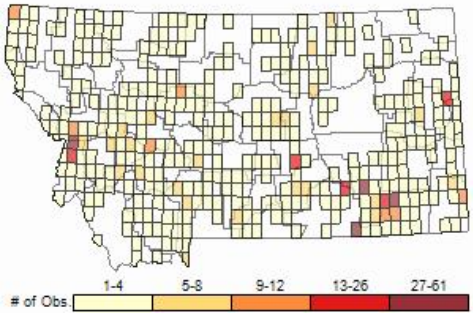
View in Field Guide

Potential Species of Concern
Native Species
Global Rank: G5
State Rank: S3S4

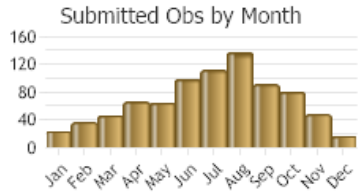
Agency Status
USFWS:
USFS:
BLM:
FWP SWAP: SGIN



Range Native



 # Observations: 955



General Description

North American Porcupine adults in the Northwest average 30 inches long and 20 pounds in weight. Round, short-legged, and slow in movement, they are protected by a coat of quills that covers all but their underside and the insides of their legs. Up to 30,000 of these modified hairs, yellowish white and black- or brown-tipped, mix with coarse guard hairs, and lay over thick, brownish underfur. The hollow quill shafts may be up to 5 inches in length and the guard hairs twice as long. They concentrate on the rump and short tail. The Porcupine sheds this coat yearly. Long, heavy claws enable the Porcupine to climb and curl up in trees. Its excellent hearing and sense of smell make up for poor vision (Foresman 2012). At night the Porcupine's bright eyes appear red. Its grunts and high-pitched cries can be heard from a distance (Burt and Grossenheider 1964). Newborns are born with teeth, eyes open, and soft quills that harden within an hour. They can climb the same day.

Habitat

Common in montane forests of western Montana, also occurs in brushy badlands, sagebrush semi-desert and along streams and rivers (Hoffmann and Pattie 1968). Rockfall caves, ledge caves, hollow trees, or brushpiles for dens (Dodge 1982).

Preble's Shrew

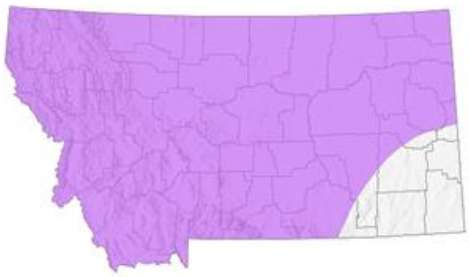
Sorex preblei

View in Field Guide

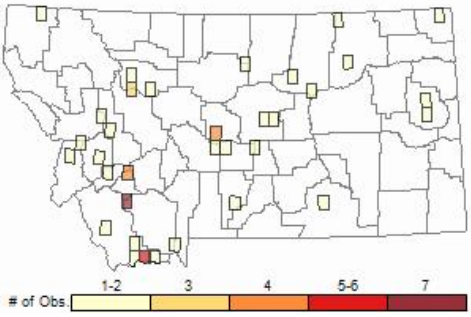
No photos are currently available

Species of Concern
Native Species
Global Rank: G4
State Rank: S3

Agency Status
USFWS:
USFS:
BLM:
FWP SWAP: SGCN3



Range Native



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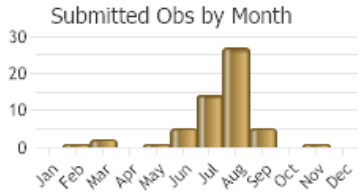


General Description

Like other members of the genus *Sorex*, the snout is long and pointed, and the eyes are small. The dorsal pelage is dark brown to dark gray, and the ventral pelage is silvery-gray. The tail is bicolored, olive-brown above and hazel-brown below. The skull has 32 teeth (dental formula: I 3/1, C 1/1, P 3/1, M 3/3); the 5 upper teeth with single cusps that are present posterior to the first incisor are termed the unicuspids (U), and include 2 incisors, 1 canine, and 2 premolars. The tine on the medial edge of the first incisor is long, acutely pointed, and set within the pigmented area; U3 is as large or larger than U4. Ranges of external measurements (in millimeters) are: total length 77 to 95, tail length 28 to 38, hind foot length 7 to 11, ear length 8 to 11, weight 2.1 to 4.1 grams (Cornely et al. 1992, Verts and Carraway 1998). Published cranial measurements (in millimeters) are: condylobasal length 13.8 to 15.1, palatal length 5.4 to 5.8, cranial breadth 7.0 to 7.2, interorbital breadth 2.9 to 3.1, maxillary breadth 3.8 to 4.2, dentary length 5.6 to 6.7, length of mandibular tooth row (C1-M3) 3.8 to 4.2.

Some Montana specimens (n = 14) exceed some reported values: condylobasal length 13.5 to 14.6, palatal length 5.4 to 6.2, cranial breadth 7.0 to 7.5, interorbital breadth 2.4 to 2.6, maxillary breadth 4.0 to 4.2, dentary length 5.9 to 6.3, length of mandibular tooth row (C1-M3) 4.0 to 4.2 (Hoffmann et al. 1969, Hendricks and Roedel 2002).

Diagnostic Characteristics

Preble's Shrew is small, even for a shrew. Other than its small body size, Preble's Shrew is diagnosed by cranial characteristics. A combination of a medial tine on I1 that is present within the zone of pigmentation, U3 as large or larger than U4, condylobasal length usually less than 15.1 millimeters, palatal length less than 5.8 millimeters, length of dentary less than 6.5 millimeters, length of mandibular tooth row (C1-M3) usually less than 4.1 millimeters, and height of coronoid process less than 3.3 millimeters (Junge and Hoffmann 1981, Carraway 1995).

Habitat

Most Preble's Shrews in Montana have been captured in sagebrush-grassland habitats (Hoffmann et al. 1969, Foresman 2012, Hendricks and Roedel 2002), sometimes in openings surrounded by subalpine coniferous forest. They have been taken in Beaverhead County in stabilized sandhills habitat of about 40 to 60% vegetation cover, dominated by grasses (*Stipa comata*, *Festuca idahoensis*, *Agropyron dasystachyum*) and shrubs (*Artemisia tridentata*, *A. tripartita*, *Chrysothamnus nauseosus*, *C. viscidiflorus*, and *Tetradymia canescens*), with isolated dense patches of *Opuntia fragilis* present (Hendricks and Roedel 2002). Preble's Shrew was also present at two other grazed sites (in Beaverhead and Powell counties) dominated by medium-stature (0.5 to 1.5 meters tall) sagebrush; at both sites, sagebrush cover was about 25% (Paul Hendricks, unpublished data).

Throughout its range, the Preble's Shrew occupies a variety of habitats, including arid and semiarid shrub-grass associations, openings in montane coniferous forests dominated by sagebrush, willow-fringed creeks and marshes, bunchgrass associations, sagebrush-aspen associations, sagebrush-grassland, oak chaparral, open ponderosa pine-Gambel oak stands, and alkaline shrubland (Williams 1984, Ports and George 1990, Cornely et al. 1992, Long and Hoffmann 1992, Kirkland and Findley 1996, Verts and Carraway 1998).

The bulk of Preble's Shrews captured have come from arid habitats, often in the immediate or nearby presence of sagebrush. In southwestern Wyoming, individuals were captured in sagebrush-steppe: islands of *Artemisia*

tridentata, *Purshia tridentata*, and *Amelanchier utahensis* more than 30 centimeters tall surrounded by large expanses of *Artemisia* less than 30 centimeters tall (Kirkland et al. 1997). In southern British Columbia, Preble's Shrews were captured in lightly to moderately grazed grassland patches surrounded by scattered stands of Douglas-fir (*Pseudotsuga menziesii*) or ponderosa pine. Big sagebrush, common snowberry (*Symphoricarpos albus*), or antelope bitterbush (*Purshia tridentata*) about 1 to 2 meters in height formed dense shrub cover of 30 to 80% (Nagorsen et al. 2001); cheatgrass (*Bromus tectorum*) was sometimes dominant, and the nearest standing water to trap sites was 350 to 2300 meters distant.

American White Pelican

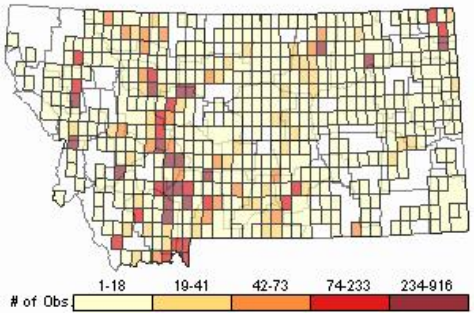
Pelecanus erythrorhynchos

View in Field Guide

Species of Concern
Native Species
Global Rank: G4
State Rank: S3B

Agency Status
USFWS: MBTA
USFS:
BLM:
FWP SWAP: SGCN3
PIF: 3

Range: Summer, Migratory



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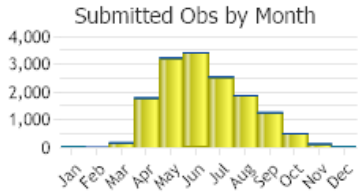


General Description

The American White Pelican is a large, white bird (length: 127 to 165 cm; weight: most birds 5.0 to 9.0 kg; wingspan: 2.4 to 2.9 m) with black primaries and outer secondaries, an enormous bill with distensible gular pouch, and totipalmate webbed feet. It is often seen in flocks, and when in flight it flies with the head withdrawn. In the early breeding season the bill and legs are bright orange, the head has white plumes, and there is a laterally flattened horn on the upper mandible. Later the leg color fades, the head darkens, and the plumes and horn are lost (Evans and Knopf 1993).

For a comprehensive review of the conservation status, habitat use, and ecology of this and other Montana bird species, please see Marks et al. 2016, Birds of Montana.

Diagnostic Characteristics

The American White Pelican is unlike other North American birds, except the Brown Pelican (*Pelecanus occidentalis*), which does not occur inland, and is smaller with generally darker body plumage, and often forages by plunge-diving, whereas the American White Pelican does not (Evans and Knopf 1993). The Snow Goose (*Chen caerulescens*) and Whooping Crane (*Grus americana*) display contrasting black primaries and a white body when in flight, similar to the American White Pelican, but are quite different otherwise in appearance and behavior. Snow Geese are much smaller and fly with their neck extended. Whooping Cranes are often confused with American White Pelicans but are easily distinguished because they fly with their legs and neck extended.

Habitat

Habitat use in Montana appears similar to other areas within the breeding range. American White Pelicans occur on a variety of aquatic and wetland habitats, including rivers, lakes, reservoirs (both large and small), estuaries, bays, marshes, and sometimes in inshore marine habitats. These habitats are used variously for nesting, loafing, and feeding. They rest on islands and peninsulas, as well as exposed rocks in rivers. Nesting colonies usually are situated on islands or peninsulas in brackish or freshwater lakes, where they are isolated from mammalian predators. Nests are built on the ground in slight depressions or on mounds of earth and debris, usually on low, flat, or gently sloping terrain. They may use dredge spoil or natural islands. Usually nests are built in an open area, but often near vegetation, driftwood, or large rocks (Spendelow and Patton 1988). There is increasing concentration and feeding at catfish aquaculture operations during the non-breeding season (King and Grewe 2001).

Montana breeding colonies are located in the eastern prairie regions on islands or peninsulas of low topographic relief at lakes and reservoirs. Cover at some colonies is minimal, with nests mostly or completely exposed, but nests are often under extensive stands of chokecherry (*Prunus virginiana*) in the main sub-colony at Medicine Lake (Hendricks and Johnson 2002). Feeding occurs near the colony as well as at remote locations (> 100 km) away from the colony in reservoirs, lakes, and along rivers.

Black-tailed Prairie Dog

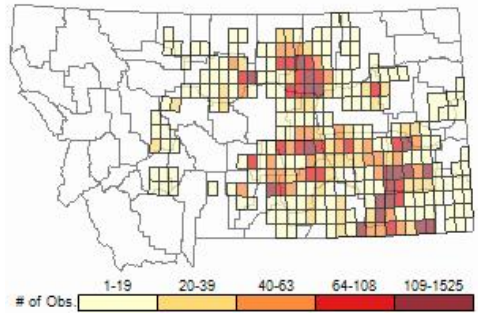
Cynomys ludovicianus

View in Field Guide

Species of Concern
Native Species
Global Rank: G4
State Rank: S3

Agency Status
USFWS:
USFS: SENSITIVE
BLM: SENSITIVE
FWP SWAP: SGCN3

Range Native



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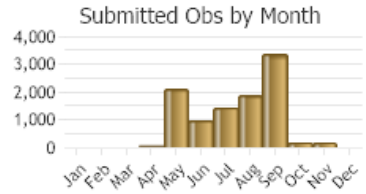


General Description

The Black-tailed Prairie Dog is the largest of the prairie dog species, weighing 700 to 1500 grams and measuring 28 to 33 centimeters from nose to tail (Burt and Grossenheider 1976, Hoogland and Foltz 1982). The overall color of the back and upper sides of the body and tail is generally dark cinnamon with buff coloring on the underside (Anderson 1972, Burt and Grossenheider 1976, Hall 1981). The distal third of the tail is black or dark brown (Hall 1981). They molt twice per year, prior to summer and prior to winter. The skull is about 60 centimeters long, with 22 teeth (Burt and Grossenheider 1976).

Diagnostic Characteristics

Black-tailed Prairie Dogs are easily separated from the similar White-tailed Prairie Dogs by the black color of the distal one-third of the tail tip. The Black-tailed Prairie Dog also lacks the distinctive dark face patches of the White-tailed Prairie Dog. Black-tailed Prairie Dogs are also found in more dense colonies than are White-tailed Prairie Dogs. Features of the skull and teeth can also be used to separate the two species of prairie dogs in Montana (Foresman 2012).

Black-tailed Prairie Dogs may also be confused with a number of ground squirrel (*Spermophilus*) species, but are distinguished by their much more robust body conformation and relatively short tail and their habit of living in much denser colonies with more developed burrow systems.

Habitat

Black-tailed Prairie Dog colonies are found on flat, open grasslands and shrub/grasslands with low, relatively sparse vegetation. The most frequently occupied habitat in Montana is dominated by western wheatgrass, blue grama and big sagebrush (Montana Prairie Dog Working Group 2002). Colonies are associated with silty clay loams, sandy clay loams, and loams (Thorp 1949, Bonham and Lerwick 1976, Klatt and Hein 1978, Agnew et al. 1986) and fine to medium textured soils are preferred (Merriam 1902, Thorp 1949, Koford 1958), presumably because burrows and other structures tend to retain their shape and strength better than in coarse, loose soils. Encroachment into sands (e.g., loamy fine sand) occurs if the habitat is needed for colony expansion (Osborn 1942).

Shallow slopes of less than 10% are preferred (Koford 1958, Hillman et al. 1979, Dalsted et al. 1981), presumably in part because such areas drain well and are only slightly prone to flooding. By colonizing areas with low vegetative stature, Black-tailed Prairie Dogs often select areas with past human (as well as animal) disturbance. In Montana, colonies tended to be associated with areas heavily used by cattle, such as water tanks and long-term supplemental feeding sites (Licht and Sanchez 1993, FaunaWest 1998).

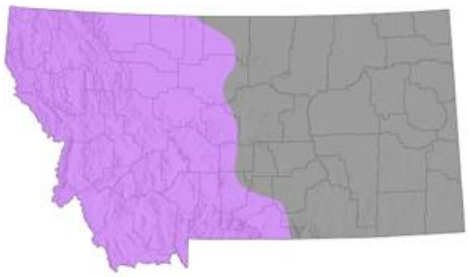
Grizzly Bear

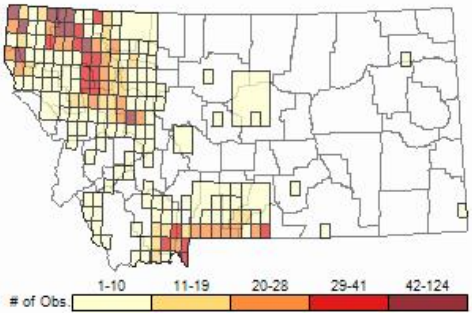
Ursus arctos

View in Field Guide

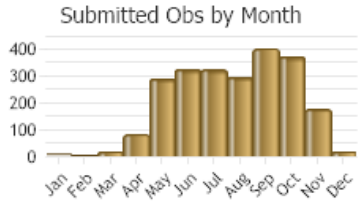
Species of Concern
Native Species
Global Rank: G4
State Rank: S2S3

Agency Status
USFWS: LT
USFS:
BLM: THREATENED
FWP SWAP: SGCN2-3





 # Observations: 2462



General Description

Grizzly Bears have a massive head with a prominent nose, rounded inconspicuous ears, small eyes, short tail and a large, powerful body (Pasitschnaik-Arts 1993). The facial profile is concave and there is a noticeable hump above the shoulders. The claws on the front feet of adults are about 4 inches long and slightly curved. Grizzly Bears range widely in color and size. The most prevalent coloration of Grizzly Bears in Montana is medium to dark brown underfur, brown legs, hump and underparts, with light to medium grizzling on the head and back and a light patch behind the front legs. Other forms, lighter or darker with varying levels of grizzled hair patches, occur in lesser numbers. Although extremely variable depending on the season, adults are around 185 centimeters long (Foresman 2012) and weigh around 200 kilograms in males and 130 kilograms in females (Kasworm and Manley 1988).

Diagnostic Characteristics

Adult Grizzly Bears differ from American Black Bears (*Ursus americanus*) in being larger and by having a hump above the shoulders, a concave (rather than straight or convex) facial profile, shorter and more rounded ears, a rump lower than the shoulder hump, and longer, less curved claws usually evident in the tracks. Identification can be difficult at times and Montana Fish, Wildlife and Parks has developed an Online Bear ID Test to help people better distinguish between American Black Bears and Grizzly Bears.

Habitat

In Montana, Grizzly Bears primarily use meadows, seeps, riparian zones, mixed shrub fields, closed timber, open timber, sidehill parks, snow chutes, and alpine slabrock habitats. Habitat use is highly variable between areas, seasons, local populations, and individuals (Servheen 1983, Craighead and Mitchell 1982, Aune et al. 1984). Historically, the Grizzly Bear was primarily a plains species occurring in higher densities throughout most of eastern Montana.

Little Brown Myotis

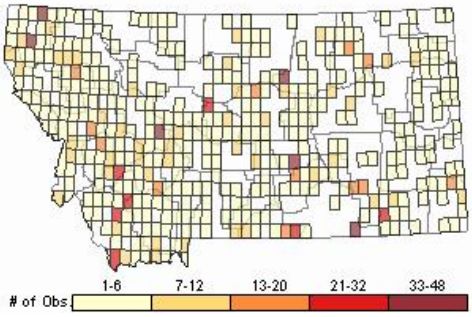
Myotis lucifugus

View in Field Guide

Species of Concern
Native Species
Global Rank: G3G4
State Rank: S3

Agency Status
USFWS:
USFS:
BLM:
FWP SWAP: SGCN3

Range Native



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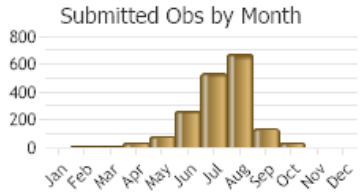


General Description

The most common bat species in Montana (Foresman 2012). Cinnamon-buff to dark brown above, buffy to pale gray below; hairs on back have long glossy tips; ears, when laid forward, reach approximately to the nostril; tragus about half as high as ear; calcar without keel; length of head and body 41 to 54 mm, ear 11.0 to 15.5 mm, forearm 33 to 41 mm; braincase rises gradually from rostrum; greatest length of skull 14 to 16 mm; length of upper toothrow 5.0 to 6.6 mm (Hall 1981).

Diagnostic Characteristics

Can be distinguished from all but one of the seven *Myotis* species in Montana by the absence of a fringe of hair around the uropatagium and the absence of a keeled calcar. Can be distinguished from Yuma myotis by the glossy appearance of the dorsal hair and dark brown ear color. (Foresman 2012)

Habitat

Found in a variety of habitats across a large elevation gradient. Commonly forages over water. Summer day roosts include attics, barns, bridges, snags, loose bark, and bat houses. Known maternity roosts in Montana are primarily buildings. Hibernacula include caves and mines.

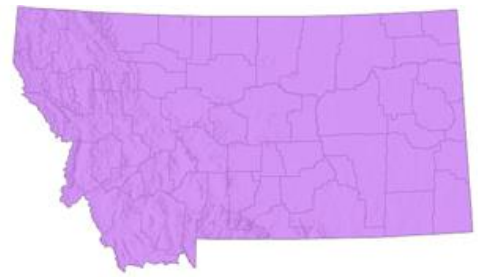
Long-eared Myotis

Myotis evotis

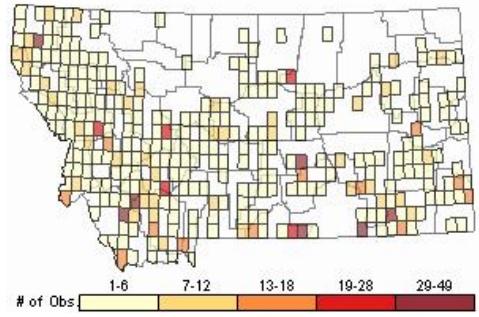
View in Field Guide

Species of Concern
Native Species
Global Rank: G5
State Rank: S3

Agency Status
USFWS:
USFS:
BLM:



Range Native



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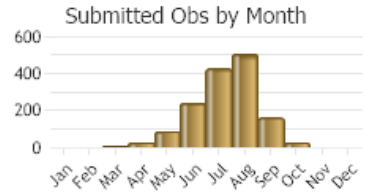


General Description

Ears are black and the longest of any other North American bat in the genus Myotis; > 0.84 inches (>21 millimeters). When bent forward, ears extend > 5 millimeters beyond the tip of the nose. Wingspan of 10-12 inches (25-30 centimeters) and weighs 0.2-0.3 inches (5-8 grams). Coat color is dull brown to straw-colored with individual hairs black at the base (Adams 2003).

Habitat

Occupy a wide range of rocky and forested habitats over a broad elevation gradient (Jones et al. 1973). Summer day roosts include abandoned buildings, bridges, hollow trees, stumps, under loose bark, and rock fissures. Hibernacula include caves and abandoned mines. The species has been located hibernating in a mine in riverbreaks habitat in northeastern Montana (Swenson and Shanks 1979).

Long-legged Myotis

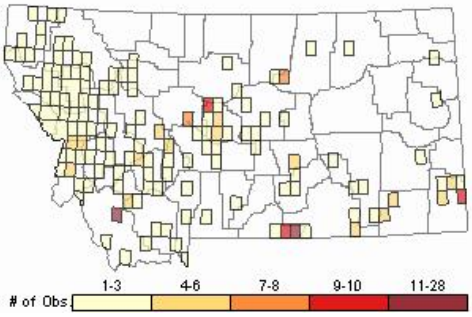
Myotis volans

View in Field Guide

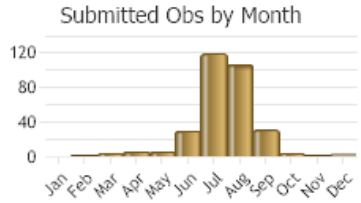
Species of Concern
Native Species
Global Rank: G4G5
State Rank: S3

Agency Status
USFWS:
USFS:
BLM:

Range Native



 # Observations: 339



General Description

Similar in appearance to the Little Brown Myotis, but is slightly larger, fur extends from the ventral surface to the elbow on the wing undersurface, and the calcar is keeled. Wingspan is 10-12 inches (25-30 centimeters) and weight ranges from 0.2-0.3 ounces (6-9 grams) (Adams 2003).

Habitat

Occurs mostly in forested mountain regions and river bottoms, also at high elevations. Summer day roosts include trees, rock crevices, fissures in stream banks, abandoned buildings. Hibernacula include caves and mines.

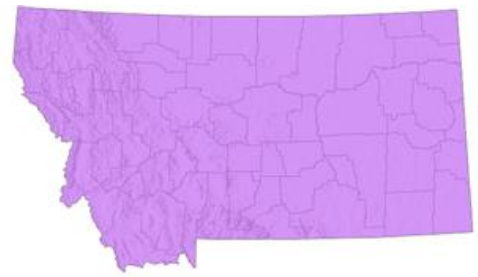
Silver-haired Bat

Lasionycteris noctivagans

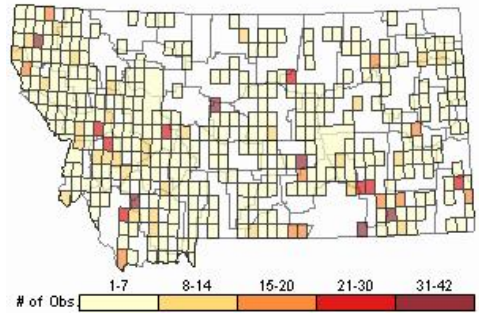
View in Field Guide

Potential Species of Concern
Native Species
Global Rank: G3G4
State Rank: S4

Agency Status
USFWS:
USFS:
BLM:



Range Native



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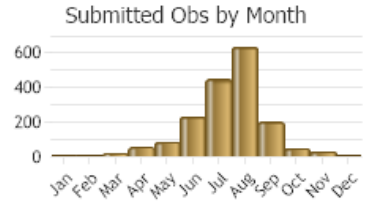


General Description

A mostly black bat with back hairs having silvery-white tips. Flight membranes are black. The tail membrane has fur on the dorsal side to the tip of the tail. Ears are bare, short, and rounded with a lighter patch at the front base of the ear.

Habitat

Occupy mature conifer and deciduous forests, riparian woodlands and aspen. Summer day roosts include tree cavities, under loose bark, also bird nests, sheds, and barns. Hibernacula include tree cavities, rock crevices, and buildings.

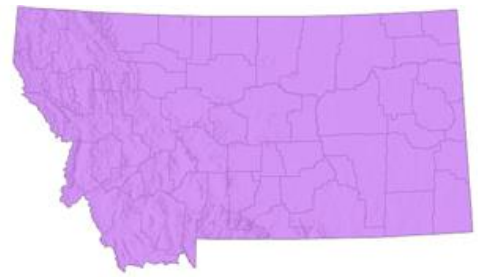
Townsend's Big-eared Bat

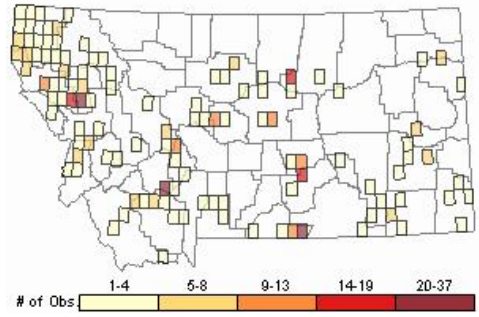
Corynorhinus townsendii

View in Field Guide

Species of Concern
Native Species
Global Rank: G4
State Rank: S3

Agency Status
USFWS:
USFS: SENSITIVE
BLM: SENSITIVE
FWP SWAP: SGCN3





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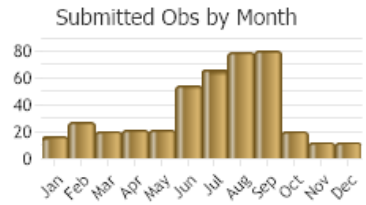


General Description

Townsend's Big-eared Bat is a moderately sized bat found throughout the state where suitable habitat exists, primarily near caves, mines, rock outcrops, and badlands. As the common name suggests, the species has large ears compared to its overall size. Although it never appear to be common in any portion of the state, it's distribution is widespread and is among the most commonly observed species during cave surveys.

The species has large ears (30 to 39 millimeters) joined across forehead are a prominent feature in Townsend's Big-eared Bat; the tragus is long and pointed. The dorsal hairs are brownish at the tips, contrasting a little or considerably with the lighter underfur; ventral hairs are dark brownish-gray in color with brown to cinnamon tips. The hairs on the toes do not project beyond the toenails. There are two large, fleshy lumps on the snout, the basis for one of its common names, "lump-nosed bat." Total length is 90 to 113 millimeters; forearm length is 39.0 to 47.6 millimeters; adult mass is 5.0 to 13.5 grams. The greatest length of the skull is 15.2 to 17.4 millimeters; the skull has 36 teeth (Handley 1959, Kunz and Martin 1982, Nagorsen and Brigham 1993).

Diagnostic Characteristics

Townsend's Big-eared Bat differs from other Montana bats by its combination of extremely long, brownish ears that are joined at the base, the prominent lumps on the nose, the absence of large, white spots in the pelage (as with the Spotted Bat) and a dorsal pelage that is darker at the tips than the base (opposite that of the Pallid Bat, which is also larger-bodied).

The species is infrequently captured in mist nets. Nets set over water can be used, but captures are typically rare. The species is more frequently captured by placing nets within tight flyways in high clutter environments such as tall brush and densely forested areas. Surveys of caves and mines are an efficient way to detect the species as it is one of the most commonly encountered species within these features, particularly in the winter. Acoustic methods are effective and call sequences distinct, but echolocation is typically much quieter than other bat species and microphones must be placed close to roosts or foraging areas to ensure any individuals in the area are recorded.

Habitat

Of all of Montana's bat species, Townsend's Big-eared Bat is the most closely associated with caves, mines, and other similar features such as talus caves and erosion cavities found in badlands and river breaks. Caves and abandoned mines are used for maternity roosts and hibernacula (Worthington 1991, Hendricks et al. 1996, Hendricks 2000, Hendricks et al. 2000, Foresman 2012, Hendricks and Kampwerth 2001); use of buildings in late summer has also been reported (Swenson and Shanks 1979). In hibernacula, ambient temperatures ranged from -1.0 to 8.0 degrees (30 to 46 when torpid Townsend's Big-eared Bats were present) (Hendricks and Kampwerth 2001). Temperatures at maternity roosts are poorly documented; the temperature was 12 degrees

(54 in mid-July near a colony in an abandoned mine in Lake County), and 18 degrees (66 in August near a colony in a large and relatively open cave chamber in Lewis and Clark County). Most caves and mines in Montana appear to be too cool in summer for use as maternity roosts.

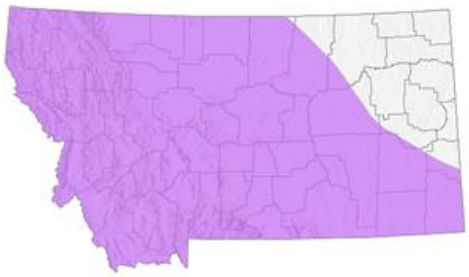
Clark's Nutcracker

Nucifraga columbiana

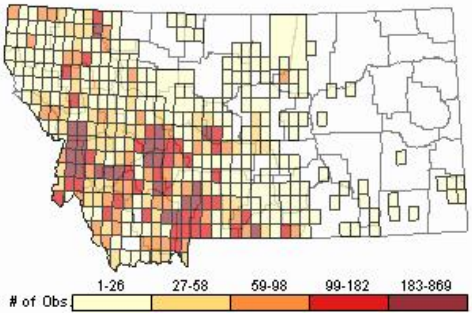
View in Field Guide

Species of Concern
Native Species
Global Rank: G5
State Rank: S3

Agency Status
USFWS: MBTA
USFS:
BLM:
FWP SWAP: SGCN3
PIF: 3



Range Year-round



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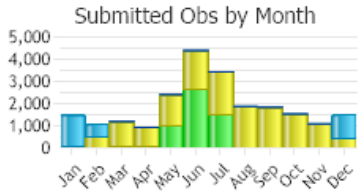


General Description

Clark's Nutcracker is a jay-sized corvid that is crowlike in build and flight, with moderate sexual size dimorphism. Total length of adults 27.0 to 30.1 cm. Mass 106 to 161 g. Males slightly larger than females. Sexes similar in appearance. Light to medium gray, with varying amounts of white around eyes, on forehead, and on chin; white around vent and at base of tail; wings and tail glossy black; secondaries broadly tipped with white forming a white patch; outer rectrices white. Folded wings nearly reach tip of tail. Long, pointed, black bill with short nasal bristles. Distinctive grating call audible at great distance (Tomback 1998).

For a comprehensive review of the conservation status, habitat use, and ecology of this and other Montana bird species, please see Marks et al. 2016, Birds of Montana.

Diagnostic Characteristics

Clark's Nutcracker is distinctive in appearance and behavior, and unlike any other corvid in Montana. Plumage is similar to that of the Northern Shrike and Northern Mockingbird, but the longer, straighter bill and larger body distinguish nutcrackers from these species. White and black markings in the wings and tail, in combination with the other body characters and the sharp grating "*craaaww*" call, help distinguish a nutcracker. Other similar-appearing species don't travel in conspecific flocks, as nutcrackers often do.

Habitat

Nutcrackers in Montana typically occupy conifer forests dominated by whitebark pine at higher elevations and ponderosa pine and limber pine along with Douglas firs at lower elevations, relying largely on seeds of these species for food (Saunders 1921, Mewaldt 1956, Giuntoli and Mewaldt 1978). They often are seen above treeline in alpine meadows or flying among drainages (Johnson 1966, Pattie and Verbeek 1966).

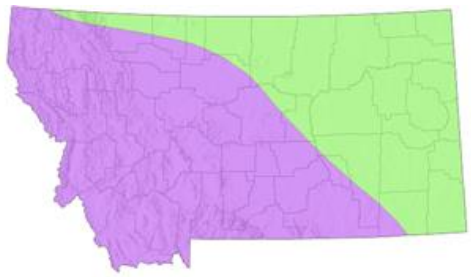
Great Blue Heron

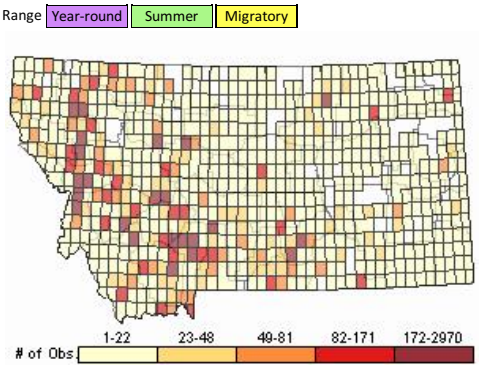
Ardea herodias

View in Field Guide

Species of Concern
Native Species
Global Rank: G5
State Rank: S3

Agency Status
USFWS: MBTA
USFS:
BLM:
FWP SWAP: SGCN3
PIF:





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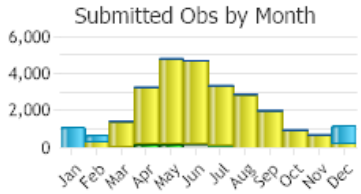


General Description

Largest heron in North America, 60 cm tall, 97 to 135 cm long, 2.1 to 2.5 kg mass. Wings long and rounded, bill long and tapered, tail short. Upper parts are gray, fore-neck is streaked with white, black, and rust-brown. Bill yellowish. Legs brownish or greenish. In flight, folds neck in an "S" shape and extends legs along the body axis; wing beats are deep slow wing. Adults have long occipital plumes (Butler 1992).

For a comprehensive review of the conservation status, habitat use, and ecology of this and other Montana bird species, please see Marks et al. 2016, Birds of Montana.

Diagnostic Characteristics

No other heron in Montana is the size or color of the Great Blue Heron, nor are other herons likely to be encountered in Montana during winter.

Habitat

Great Blue Herons are equally at home in urban wetlands and wilderness settings. Most Montana nesting colonies are in cottonwoods along major rivers and lakes; a smaller number occur in riparian ponderosa pines and on islands in prairie wetlands. Nesting trees are the largest available. Active colonies are farther from rivers than inactive colonies. The number of nests in the colony corresponds to the distance from roads (Parker 1980). Great Blue Herons build bulky stick nests high in the trees when nesting near the shores of rivers and lakes and on the ground or in low shrubs when nesting on treeless islands.

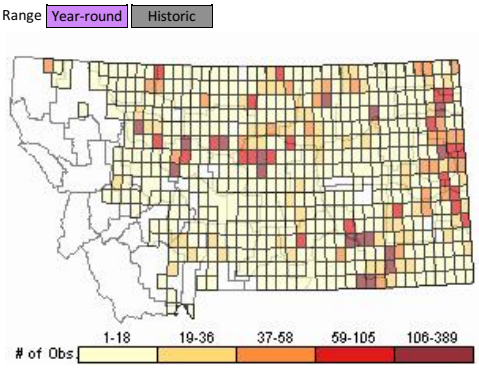
Sharp-tailed Grouse

Tympanuchus phasianellus

View in Field Guide

Species of Concern
Native Species
Global Rank: G5
State Rank: SX,S4

Agency Status
USFWS:
USFS:
BLM:
FWP SWAP: SGCN1
PIF: 2



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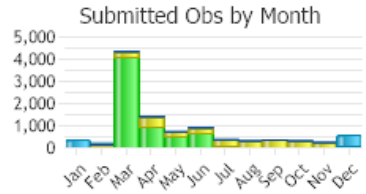


General Description

Sexes are similar, although males have inconspicuous yellow eye combs and pale violet air sacs on the neck. Both sexes have feathered legs and upper parts mottled with white, buff, brown, and black. The wings have conspicuous white spots, and the breast and flanks have V-shaped brown markings on a snow-white background. Adult males and females average from 16.5 to 18.5 inches in length; adult males average 33 ounces and adult females 29 ounces in weight. Populations west of the Continental Divide that are thought to have been extirpated were, until recently, believed to be a smaller subspecies, the Columbian Sharp-tailed Grouse (*Tympanuchus phasianellus columbianus*). These populations tended to have grayer plumage, more pronounced spotting on the throat, and narrower markings on the underparts (Hoffman and Thomas 2007). However, nuclear and mitochondrial DNA of populations east and west of the Continental Divide overlap almost completely, indicating that Columbian Sharp-tailed Grouse likely never inhabited western Montana and that the declines observed in that region were in populations genetically similar to those on the Great Plains (Spaulding et al. 2006, Wood et al. 2010).

For a comprehensive review of the conservation status, habitat use, and ecology of this and other Montana bird species, please see Marks et al. 2016, Birds of Montana.

Diagnostic Characteristics

Female Ring-necked Pheasants, especially in the early fall, can be confused with Sharp-tailed Grouse. Sharp-tailed Grouse, however, have much shorter tails, feathered legs, and white bellies (female Ring-necked Pheasants are mottled brown throughout).

Habitat

The habitat is primarily grasslands interspersed with shrub and brush-filled coulees. They prefer stands of inter-mixed tree and shrub grasslands. With high population, they spread into islands of native grassland, usually along drainages surrounded by grainfields. Sharp-tailed Grouse persist only on native bunchgrass-shrub stands. In Idaho, Saab and Marks (1992) found birds selected big sage habitat types during summer. They appeared to prefer range habitats that were in good condition.

Until recently, Sharp-tailed Grouse in Montana were found west of the Continental Divide in larger mountain valleys with extensive native bunchgrass-shrub stands. However, they have now apparently been extirpated, or nearly extirpated, from this historic range (Hoffman and Thomas 2007).

Western Milksnake

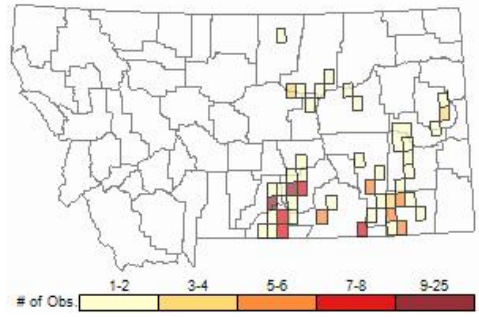
Lampropeltis gentilis

View in Field Guide

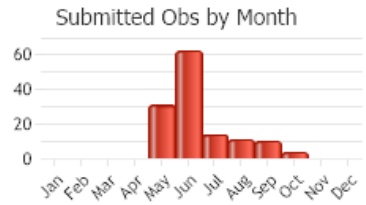
Species of Concern
Native Species
Global Rank: G5
State Rank: S2

Agency Status
USFWS:
USFS: SENSITIVE
BLM: SENSITIVE
FWP SWAP: SGCN2

Range: Native



 # Observations: 154



General Description

The back and sides of the body of the Milksnake are marked with whitish, black, and reddish or orange bands, with the reddish-orange bands bordered by the black; the snout is blackish and sometimes with whitish flecking. The bands often extend across the belly, but sometimes may be incomplete or absent, in which case the belly is whitish. Dorsal scales are smooth (unkeeled). The anal scale is not divided, as are most of the scales on the ventral surface of the tail. The neck is relatively short and thick. Total length of adults in the western Great Plains is usually 39 to 85 centimeters. Hatchlings are similar in appearance to adults, and 16 to 29 centimeters in total length. Eggs are slightly granular and range from 29 to 44 millimeters by 13 to 16 millimeters in length and breadth, depending on locality.

Diagnostic Characteristics

The whitish, black, and reddish to orange banding or rings around the body, an undivided anal scale, and smooth (unkeeled) dorsal scales distinguish the Milksnake from all other snakes native to Montana.

Habitat

Little specific information is available. Milksnakes have been reported in areas of open sagebrush-grassland habitat (Dood 1980) and ponderosa pine savannah with sandy soils (Hendricks 1999), most often in or near areas of rocky outcrops and hillsides or badland scarps, sometimes within city limits.

Fleshy Stitchwort

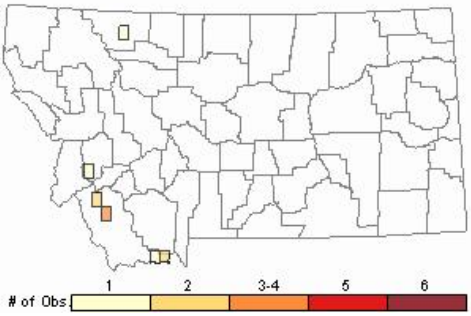
Stellaria crassifolia

View in Field Guide

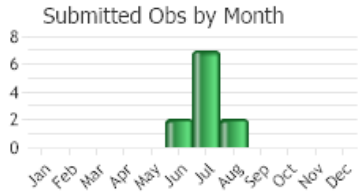
Species of Concern
Native Species
Global Rank: G5
State Rank: S2

Agency Status
USFWS:
USFS:
BLM:
MNPS Threat Rank: 3
C-value: 5

Range Native



 # Observations: 11



General Description

Fleshy Stichwort is a glabrous perennial herb with numerous, often matted, ascending to nearly prostrate stems that are 5-15 cm long and arising from slender roots. The opposite, narrowly lance-shaped leaves are 5-10 mm long, lack petioles, and have entire margins. Solitary flowers are borne on long spreading stalks in the upper leaf axils. The 5 separate, lance-shaped sepals are 2-3 mm long and have membranous margins. The 5 white, deeply bilobed petals are slightly longer. The fruit is a narrowly egg-shaped capsule that is 1-2 mm longer than the sepals at maturity.

Phenology

Flowering in August, mature fruit in August-September.

Diagnostic Characteristics

The more common *S. longipes* has stiff leaves and sepals greater than 3 mm long. *Stellaria calycantha* and *S. umbellata* have petals, if present, that are shorter than the sepals. A hand lens will likely be needed for identification.

Habitat

Moist or wet meadows, often along streams, in the foothills to alpine zones.

Hoary Bat

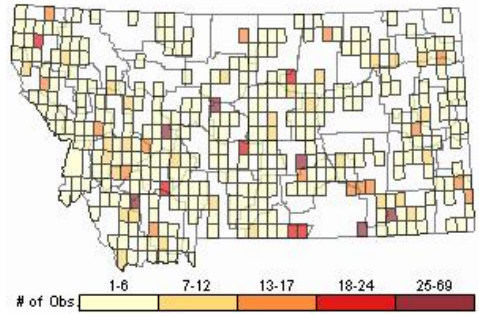
Lasiurus cinereus

View in Field Guide

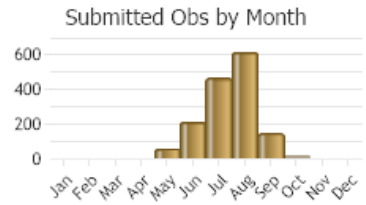
Species of Concern
Native Species
Global Rank: G3G4
State Rank: S3B

Agency Status
USFWS:
USFS:
BLM: SENSITIVE
FWP SWAP: SGCN3

Range Summer Migratory



 # Observations: 1531



General Description

The Hoary Bat is a large lasurine (20 to 35 g) with long pointed wings and heavily-furred interfemoral membrane. Pelage overall is frosted or hoary (mixed brownish and grayish with white-tipped hairs, wrist and shoulder patches whitish), yellowish on the throat, forearm length about 46 to 55 mm. Ears are short and rounded, rimmed in dark brown or black, tragus short and broad. It has large teeth; dental formula I 1/3, C 1/1, P 2/2, M 3/3 (Shump and Shump 1982, Adams 2003).

Diagnostic Characteristics

Hoary Bat is the largest bat species found in Montana, and only one of two with an interfemoral membrane completely furred on the dorsal surface, the other being the Eastern Red Bat. The Hoary Bat has a distinctive appearance along with its large size (35 g in weight, to about 140 mm in total length): dorsal pelage in is a mixture of browns and grays, tinges with white, giving the bat a frosted or hoary appearance (Shump and Shump 1982), unlike the reddish dorsal pelage of the smaller Eastern Red Bat. Definitive Hoary Bat calls are also of lower characteristic frequency and appearance: < 23 kHz lasting up to 20 milliseconds for Hoary versus 38-50 kHz lasting > 10 milliseconds for Eastern Red.

Habitat

During the summer, Hoary Bats occupy forested areas. A female with two naked pups was found in mid-July using a wooden bridge in Stillwater County as a temporary day roost (Hendricks et al. 2005) but no other Montana roosts have been reported. Often captured foraging over water sources embedded within forested terrain, both conifer and hardwood, as well as along riparian corridors. Reported in Montana over a broad elevation range (579 to 2774 m; 1900 to 9100 ft) during August, the highest record from treeline along the Gravelly Range road (Madison County), the lowest from the Yellowstone River near Sidney (Richland County); probably most common throughout summer in Montana at lower elevations.

Spotted Bat

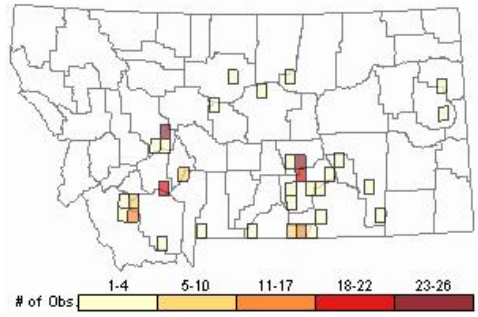
Euderma maculatum

View in Field Guide

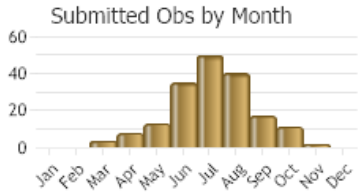
Species of Concern
Native Species
Global Rank: G4
State Rank: S3

Agency Status
USFWS:
USFS: SENSITIVE
BLM: SENSITIVE
FWP SWAP: SGCN3, SGIN

Range: Summer | Migratory



 # Observations: 185



General Description

Spotted Bats have huge pink ears (37 to 50 millimeters long), the dorsum is blackish with a large white spot on each shoulder and on the rump, and white patches at the posterior base of each ear. Total length is 107 to 115 millimeters, forearm length is 48 to 51 millimeters, and weight is 16 to 20 grams. The greatest length of the skull is 18.4 to 19.0 millimeters (small sample). The supraorbital region of the skull is sharply ridged, but a median sagittal crest is absent; 34 teeth are present (Watkins 1977). The newborn young lack any indication of having the adult color pattern (Van Zyll de Jong 1985). Four hours after birth, a male weighed 4 grams and measured 59 millimeters in length; tail length was 20 millimeters, hind foot 11 millimeters, ear 12 millimeters, and forearm 21 millimeters.

Diagnostic Characteristics

Spotted Bats differ from other bats in Montana by the unique patterning of the fur and the extremely large ears. Their echolocation calls (an insect-like clicking) are audible to the unaided human ear.

Habitat

Spotted Bats have been encountered or detected most often in open arid habitats dominated by Utah juniper (*Juniperus osteosperma*) and sagebrush (*Artemisia tridentata* and *A. nova*), sometimes intermixed with limber pine or Douglas-fir, or in grassy meadows in ponderosa pine savannah (Fenton et al. 1987, Worthington 1991a, Hendricks and Carlson 2001). Cliffs, rocky outcrops, and water are other attributes of sites where Spotted Bats have been found (Foresman 2012), typical for the global range. Spotted Bats have been captured foraging over an isolated pond within a few kilometers of huge limestone escarpments in the Big Horn Canyon National Recreation Area, Carbon County (Worthington 1991a, 1991b), and the first record for the state was of an individual that flew in an open window at a private residence in Billings, Yellowstone County (Nicholson 1950). Roost habitats and sites have not been documented in Montana.

In other areas, Spotted Bats have been detected at water sources and in meadow openings, often with large cliffs nearby (Leonard and Fenton 1983, Storz 1995, Perry et al. 1997, Rabe et al. 1998, Gitzen et al. 2001).

Spotted Bats roost in caves, and in cracks and crevices in cliffs and canyons, with which this species is consistently associated; it can crawl with ease on both horizontal and vertical surfaces (Snow 1974, Van Zyll de Jong 1985). In British Columbia, individuals used the same roost each night during May through July, but not after early August (Wai-Ping and Fenton 1989). Winter habitat is poorly documented. A possible explanation for the early paucity of collections in natural situations is the Spotted Bat's narrow habitat tolerance (Handley 1959, Snow 1974).

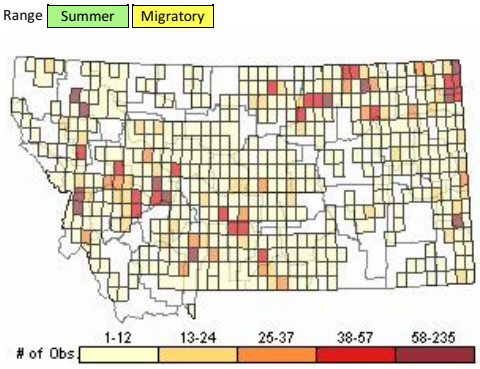
Bobolink

Dolichonyx oryzivorus

View in Field Guide

Species of Concern
Native Species
Global Rank: G5
State Rank: S3B

Agency Status
USFWS: MBTA; BCC10; BCC11; BCC17
USFS:
BLM:
FWP SWAP: SGCN3
PIF: 3



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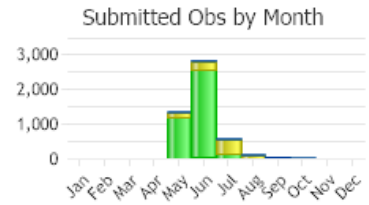


General Description

The Bobolink is approximately 18 centimeters long with a stout, relatively short, pointed bill and sharply pointed tail feathers. The breeding male is black below, with a buff to whitish hind-neck, white scapulars, and white rump; early in spring the male has pale feather edgings. The breeding female is buffy with dark streaks on the back, rump, sides, and head. The juvenile resembles the breeding female but lacks streaks below. Fall adults and immatures resemble breeding female but are darker above and richer buff below. (Renfrew et al. 2015)

For a comprehensive review of the conservation status, habitat use, and ecology of this and other Montana bird species, please see Marks et al. 2016, Birds of Montana.

Diagnostic Characteristics

Breeding males are unique among North American passerines in being entirely black underneath and lighter above (Renfrew et al. 2015).

Habitat

Nests built in tall grass and mixed-grass prairies. Prefers "old" hay fields with high grass-to-legume ratios.

Brewer's Sparrow

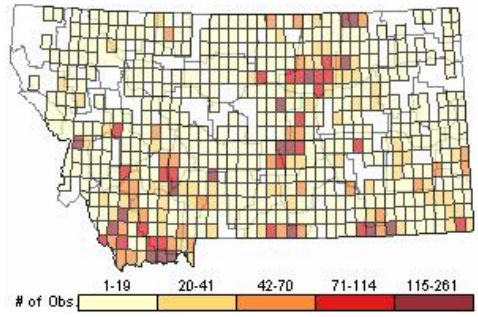
Spizella breweri

View in Field Guide

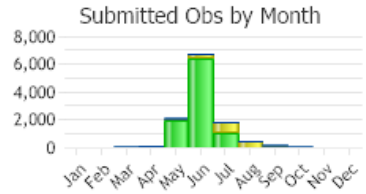
Species of Concern
Native Species
Global Rank: G5
State Rank: S3B

Agency Status
USFWS: MBTA
USFS:
BLM: SENSITIVE
FWP SWAP: SGCN3
PIF: 2

Range Summer Migratory



 # Observations: 11238



General Description

The Brewer's Sparrow is a nondescript sparrow of sagebrush habitats. In suitable habitat, the Brewer's Sparrow can be the most abundant species present. Its song, a series of distinctive long and short buzzy trills, can be heard throughout the breeding season (Rotenberry et al. 1999).

For a comprehensive review of the conservation status, habitat use, and ecology of this and other Montana bird species, please see Marks et al. 2016, Birds of Montana.

Phenology

Arrives on breeding grounds by late April. Nests with eggs observed as early as late May. Nestlings observed as early as early June and fledglings by early July (Montana Natural Heritage Program Point Observation Database 2014).

Diagnostic Characteristics

Sexes are similar in appearance. The crown is finely streaked brown; pale gray eyebrow, complete white eye-ring, and a grayish mustache. Underparts dull white, with grayish flanks; breast unstreaked in adult, although sometimes flanks are streaked. Back and rump brown, the latter streaked with black (Rotenberry et al. 1999).

Habitat

The Brewer's Sparrow typically breeds in shrubsteppe habitats dominated by sagebrush. Densities of Brewer's Sparrow correlated with some aspect of total shrub cover (Rotenberry et al. 1999). In sagebrush areas in central Montana, Brewer's Sparrows nested in sagebrush averaging 16 inches high (Best 1970).

Common Poorwill

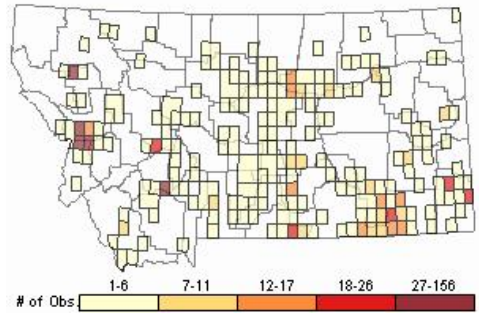
Phalaenoptilus nuttallii

View in Field Guide

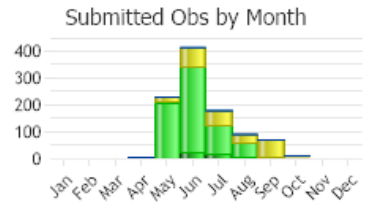
Potential Species of Concern
Native Species
Global Rank: G5
State Rank: S4B

Agency Status
USFWS: MBTA
USFS:
BLM:
FWP SWAP: SGIN
PIF: 3

Range Summer Migratory



 # Observations: 1038



General Description

Small (19-21 cm long and 31-58 g). Head large and flattened, large eyes, small bill with immense gape. Short and rounded tail and wings. Plumage soft brown and gray streaked with black and white; underside is paler. Broad white band crosses dark throat and chest. Rectrices in males have white tips, buff colored in females. Plumage does not change seasonally. Noted for its distinctive "poor-will" call. (Woods et al. 2005)

For a comprehensive review of the conservation status, habitat use, and ecology of this and other Montana bird species, please see Marks et al. 2016, Birds of Montana.

Diagnostic Characteristics

Distinguished from the Common Nighthawk by its lack of white wing stripe, presence of rictal bristles, and white or buff colored tail tips. (Woods et al. 2005)

Habitat

Dry, open, grassy or shrubby areas; high rolling prairies, semi-arid flats, and rocky foothills (Woods et al. 2005).

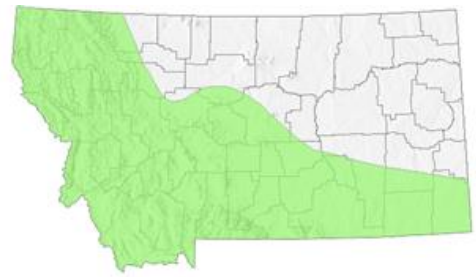
Lewis's Woodpecker

Melanerpes lewis

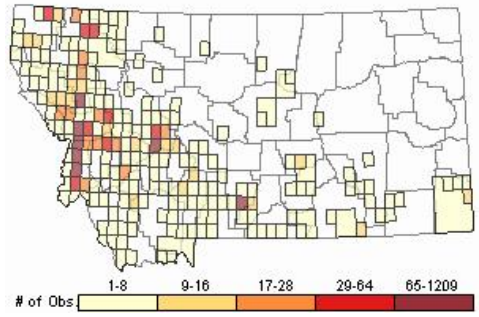
View in Field Guide

Species of Concern
Native Species
Global Rank: G4
State Rank: S2B

Agency Status
USFWS: MBTA; BCC10; BCC17
USFS:
BLM: SENSITIVE
FWP SWAP: SGCN2
PIF: 2



Range Summer Migratory



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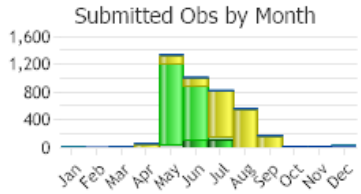


General Description

The Lewis's Woodpecker is a medium sized woodpecker, approximately 10 to 11 inches in length. They weigh about 115 grams. Their wings and tail are relatively long (Sibley 2000). The head, back, wings and tail are greenish-black. They have a silver-pale collar and upper breast. The face is dark red and the belly and lower breast is pinkish or salmon-red. The sexes are similar in appearance, but males are usually larger than females (Tobalske 1997). Juvenile birds are distinct from adults, having an overall dark appearance with more brownish-black on the back. They usually lack the silver color of the neck, the pinkish belly color, as well as the red on the face (Tobalske 1997).

Lewis's Woodpeckers are quieter than other woodpeckers. They commonly call during the breeding season only. During breeding male Lewis's Woodpeckers will give a harsh "*CHURR*" call which is repeated 3 to 8 times. Males will also give a chatter call throughout the year and commonly during the breeding season (Tobalske 1997).

For a comprehensive review of the conservation status, habitat use, and ecology of this and other Montana bird species, please see Marks et al. 2016, Birds of Montana.

Diagnostic Characteristics

The plumage of the Lewis's Woodpecker will easily distinguish it from any other woodpecker species. Also the flight pattern is unique for woodpeckers. Lewis's Woodpecker flight is slow and direct and will often include long glides and aerial maneuvers (Tobalske 1997). From long distances, Lewis's Woodpeckers may be mistaken for a American Crow or jay, but closer observation of the plumage and form will eliminate any confusion.

Habitat

In the Bozeman area, Lewis's Woodpeckers are known to occur in river bottom woods and forest edge habitats (Skarr 1969). Habitat information from other Lewis's Woodpecker sources state that the breeding habitat is open forest and woodland, often logged or burned, including oak and coniferous forest; primarily ponderosa pine (*Pinus ponderosa*), riparian woodland and orchards, and less commonly in pinyon-juniper *Pinus* spp.-*Juniperus* spp.) (American Ornithologists' Union 1983). Lewis's Woodpecker distribution is closely associated with open ponderosa pine forest in western North America, and is strongly associated with fire-maintained old-growth ponderosa pine (Diem and Zeveloff 1980, Tobalske 1997, Saab and Dudley 1998).

Important habitat features include an open tree canopy, a brushy understory with ground cover, dead trees for nest cavities, dead or downed woody debris, perch sites, and abundant insects. Lewis's Woodpeckers use open ponderosa pine forests, open riparian woodlands dominated by cottonwood (*Populus* spp.), and logged or burned pine. They also use oak (*Quercus* spp.) woodlands, orchards, pinyon-juniper woodlands, other open coniferous forests, and agricultural lands. Apparently the species prefers open ponderosa pine at high elevations and open riparian forests at lower elevations (Bock 1970, Tobalske 1997). In the Blue Mountains of Oregon, they showed a

preference for open stands near water (Thomas et al. 1979). Because the species catches insects from the air, perches near openings or in open canopy are important for foraging habitat (Bock 1970, Tobalske 1997).

Lewis's Woodpeckers often use burned pine forests, although suitability of post-fire habitats varies with the age, size, and intensity of the burn, density of remaining snags, and the geographic region. Birds may move to unburned stands once the young fledge (Block and Brennan 1987, Tobalske 1997, Saab and Dudley 1998). They have been generally considered a species of older burns rather than new ones, moving in several years post-fire once dead trees begin to fall and brush develops, five to thirty years after fire (Bock 1970, Block and Brennan 1987, Caton 1996, Linder and Anderson 1998). However, on a two- to four-year-old burn in Idaho they were the most common cavity-nester, and occurred in the highest nesting densities ever recorded for the species (Saab and Dudley 1998). As habitat suitability declines, however, numbers decline. For example, in Wyoming, the species was more common in a seven-year-old burn than in a twenty-year-old burn (Linder and Anderson 1998). Overall, suitable conditions include an open canopy, availability of nest cavities and perches, abundant arthropod prey, and a shrubby understory (Linder and Anderson 1998, Saab and Dudley 1998).

Unlike other woodpeckers, Lewis's Woodpeckers are not morphologically well adapted to excavate cavities in hard wood. They tend to nest in a natural cavity, abandoned Northern Flicker (*Colaptes auratus*) hole, or previously used cavity, 1 to 52 meters above ground. Sometimes they will excavate a new cavity in a soft snag (standing dead tree), dead branch of a living tree, or rotting utility pole (Harrison 1979, Tobalske 1997). The mated pair may return to the same nest site in successive years. On partially logged burns with high nesting densities in Idaho, nest sites were characterized by the presence of large, soft snags and an average of 62 snags per hectare that had more than 23-centimeter diameter at breast height (dbh) (Saab and Dudley 1998).

In late summer, wandering flocks move from valleys into mountains or from breeding habitat to orchards. In winter, they use oak woodlands and nut and fruit orchards. An important habitat feature in many wintering areas is the availability of storage sites for grains or mast, such as tree bark (e.g. bark of mature cottonwood trees) or power poles with desiccation cracks (Bock 1970, Tobalske 1997). In southwestern Arizona and southeastern California, Lewis's Woodpeckers may use scrub oak, pecan orchards, and cottonwoods, but more study is needed in this area (Bock 1970). In Mexico, they use open and semi-open woodlands, especially those with oaks (Howell and Webb 1995).

Sage Thrasher

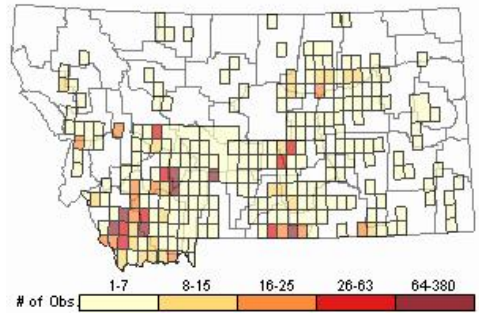
Oreoscoptes montanus

View in Field Guide

Species of Concern
Native Species
Global Rank: G4
State Rank: S3B

Agency Status
USFWS: MBTA
USFS:
BLM: SENSITIVE
FWP SWAP: SGCN3
PIF: 3

Range: Summer, Migratory



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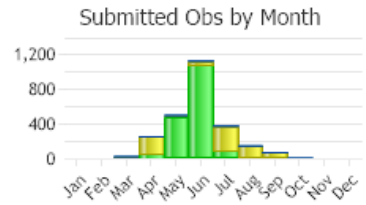


General Description

The Sage Thrasher is North America's smallest thrasher with a relatively short bill and tail. Its long, melodious, mockingbird-like song, originally earned it the name of Mountain Mockingbird (Reynolds et al. 1999). Genetic work indicates this species may, in fact, be more closely related to the mockingbirds (*Mimus*) than to other thrashers (Sibley and Ahlquist 1984). The Sage Thrasher, considered a sagebrush obligate species, is dependent upon large, unfragmented sagebrush habitats for breeding (Reynolds et al. 1999).

For a comprehensive review of the conservation status, habitat use, and ecology of this and other Montana bird species, please see Marks et al. 2016, Birds of Montana.

Phenology

Migrants arrive in Montana in late April through mid-May (Montana Bird Distribution Committee 2012). Records of adults incubating and feeding nestlings have been recorded in early June. Observations of adults feeding fledged young have been recorded from July through August.

Diagnostic Characteristics

The bill and tail of this thrasher are relatively short compared to those of other thrashers. Sexes are similar in plumage characteristics with males slightly larger than females. Adults are brownish-grey with some indistinct dark streaking on the back and crown. A dark streak through the eye separates the upper and lower lighter areas of the face. The cheek is also light with a darker line present along the sides of the throat. The bill is dark and short, and the eyes are yellow to amber in color. Underparts are generally off-white with bold dark marks (Reynolds et al. 1999).

Habitat

In Montana, the Sage Thrasher breeds in habitats dominated by Big Sagebrush. Sage Thrasher abundance is positively correlated with sagebrush cover and negatively correlated with grass cover. The Sage Thrasher uses sagebrush habitats, grasslands, and other semi-arid habitats during spring and fall migration and tends to avoid areas of human habitation (Reynolds et al. 1999).

Veery

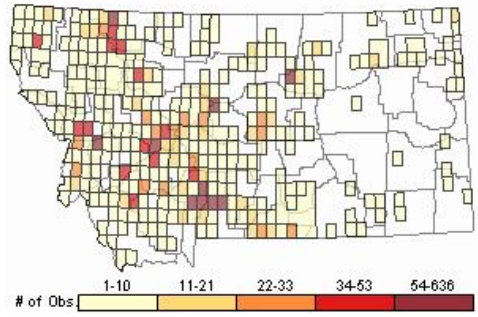
Catharus fuscescens

View in Field Guide

Species of Concern
Native Species
Global Rank: G5
State Rank: S3B

Agency Status
USFWS: MBTA
USFS:
BLM: SENSITIVE
FWP SWAP: SGCN3
PIF: 2

Range Summer Migratory



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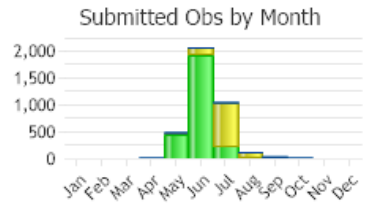


General Description

The Veery is an 18-cm-long bird with a reddish brown dorsum, white belly, gray flanks, grayish face, small spots (often indistinct) on the breast, indistinct grayish eyering, and straight slim bill. Western populations have a darker dorsum and more breast spotting than do eastern populations.

For a comprehensive review of the conservation status, habitat use, and ecology of this and other Montana bird species, please see Marks et al. 2016, Birds of Montana.

Diagnostic Characteristics

Veerys differ from other thrushes by having less breast spotting (less distinct and more restricted). They differ from Pacific coast populations of Swainson's Thrush (*Catharus ustulatus*) in having gray, instead of buffy brown, flanks.

Habitat

Generally inhabits damp, deciduous forests in the east. Has a strong preference for riparian habitats in several regions, including the Great Plains. Prefers disturbed forest, probably because denser understory is not found in undisturbed forests (Moskoff 1995). In Montana, Veerys are often associated with willow thickets and cottonwood along streams and lakes in valleys and lower mountain canyons (Saunders 1921, Hand 1969, Skaar 1969), icluding the Flathead and Lewistown regions (Silloway 1901, 1903a). It also occupies riparian cottonwood stands along the lower Missouri River (Kroodsma 1973). Along Beaver Creek in the Bears Paw Mountains, Veerys were present in a variety of plant community types (box elder, alder, aspen, cottonwood, and lodgepole pine) so long as willow was a significant component (Walcheck 1969).

Greater Sage-Grouse

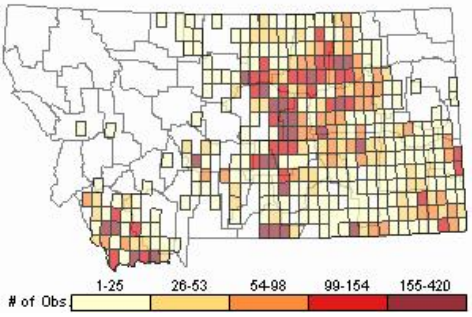
Centrocercus urophasianus

View in Field Guide

Species of Concern
Native Species
Global Rank: G3G4
State Rank: S2

Agency Status
USFWS:
USFS: SENSITIVE
BLM: SENSITIVE
FWP SWAP: SGCN2
PIF: 1

Range Year-round



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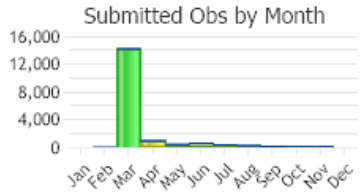


General Description

[From Schroeder et al. 1999] North America's largest grouse. Males 1.7-2.9 kg and 65-75 cm long, females 1.0-1.8 kg and 50-60 cm long. Both sexes with relatively long, pointed tails, feathered legs, and mottled gray-brown, buff, and black plumage. Males have a blackish-brown throat patch and an inconspicuous yellow eye comb. Both sexes have blackish bellies which contrast sharply with white under-wing coverts when birds in flight. Females appear to dip from side to side while flying.

For a comprehensive review of the conservation status, habitat use, and ecology of this and other Montana bird species, please see Marks et al. 2016, Birds of Montana.

Phenology

In central Montana, males occupy leks from early March to early June with peaks in late April to early May, females attend leks mid-March to late May with peaks in early to mid-April, copulations early April to late May (Eng 1963; Wallestad 1975b; Jenni and Hartzler 1978). Nesting begins mid-April, first eggs hatch in late May with peak by first half of June (42% of nests in south-central Montana hatch prior to mid-June), hatching extends to late June and early July (Eng 1963; Wallestad 1975b; Eustace 2002). In southeastern Alberta, peak hen attendance at leks early April, incubation at first nests initiated late April to early May (mean = 3 May), second nest attempts late May to mid-June (Aldridge and Brigham 2001). Birds in north-central Montana move to wintering grounds in November, remain there until mid-March and early April (Tack et al. 2011; Smith 2013); in southwest Montana, move to wintering areas sometime in September/October, return to leks in late February (Roscoe 2002).

Diagnostic Characteristics

Female Ring-necked Pheasant (*Phasianus colchicus*) can possibly be confused with female or young Greater Sage-Grouse. Female pheasants have a brown belly and bare legs, female Greater Sage-Grouse have a black belly patch and feathered legs. Differ from Sharp-tailed Grouse (*Tympanuchus phasianellus*) in having a black belly and lacking white outer tail feathers. Hybrid Greater Sage-Grouse X Sharp-tailed Grouse infrequent across range but reported in central Montana, southeastern Alberta, western North Dakota (Eng 1971; Kohn and Kobriger 1986; Aldridge et al. 2001).

Habitat

Closely associated with sagebrush habitat types. Adapted to a broad mosaic throughout range, including relatively tall sagebrush (*Artemisia tridentata, A. tripartita, A. cana*), relatively low sagebrush (*A. arbuscula, A. nova*), forb-rich mosaics with low and tall sagebrush, riparian meadows, steppe, scrub willow, sagebrush savanna (with juniper, ponderosa pine, aspen). Use altered habitats, such as alfalfa, wheat, crested wheatgrass, but degree depends on association with native habitat. Leks in sites with reduced herbaceous and shrub cover surrounded by potential nesting habitat, often on broad ridgetops, grassy swales, disturbed sites, dry lake beds,

cultivated fields. Nesting habitat usually in thick shrub cover dominated by sagebrush, sometimes grass or other shrub species. Brood habitat a mosaic of sagebrush, riparian meadow, greasewood, alfalfa, grain fields, rich in forbs and insects. Winter range similar to breeding range and dominated by sagebrush cover types (Schroeder et al. 1999; Crawford et al. 2004). Annual variation in habitat use in Montana similar to most surrounding areas (Dusek at al. 2002); sagebrush removal results in decline or loss of sage-grouse (Martin 1970; Wallestad 1975a; Swenson et al. 1987), as does habitat fragmentation/disturbance of sagebrush related to coal-bed natural gas energy development (Walker et al. 2007).

Leks in Montana often in clearings surrounded by sagebrush, including natural clearings, old burns, clearings around abandoned homesteads. When not on lek, males in central Montana feed and loaf predominantly where sagebrush cover is 20-50% (mean = 32%), avoid sagebrush cover < 10% (Wallestad and Schladweiler 1974; Wallestad 1975b; Dusek at al. 2002). In Beaverhead County, some males moved from leks to irrigated hayfields/wetlands with adjacent sagebrush patches, others to a variety of sagebrush habitats (Wyoming big sage, mountain big sage, three-tip sage), eventually to high elevation dense sagebrush (25-35% canopy cover) surrounded by forest (Roscoe 2002).

Females establish nests where sagebrush cover exceeds 15%, height of sagebrush averages 40.4 cm (Wallestad and Pyrah 1974). Similar results for Powder River Basin (including southeastern Montana), with average sagebrush canopy cover of 19.1% at nests; sites much more likely to be used for nesting when 75% of area within 100 m (patches of sage at least 200 m diameter) was high-density sagebrush (> 40% canopy cover) (Doherty et al. 2010); 99% of 258 nests in Phillips County established under shrubs, most of these (92%) under sagebrush (Moynahan et al. 2007). In Beaverhead County, hens nest in some cases near irrigated hayfields/wet meadows with adjacent sagebrush patches (Roscoe 2002). In southeastern Alberta, 90% of 29 nests placed under silver sage in locations where sage was taller and denser than at random: mean sage canopy cover = 32%, mean sagebrush height = 41.3 cm (Aldridge and Brigham 2002).

Brood habitat in central Montana dominated by relatively open stands of sagebrush. In one study (Peterson 1970), 100% of brood occurrences in sagebrush in June, declining to 50% by September (with corresponding increase in use of grass and greasewood); average cover of sagebrush on brood sites increased from 6% in June to 12% in August , with average height of sagebrush ranging from 40.6 cm in June to 50.8 cm in September. In a second study, (Wallestad 1971, 1975b) sagebrush cover at brood sites averaged 14% in June, 10% in August, 21% in September, with overall forb cover in two years of 17-27% and grass cover 47-51%; mean shrub heights were 17.8 cm in June, 25.4 cm in August. In Beaverhead County, Montana brood canopy cover during June-September averaged 24% shrubs (mostly sagebrush), 35% grass, 22% forbs, with average height of sagebrush 22.9-38.1 cm at brood locations (Martin 1970). In southeastern Alberta, brood habitat was in silver sagebrush denser and taller than at random: 20.9% mean sagebrush canopy cover, 32.0 cm mean sagebrush height (Aldridge and Brighan 2002).

Winter habitat in central Montana generally relatively tall, dense, and extensive sagebrush stands with 20% or greater mean canopy cover (range= 6.4-53.9%) for both feeding/loafing and roosting sites (about 78-82% of all observations fall in this cover category); height of sagebrush for feeding/loafing and roosting sites averages about 25.4 cm (Eng and Schladweiler 1972; Wallestad 1975b). More open stands used as weather moderates prior to lek formation. In Powder River Basin (including Bighorn, Rosebud, Powder River counties, Montana), use areas where sagebrush and grass >95% of total vegetation cover on landscape, with sagebrush cover averaging 75% (Doherty et al. 2008). Tall dense stands of sagebrush the primary winter habitat in Beaverhead County (Roscoe 2002).

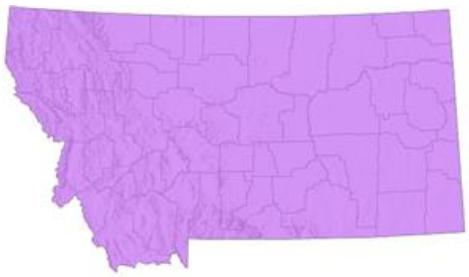
Short-eared Owl

Asio flammeus

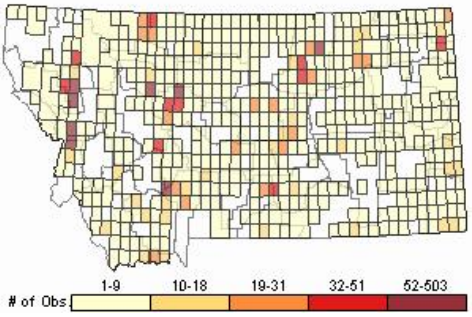
View in Field Guide

Potential Species of Concern
Native Species
Global Rank: G5
State Rank: S4

Agency Status
USFWS: MBTA; BCC11; BCC17
USFS:
BLM:
PIF: 3



Range Year-round



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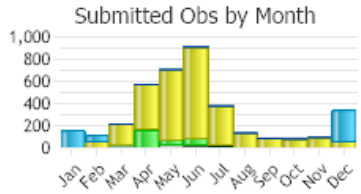


General Description

Short-eared Owls are a small to medium-sized owl. Published lengths range from 37 to 39 centimeters (Cramp 1985) to 34 to 42 centimeters (Mikkola 1983), with females slightly larger than males and considerably heavier, averaging 411 grams compared to 350 grams for males (Mikkola 1983). They are excellent flyers with long wings (95 to 110 centimeters) (Cramp 1985), and light wing-loading (0.333 gram per centimeter squared) (Clark 1975). There is little difference in wing length between the sexes (Clark and Ward 1974). The back and upper wing surfaces are tawny-brown to buff-colored with heavy but indistinct streaking. The ventral surfaces are much lighter, with bold, vertical brown streaking on the breast, and a pair of barely visible ear tufts close together at the top of the facial disk. The belly is pale, lightly streaked; the wings are long and have a buffy patch beyond the wrist above and a dark patch at the base of the primaries below; the dark facial disk contrasts with yellow eyes; and the legs and feet are feathered. Mature males are bright white on the underwing, while mature females show somewhat more buff coloration (Bent 1938, Village 1987). It is, nonetheless, difficult to sex or age these birds in the field. Females are generally darker than males but young birds are also darker than older ones (Mikkola 1983), thus a young male may be darker than an old female. Both sexes have a distinct, black carpal bar and dark wingtips. Juveniles possess full adult plumage by October of the first year (Bent 1938, Cramp 1985). The facial disc is circular and whitish with dark areas around the bright, yellow eyes, black bill. Recently fledged and juvenile Short-eared Owls show much darker coloration overall and a much darker facial disc which whitens with age. The Short-eared Owl gets its common name from the small ear tufts over the eyes. These inconspicuous tufts are part of the facial disc and are generally not seen except when female is in camouflage position on nest or erected when the bird is annoyed or alert. They may possibly aid in making birds more cryptic when in vegetation by breaking the line of the circular facial disc.

The bird is generally silent but does vocalize in courtship (a low, repeated, hooting "*voo, hoo, hoo, hoo*", or in conjunction with defensive behavior or annoyance, yaps or barks). The call is given approximately 15 times during courtship flight and is also accompanied by an audible wing-clap and dive between calls. Young give a food-begging call ("*pssssip*") that apparently aids adults in locating them from the time they leave the nest until after fledging. Adults may squeal while feigning injury during broken-wing acts to distract intruders from nests or young. Both young and adults will clack their bills when annoyed or in defense. Apparently, no data exist on the use of broadcasting tape-recorded vocalizations for detection or monitoring purposes.

For a comprehensive review of the conservation status, habitat use, and ecology of this and other Montana bird species, please see Marks et al. 2016, Birds of Montana.

Diagnostic Characteristics

Short-eared Owls can be distinguished by large "wrist" patches and moth-like flight. Long-eared Owl (*Asio otis*) has a smaller "wrist" patch, buffy underwings, and a darker belly. Although Long-eared Owls hunt similarly to

Short-eared Owls, they are rarely seen hunting during the day. Short-eared Owls are probably the most diurnal of owls (Lockie 1955, Clark 1975) and may often be observed from late afternoon until nightfall, or at dawn. A crow-sized owl seen abroad during daylight in open country will most likely be a Short-eared Owl. However, they also hunt at night. They are easily recognized by their blunt-headed profile and the fact that they glide with their wings held horizontally. This contrasts with the shallow v-shape of the Northern Harrier (*Circus cyaneus*) with which the Short-eared Owl often shares habitat and may be confused. Northern Harriers may also be distinguished by their white rump patch. Habitat is useful in separating Short-eared Owls from Long-eared Owls, the latter being predominantly a woodland dweller. The Long-eared Owl is also more slender with much longer ear tufts. Burrowing Owl also inhabits open country but is smaller (24 centimeters vs. 38 centimeters), has relatively longer legs, a yellow to whitish bill, and (in adults) has at least some horizontal barring on the breast. The Short-eared Owl's style of flight is unique and has at times been called mechanical, moth-like, or even slovenly (Peterson 1934).

Habitat

Open grasslands, plains, and agricultural areas with suitable vegetation and food.

Greater Short-horned Lizard

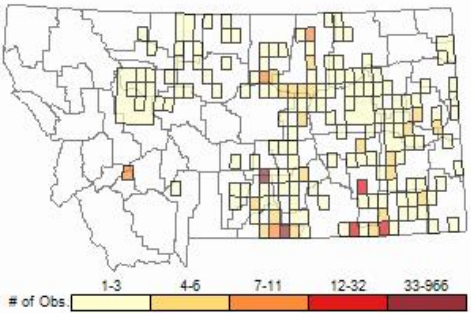
Phrynosoma hernandesi

View in Field Guide

Species of Concern
Native Species
Global Rank: G5
State Rank: S3

Agency Status
USFWS:
USFS: SENSITIVE
BLM: SENSITIVE
FWP SWAP: SGCN3, SGIN

Range Native



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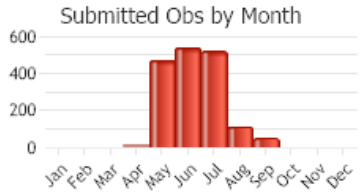


General Description

The body of the Greater Short-horned Lizard is broad and flattened. The back is spiny, with an especially noticeable single row of scales fringing each side of the body. The spines at the back of the head are about as long as they are wide at the base. The coloration of the back usually blends cryptically with the soil and can vary somewhat from region to region and at single localities. The maximum total length is about 15 centimeters. In males, there is a swelling at the base of the tail, and the tail is proportionally longer than in females. Newborn young have the broad and flattened body shape, and are about 2.0 to 2.5 centimeters snout-vent length and up to 3.8 centimeters by the time of first hibernation.

Diagnostic Characteristics

The broad, flattened body separates this lizard from the other three lizard species regularly documented in Montana, and the range overlaps only with the Common Sagebrush Lizard. The Pygmy Short-horned Lizard has been reported from extreme southwestern Montana, in the Centennial Valley, Beaverhead County (Maxell et al. 2003), but adults of this species are much smaller than Greater Short-horned Lizards, the small horns on the back of the head project almost vertically rather than horizontally, and they lack the wide notch between the horns on the back of the head that gives the head of Greater Short-horned Lizards a "heart-shaped" appearance when viewed from above (St. John 2002).

Habitat

Habitat use in Montana is poorly described, but appears to be similar to other regions. Reports mention individuals on ridge crests between coulees, and in sparse, short grass and sagebrush with sun-baked soil (Mosimann and Rabb 1952, Dood 1980). On the southern exposures of the Pryor Mountains, Carbon County, individuals occur among limestone outcrops in canyon bottoms of sandy soil with an open canopy of limber pine-Utah juniper, and are also present on flats of relatively pebbly or stony soil with sparse grass and sagebrush cover (Paul Hendricks, personal observation).

Slim-pod Venus'-looking-glass

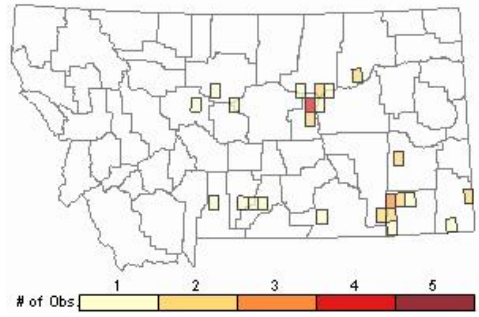
Triodanis leptocarpa

View in Field Guide

Species of Concern
Native Species
Global Rank: G5?
State Rank: S3

Agency Status
USFWS:
USFS:
BLM:
MNPS Threat Rank: 3
C-value:

Range Native



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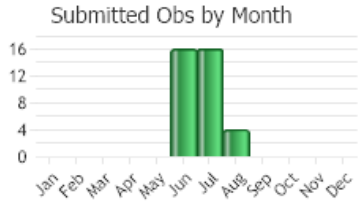


General Description

Stems erect, simple or branched, 5–40 cm. Herbage sparsely short-hispid. Leaves lanceolate or oblanceolate, entire to obscurely crenate, sessile, 7–25 mm long. Inflorescence with clusters of 1 to 3 sessile flowers in axils of linear bracts; lower flowers cleistogamous. Chasmogamous flowers: sepals linear, 6–12 mm long; corolla deep blue, 5–8 mm long. Capsule linear, 14–20 mm long for chasmogamous flowers, 8–15 mm long for cleistogamous flowers (Lesica et al. 2012. Manual of Montana Vascular Plants. BRIT Press. Fort Worth, TX).

Habitat

Grasslands; plains (Lesica et al. 2012. Manual of Montana Vascular Plants. BRIT Press. Fort Worth, TX).

American Bittern

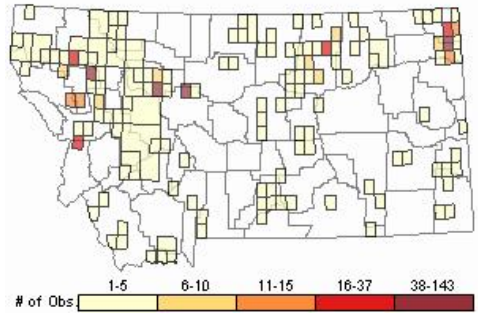
Botaurus lentiginosus

View in Field Guide

Species of Concern
Native Species
Global Rank: G5
State Rank: S3B

Agency Status
USFWS: MBTA
USFS:
BLM: SENSITIVE
FWP SWAP: SGCN3
PIF: 3

Range Summer Migratory



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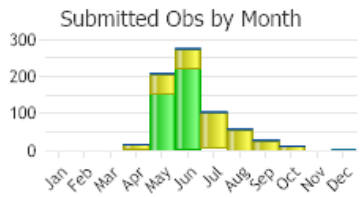


General Description

A stocky wading bird with a straight pointed bill, relatively short neck and legs, and somewhat pointed wings; darker flight feathers; bill dull yellow with a dusky tip on the upper mandible; legs and feet are greenish yellow; breeding feathering includes generally inconspicuous white ruffs on the shoulders and two small green patches on the back; wing span 107 cm. The American Bittern is a brown, medium-sized heron, 60-85 cm long, with a stout body and neck and relatively short legs (Palmer 1962, Cramp 1977, Hancock and Kushlan 1984). Adult plumage is all brown above and finely flecked with black; heavily streaked with brown and white below. The crown is rusty-brown. An elongated, black patch extends from below the eye down the side of the neck, a characteristic unique among herons (Hancock and Kushlan 1984). The throat is white. Sexes are similar, except that the male is slightly larger (Gibbs et al. 1992). Juveniles differ only in lacking black neck patches, which are obtained in the first winter. Plumage does not change seasonally.

For a comprehensive review of the conservation status, habitat use, and ecology of this and other Montana bird species, please see Marks et al. 2016, Birds of Montana.

Diagnostic Characteristics

Differs from night-herons in the following ways: wings are pointed rather than rounded; flight feathers are much darker than back (vs. no contrast), upperparts lack white spotting; and bill is more slender. Much larger than the Least Bittern (average length 71 cm vs. 33 cm). Differs from similar juvenile Green Heron in being larger (length 71 cm vs. 46 cm) and in having flight feathers of wings obviously darker than the middle of the back.

Habitat

American Bitterns favor large freshwater wetlands with tall emergent vegetation such as cattails and bulrushes. Sparsely vegetated wetlands are occupied occasionally, tidal marshes rarely. The typical nest is a platform of dried rushes, sedges, and cattails placed in dense emergent vegetation over shallow water (Gibbs et al. 1992). Bitterns forage along shorelines, in dense marsh vegetation, and in wet meadows. Winter range include areas where temperatures stay above freezing and waters remain open. Managed wetlands, such as those at wildlife refuges, are often used.

Broad-tailed Hummingbird

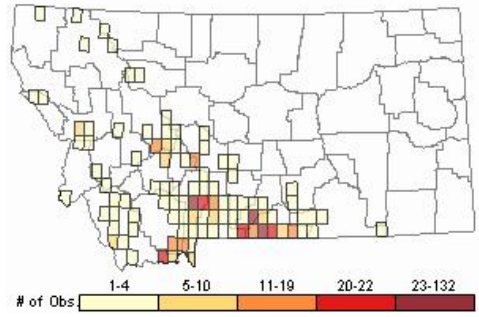
Selasphorus platycercus

View in Field Guide

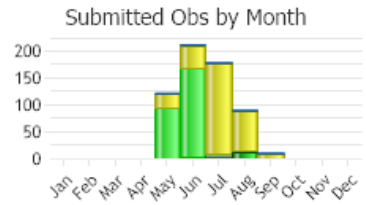
Potential Species of Concern
Native Species
Global Rank: G5
State Rank: S4B

Agency Status
USFWS: MBTA; BCC10
USFS:
BLM:
FWP SWAP: SGIN
PIF:

Range: Summer | Migratory



 # Observations: 616



General Description

A hummingbird of medium size, the Broad-tailed Hummingbird is fairly long-bodied, 9 cm (3.5 inches), and has a relatively long wingspan, 13 cm (5.25 inches). The female is generally the larger of the two sexes. The male has a rose-magenta throat patch, or gorget, while the throat of the female is white with varying amounts of speckling of faint bronze, iridescent green, or the rose-magenta feather color typical of the male's gorget. Both sexes have an iridescent green back and a long broad tail, the latter of which extends beyond the wingtips. The base of the outer tail feathers is rufous in color, beyond which a thin line of green is edged in a thicker band of black or purplish-black and terminated in white. The majority of the tail is green. The center of the male's breast is white, with green and buffy flanks, while the flanks of the female are primarily buff or pale cinnamon in color. The male has a line joining the white of the neck to white on the chin via a line at the back of the gorget traveling through the eye-ring. The eye-ring of the female is pale from which a pale white line travels behind the spotted cheeks to join the white throat (Calder and Calder 1992, Johnsgard 1986, Sibley 2000). The bill is black, iris brown, and feet dusky (Calder and Calder 1992).

Without a true song, vocalizations of the Broad-tailed Hummingbird are generally described as a "chitter, chitter, chitter" or "tiputi, tiputi," produced by the male to intruders into established territory, while females produce a similar sound when protecting nesting or feeding sites (Calder and Calder 1992, Sibley 2000). The long tapered wing tips on the male create a trill during flight. This is especially evident during territorial defense (and mating display) dives, which may descend from 40 feet. This sound is described as similar to the call of a Cedar Waxwing, or as a buzzy, insect-like trill (Johnsgard 1986, Sibley 2000).

For a comprehensive review of the conservation status, habitat use, and ecology of this and other Montana bird species, please see Marks et al. 2016, Birds of Montana.

Diagnostic Characteristics

The broad, lengthy tail is the most notable feature that distinguishes the Broad-tailed Hummingbird from other hummingbird species. The Rufous Hummingbird has a tail primarily rufous in color, whereas the Broad-tailed Hummingbird's tail is dominated by green, black and white, with rufous coloration only the base of the outer tail feathers (Sibley 2000). The combination of the broad tail, overall larger size, and buff or buff-and-green flanks distinguish this from other hummingbird species common in the state.

Habitat

No specific habitat information is available for Montana. Reported use in surrounding states (Idaho, Wyoming, and Colorado) includes habitat similar to that found in Montana and may include ponderosa pine (*Pinus ponderosa*) and aspen (*Populus tremuloides*) groves, as well as mountain meadows and pinyon-juniper woodlands (Johnsgard 1986).

Elsewhere, the species is typically found in open woodland, especially pinyon-juniper, pine-oak, and conifer-

aspen associations. The Broad-tailed Hummingbird can be found on brushy hillsides in montane scrub and thickets. During migration and winter, they may select open areas in lowlands replete with flowering shrubs. Movement to higher elevations after breeding is not uncommon (Johnsgard 1983).

Harlequin Duck

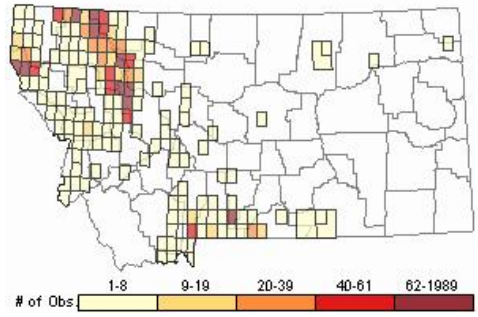
Histrionicus histrionicus

View in Field Guide

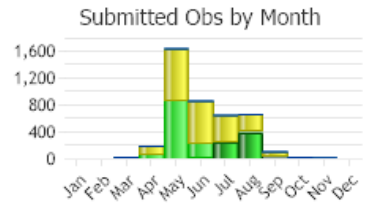
Species of Concern
Native Species
Global Rank: G4
State Rank: S2B

Agency Status
USFWS: MBTA
USFS: SENSITIVE
BLM:
FWP SWAP: SGCN2
PIF: 1

Range Summer Migratory



 # Observations: 4199



General Description

The Harlequin Duck is unique among North American waterfowl for breeding and foraging in clear, fast-flowing rivers and streams. The breeding plumage of adult males is unmistakable, with slate blue, white, black, and chestnut markings. This species is also unusual in its vocalizations; males and females give a mouselike squeak. The Harlequin Duck overwinters along coastal rocky shorelines (Robertson and Goudie 1999).

For a comprehensive review of the conservation status, habitat use, and ecology of this and other Montana bird species, please see Marks et al. 2016, Birds of Montana.

Phenology

In Montana, adults arrive from late April to early May (Kuchel 1977, Reichel and Genter 1996). Males depart breeding grounds in June while females and young depart from late July to early September (Kuchel 1977, Reichel and Genter 1994). Egg-laying occurs between April 30 and July 4 (Kuchel 1977, Reichel and Genter 1996). Kuchel (1977) estimated hatching dates for broods on McDonald Creek, Glacier National Park: 13 of 15 occurred between June 27 and July 7 with extremes on June 11 and August 2. Young fledge in Montana between July 15 and September 10, with most fledging between July 25 and August 15 (Kuchel 1977, Reichel and Genter 1996). Transients and winter observations recorded from October-March. Pairs observed beginning in April and May (Montana Natural Heritage Program Point Observation Database 2014).

Diagnostic Characteristics

The Harlequin Duck is a small diving duck. Male is larger than female. Breeding plumage of male is unmistakable: the body is slate blue with white bands and collars, bordered with black lines on chest and neck; large white crescent in front of eye with small white circular patch near ear; white vertical stripe on side of neck; black streak bordered by white and amber lines on top of head; iridescent blue secondaries; dark-slate-blue belly and chestnut-brown flanks. Adult female has brown body plumage, a white belly, with brown checks or spots, a round white spot behind ear, faded variable white patches in front of eye, and occasionally white streaks on back of head. Juveniles and immatures are similar to female, but feet are typically yellow, not gray (Robertson and Goudie 1999).

Habitat

In Montana, Harlequin Ducks inhabit fast moving, low gradient, clear mountain streams. In Glacier National Park, birds used primarily old-growth or mature forest (90%); and 2) most birds in streams on the Rocky Mountain Front were observed in pole-sized timber (Diamond and Finnegan 1993). Banks are most often covered with a mosaic of trees and shrubs, but the only significant positive correlation is with overhanging vegetation (Diamond and Finnegan 1993, Ashley 1994).

The strongest stream section factor in Montana appears to be for stream reaches with at least two loafing sites

per 10 meters (Kuchel 1977, Diamond and Finnegan 1993, Ashley 1994). Broods may preferentially use backwater areas, especially shortly after hatching (Kuchel 1977), though this is not apparent in data from other studies (Ashley 1994). Stream width ranges from 3 m to 35 m in Montana. Harlequin Ducks in Glacier National Park used straight, curved, meandering, and braided stream reaches in proportion to their availability (Ashley 1994).

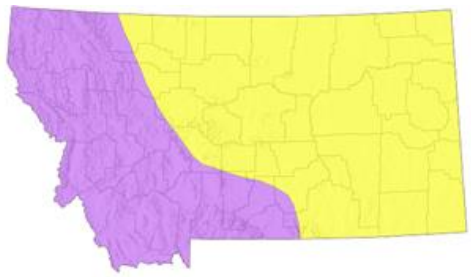
Hooded Merganser

Lophodytes cucullatus

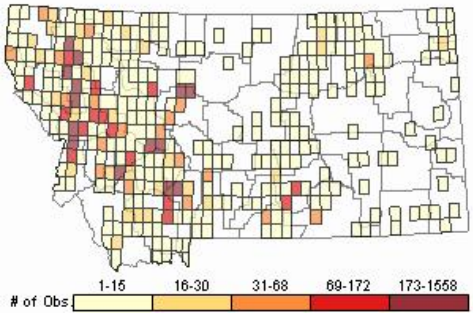
View in Field Guide

Potential Species of Concern
Native Species
Global Rank: G5
State Rank: S4

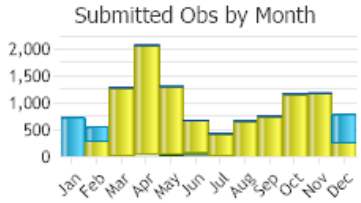
Agency Status
USFWS: MBTA
USFS:
BLM:
FWP SWAP: SGIN
PIF: 2



Range Year-round Migratory



 # Observations: 11998



General Description

The Hooded Merganser is a small (length 46 cm) duck with a thin, serrated bill and a puffy crest. The adult male has a black head with a large white patch on each side, a dark back, brown flanks, and a white chest with two black bars on each side. The adult female is brownish overall, with a yellowish lower mandible. The first-winter male resembles the female. In flight, both sexes show black-and-white inner secondaries (Peterson 1980).

For a comprehensive review of the conservation status, habitat use, and ecology of this and other Montana bird species, please see Marks et al. 2016, Birds of Montana.

Diagnostic Characteristics

They differ from other mergansers in being smaller, having white head patches (males), and by lacking a red bill. They differ from the Bufflehead by lacking white sides.

Habitat

Closely associated with forested wetland systems range-wide; a broad range of breeding habitats includes emergent marshes, small lakes, ponds, beaver wetlands, forested creeks and rivers, and swamps (Dugger et al. 2009). Hooded Mergansers are generally found in river areas bounded by woods and supporting good fish populations associated with clear water (Johnsgard 1992).

A Caddisfly

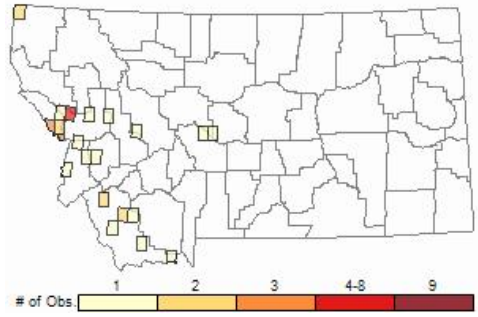
Rhyacophila betteni

View in Field Guide

Special Status Species
Native Species
Global Rank: G2G4
State Rank: S3S4

Agency Status
USFWS:
USFS:
BLM:

Range Native



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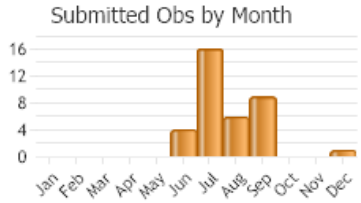


General Description

Information on this species is incomplete.

Habitat

A large variety of cold mountain streams and rivers.

Wood Lily

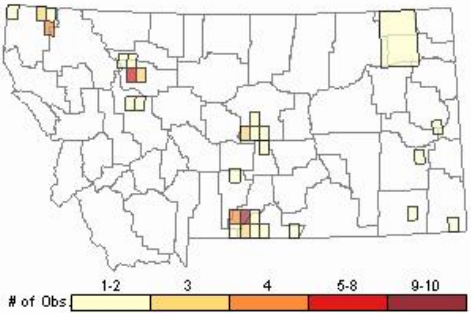
Lilium philadelphicum

View in Field Guide

Species of Concern
Native Species
Global Rank: G5
State Rank: S3

Agency Status
USFWS:
USFS:
BLM:
MNPS Threat Rank: 3
C-value: 9

Range Native



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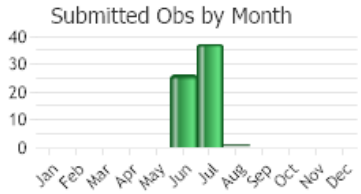


General Description

Stems 20–60 cm. Leaves linear-lanceolate, 3–7 cm long. Flowers 1 to 3; tepals reddish with yellowish and black-spotted bases, elliptic, long-clawed, 5–7 cm long, spreading; stamens barely included. Capsule narrowly ovoid, 2–4 cm long (Lesica et al. 2012. Manual of Montana Vascular Plants. BRIT Press. Fort Worth, TX).

Habitat

Moist, usually calcareous meadows, grasslands, fens, woodlands; valleys (Lesica et al. 2012. Manual of Montana Vascular Plants. BRIT Press. Fort Worth, TX).

Black-billed Cuckoo

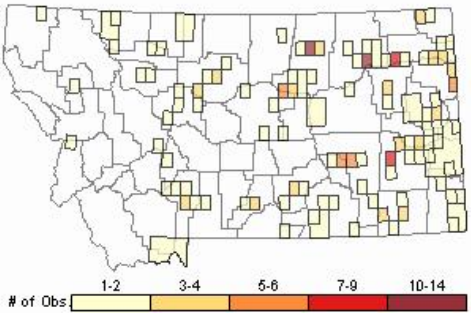
Coccyzus erythropthalmus

View in Field Guide

Species of Concern
Native Species
Global Rank: G5
State Rank: S3B

Agency Status
USFWS: MBTA; BCC11; BCC17
USFS:
BLM: SENSITIVE
FWP SWAP: SGCN3, SGIN
PIF: 2

Range Summer Migratory



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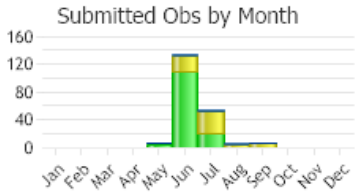


General Description

The Black-billed Cuckoo is a 31 centimeter-long bird with a stout slightly decurved bill, zygodactyl feet, grayish-brown dorsum, white venter (except tail), and a long tail that is patterned on the underside in gray with white feather tips. The bill is usually all dark, and may show yellow at the base of the lower mandible. There is a reddish eye ring. In juveniles, the undertail is whiter, the eye ring is buffy, the pale underparts may have a buffy tinge, and there may be some rusty-brown color on the outer wing.

For a comprehensive review of the conservation status, habitat use, and ecology of this and other Montana bird species, please see Marks et al. 2016, Birds of Montana.

Diagnostic Characteristics

The Black-billed Cuckoo differs from the Yellow-billed Cuckoo (*Coccyzus americanus*) by lacking rufous primaries and the absence of an extensively yellow lower mandible.

Habitat

Black-billed Cuckoos are birds of wooded draws, forest edges, thickets, and shelterbelts. In Montana they are found most often in riparian cottonwoods, green ashes, and American elms with a shrubby understory of willows, box elders, and alders; they also occur in foothill deciduous woodlands (Skaar 1969; Walcheck 1969, 1970; Kroodsma 1973; Jones and Hansen 2009).

Green-tailed Towhee

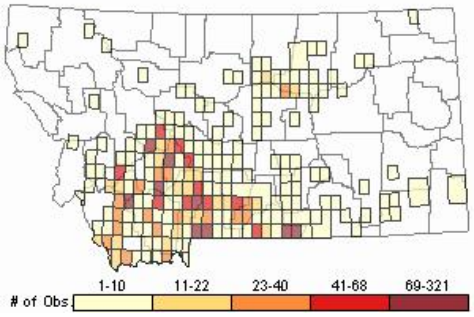
Pipilo chlorurus

View in Field Guide

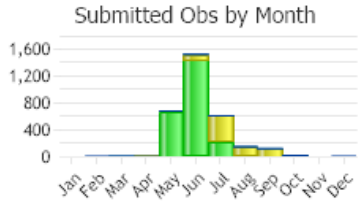
Species of Concern
Native Species
Global Rank: G5
State Rank: S3B

Agency Status
USFWS: MBTA
USFS:
BLM:
FWP SWAP: SGCN3
PIF: 3

Range Summer Migratory



 # Observations: 3137



General Description

The Green-tailed Towhee is a large, secretive sparrow of shrub-steppe habitats, spending much of its time scratching the ground to move leaf litter in search of food. Its catlike "*mew*" calls and vigorous foraging method often reveal its presence. Males sing a song of jumbled notes and trills (Dobbs et al. 2012).

For a comprehensive review of the conservation status, habitat use, and ecology of this and other Montana bird species, please see Marks et al. 2016, Birds of Montana.

Phenology

Singing males observed in suitable habitat in May. Several records of nestlings and/or fledglings in June and July. Nests with eggs observed as late as July 4, and a late observation of an adult feeding recently fledged young recorded in early September. Observations in December-February suggest this species occasionally overwinters in portions of Montana (Montana Natural Heritage Program Point Observation Database 2014).

Diagnostic Characteristics

Sexes similar in appearance, but some females show slightly duller plumage than males, especially on crown. Upperparts are olive green with gray breast, long greenish tail, and conspicuous reddish brown cap. White spot above the cheek, a white mustache, and white chin, throat, and belly contrast with gray on head and breast. Juvenile lacks contrasts, mainly brownish gray above and white below (Dobbs et al. 2012).

Habitat

Habitat selected for breeding varies with elevation, prefers species-rich shrub communities. Typically occurs along the ecotone, or edge, of sagebrush communities and other mixed-species shrub communities such as Chokecherry, snowberry, serviceberry, and mountain mahogany (Dobbs et al. 2012).

Plumbeous Vireo

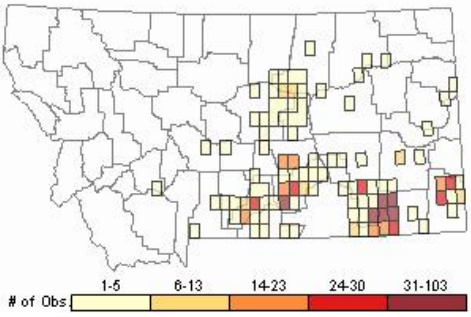
Vireo plumbeus

View in Field Guide

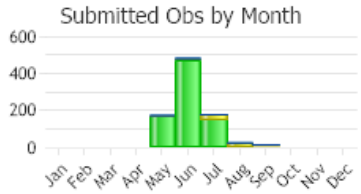
Potential Species of Concern
Native Species
Global Rank: G5
State Rank: S3S4B

Agency Status
USFWS: MBTA
USFS:
BLM:
PIF: 3

Range Summer Migratory



 # Observations: 901



General Description

Small passerine: total length 124 to 138 mm, mass 12 to 20 g. Upperparts smooth neutral gray; rump tinged olive green. Underparts near-white; sides of breast smudged pale grayish olive; flanks very pale sulfur yellow in some individuals and dull white in others. Head has broad white supraloral stripe and eye-ring, the latter interrupted by dusky loral streak. Wings and tail blackish neutral gray, with 2 broad wing-bars; outer rectrix broadly edged white. Remiges and rectrices edged pale olive gray (appearing near-white in the field) or rarely, olive yellow. Iris brown; bill black with bluish gray base; legs grayish blue. Sexes monomorphic by plumage and size. Female distinguished by a vascularized brood patch. (Goguen and Curson 2012)

For a comprehensive review of the conservation status, habitat use, and ecology of this and other Montana bird species, please see Marks et al. 2016, Birds of Montana.

Diagnostic Characteristics

Most similar to Cassin's Vireo, which is slightly smaller, greener on the back, slightly browner gray on the head, yellowish white wing-bars and undertail-coverts, and brighter, more extensively yellow flanks. The two species are not always distinguishable in the field. The Plumbeous Vireo also is similar to an accidental in Montana, the Blue-headed Vireo, which is slightly smaller and distinctly more colorful (bright olive green on the black with sulfur yellow flanks and yellowish undertail-coverts). (Goguen and Curson 2012)

Habitat

Breeds in warm, dry montane forests of pine, oak and juniper. Typical habitat in the U.S. is dominated by ponderosa pine. (Goguen and Curson 2012)

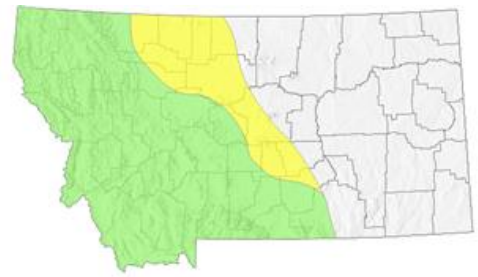
Rufous Hummingbird

Selasphorus rufus

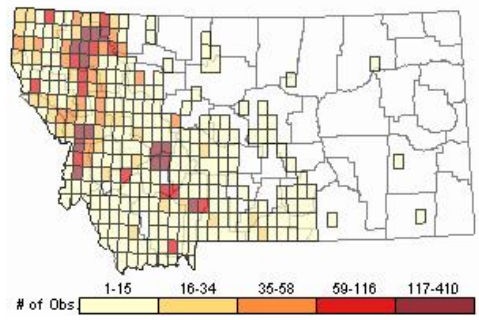
View in Field Guide

Potential Species of Concern
Native Species
Global Rank: G4
State Rank: S4B

Agency Status
USFWS: MBTA; BCC10
USFS:
BLM:
PIF: 3



Range Summer Migratory



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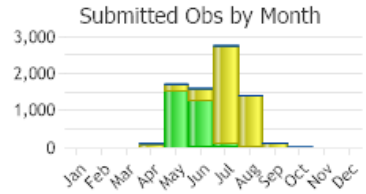


General Description

Widely known for its aggressive nature. Short-bodied, stubby and rusty in appearance. Sexually dimorphic. Male's dorsal plumage is a non-iridescent rusty red. Female and juvenile dorsal plumage is a green iridescence. Male gorget is brilliant orange-scarlet. Female throat varies from clear or streaked with bronze-green, to multiple scarlet spots or large central gorget patch of male-like colors. Male's wings emit a metallic whine. Juveniles resemble females with green iridescent backs and white-tipped rectrices. (Healy and Calder 2006)

For a comprehensive review of the conservation status, habitat use, and ecology of this and other Montana bird species, please see Marks et al. 2016, Birds of Montana.

Diagnostic Characteristics

Broad-tailed Hummingbirds are larger with broad, lengthy tails and buff or buff-and-green flanks. Calliope Hummingbirds are smaller, with shorter bills and noticeably shorter tails. Black-chinned Hummingbirds are a dull metallic bronze-green above; males have the black chin and throat that give the species its name.

Habitat

Generally cool environments. Principally secondary succession communities and openings, forested and brushy habitats of the Pacific northwest through the Gulf of Alaska coastal forests and inland to northern Rocky Mountains. Typically nests in second growth and mature forests. (Healy and Calder 2006)

Cassin's Finch

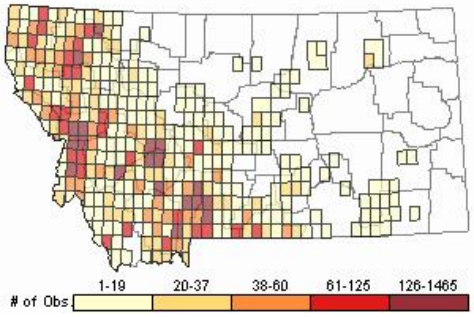
Haemorhous cassinii

View in Field Guide

Species of Concern
Native Species
Global Rank: G5
State Rank: S3

Agency Status
USFWS: MBTA; BCC10
USFS:
BLM:
FWP SWAP: SGCN3
PIF: 3

Range Year-round



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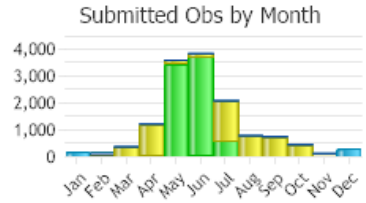


General Description

Cassin's Finch is the largest of the North American *Carpodacus* finches (includes Purple Finch and House Finch); length is 14.5-15.5 cm (5.7-6.1 inches). Adults are sexually dimorphic in plumate traits. Adult males have rose-red coloration on the head throat and upper breast, the crown is bright pinkish-red contrasting with the paler nape and back; rump and upper tail coverts are dull rose-pink and streaked with brown. The lower breast and belly appear generally whitish, the undertail coverts with fine brown streaks. Females have an overall brownsih plumage; the head has supercillium and submoustacial regions with fine brown streaks, back and rump dusky and streaked with brown, the throat, breast and flanks whitish with crisp brown streaks. Juneniles and immatures resemble females.

For a comprehensive review of the conservation status, habitat use, and ecology of this and other Montana bird species, please see Marks et al. 2016, Birds of Montana.

Diagnostic Characteristics

Male Cassin's Finch has fine streaking on the undertail coverts and flanks, in contrast to pure white of the Purple Finch. In females and immature males, breast and flanks more cleanly white and more finely streaked in Cassin’s Finch than in Purple Finch. Larger and more chunky than the House Finch. Red on male House Finch is usually brighter and oranger, not rose-red. Male Cassin's Finch is much less streaked on the lower breast and belly than male House Finch; female Cassin's Finch with a noticable supercilliary stripe lacking in female House Finches, and the breast streaking more distinct and less diffuse. Cassin's Finch the only of the three *Carpodacus* finches routinely encountered higher in the mountains.

Habitat

Cassin’s Finches occur in every major forest type and timber-harvest regime in Montana, including riparian cottonwood, but are especially common in ponderosa pine and postfire forests; they occur less often in lodgepole pine, sagebrush, and grassland (Manuwal 1983, Hutto and Young 1999). They often visit bird feeders and occasionally venture into alpine terrain (Johnson 1966, Pattie and Verbeek 1966).

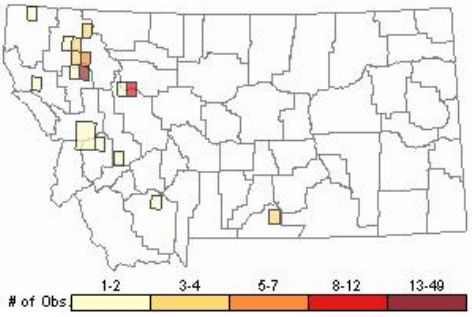
Giant Helleborine

Epipactis gigantea

View in Field Guide

Species of Concern
Native Species
Global Rank: G4
State Rank: S2S3

Agency Status
USFWS:
USFS: SENSITIVE
BLM:
MNPS Threat Rank: 2
C-value: 8



 # Observations: 93

General Description

PLANTS: Perennial herbs with leafy stems that are 30-120 cm tall and which arise from short rhizomes to form colonies. Source: Lesica et al. 2012.

LEAVES: The leaves are cauline, without petioles clasping the stem, and up to 20 cm long. Lower leaves are ovate while the upper are lance-shaped. The herbage is rough to the touch or smooth and glabrous. Source: Lesica et al. 2012.

INFLORESCENCE: A long, narrow, 4-10 flowered, leafy-bracted raceme located at the tops of the stems. Flowers are bilaterally symmetrical with long green sepals and shorter, broader, reddish petals. Source: Lesica et al. 2012.

The specific epithet *gigantea* translates directly to the common name "giant" and refers to the large size of the species when compared to other species in the genus. *Epipactis* is derived from the ancient Greek word *epipaktis* which was the common name for hellebore, a genus in the Ranunculaceae family that bears some similarities to *Epipactis* species (Giblin et al. [eds.] 2018).

Phenology

Range wide, *Epipactis gigantea* flowers anywhere from March through August (Brown et al. 2002). The flowering period of cooler climates may not begin until mid-June (Rocchio et al. 2006).

Diagnostic Characteristics

Montana has two species of *Epipactis*, one native, *E. gigantea*, and one non-native, *E. helleborine*. Both species are perennial herbs with bilaterally symmetrical flowers borne in leafy-bracted terminal racemes.

Giant Helleborine - *Epipactis gigantea*, native, SOC
*Size: Mature plants are 30-120 cm tall.
*Leaves: Lanceolate to elliptic blades that are 6-15 cm long.
*Sepals: Green with obvious brown veins. Lateral sepals are 12-24 mm long.
*Petals: Lateral petals 13-15 mm long, ovate, and pinkish.
*Lip: Lip petal 14-20 mm long, concave, and grooved on the tip (lobed). Petal is orangish-yellow with a saccate portion that is purplish veined.
*Fruit: An ovoid to ellipsoid capsule, glabrate, that is 2-3 cm long.

Eastern Helleborine - *Epipactis helleborine*, exotic
*Size: Mature plants are 20-100 cm tall.
*Leaves: Lanceolate to ovate blades that are 6-10 cm long.
*Sepals: Green with no or very faint brown veins. Lateral sepals are 6-13 mm long.

*Petals: Lateral petals 8-11 mm long, ovate, and pinkish.
*Lip: Lip petal 9-12 mm long, pouch-like, and not grooved on the tip (not lobed). Petal is purplish-green with saccate portion that is purplish and indistinctly veined.
*Fruit: An ellipsoid capsule that is 9-14 mm long.

Habitat

Giant Helleborine prefers saturated, calcareous soil of often warm seeps and springs where the ground doesn't freeze hard, in valleys (Lesica et al. 2012).

Preferred habitat includes hot springs and lake shores (Mehrhoff 1978).

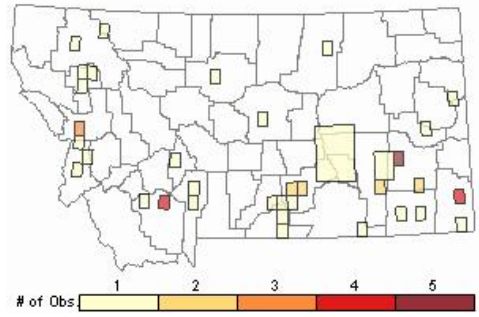
Yellow-billed Cuckoo

Coccyzus americanus

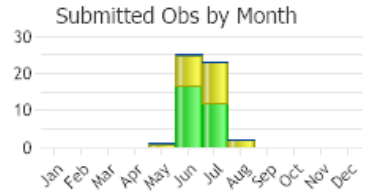
View in Field Guide

Species of Concern
Native Species
Global Rank: G5
State Rank: S3B

Agency Status
USFWS: PS: LT; MBTA
USFS:
BLM: THREATENED
FWP SWAP: SGCN3, SGIN
PIF: 2



 # Observations: 52



General Description

A slender bird with a long, distinctly patterned tail and white throat and breast. The back and head of the Yellow-billed Cuckoo are a plain grayish-brown. Consistent with its common name, the stout, somewhat curved bill is primarily yellow (the upper mandible is mostly black, with some yellow, while the lower mandible is yellow in its entirety). The boldly white and black patterned outer tail feathers, or rectrices, which from underneath give the appearance of 6 large white spots, can generally be observed during perching and in flight. The rufous primary feathers of this cuckoo are largely only visible in flight. The bird is generally 26 to 30 cm in length and weighs an average 55 to 65 grams (Hughes 1999). Females are slightly larger than males. The feet of the Yellow-billed Cuckoo are similar to that of the woodpeckers; they are zygodactylous; the two outer toes point backward while the two inner toes point forward (Hughes 1999).

For a comprehensive review of the conservation status, habitat use, and ecology of this and other Montana bird species, please see Marks et al. 2016, Birds of Montana.

Diagnostic Characteristics

Characteristics of the Black-billed Cuckoo (*C. erythropthalmus*), may cause some uncertainty in identification. In addition to a completely black bill, however, the Black-billed Cuckoo has a buffy throat, small distinct white tips on the rectrices (not large and obvious as on the Yellow-billed Cuckoo), little to no rufous on the wings, and a red orbital ring around the eyes. The juveniles are more easily confused (see Hughes 1999, for a comparative description of juvenile birds).

Habitat

Throughout their range, preferred breeding habitat includes open woodland (especially where undergrowth is thick), parks, and deciduous riparian woodland. In the West, they nest in tall cottonwood and willow riparian woodlands. Nests are found in trees, shrubs or vines, an average of 1 to 3 meters above ground (Harrison 1979). Western subspecies require patches of at least 10 hectares (25 acres) of dense, riparian forest with a canopy cover of at least 50 percent in both the understory and overstory. Nests are typically found in mature willows (Biosystems Analysis, Inc. 1989). This bird is rarely found at higher elevations (Johnsgard 1986).

Canada Lynx

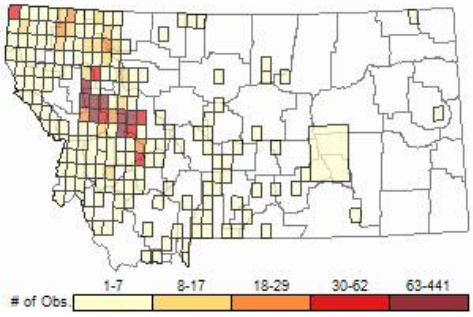
Lynx canadensis

View in Field Guide

Species of Concern
Native Species
Global Rank: G5
State Rank: S3

Agency Status
USFWS: LT; CH
USFS:
BLM: THREATENED
FWP SWAP: SGCN3

Range Native



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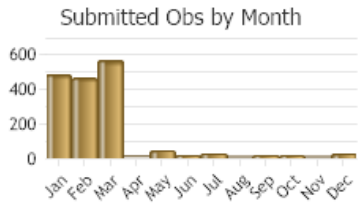


General Description

The Canada Lynx is a medium-sized cat (about 10 kilograms for males and 8 kilograms for females) with silver-gray to grayish-brown upperparts and a white belly and throat. Lynx have long legs and a relatively short, compact body. The total length averages approximately 92.5 centimeters for males and 89.5 centimeters for females (Foresman 2012). A facial ruff surrounds the face except directly beneath the snout. The facial ruff is longest on either side of the snout and has black markings on these longest hairs. The ears are 70 to 80 millimeters long and have a long, 30 millimeters black tuft at the end. The backs of the ears are darker than the rest of the body and have a central white spot. The feet are large and round (10 x 10 centimeters) and heavily furred (Foresman 2012). The tail is short and the tip is entirely black.

Diagnostic Characteristics

Canada Lynx are most similar to Bobcats, but differ in many respects. At a distance, Canada Lynx appear leggier and are grayer in color, with less distinctive spotting (Foresman 2012). Canada Lynx have much larger feet and longer ear tufts. In addition, the entire tail tip is black in Canada Lynx whereas in Bobcats the underside of the tail tip is white (Foresman 2012) and the back of the hind legs is black on Bobcats and a light beige color on Canada Lynx. Immature Mountain Lions may be superficially similar to Canada Lynx but have a much longer tail and body.

Habitat

Canada Lynx west of the Continental Divide generally occur in subalpine forests between 1,220 and 2,150 meters in stands composed of pure lodgepole pine but also mixed stands of subalpine fir, lodgepole pine, Douglas-fir, grand fir, western larch and hardwoods (Ruediger et al. 2000). In extreme northwestern Montana, primary vegetation may include cedar-hemlock habitat types (Ruediger et al. 2000). East of the Continental Divide the subalpine forests inhabited by Canada Lynx occur at higher elevations (1,650 to 2,400 meters) and are composed mostly of subalpine fir. Secondary habitat is intermixed Englemann spruce and Douglas-fir habitat types where lodgepole pine is a major seral species (Ruediger et al. 2000). Throughout their range, shrub-steppe habitats may provide important linkage habitat between the primary habitat types described above (Reudiger et al. 2000). Typical snow conditions are important factors for Canada Lynx, with occurrence primarily in habitats that also receive relatively uniform and moderately deep snowfall amounts (total annual snowfall of 100 to 127 centimeters) (Kelsall et al. 1977). Within these habitat types, disturbances that create early successional stages such as fire, insect infestations, and timber harvest, provide foraging habitat for lynx by creating forage and cover for Snowshoe Hares, although older forests also provide habitats for Snowshoe Hares and Canada Lynx for longer periods of time than disturbance-created habitats (Ruediger et al. 2000).

Canada Lynx avoid large openings but often hunt along edges in areas of dense cover (Ruediger et al. 2000). When inactive or birthing, they occupy dens typically in hollow trees, under stumps, or in thick brush. Den sites tend to be in mature or old-growth stands with a high density of logs (Koehler 1990, Koehler and Brittell 1990). These habitats must be near or adjacent to foraging habitat because the hunting range of the female is reduced

during this time (Ruediger et al. 2000).

In the South Fork Flathead, Canada Lynx were mostly located in fire-created, densely stocked young stands of lodgepole pine where Snowshoe Hares were most abundant. No locations in open or semi-open areas were observed (Koehler at al. 1979). In the Garnet Range, most were found in subalpine fir forest (Smith 1984). Denning sites are found in mature and old-growth lodgepole pine, spruce, and subalpine fir forests with a high density of logs (Koehler 1990, Koehler and Brittell 1990). Denning stands need not be large (1 to 3 hectares) but several stands should be interconnected (Koehler and Brittell 1990). Canada Lynx require cover for stalking and security, and usually do not cross openings wider than 100 meters (Koehler and Brittell 1990).

Wolverine

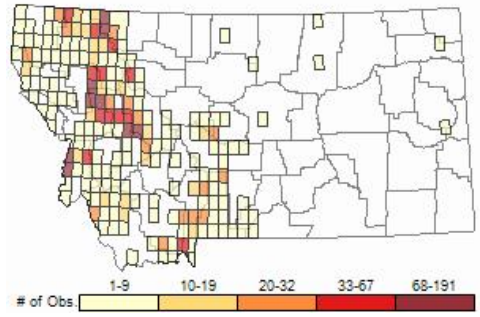
Gulo gulo

View in Field Guide

Species of Concern
Native Species
Global Rank: G4
State Rank: S3

Agency Status
USFWS:
USFS: Sensitive
BLM: SENSITIVE
FWP SWAP: SGCN3

Range Native



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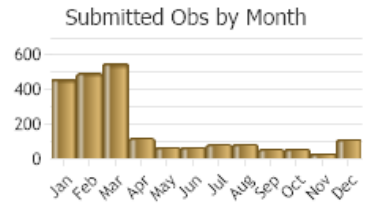


General Description

The Wolverine is a bear-like mustelid with massive limbs and long, dense, dark brown pelage, paler on the head, with two broad yellowish stripes extending from the shoulders and joining on the rump. Variable white or yellowish markings are often present on the throat and chest. The tail is bushy. The feet are relatively large (6.5 to 11.3 centimeters total length) with robust claws. Wolverines weigh between 7 and 32 kilograms and range from 0.9 to 1.1 meters in length. Females average about 10% less than males in linear measurements and 30% less in mass (Ingles 1965, Hall 1981, Nowak 1991).

Diagnostic Characteristics

Wolverines are most similar to Fishers (*Martes pennanti*) but are nearly twice as large. Fishers also lack the light colored lateral markings of the Wolverine and the tail is less bushy. Badgers have shorter legs and are much lighter colored with a distinctive black and white pattern on the face.

Habitat

Wolverines are limited to alpine tundra, and boreal and mountain forests (primarily coniferous) in the western mountains, especially large wilderness areas. However, dispersing individuals have been found far outside of usual habitats. They are usually in areas with snow on the ground in winter. Riparian areas may be important winter habitat. When inactive, Wolverines occupy dens in caves, rock crevices, under fallen trees, in thickets, or similar sites. Wolverines are primarily terrestrial but may climb trees.

In Montana, Hornocker and Hash (1981) found most Wolverine use in medium to scattered timber, while areas of dense, young timber were used least. Wolverines avoided clearcuts and burns, crossing them rapidly and directly when they were entered at all. Hash (1987) reported Wolverines in the Northern Rocky Mountain region were associated with fir, pine, and larch. Aspen stands were also used, as were cottonwoods in riparian areas. Ecotonal areas appeared to be important habitat components (Hash 1987). Hatler (1989) believed Wolverines are not dependant on any particular vegetative habitat type. Banci (1986) reported "habitat requirements appear to be large, isolated tracts of wilderness supporting a diverse prey base, rather than specific plant associations or topography." South of the boreal forest, most habitat descriptions in the literature agree with Grove's (1988) characterization of "large, mountainous, and essentially roadless areas."

Sprague's Pipit

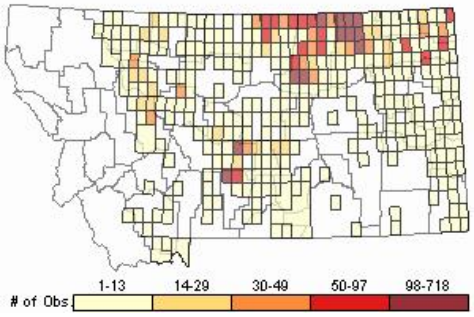
Anthus spragueii

View in Field Guide

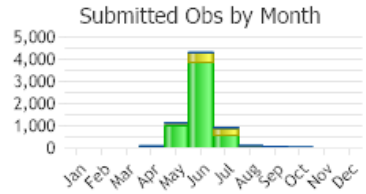
Species of Concern
Native Species
Global Rank: G3G4
State Rank: S3B

Agency Status
USFWS: MBTA; BCC11; BCC17
USFS:
BLM: SENSITIVE
FWP SWAP: SGCN3
PIF: 1

Range Summer Migratory



 # Observations: 6455



General Description

The adult Sprague's Pipit is a pale, slender, sparrow-sized bird with white outer tail feathers, a thin bill, pale legs, and a heavily streaked back. Adults reach a length of 6.5 inches (16.5 cm), with a wingspan of 10 inches (25.4 cm), and a weight of 23.7 to 24.0 grams. The sexes are alike. The sides of the head and indistinct buffy eye-rings are pale. The lores contrast with dark brown eyes and the ear coverts are plain brownish-buff, usually with a slight reddish tinge. The crown, sides and rear of neck are buffy with sharply defined black streaks. The back is light sandy-brown with broad black streaks, with a paler more prominent buffy stripe down each side. The wings, 7.7 to 8.5 cm long, have blackish-brown feathers with whitish to buffy-brown edging, and two whitish wing bars. The rump and upper tail coverts, paler than the back, are sandy-brown with narrow black streaks. The blackish-brown feathers of the tail have buffy edging and the outer two pairs of feathers are white. The breast is a bright dark buff with a necklace of narrow black streaks. The flanks are brownish-buff and without streaks. The legs of the adults are pale brown, flesh or yellowish-brown, while they are pinkish in the juveniles (Godfrey 1966, Maher 1979, King 1981, Robbins and Dale 1999).

On the ground, the bird is extremely secretive and flies away in a long, undulating flight when approached. It walks instead of hops and usually only lands on the ground. The bird is most easily detected by its unique flight song given high overhead (as high as 75 meters); a high-pitched, thin "jingling" sound that can continue for as long as an hour (Peterson 2002, King 1981). Johnsgard (1992) notes that the species' spectacular circular song-flight display around its territory, during which its white outer tail feathers are conspicuously spread, compensates for its particularly inconspicuous plumage.

For a comprehensive review of the conservation status, habitat use, and ecology of this and other Montana bird species, please see Marks et al. 2016, Birds of Montana.

Diagnostic Characteristics

The buffy-brown back with blackish streaking, white wing bars, dark streaked crown, and pale legs distinguish this pipit from the American Pipit, the other species with whom its plumage is most similar (Robbins and Dale 1999, Sibley 2000). Additional characteristics identifying Sprague's Pipit include pale buffy to whitish ear coverts, extensive white on the outer tail feathers, a pale lower mandible, a darker upper mandible, and a diagnostic single-syllable, squeaky, quick call (Robbins and Dale 1999, Sibley 2000). While the Sprague's Pipit is a species of the prairie, the American Pipit typically favors wetter areas and perches more conspicuously (on fences, telephone wires, and treetops) than the Sprague's Pipit (Robbins and Dale 1999).

Habitat

An endemic grassland bird, the Sprague's Pipit prefers native, medium to intermediate height prairie (Casey 2000) and in a short grass prairie landscape, can often be found in areas with taller grasses (Samson and Knopf 1996). The Sprague's Pipit is significantly more abundant in native prairie than in exotic vegetation (Dechant et

al. 2001). Dechant (2001) also notes that the species has been shown to be area sensitive, requiring relatively large areas of appropriate habitat; the minimum area requirement in a Saskatchewan study was 190 hectares (470 acres). This pipit is also known to utilize and breed in alkaline meadows and around the edges of alkaline lakes (Johnsgard 1992).