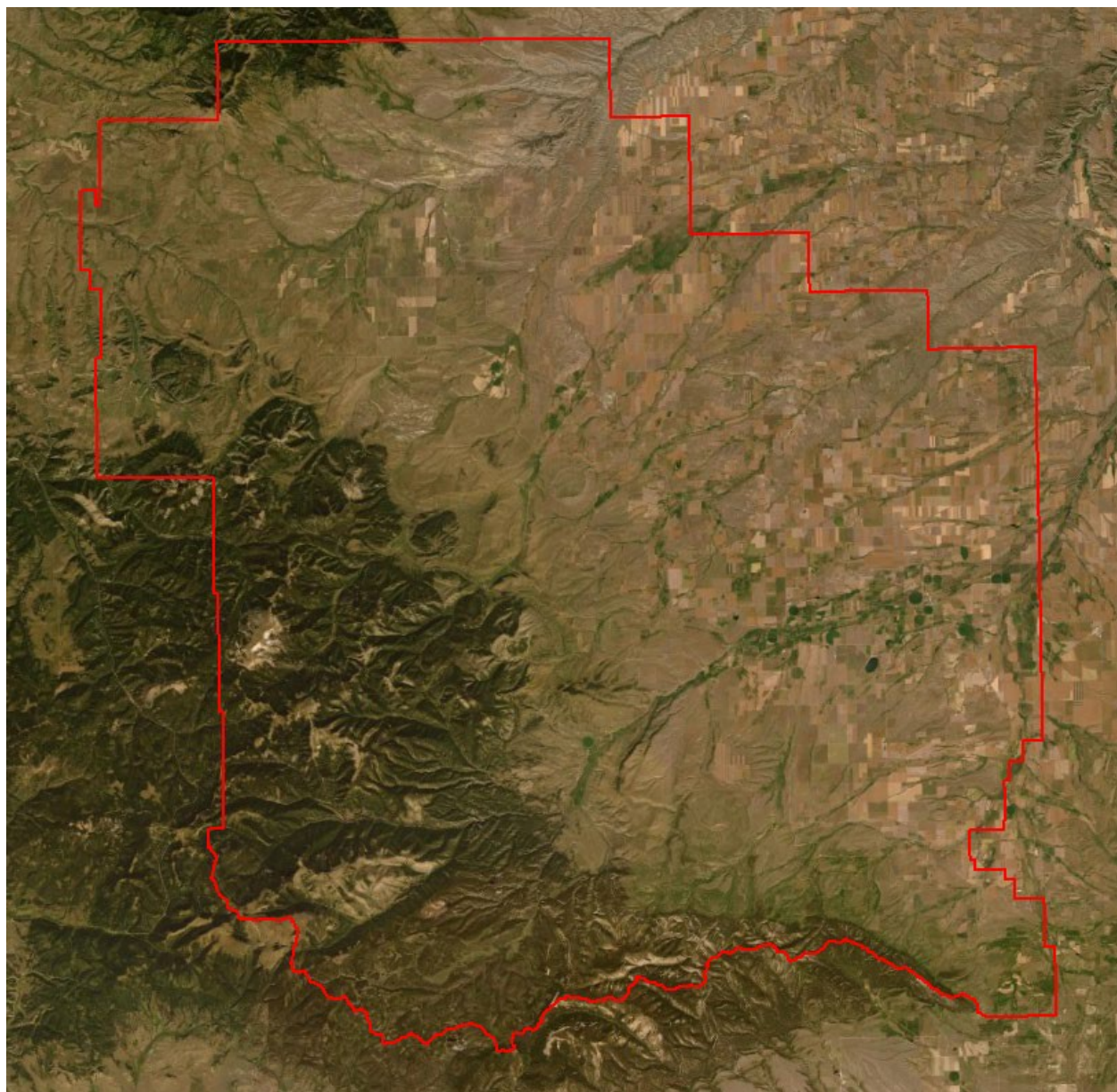


Judith Basin County, Montana Long Range Plan



Completed in co-operation with the Judith Basin Conservation District and Local Work Group - 2020

Section 1: Introduction

The purpose of the Judith Basin County Long Range Plan (JBLRP) is to create a working document that identifies natural resource issues throughout the county. This plan will provide guidance to the Stanford Natural Resources Conservation Service (NRCS) field office, partners and producers to develop strategies to address the identified issues.

The development of this document is based on information provided by producers and partners during Local Work Group (LWG) meetings and will be reviewed and modified annually (at a minimum). Attendees of the 2019 LWG included: Judith Basin County Road/Weed Supervisor, Farm Service Agency, MSU Central Ag Research Center – Moccasin, Judith Basin Conservation District, local producers, and NRCS staff.

Vision

Work cooperatively with partners and producers in Judith Basin County to address natural resource issues through Montana Focused Conservation and Targeted Implementation Plans, and to assist agriculture operators to continue and/or increase stewardship of the land.

Mission

Helping People Help the Land

Potential Partners

Judith Basin Conservation District (JBCD)
Judith Basin Farm Service Agency (FSA)
MSU Extension Service – Judith Basin
Montana Salinity Control Association (MSCA)
Judith Basin County Commissioners
MSU Central Ag Research Center – Moccasin (CARC)
Judith Basin County Road/Weed Supervisor
Montana Fish, Wildlife & Parks (FWP)
Pheasants Forever
Montana Department of Natural Resources & Conservation (DNRC)
US Forest Service

Time Frame

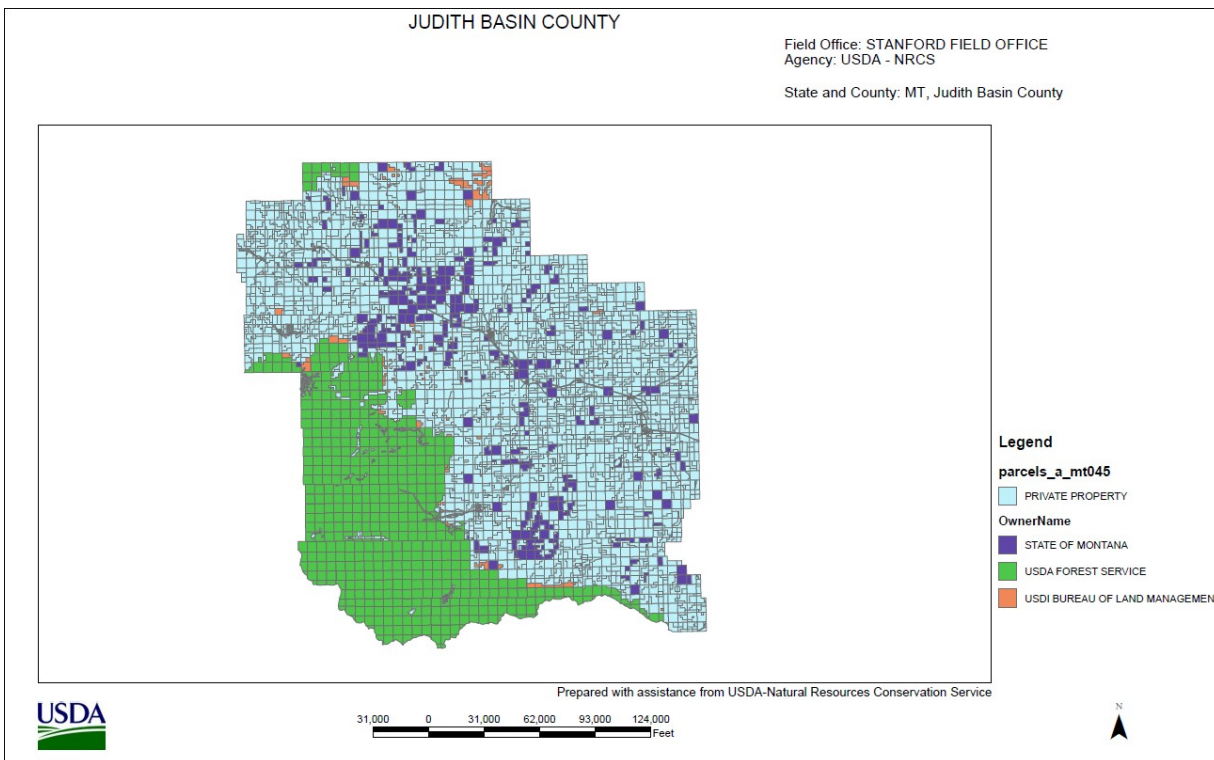
This long-range plan is for 5 years (2020-2024). The plan will be reviewed annually and amended as needed.

Section 2: Natural Resource Inventory

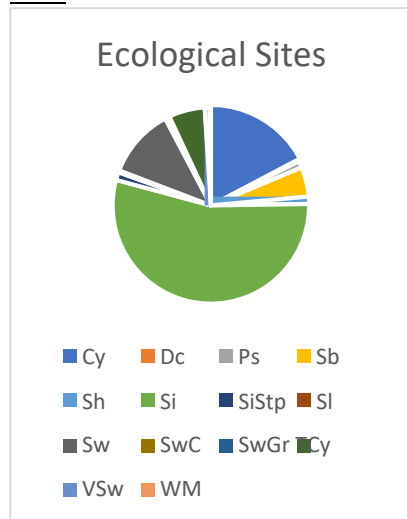
Judith Basin County is a basin located in central Montana between the Highwood, Big Snowy, Judith and Little Belt mountain ranges. The Lewis and Clark National Forest in both the northern and southern areas of the county offer a variety of recreation. The county was formed from area taken from western Fergus County and eastern Cascade County on December 10, 1920 with the county seat being Stanford. Legendary Western artist Charlie Russell was inspired by the landscape of the area, which is captured in his art. Highway 87 from Lewistown to Great Falls is known as the Charlie Russell Trail. In 1895, Yogo sapphires were discovered at Yogo Gulch southwest of Utica. The homesteading boom from 1908 to 1915, along with the extension of the Great Northern Railroad played an important role in the development of this area. In 1908, the Montana State Legislature created the Central Montana Agriculture Research Center (CARC), 3 miles east of Moccasin. The purpose of the CARC was to teach dry land farming techniques to the newly arrived homesteaders. Today, the CARC has 600 acres, and serves specific needs of Montana agriculture through research directed at the problems and impacts of agricultural production.

Human

Judith Basin county was founded on agriculture, and this remains the primary economic driver today. There are 1,197,440 acres in the county and 1 square mile of water. Of this, there are 296,333 acres of cropland and 601,647 acres of grazing land. The county is comprised of private land, state land, Bureau of Land Management, and 299,520 acres of US Forest Service. The majority of farmland acreage is dryland with some acres of irrigation. The population of Judith Basin county is 1,940 with an average age of 51¹. There are 357 farms, and the average farm size is 2,409 acres². Crops grown in the county include winter wheat, spring wheat, barley, dry peas, alfalfa and grass hay.



Soils



Judith Basin County is primarily silty and clayey ecological sites, and most cropped soils in the county are considered Highly Erodible Land with wind erosion being the prominent concern. Saline seeps are a concern in some areas of the county. Saline seeps reduce soil quality, production ability, and can negatively affect water quality. The Judith River Watershed does have a higher amount of gravelly soils compared to other parts of the county. Overall soil health is impacted due to primarily monoculture crops in rotation with chemical fallow.

Elevation levels within the county range from 2,949 feet to 8,658 feet.

Prime and other important farmland is located throughout the county, primarily in deeper soils. According to the Judith Basin soil survey, organic matter depletion is moderate to high throughout the county on cropped soils.

Water

Judith Basin is home to many perennial and intermittent streams, including the Judith River. Ackley Lake State Park is located south west of Hobson, MT and provides public recreation to the area. Historical data for the county indicates 0.8 -1 square mile of water within the county boundary. Average annual precipitation varies widely throughout the county with a range from 12 inches to as high as 34 inches³ in the south west mountain range.

Montana DEQ has identified Impaired Waters within the Arrow and Judith 8-digit HUC areas. There are 2 reaches within Arrow and 12 reaches within the Judith HUCs. Causes for these impairments include but are not limited to alteration in stream-side vegetation, sedimentation, salinity, nitrate/nitrite, and total dissolved solids.



Appendix A: Impaired Waters

HUC: 10040102 Arrow

Watershed: Fort Peck Lake

TMDL Planning Area	ID305B	Waterbody Name/Location	Category	Size	Units	Use Class	Beneficial Use				Cause Name*	Source Name*
							AqL	Ag	DW	Rec		
Judith - Arrow	MT41R001_010	COFFEE CREEK, headwaters to mouth (Arrow Creek)	5	52.13	MILES	C-3	N	-	-	F	Nitrate/Nitrite (Nitrite + Nitrate as N)	Animal Feeding Operations (NPS)
											Selenium	Crop Production (Crop Land or Dry Land)
											Total Dissolved Solids (TDS)	Natural Sources
Judith - Arrow	MT41R001_020	ARROW Creek (Missouri River)	5	69.7	MILES	C-3	N	-	-	N	Iron	Natural Sources



Appendix A: Impaired Waters

HUC: 10040103 Judith

Watershed: Fort Peck Lake

TMDL Planning Area	ID305B	Waterbody Name/Location	Category	Size	Units	Use Class	Beneficial Use				Cause Name*	Source Name*
							AqL	Ag	DW	Rec		
Judith - Arrow	MT41S002_070	ROSS FORK JUDITH RIVER, headwaters to mouth (Judith River)	5	64.23	MILES	B-1	N	F	N	F	Alteration in stream-side or littoral vegetative covers Biochemical oxygen demand (BOD) Nitrate/Nitrite (Nitrite + Nitrate as N) Sedimentation/Siltation	Channelization Confined Animal Feeding Operations -CAFOS (Point Source) Natural Sources
Judith - Arrow	MT41S002_080	SOUTH FORK JUDITH RIVER, headwaters to mouth	5	21.16	MILES	B-1	N	-	-	N	Iron	Forest Roads (Road Construction and Use) Grazing in Riparian or Shoreline Zones Site Clearance (Land Development or Redevelopment)
Judith - Arrow	MT41S002_100	LAST CHANCE CREEK, headwaters to mouth (Moccasin Creek)	5	6.17	MILES	C-3	N	-	-	X	Cyanide Iron Selenium Thallium	Acid Mine Drainage Impacts from Abandoned Mine Lands (Inactive) Mine Tailings
Big Springs	MT41S004_010	BIG SPRING CREEK, East Fork Big Spring Creek to Casino Creek	4A	6.24	MILES	B-1	N	F	F	N	Polychlorinated Biphenyls (PCBs)	Aquaculture (Permitted) Contaminated Sediments
Big Springs	MT41S004_020	BIG SPRING CREEK, confluence of Casino Creek to mouth (Judith River)	4A	24.9	MILES	B-1	N	F	F	N	Alteration in stream-side or littoral vegetative covers Phosphorus, Total Polychlorinated Biphenyls (PCBs) Sedimentation/Siltation	Agriculture Aquaculture (Permitted) Channelization Contaminated Sediments Dam or Impoundment Grazing in Riparian or Shoreline Zones Loss of Riparian Habitat Streambank Modifications/destabilization Unspecified Urban Stormwater
Big Springs	MT41S004_040	CASINO CREEK, headwaters to mouth (Big Spring Creek)	5	13.56	MILES	B-1	N	F	F	N	Alteration in stream-side or littoral vegetative covers Chlorophyll-a Nitrogen, Total Phosphorus, Total	Animal Feeding Operations (NPS) Grazing in Riparian or Shoreline Zones Loss of Riparian Habitat Site Clearance (Land Development or Redevelopment)

AqL=Aquatic Life; **Ag**=Agriculture; **DW**=Drinking Water; **Rec**=Primary Contact Recreation

F=Fully Supporting; **T**=Threatened; **N**=Not Fully Supporting; **I**=Insufficient Information; **X**=Not Assessed; - = Beneficial Use Not Assigned

* The impairment cause and source names in this appendix are listed alphabetically. There is no implied relationship between the listed causes and sources. See individual assessment reports for details.



Appendix A: Impaired Waters

HUC: 10040103 Judith

Watershed: Fort Peck Lake

TMDL Planning Area	ID305B	Waterbody Name/Location	Category	Size	Units	Use Class	Beneficial Use				Cause Name*	Source Name*
							AqL	Ag	DW	Rec		
Judith - Arrow	MT415001_010	JUDITH RIVER, Big Spring Creek to mouth (Missouri River)	4C	72.02	MILES	B-2	N	F	F	X	Alteration in stream-side or littoral vegetative covers Physical substrate habitat alterations	Agriculture Grazing in Riparian or Shoreline Zones Loss of Riparian Habitat Rangeland Grazing
Judith - Arrow	MT415001_020	JUDITH RIVER, Ross Fork to Big Spring Creek	5	16.15	MILES	B-1	N	F	X	N	Alteration in stream-side or littoral vegetative covers Nitrate/Nitrite (Nitrite + Nitrate as N) Physical substrate habitat alterations Sedimentation/Siltation	Animal Feeding Operations (NPS) Grazing in Riparian or Shoreline Zones Loss of Riparian Habitat Natural Sources Source Unknown
Judith - Arrow	MT415002_010	DRY WOLF CREEK, headwaters to mouth (Wolf Creek)	5	34.55	MILES	C-3	N	-	-	X	Alteration in stream-side or littoral vegetative covers Nitrate/Nitrite (Nitrite + Nitrate as N) Nitrogen, Total Phosphorus, Total Salinity	Crop Production (Non-Irrigated) Grazing in Riparian or Shoreline Zones
Judith - Arrow	MT415002_020	WOLF CREEK, Dry Wolf Creek to mouth (Judith River)	5	45.29	MILES	C-3	N	-	-	F	Iron Selenium Total Dissolved Solids (TDS)	Crop Production (Crop Land or Dry Land) Crop Production with Subsurface Drainage Natural Sources Source Unknown
Judith - Arrow	MT415002_030	WARM SPRING CREEK, 5 miles upstream to mouth (Judith River)	5	10.74	MILES	C-3	N	X	X	X	Alteration in stream-side or littoral vegetative covers Nitrogen, Total Other anthropogenic substrate alterations Phosphorus, Total Sedimentation/Siltation	Agriculture Grazing in Riparian or Shoreline Zones Streambank Modifications/destabilization
Judith - Arrow	MT415002_050	SAGE CREEK, headwaters to mouth (Judith River)	5	70.08	MILES	C-3	N	-	-	F	Iron Nitrate/Nitrite (Nitrite + Nitrate as N) Nitrogen, Total	Animal Feeding Operations (NPS) Natural Sources Source Unknown

AqL=Aquatic Life; Ag=Agriculture; DW=Drinking Water; Rec=Primary Contact Recreation

F=Fully Supporting; T=Threatened; N=Not Fully Supporting; I=Insufficient Information; X=Not Assessed; - = Beneficial Use Not Assigned

* The impairment cause and source names in this appendix are listed alphabetically. There is no implied relationship between the listed causes and sources. See individual assessment reports for details.

The Judith River Watershed does have a higher number of shallow aquifers and gravelly soils. Due to this combination, unknown sources and current monoculture cropping systems, levels of nitrate are increasing in ground water.

See Research Result references to Judith River Watershed Nitrogen Project.

Domestic and livestock water is primarily supplied by water wells. Water well depths within the county range from 100 feet to 2000 feet in depth. Areas of the county are limited on availability of livestock water which in turn impacts grazing land health.

Air and Energy

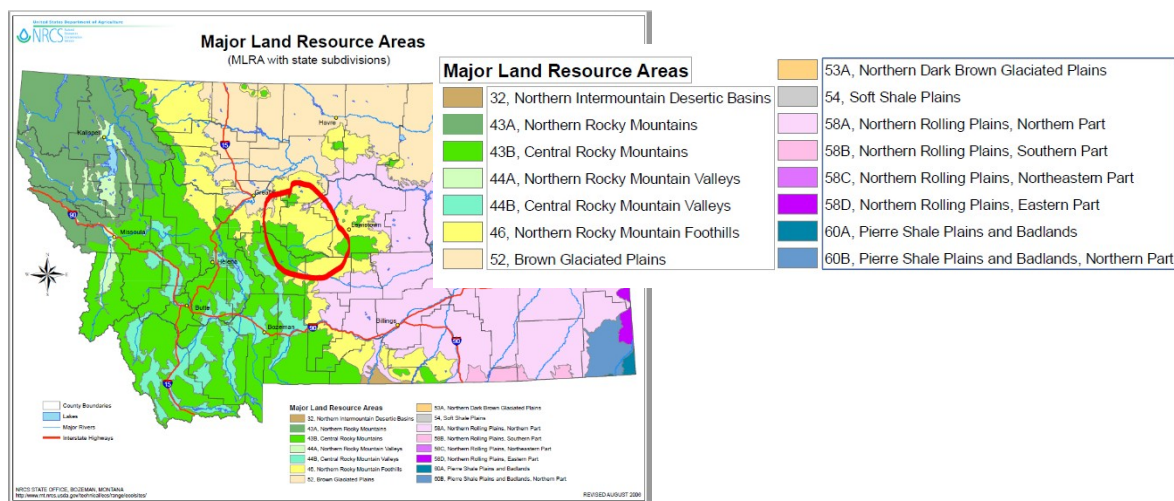
Judith Basin has no air quality concerns identified by DEQ. There are some confined animal facilities located throughout the county that infrequently have odor complaints from neighbors.

Spion Kop Project is a 25 Turbine wind farm located in North West Judith Basin County. This project has a total rated capacity of 40 MW. South Peak Wind Project was completed in late 2019 with 30 Turbines and a total rated capacity of 80 MW. It is located Northwest of Geyser and is adjacent to the Spion Kop Wind farm. It delivers energy via a direct connection to North Western's transmission grid that is in place for the Spion Kop Project.

Plants

Judith Basin county was founded on agriculture, and this remains the primary economic driver today. Judith Basin ranks 26th in the state for market value of crop products sold.² Forage for hay and winter wheat are the mainstay crops grown in the county. With increased exposure to the importance of soil health and diversity in cropping rotations, cover crops are becoming more popular throughout the county during the fallow year. Typical cropland rotation for the county is crop/fallow (mostly chemical fallow) with some re-cropping rotations. In the last 5 years, there has been an increase in fallow tillage due to chemical resistance in weed control. Annual weeds commonly found in cropland are kochia, Russian thistle, cheatgrass, and other broadleaf annuals.

Grazing land constitutes the largest single land use in the county, at 65% of the land². Judith Basin County is comprised of 43B, Central Rocky Mountains and 46, Northern Rocky Mountain Foothills for the Major Land Resource Areas (MLRA). MLRA 46 contains most of the non-forested grazing land in the county. Native range is composed primarily of western wheatgrass, green needlegrass, needle and thread, prairie June grass, and Sandberg bluegrass. Landowners have been working to improve grazing land health both on their own and with cost share through NRCS. These improvements will continue and are well accepted throughout the county. In portions of the county, availability of livestock water impacts producer's ability to properly manage grazing land. (See Land Cover in Appendix)



Weeds are of high importance to producers and the public throughout the county. Noxious weeds found in Judith Basin include Canada thistle, knapweed, leafy spurge, toadflax, yellow mignonette, and whitetop. Control efforts are in place for these weeds, but more management is needed to keep these noxious weeds from claiming viable grazing land and crop land.

Salinity issues not only affect water quality, but impact both crop land and grazing land productivity. Some areas of salinity concern are natural forming, but proper management of crop land can positively affect the impacts of saline seep caused from farming practices.

Increased flooding has been noted in some watersheds around the county during spring run-off. Affects from flooding increases soil erosion, standing water in fields, and saline seeps.

The Montana Natural Heritage Program (MTNHP) Plant Species of Concern Report last updated on October 31, 2019 lists 8 plant species of concern for Judith Basin County. The MTNHP describes species of concern as native taxa that are at-risk due to declining population trends, threats to their habitats, restricted distribution, and/or other factors. (See table in Appendix)

Animals

Judith Basin County is ranked 8th in the state for livestock, poultry and products sales. Of this, cattle and calves' sales are number one for the county². Other domestic animals found in the county include pigs, sheep, goats, and horses. There are some confined animal operations located in the county which could pose a risk to surface water quality if mis-managed.

Wildlife

Wildlife is abundant and species vary widely throughout the county due to the diversity of habitats from grassland to foothills and mountains. Species found within the county include, but are not limited to, deer, elk, antelope, coyotes, fox, badgers, turkey, black bear, beavers, bobcats, and mountain lions.

The Judith River Wildlife Management Area south of Utica covers 9,408 acres and offers prime habitat for wintering elk and other game.

Judith Basin County is in Region 4 WCT Distribution/restoration Focal Area in FWP Region 4 (Great Falls)

This Focal Area is spread across a large area and includes mostly intact habitat throughout the entire range of the WCT conservation population within Region 4. Northern redbelly dace are also found within portions of this Focal Area.

Because this area is spread throughout the Region, impacts, values, partnerships, etc. vary between populations and makes working in this Focal Area challenging. However, partnerships are generally good across this area and include federal and state agencies, Tribal government, NGOs, and private landowners. The protections vary from none (e.g., private land) to significant (Beartooth WMA). The opportunity for restoration varies, but many populations currently are expanding and there is much potential for continued expansion across this Focal Area. Though angler use is not consistent throughout, the area does receive high use and tends to be a popular native sport fish fishery. Current impacts include dewatering, competition with non-native species, mining impacts, water temperature changes, and incompatible grazing practices. Future threats include continued dewatering, mining, increases in water temperature, and incompatible grazing practices; hybridization with non-native species; catastrophic events (e.g., fire) causing extirpation of small populations; and climate change impacts on temperature and precipitation timing and amount.

Associated CTGCN

Intermountain Valley River
Intermountain Valley Stream
Mountain Stream
Prairie River
Prairie Stream

Associated SGCN

Northern Redbelly Dace
Westslope Cutthroat Trout

The MTNHP Animal Species of Concern Report last updated on October 31, 2019 lists 34 animal species of concern for Judith Basin County.⁵ The MTNHP describes species of concern as native taxa that are at-risk due to declining population trends, threats to their habitats, restricted distribution, and/or other factors. (See table in appendix)

The U.S. Fish and Wildlife Service's Endangered, Threatened, Proposed and Candidate Species list dated December 12, 2019 identifies four species for Judith Basin County: Canada lynx (threatened), grizzly bear (threatened), wolverine (proposed) and whitebark pine (candidate). (See table in appendix)

Section 3: Conservation Activity Analysis

NRCS:

In the past 5 years, the NRCS office in Stanford has addressed resource concerns on cropland, grazing land, and wildlife habitat through Conservation Technical Assistance (CTA), Environmental Quality Incentives Program (EQIP), and the Conservation Stewardship Program (CSP).

Cover crop, crop rotation, and nutrient management practices have been implemented to address individual issues with soil health and proper use of nutrients. Soil erosion and overall soil health are an ongoing resource concern within the county. The use of cover crops has increased within the last 5 years, but the potential use of cover crops to add diversification to the cropping rotation is still ongoing. Due to chemical resistance in weeds and breaking of disease cycles, there has been an increase in tillage use which is having a direct effect on soil erosion and soil health. NRCS will continue to educate and work with producers to develop management to address these concerns.

Grazing land practices that have been installed to improve grazing land health and management include cropland conversion to grass, fencing, water developments, prescribed grazing, and herbaceous weed treatment. Again, these practices address individual issues, and continued interest has been expressed throughout the county.

Wildlife management and pollinator practices have also been installed in the last 5 years. It is known that pollinator species are on the decline, so planting pollinator friendly plots provide a food source and habitat for these pollinators. Tree/shrub plantings and upland wildlife habitat management practices have also been installed.

NRCS Table of Commonly Applied Practices from 2000 to 2020 in Contracts

Practice Name	Unit Type	Applied Amount	Number Of Projects
Prescribed Grazing	Ac	78676	36
Herbaceous Weed Control	Ac	60206	18
Pest Management			
Forage Harvest Management	Ac	4463	5
Conservation Crop Rotation	Ac	16000	18
Cover Crop	Ac	2964	12
Forage and Biomass Planting	Ac	8000	11
Pasture/Hay Planting			
Nutrient Management	Ac	16381	54
Upland Wildlife Management	Ac	26662	14
Water Well	No	12	12
Water Facility	No	91	77
Spring Development	No	8	7
Pumping Plant	No	14	14
Ground Water Testing	No	31	19
Seasonal Hi-Tunnel System	No	3	3
AFO/CAFO	No	4	4
Tree Shrub Establishment	Ft	56617	20
Windbreak/Shelterbelt			
Fence	Miles	62	16
Pipeline	Miles	31	51

*CTA General acres not included

Partners:

Below is a list of projects completed within Judith Basin County by partners. Many of these projects were with NRCS technical assistance.

Partner	Project	Timeframe	Location
Weed Supervisor	Noxious weeds		
	Spurge	2004	Judith River, S Geyser, Buffalo, Garniell
	Knapweed	2018	Geyser, Arrow Creek
	Yellow Mignonette	2018-present	Utica
	White Top	2018-present	Utica, S Stanford
Ackley Lake Irrigation	Ditch loss on canal	2001-2002	Ackley Lake irrigation canal
	PAM ditch sealer	2003	Ackley Lake irrigation canal
JBCD, 223 grants, DEQ, RPKG	Bank Stabilization and off stream water	80's-2001	Big Otter Creek
JBCD	Measure nitrate levels on 5 streams	1992-present	County wide
JBCD, CARC, MSU	Nitrate special initiative	2007-2012	County wide
JBCD, CARC, 223	Soil Health – cover crops and soil tests	2014-2019	County wide
JBCD, MSU well educated, 223	Artesian Well project -well study and capping	2003, 2009	County wide
JBCD, GLCI, Stock Growers, DNRC	Range School	2003-present	County/Statewide
JBCD, DNRC grant	Coal Bed Methane baseline water testing		
JBCD, DNRC	Range Monitoring	1998-present	County wide-30 producers
JBCD	Education in schools – Natural Resource Days, Ag Days, Stewardship, Arbor Day, Water monitoring,	Ongoing	County wide
JBCD, Snowy Mountain Development grant	Bio-fuels reduction	2007-present	County wide

Section 4: Natural Resource Problems and Desired Future Outcomes

Grazing land Health

Cattle are the largest agriculture market in Judith Basin County. Although many producers are or have been implementing grazing management and facilitating practices to improve the health of grazing land over the past 20 years, efforts need to continue throughout the county. Overgrazing continues to be a concern whether it is from excessive stocking rates or low stocking rates left for too long in individual pastures. Lack of watering facilities to help distribute cattle throughout the pasture also contributes to overgrazing patterns. Development of new watering sources can be a challenge in many areas of the county due to drill depths of 1000-2000 feet, and the cost associated with these deep wells. Cross fencing and proper stocking rates will help improve grazing land health and wildlife habitat. There is also a rising concern of erosion on grazing lands which may be caused from extended winter grazing patterns leaving soil exposed and impacted by snow melt runoff or lack of proper water distribution.

Education on proper grazing management strategies and the use of introduced pastures or cover crops for grazing are options to decrease pressure on native rangeland. The soil health of crop land can be improved with the use of cover crops and the biological element of cattle grazing, while providing a positive impact to native range by decreasing the amount of time it is grazed. Areas that have high cropland acres may lack infrastructure (fence and water) for grazing and will need to be addressed.

Noxious weeds have a negative impact on grazing land. Though efforts have been made in the past to address spurge, knapweed, white top, and yellow mignonette in the past, more treatment is needed. The spread of noxious weeds is a real fear throughout the county, as these weeds take over grazing areas, reducing the desirable vegetation and reducing stocking rate ability.

Addressing resource concerns on grazing land will improve rangeland health and help meet the needs of wildlife and ranchers.

Soil Health

Poor soil health, indicated by a lack of soil aggregate stability, impacts the overall function of the soil and may result in resource concerns such as wind and water erosion, soil compaction, crop pests, disease, soil acidity, and chemical resistance by weeds. Soil health on cropland is a concern throughout the county. Producers in Judith Basin County have begun to adopt components of the 5 soil health principles, but more education and information needs to be provided to help producers understand the importance of soil aggregate stability as an indicator of long term soil health and a reason to adopt soil health principles on the resource. With typical cropland rotations consisting of crop/fallow, and the crop being primarily wheat, the living microbes in the soil have been depleted due to the monoculture crop grown, use of chemicals during the fallow year, and increased soil temperatures in the fallow year. Diversification of the cropping system, including the use of cover crops during the fallow year, will help increase microbial activity, reduce tillage which impacts soil structure, and overall improve the aggregate stability of the soil. Some producers in the county have made management decisions to implement the 5 principles of soil health, while others have dabbled in one or two principles and have not been able/willing to adopt all 5 principles. By implementing strong soil health measures throughout the county, all ecological processes can be improved over time. The use of cover crops will not only have a positive impact on cropland, but they can be used as a nutritious grazing source to reduce pressure on native range which will also have a positive effect on rangeland health.

Improved soil health will help address wind and water erosion, soil compaction, crop pests, disease, soil acidity, and chemical resistance by weeds.

Salinity caused from cropping rotation is also a concern in specific areas of the county. Saline seeps negatively impact the production ability of the soil in both cropland and grazing land by souring the soil and making the discharge areas unproductive. While the discharge area is what is seen by the human eye, the recharge area needs

to be addressed with vegetation (usually perennial, deep rooted species) that will utilize the excess moisture, not allowing it to move through the soil collecting salts and surfacing in the discharge area.

Water Quality

Water quality concerns are tied to soil and plant health. In a functioning ecosystem, soil and plants act as a filter for water whether it be surface or ground water. Agronomic practices can impact water quality with increased turbidity, contaminants, and salinity. Flooding issues also increase soil erosion and may leave stream banks exposed with no vegetation for filtering or protection. Improved soil and grazing land health will positively affect water quality.

Excessive nitrate levels in certain areas of the county are attributed to natural and agronomic processes. By implementing good soil health practices such as diverse crop rotations, use of cover crops during the fallow year, planting less productive soils back to permanent vegetation, and proper nutrient management, nitrate levels in water would be decreased.

Water Quantity

Water quantity is a limiting factor in areas around the county. Colorado shales and clay are thick and usually produce limited amounts of water. Wells drilled in these areas are often dry or if water is found, the yield cannot sustain over the long term. To provide viable wells where this is an issue, the depth is up to 2000 feet which is an economic hardship for many producers. A possible solution would be to consider a shared deep well with multiple users that could provide reliable water for grazing systems.

Section 5: Prioritization of Natural Resource Problems and Desired Outcomes

The Judith Basin Local Work Group (JBLWG) met June 19, 2019 to gather and prioritize resource concerns within Judith Basin County. Addressing the problems identified by this group meets NRCS' Vision and Mission. A concern identified during the process is that agriculture is struggling financially, and producers are often limited in what they can implement to improve resource concerns. Efforts to address resource concerns need to be economical for the community and producers.

The JBLWG prioritized resource concerns in the following order:

- 1- Watershed Issues
 - a. Reduce erosion on cropland, grazing land, and stream banks
- 2- Overgrazing
 - a. Water developments and cross fencing
 - b. Grazing of cover crops
 - c. Management of noxious weeds
- 3- Lack of crop diversity
 - a. Increase crop rotation diversity
 - b. Soil health – cover crop
 - c. Implement soil health principles
 - d. Increase soil organic matter
- 4- Weeds
 - a. Management of noxious weeds
- 5- Salinity
 - a. Use of cover crops and/or permanent vegetation
- 6- Labor
 - a. Average age of producers is 58 years old; families are smaller; seasonal help is hard to find
- 7- Soil Acidification
 - a. Soil health

8- Water Quality

- a. Address high nitrate levels
 - i. Soil Health, cover crops, nutrient management

The JBLWG will meet annually as a minimum to review this long-range plan and identify other resource concerns and priorities if needed.

Section 6: Targeted Implementation Plans (TIP)

Judith Basin county has identified many resource concerns, but Soil Health issues are evident in many of the 8 priorities listed above. An area wide TIP plan is being developed to assist producers who have become pioneers in improving the health of their soil. This area TIP will focus on producers who have attended workshops and tried at least one soil health principle. The TIP will provide incentives to producers to implement practices that minimize disturbance, maximize diversity, keep the soil armored, and keep living roots in the soil.

Other potential TIPs include livestock water systems and cross fence to improve grazing management; the use of stock water for cover crops in grazing systems; the use of cover crops and permanent vegetation to address high nitrate levels in water; noxious weed management and irrigation efficiency.

Sources

- 1) 2016 US Census
- 2) 2017 Census of Agriculture - Judith Basin County Profile
- 3) Montana Geographic Information Clearinghouse, "Montana Average Annual Precipitation Map 1981-2010
- 4) Montana DEQ 2018 Integrated Report and 303(d) list
- 5) mt.gov – Montana Natural Heritage Program – Species of Concern Report Judith Basin
- 6) US Department of Interior Fish & Wildlife Service – Endangered, Threatened, Proposed, & Candidate Species – MT Counties
- 7) Montana Fish, Wildlife & Parks 9 January 2015
- 8) Montana's State Wildlife Action Plan 2015 FINAL

Research Results (Judith Basin Nitrate Special Initiative)

- Jackson-Smith D, Ewing S A, Jones. C A, Sigler W A and Armstrong A, 2018. The road less travelled: Assessing the impacts of in-depth farmer and stakeholder participation in groundwater nitrate pollution research. *J. Soil Water Conserv.* 73, 610-622.

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2017 CENSUS OF AGRICULTURE County Profile



Judith Basin County Montana



Total and Per Farm Overview, 2017 and change since 2012

	2017	% change since 2012
Number of farms	357	+10
Land in farms (acres)	860,136	-17
Average size of farm (acres)	2,409	-25
Total	(\$)	-
Market value of products sold	88,901,000	-4
Government payments	3,687,000	+27
Farm-related income	5,505,000	+15
Total farm production expenses	75,435,000	-1
Net cash farm income	22,658,000	-7
Per farm average	(\$)	-
Market value of products sold	249,024	-13
Government payments (average per farm receiving)	17,724	+28
Farm-related income	25,725	+7
Total farm production expenses	211,303	-10
Net cash farm income	63,467	-15

3 Percent of state agriculture Sales

Share of Sales by Type (%)	
Crops	28
Livestock, poultry, and products	72
Land in Farms by Use (%)	
Cropland	32
Pastureland	65
Woodland	2
Other	1

Acres irrigated: 13,702
2% of land in farms

Land Use Practices (% of farms)	
No till	23
Reduced till	8
Intensive till	12
Cover crop	4

Farms by Value of Sales			Farms by Size		
	Number	Percent of Total*		Number	Percent of Total*
Less than \$2,500	56	16	1 to 9 acres	19	5
\$2,500 to \$4,999	22	6	10 to 49 acres	30	8
\$5,000 to \$9,999	8	2	50 to 179 acres	56	16
\$10,000 to \$24,999	24	7	180 to 499 acres	31	9
\$25,000 to \$49,999	38	11	500 to 999 acres	30	8
\$50,000 to \$99,999	41	11	1,000+ acres	191	54
\$100,000 or more	168	47			



United States Department of Agriculture
National Agricultural Statistics Service

www.nass.usda.gov/AgCensus

Market Value of Agricultural Products Sold

	Sales (\$1,000)	Rank in State*	Counties Producing Item	Rank in U.S.*	Counties Producing Item
Total	88,901	15	56	1,258	3,077
Crops	25,050	26	56	1,515	3,073
Grains, oilseeds, dry beans, dry peas	15,985	22	54	1,225	2,916
Tobacco	-	-	-	-	323
Cotton and cottonseed	-	-	-	-	647
Vegetables, melons, potatoes, sweet potatoes	-	-	42	-	2,821
Fruits, tree nuts, berries	-	-	27	-	2,748
Nursery, greenhouse, floriculture, sod	(D)	11	56	281	3,040
Cultivated Christmas trees, short rotation woody crops	-	-	9	-	1,384
Other crops and hay	(D)	11	56	281	3,040
Livestock, poultry, and products	63,851	8	56	788	3,073
Poultry and eggs	(D)	(D)	53	(D)	3,007
Cattle and calves	61,958	7	56	218	3,055
Milk from cow	(D)	16	25	(D)	1,892
Hogs and pigs	8	38	54	1,617	2,892
Sheep, goats, wool, mohair, milk	1,225	9	55	147	2,984
Horses, ponies, mules, burros, donkeys	163	31	56	1,125	2,970
Aquaculture	-	-	13	-	1,251
Other animals and animal products	(D)	35	52	(D)	2,878

Total Producers* 650

Sex

Male 404

Female 246

Age

<35 71

35-64 415

65 and older 164

Race

American Indian/Alaska Native -

Asian -

Black or African American -

Native Hawaiian/Pacific Islander -

White 649

More than one race 1

Other characteristics

Hispanic, Latino, Spanish origin 6

With military service 69

New and beginning farmers 163

Percent of farms that:

Have internet access **86**

Farm organically **1**

Sell directly to consumers **3**

Hire farm labor **32**

Are family farms **97**

Top Crops in Acres*

Forage (hay/haylage), all 109,792

Wheat for grain, all 55,865

Chickpeas 11,480

Barley for grain 10,972

Lentils 4,432

Livestock Inventory (Dec 31, 2017)

Broilers and other meat-type chickens (D)

Cattle and calves 72,091

Goats 50

Hogs and pigs 118

Horses and ponies 800

Layers 594

Pullets -

Sheep and lambs 8,055

Turkeys (D)

See 2017 Census of Agriculture U.S. Summary and State Data for complete footnotes, explanations, definitions, commodity descriptions, and methodology.

*May not add to 100% due to rounding. *Among countries whose rank can be displayed. *Data collected for a maximum of four producers per farm.

*Crop commodity names may be shortened; see full names at www.nass.usda.gov/gocropnames.pdf. *Position below the line does not indicate rank.

(D) Withheld to avoid disclosing data for individual operations. (NA) Not available. (Z) Less than half of the unit shown. (-) Represents zero.

Appendix



MONTANA
**Natural Heritage
Program**

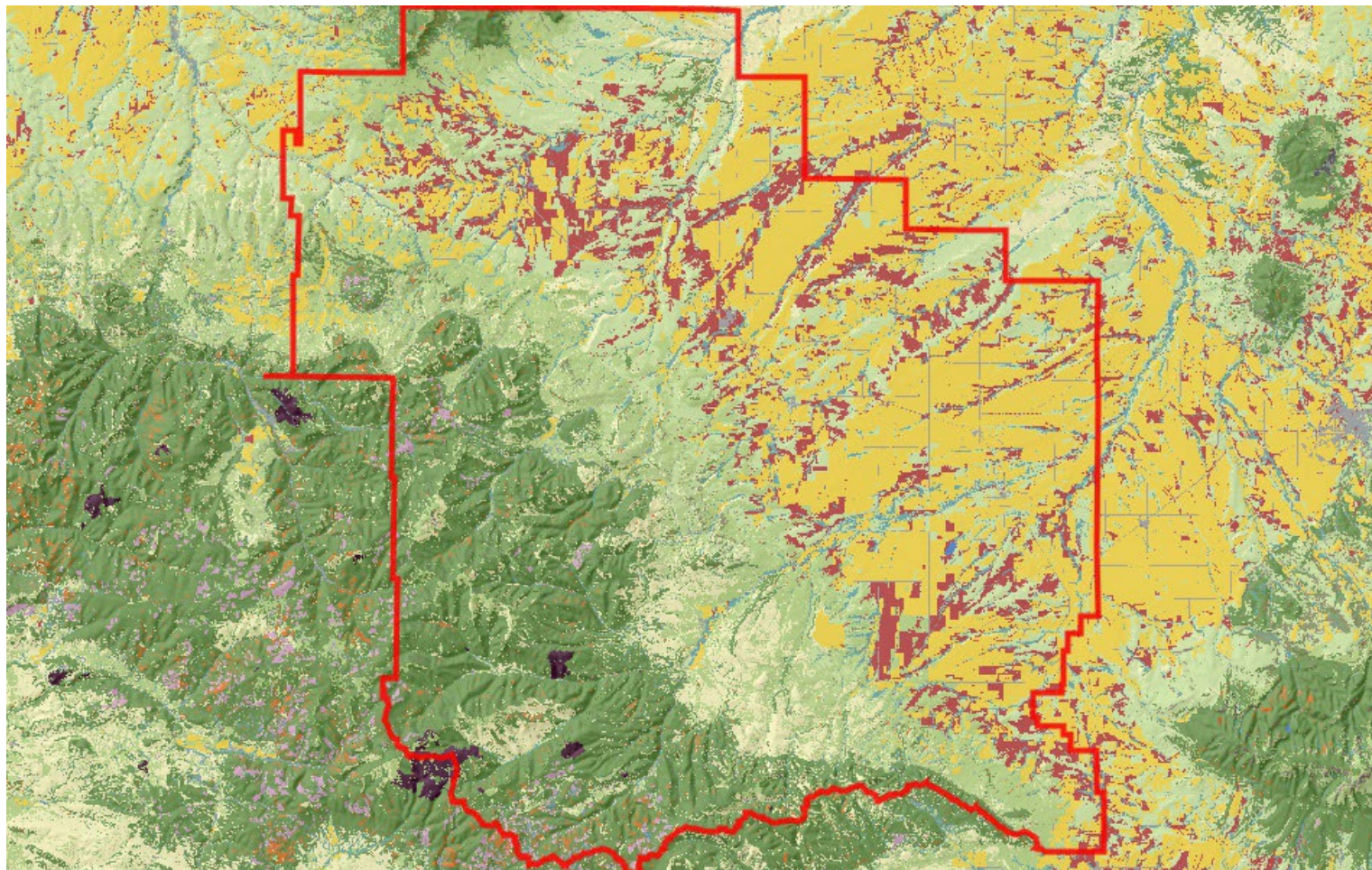
A program of the Montana State Library's
Natural Resource Information System
operated by the University of Montana.



Latitude	Longitude
46.66797	-109.74895
47.42184	-110.77430

Land Cover

Summarized by **Judith Basin** (*County*)



16%
(186,129
Acres)

Human Land Use Agriculture



Cultivated Crops

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



15%
(184,073
Acres)

Grassland Systems

Lowland/Prairie Grassland

Great Plains Mixedgrass Prairie

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



11%
(130,009
Acres)

Grassland Systems

Montane Grassland

Rocky Mountain Lower Montane, Foothill, and Valley Grassland

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



9%
(106,925
Acres)

Recently Disturbed or Modified

Introduced Vegetation

Introduced Upland Vegetation - Annual and Biennial Forbland

Land cover is significantly altered/disturbed by introduced annual and biennial forbs. Natural vegetation types are no longer recognizable. Typical species that dominate these areas are knapweed, oxeye daisy, Canada thistle, leafy spurge, pepperweed, and yellow sweetclover.



8% (98,922
Acres)

Forest and Woodland Systems

Conifer-dominated forest and woodland (xeric-mesic)

Rocky Mountain Lodgepole Pine Forest

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



Human Land Use

Agriculture

Pasture/Hay

7% (79,606 Acres)

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



7% (78,908 Acres)

Forest and Woodland Systems

Conifer-dominated forest and woodland (xeric-mesic)

Rocky Mountain Montane Douglas-fir Forest and Woodland

In Montana, this ecological system occurs on the east side of the Continental Divide, north to about the Mc Donald Pass area, and along the Rocky Mountain Front. This system is associated with a dry to submesic continental climate regime with annual precipitation ranging from 51 to 102 centimeters (20-40 inches), with a maximum in winter or late spring. Winter snowpacks typically melt off in early spring at lower elevations. Elevations range from valley bottoms to 1,980 meters (6500 feet) in northern Montana and up to 2,286 meters (7500 feet) on warm aspects in southern Montana. It occurs on north-facing aspects in most areas, and south-facing aspects at higher elevations. This is a Douglas-fir (*Pseudotsuga menziesii*) dominated system without any maritime floristic composition. Fire disturbance intervals are as infrequent as 500 years, and as a result, individual trees and forests can attain great age on some sites (500 to 1,500 years). In Montana, this system occurs from lower montane to lower subalpine environments and is prevalent on calcareous substrates. Common understory shrubs include common ninebark (*Physocarpus malvaceus*), common juniper (*Juniperus communis*), Rocky Mountain juniper (*Juniperus scopulorum*), birch-leaf spiraea (*Spiraea betulifolia*), snowberry (*Symphoricarpos* species), creeping Oregon grape (*Mahonia repens*) and Canadian buffaloberry (*Shepherdia canadensis*). The Douglas-fir/pinegrass (*Calamagrostis rubescens*) type is the most ubiquitous association found within this system in Montana.



6% (68,399 Acres)

Shrubland, Steppe and Savanna Systems

Sagebrush Steppe

Montane Sagebrush Steppe

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



3% (39,202 Acres)

Forest and Woodland Systems

Conifer-dominated forest and woodland (xeric-mesic)

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

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



Wetland and Riparian Systems Floodplain and Riparian

2% (25,824 Acres)

Great Plains Riparian

This system is associated with perennial to intermittent or ephemeral streams throughout the northwestern Great Plains. In Montana, it occurs along smaller tributaries of the Yellowstone and Missouri rivers, as well as tributaries to the large floodplain rivers that feed them (e.g. the Milk, Marias, Musselshell, Powder, Clark's Fork Yellowstone, Tongue, etc). In areas adjacent to the mountain ranges of central and southeastern Montana, and near the Rocky Mountain Front, it grades into Rocky Mountain Lower Montane-Foothill Riparian Woodland and Shrubland systems. This system is found on alluvial soils in highly variable landscape settings, from confined, deep cut ravines to wide, braided streambeds. Channel migration occurs in less-confined areas, but within a more narrow range than would occur in broad, alluvial floodplains. Typically, the rivers are wadeable by mid-summer.

The primary inputs of water to these systems include groundwater discharge, overland flow, and subsurface interflow from the adjacent upland. Flooding is the key ecosystem process, creating suitable sites for seed dispersal and seedling establishment, and controlling vegetation succession. Communities within this system range from riparian forests and shrublands to tallgrass wet meadows and gravel/sand flats. Dominant species are similar to those found in the Great Plains Floodplain System. In the western part of the system's range in Montana, the dominant overstory species is black cottonwood (*Populus balsamifera* ssp. *trichocarpa*) with narrowleaf cottonwood (*Populus angustifolia*) and Plains cottonwood (*Populus deltoides*) occurring as co-dominants in the riparian/floodplain interface near the mountains. Further east, narrowleaf cottonwood and Plains cottonwood become dominant. In wetter systems, the understory is typically willow (*Salix* spp.) and redosier dogwood (*Cornus stolonifera*) with graminoids such as western wheatgrass (*Pascopyrum smithii*) and forbs like American licorice (*Glycyrrhiza lepidota*). In areas where the channel is incised, the understory may be dominated by big sagebrush (*Artemisia tridentata*) or silver sagebrush (*Artemisia cana*). Like floodplain systems, riparian systems are often subjected to overgrazing and/or agriculture and can be heavily degraded, with salt cedar (*Tamarix ramosissima*) and Russian olive (*Eleagnus angustifolia*) replacing native woody vegetation and regrowth. Groundwater depletion and lack of fire have resulted in additional species changes.



Grassland Systems Montane Grassland

2% (23,759 Acres)

Rocky Mountain Subalpine-Montane Mesic Meadow

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

Additional Limited Land Cover

- 1% (17,305 Acres) [Rocky Mountain Subalpine-Upper Montane Grassland](#)
- 1% (17,279 Acres) [Big Sagebrush Steppe](#)
- 1% (12,057 Acres) [Rocky Mountain Ponderosa Pine Woodland and Savanna](#)
- 1% (11,933 Acres) [Other Roads](#)
- 1% (10,882 Acres) [Northern Rocky Mountain Lower Montane Riparian Woodland and Shrubland](#)
- 1% (10,522 Acres) [Great Plains Shrubland](#)
- 1% (10,425 Acres) [Rocky Mountain Montane-Foothill Deciduous Shrubland](#)
- 1% (10,051 Acres) [Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland](#)
- 1% (7,346 Acres) [Insect-Killed Forest](#)
- 1% (6,927 Acres) [Rocky Mountain Subalpine Deciduous Shrubland](#)
- 1% (6,214 Acres) [Rocky Mountain Foothill Limber Pine - Juniper Woodland](#)
- 1% (6,067 Acres) [Aspen Forest and Woodland](#)
- <1% (4,974 Acres) [Rocky Mountain Subalpine Woodland and Parkland](#)
- <1% (4,036 Acres) [Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest](#)
- <1% (3,784 Acres) [Great Plains Floodplain](#)
- <1% (3,125 Acres) [Great Plains Ponderosa Pine Woodland and Savanna](#)
- <1% (3,064 Acres) [Great Plains Badlands](#)
- <1% (2,636 Acres) [Harvested forest-grass regeneration](#)
- <1% (2,315 Acres) [Recently burned forest](#)

<1% (2,090 Acres) ■ [Major Roads](#)

<1% (2,069 Acres) ■ [Harvested forest-tree regeneration](#)

<1% (1,942 Acres) ■ [Great Plains Wooded Draw and Ravine](#)

<1% (1,755 Acres) ■ [Rocky Mountain Lower Montane-Foothill Riparian Woodland and Shrubland](#)

<1% (1,494 Acres) ■ [Railroad](#)

<1% (1,417 Acres) ■ [Harvested forest-shrub regeneration](#)

<1% (1,315 Acres) ■ [Low Intensity Residential](#)

<1% (1,280 Acres) ■ [Mountain Mahogany Woodland and Shrubland](#)

<1% (1,226 Acres) ■ [Post-Fire Recovery](#)

<1% (1,106 Acres) ■ [Greasewood Flat](#)

<1% (1,048 Acres) ■ [Rocky Mountain Cliff, Canyon and Massive Bedrock](#)

<1% (893 Acres) ■ [Rocky Mountain Foothill Woodland-Steppe Transition](#)

<1% (866 Acres) ■ [Open Water](#)

<1% (679 Acres) ■ [Great Plains Sand Prairie](#)

<1% (664 Acres) ■ [Emergent Marsh](#)

<1% (625 Acres) ■ [Alpine-Montane Wet Meadow](#)

<1% (606 Acres) ■ [Developed, Open Space](#)

<1% (484 Acres) ■ [Rocky Mountain Poor Site Lodgepole Pine Forest](#)

<1% (298 Acres) ■ [Aspen and Mixed Conifer Forest](#)

<1% (176 Acres) ■ [Great Plains Closed Depressional Wetland](#)

<1% (164 Acres) ■ [Commercial / Industrial](#)

<1% (136 Acres) ■ [Great Plains Saline Depression Wetland](#)

<1% (135 Acres) ■ [Rocky Mountain Subalpine-Montane Riparian Shrubland](#)

<1% (126 Acres) ■ [Great Plains Cliff and Outcrop](#)

<1% (113 Acres) ■ [High Intensity Residential](#)

<1% (105 Acres) ■ [Low Sagebrush Shrubland](#)

<1% (77 Acres) ■ [Alpine Bedrock and Scree](#)

<1% (51 Acres) ■ [Burned Sagebrush](#)

<1% (6 Acres) ■ [Wind Turbine](#)

<1% (5 Acres) ■ [Rocky Mountain Conifer Swamp](#)

<1% (5 Acres) ■ [Great Plains Open Freshwater Depression Wetland](#)

<1% (2 Acres) ■ [Introduced Riparian and Wetland Vegetation](#)

<1% (1 Acres) ■ [Recently burned shrubland](#)

Introduction to Land Cover

Land Use/Land Cover is one of 15 [Montana Spatial Data Infrastructure](#) framework layers considered vital for making statewide maps of Montana and understanding its geography. The layer records all Montana natural vegetation, land cover and land use, classified from satellite and aerial imagery, mapped at a scale of 1:100000, and interpreted with supporting ground-level data. The baseline map is adapted from the Northwest ReGAP (NWGAP) project land cover classification, which used 30m resolution multi-spectral Landsat imagery acquired between 1999 and 2001. Vegetation classes were drawn from the Ecological System Classification developed by NatureServe (Comer et al. 2003). The land cover classes were developed by Anderson et al. (1976). The NWGAP effort encompasses 12 map zones. Montana overlaps seven of these zones. The two NWGAP teams responsible for the initial land cover mapping effort in Montana were Sanborn and NWGAP at the University of Idaho. Both Sanborn and NWGAP employed a similar modeling approach in which Classification and Regression Tree (CART) models were applied to Landsat ETM+ scenes. The Spatial Analysis Lab within the Montana Natural Heritage Program was responsible for developing a seamless Montana land cover map with a consistent statewide legend from these two separate products. Additionally, the Montana land cover layer incorporates several other land cover and land use products (e.g., MSDI Structures and Transportation themes and the Montana Department of Revenue Final Land Unit classification) and reclassifications based on plot-level data and the latest NAIP imagery to improve accuracy and enhance the usability of the theme. Updates are done as partner support and funding allow, or when other MSDI datasets can be incorporated. Recent updates include fire perimeters and agricultural land use (annually), energy developments such as wind, oil and gas installations (2014), roads, structures and other impervious surfaces (various years): and local updates/improvements to specific ecological systems (e.g., central Montana grassland and sagebrush ecosystems). Current and previous versions of the Land Use/Land Cover layer with full metadata are available for download at the Montana State Library's [Geographic Information Clearinghouse](#).

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

Literature Cited

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

Montana Natural Heritage - SOC Report

Plant Species of Concern

8 Species of Concern

4 Potential Species of Concern - Species Occurrences are not maintained for Animal PSOC, therefore we cannot filter these species geographically

Filtered by the following criteria:

County = Judith Basin (based on mapped Species Occurrences)



A program of the Montana State Library's
Natural Resource Information System
operated by the University of Montana.

Expand All | Collapse All

Introduction

Species of Concern

Species of Concern

8 Species

Filtered by the following criteria:

County = Judith Basin (based on mapped Species Occurrences)

FERNS AND FERN ALLIES (PTERIDOPHYTA)								
COUNTY = JUDITH BASIN (based on mapped Species Occurrences)								
SCIENTIFIC NAME COMMON NAME TAXA SORT	OTHER NAMES	FAMILY (SCIENTIFIC) FAMILY (COMMON)	GLOBAL RANK	STATE RANK	USFWS	USFS	BLM	MNPS THREAT CATEGORY
Equisetum pratense Meadow Horsetail		Equisetaceae Horsetails	G5	S2				
Species Occurrences verified in these Counties: Cascade, Chouteau, Flathead, Judith Basin, Lincoln, Meagher, Powell, Teton State Rank Reason: Equisetum pratense has accurately been identified to occur in a few places within three counties of Montana. Specimens deposited in herbaria outside of Montana will need to be examined before it can be demonstrated to be distributed.								
GYMNOSPERM (CONIFERS)								
COUNTY = JUDITH BASIN (based on mapped Species Occurrences)								
SCIENTIFIC NAME COMMON NAME TAXA SORT	OTHER NAMES	FAMILY (SCIENTIFIC) FAMILY (COMMON)	GLOBAL RANK	STATE RANK	USFWS	USFS	BLM	MNPS THREAT CATEGORY
Pinus albicaulis Whitebark Pine		Pinaceae Fir / Hemlock / Larch / Pine / Spruce	G3?	S3	C	Candidate on Forests (BD, BRT, CG, HLC, KOOT, LOLO)	SENSITIVE	
Species Occurrences verified in these Counties: Beaverhead, Broadwater, Carbon, Cascade, Deer Lodge, Fergus, Flathead, Glacier, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Lincoln, Madison, Meagher, Mineral, Missoula, Park, Pondera, Powell, Stillwater, Sweet Grass, Teton, Toole, Wheatland State Rank Reason: Whitebark pine is a common component of subalpine forests and a dominant species of treeline and krummholz forest in almost all major mountain ranges of western and central Montana. Populations of whitebark pine in Montana and across most of the western United States have been severely impacted by past mountain pine beetle outbreaks and by the introduced pathogen, white pine blister rust. The major declines in whitebark pine populations across large areas of its range. Additionally, negative impacts associated with increased competition from other trees, primarily subalpine fir, have occurred as a result of fire suppression in subalpine habitats.								
FLOWERING PLANTS - DICOTS (MAGNOLIOPSIDA)								
COUNTY = JUDITH BASIN (based on mapped Species Occurrences)								
SCIENTIFIC NAME COMMON NAME TAXA SORT	OTHER NAMES	FAMILY (SCIENTIFIC) FAMILY (COMMON)	GLOBAL RANK	STATE RANK	USFWS	USFS	BLM	MNPS THREAT CATEGORY
Aquilegia brevistylis Short-styled Columbine		Ranunculaceae Buttercup Family	G5	S2S3		Sensitive - Known on Forests (CG, HLC)		
Species Occurrences verified in these Counties: Judith Basin State Rank Reason: See rank details.								
Cirsium longistylum Long-styled Thistle		Asteraceae Aster/Sunflowers	G2G3	S2S3				1
Species Occurrences verified in these Counties: Broadwater, Cascade, Fergus, Jefferson, Judith Basin, Lewis and Clark, Meagher, Powell, Teton State Rank Reason: Population estimates of approximately 30,000 plants, including seven high quality populations, scattered promising for the long-term viability of the species. Habitat in the largest populations is generally of high quality with few if any significant and immediate threats. In the near future, little change in habitat quality is expected in these populations. Sites are lands that provide a degree of protection and two large populations on private lands that have a history of light to moderate grazing benefit at this time is the active weed control program employed by the private landowners on their lands. Long- and short-term population trends are difficult to gauge due to the lack of good survey data over many years. However, it does provide some evidence that population levels have at least remained fairly stable over the past decade, with significant yearly fluctuations. Invasive weeds and the introduced bio-control agent do provide reason for concern.								
Pedicularis contorta var. ctenophora Pink Coil-beaked Lousewort		Orobanchaceae Broomrape Family	G5T3	S2S3				3
Species Occurrences verified in these Counties: Beaverhead, Judith Basin, Madison, Ravalli, Teton State Rank Reason: Restricted to extreme southwestern Montana where it is documented from a few populations. Limited data and it may be more common than the few collections indicate.								
Phlox kelseyi var. missoulensis Missoula Phlox	Phlox missoulensis	Polemoniaceae Phlox Family	G3	S3		Sensitive - Known on Forests (BD, HLC) Sensitive - Suspected on Forests (LOLO)		2
Species Occurrences verified in these Counties: Cascade, Granite, Jefferson, Judith Basin, Lewis and Clark, Madison, Meagher, Powell, Teton State Rank Reason: Missoula phlox is a state endemic known from over 2 dozen occurrences in west-central Montana, most of which are on private lands. Populations occur on a mix of ownerships, including private lands which host several occurrences. The Waterworks Hill area is a sensitive area with several noxious weeds and heavy recreational trail use also occurs within the occupied habitat. Other populations appear to be impacted from invasive weeds, recreational use and development are possible.								
Potentilla platensis Platte Cinquefoil		Rosaceae Rose Family	G4	S3				4
Species Occurrences verified in these Counties: Beaverhead, Carbon, Judith Basin, Valley State Rank Reason: Rare in Montana, where it is known from several collections, particularly from Beaverhead County.								

FLOWERING PLANTS - MONOCOTS (LILIOPSIDA)								
COUNTY = JUDITH BASIN (based on map)								
SCIENTIFIC NAME COMMON NAME TAXA SORT	OTHER NAMES	FAMILY (SCIENTIFIC) FAMILY (COMMON)	GLOBAL RANK	STATE RANK	USFWS	USFS	BLM	MNPS THREAT CATEGORY
Goodyera repens Northern Rattlesnake- plantain		Orchidaceae Orchids	G5	S3		Sensitive - Known on Forests (HLC) Sensitive - Suspected on Forests (CG)		2
Species Occurrences verified in these Counties: Fergus, Flathead, Judith Basin, Meagher, Wheatland State Rank Reason: A widespread species that is found in Montana in the Little Belt and Big Snowy Mountains and at one site in the species occupies moist, montane forests with a mossy understory. Occurrences are vulnerable to disturbances that open or reduce the forest canopy through logging, harvesting and fire. Monitoring of the species in the Little Belt Mountains have documented negative impacts associated with logging. <i>Goodyera repens</i> is known from approximately 20 moderate to large-sized populations and many additional, smaller occurrences are known.								

Potential Species of Concern

Special Status Species

Additions To Statewide List

Species Removed From Statewide List

Citation for data on this website:
Montana Plant Species of Concern Report. Montana Natural Heritage Program. Retrieved on 4/2/2020, from <http://mtnhp.org/SpeciesOfConcern/?AorP=p>

<http://mtnhp.org/SpeciesOfConcern/?AorP=p>

4/2/2020

Montana Natural Heritage - SOC Report

Animal Species of Concern

34 Species of Concern

1 Special Status Species

Filtered by the following criteria:

County = Judith Basin (based on mapped Species Occurrences)

Expand All | Collapse All

Introduction

Species of Concern

Species of Concern

34 Species

Filtered by the following criteria:

County = Judith Basin (based on mapped Species Occurrences)



A program of the Montana State Library's
Natural Resource Information System
operated by the University of Montana.

MAMMALS (MAMMALIA)									
COUNTY = JUDITH BASIN (based on map)									
SCIENTIFIC NAME COMMON NAME TAXA SORT	FAMILY (SCIENTIFIC) FAMILY (COMMON)	GLOBAL RANK	STATE RANK	USFWS	USFS	BLM	FWP SWAP	% OF GLOBAL BREEDING RANGE IN MT	% OF MT THAT IS BREEDING RANGE
<i>Corynorhinus townsendii</i> Townsend's Big-eared Bat	Vespertilionidae Bats	G4	S3		Sensitive - Known on Forests (BD, BRT, CG, HLC, KOOT, LOLO)	SENSITIVE	SGCN3	5%	87%
Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Fergus, Flathead, Gallatin, Jefferson, Judith Basin, Lake, Lewis and Clark, Lincoln, Madison, Mocone, Meagher, Mineral, Missoula, Musselshell, Park, Phillips, Powder River, Powell, Prairie, Rosebud, Sanders, Silver Bow, Stillwater, Treasure, Valley, Yellowstone State Rank Reason: Species is widespread, but uncommon and appears to occur at low densities. Disturbance of cave and mine roosts and the hard closure of occupancy persistence.									
<i>Cynomys ludovicianus</i> Black-tailed Prairie Dog	Sciuridae Squirrels	G4	S3		Sensitive - Known on Forests (CG)	SENSITIVE	SGCN3	15%	71%
Species Occurrences verified in these Counties: Big Horn, Blaine, Carbon, Carter, Cascade, Chouteau, Custer, Fallon, Fergus, Garfield, Golden Valley, Hill, Judith Basin, Liberty, Mocone, Musselshell, Petroleum, Phillips, Powder River, Prairie, Richland, Rosebud, Stillwater, Sweet Grass, Toole, Treasure, Valley, Wheatland, Yellowstone State Rank Reason: Across much of eastern Montana this species occurs in areas with suitable soil and topography. However sylvatic plague has caused the species colony size and dynamics. Ongoing threats from disease and persecution due to perceived competition with grazing make long-term status of this species uncertain.									
<i>Euderma maculatum</i> Spotted Bat	Vespertilionidae Bats	G4	S3		Sensitive - Known on Forests (BD, CG)	SENSITIVE	SGCN3, SGIN	5%	27%
Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Cascade, Chouteau, Dawson, Fergus, Gallatin, Jefferson, Judith Basin, Madison, Musselshell, Phillips, Powder River, Richland, Rosebud, Silver Bow, Stillwater, Treasure, Yellowstone State Rank Reason: Little is known about this species in Montana. Although widely distributed, the species is quite rare in almost all of its range. Little is known about abundance or occupancy, or life history.									
<i>Gulo gulo</i> Wolverine	Mustelidae Weasels	G4	S3	P	Proposed on Forests (BD, BRT, CG, HLC, KOOT, LOLO)	SENSITIVE	SGCN3	0%	37%
Species Occurrences verified in these Counties: Beaverhead, Broadwater, Carbon, Cascade, Deer Lodge, Flathead, Gallatin, Glacier, Granite, Jefferson, Judith Basin, Lincoln, Madison, Meagher, Mineral, Missoula, Park, Pondera, Powell, Ravalli, Sanders, Silver Bow, Stillwater, Sweet Grass, Teton, Wheatland									
<i>Lasiurus borealis</i> Eastern Red Bat	Vespertilionidae Bats	G3G4	S3					0%	46%
Species Occurrences verified in these Counties: Big Horn, Blaine, Carbon, Carter, Cascade, Chouteau, Custer, Daniels, Fergus, Garfield, Glacier, Hill, Judith Basin, Musselshell, Park, Petroleum, Phillips, Powder River, Prairie, Richland, Roosevelt, Rosebud, Sweet Grass, Toole, Valley, Wheatland, Yellowstone State Rank Reason: Recent surveys using acoustic detectors have shown this species to be present across much of central and eastern Montana during the summer species, including the Eastern Red Bat, are commonly killed at wind farms, which presents a substantial threat to the long-term viability of populations within the									
<i>Lasiurus cinereus</i> Hoary Bat	Vespertilionidae Bats	G3G4	S3				SGCN3	2%	100%
Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Deer Lodge, Flathead, Gallatin, Garfield, Glacier, Golden Valley, Granite, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Lincoln, Madison, Mocone, Meagher, Mineral, Park, Petroleum, Phillips, Pondera, Powder River, Powell, Prairie, Ravalli, Richland, Roosevelt, Rosebud, Sanders, Sheridan, Silver Bow, Stillwater, Sweet Grass, Teton, Valley, Wheatland, Wibaux, Yellowstone									
<i>Myotis lucifugus</i> Little Brown Myotis	Vespertilionidae Bats	G3	S3				SGCN3	3%	100%
Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Deer Lodge, Flathead, Gallatin, Garfield, Glacier, Golden Valley, Granite, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Lincoln, Madison, Mocone, Meagher, Mineral, Park, Petroleum, Phillips, Pondera, Powder River, Powell, Prairie, Ravalli, Richland, Roosevelt, Rosebud, Sanders, Sheridan, Silver Bow, Stillwater, Sweet Grass, Teton, Valley, Wheatland, Wibaux, Yellowstone State Rank Reason: Species is common and widespread, but under significant threat of catastrophic declines due to White-Nose Syndrome, a fungal disease responsible for the deaths of millions of this species in the eastern US.									
<i>Myotis thysanodes</i> Fringed Myotis	Vespertilionidae Bats	G4	S3			SENSITIVE	SGCN3	0%	64%
Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Custer, Deer Lodge, Fergus, Flathead, Gallatin, Judith Basin, Lake, Lewis and Clark, Lincoln, Madison, Meagher, Mineral, Missoula, Powder River, Powell, Prairie, Ravalli, Rosebud, Sanders, Silver Bow, Teton, Tr									
State Rank Reason: Although this species is distributed across much of Montana, recent surveys have found it to be uncommon within range. Species occasionally threats to persistence from White-Nose Syndrome are a concern, but due to its western distribution the extent of impacts are as yet unknown.									
<i>Sorex nanus</i> Dwarf Shrew	Soricidae Shrews	G4	S2S3				SGCN2-3	14%	67%
Species Occurrences verified in these Counties: Beaverhead, Carbon, Carter, Chouteau, Dawson, Deer Lodge, Fergus, Golden Valley, Hill, Judith Basin, Pondera State Rank Reason: Observations of this species are infrequent resulting in limited data to assess threats. Species may only breed once in its brief life, so is more mammal species.									
<i>Sorex preblei</i> Preble's Shrew	Soricidae Shrews	G4	S3				SGCN3	28%	79%
Species Occurrences verified in these Counties: Beaverhead, Big Horn, Chouteau, Dawson, Deer Lodge, Fergus, Gallatin, Golden Valley, Granite, Judith Basin, Lincoln, Madison, Missoula, Phillips, Powell, Ravalli, Sheridan, Silver Bow, Sweet Grass, Teton, Valley, Wheatland State Rank Reason: Observations of this species are infrequent resulting in limited data to assess threats. Species may only breed once in its brief life, so is more mammal species.									

BIRDS (AVES)									
COUNTY = JUDITH BASIN (based on map)									
SCIENTIFIC NAME COMMON NAME TAXA SORT	FAMILY (SCIENTIFIC) FAMILY (COMMON)	GLOBAL RANK	STATE RANK	USFWS	USFS	BLM	FWP SWAP	% OF GLOBAL BREEDING RANGE IN MT	% OF MT THAT IS BREEDING RANGE

Accipiter gentilis Northern Goshawk	Accipitridae Hawks / Kites / Eagles	G5	S3	MBTA			SGCN3	2%	68%
Species Occurrences verified in these Counties: Beaverhead, Big Horn, Broadwater, Carbon, Carter, Cascade, Deer Lodge, Fergus, Flathead, Gallatin, Glacier, Golden Valley, Lake, Lewis and Clark, Liberty, Lincoln, Madison, Meagher, Mineral, Missoula, Park, Pondera, Powder River, Powell, Ravalli, Rosebud, Sanders, Silver Bow, Stillwater, Teton, Wheatland									
Anthus spragueii Sprague's Pipit	Motacillidae Pipits	G3G4	S3B	MBTA; BCC11; BCC17		SENSITIVE	SGCN3	18%	67%
Species Occurrences verified in these Counties: Blaine, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Fallon, Fergus, Gallatin, Garfield, Glacier, Golden Valley, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Lincoln, Madison, McConne, Meagher, Mineral, Missoula, Musselshell, Park, Petroleum, Phillips, Pondera, Prairie, Richland, Roosevelt, Rosebud, Sheridan, Stillwater, Sweet Grass, Teton, Toole, Treasure, Valley, Wheatland, Wibaux, Yellowstone									
State Rank Reason: Although population trends in Montana appear to be relatively stable in recent years, populations have been in decline over the long run and from covertype conversion, overgrazing, exotic plant invasions, altered fire regimes, and mowing prior to fledging of young.									
Aquila chrysaetos Golden Eagle	Accipitridae Hawks / Kites / Eagles	G5	S3	BGEPA; MBTA; BCC17		SENSITIVE	SGCN3	3%	100%
Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Dawson, Deer Lodge, Fergus, Gallatin, Garfield, Glacier, Golden Valley, Granite, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Lincoln, Madison, McConne, Meagher, Mineral, Missoula, Musselshell, Park, Petroleum, Phillips, Pondera, Powder River, Powell, Prairie, Ravalli, Richland, Roosevelt, Rosebud, Sanders, Sheridan, Silver Bow, Stillwater, Sweet Grass, Teton, Toole, Treasure, Valley, Wheatland, Wibaux, Yellowstone									
Ardea herodias Great Blue Heron	Ardeidae Bitterns / Egrets / Herons / Night-Herons	G5	S3	MBTA			SGCN3	3%	100%
Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Dawson, Deer Lodge, Fergus, Gallatin, Garfield, Glacier, Golden Valley, Granite, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Lincoln, Madison, McConne, Meagher, Mineral, Missoula, Musselshell, Park, Petroleum, Phillips, Pondera, Powder River, Powell, Prairie, Ravalli, Richland, Roosevelt, Rosebud, Sanders, Sheridan, Silver Bow, Stillwater, Sweet Grass, Teton, Toole, Treasure, Valley, Wheatland, Wibaux, Yellowstone									
State Rank Reason: Small breeding population size, evidence of recent declines, and declining regeneration of riparian cottonwood forests due to altered hydrologic distribution of grazing and fire regimes. It is dependent on.									
Buteo regalis Ferruginous Hawk	Accipitridae Hawks / Kites / Eagles	G4	S3B	MBTA; BCC10; BCC17		SENSITIVE	SGCN3	11%	95%
Species Occurrences verified in these Counties: Beaverhead, Blaine, Broadwater, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Fallon, Fergus, Gallatin, Glacier, Hill, Jefferson, Judith Basin, Lewis and Clark, Liberty, Madison, McConne, Meagher, Musselshell, Park, Petroleum, Phillips, Pondera, Powder River, Prairie, Richland, Stillwater, Teton, Toole, Valley, Wheatland, Wibaux, Yellowstone									
Calcarius ornatus Chestnut-collared Longspur	Calcariidae Longspurs and Snow Buntings	G5	S2B	MBTA; BCC11; BCC17		SENSITIVE	SGCN2	32%	67%
Species Occurrences verified in these Counties: Big Horn, Blaine, Carbon, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Fallon, Fergus, Garfield, Glacier, Lake, Lewis and Clark, Liberty, McConne, Musselshell, Petroleum, Phillips, Powder River, Prairie, Richland, Roosevelt, Rosebud, Sheridan, Stillwater, Sweet Grass, Teton, Valley, Wheatland, Wibaux, Yellowstone									
State Rank Reason: Species has a negative short-term population trend and faces threats from loss of native prairie grassland habitats and altered frequency, intensity, and distribution of grazing and fire regimes. It is dependent on.									
Centronyx bairdii Baird's Sparrow	Passerellidae New World Sparrows	G4	S3B	MBTA; BCC11; BCC17		SENSITIVE	SGCN3	27%	67%
Species Occurrences verified in these Counties: Blaine, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Fallon, Fergus, Glacier, Hill, Judith Basin, Lewis and Clark, Meagher, Musselshell, Petroleum, Phillips, Powder River, Prairie, Richland, Roosevelt, Rosebud, Sheridan, Stillwater, Sweet Grass, Teton, Toole, Treasure, Valley, Wheatland, Yellowstone									
State Rank Reason: Montana populations were declining until recently and the species is declining in most or the surrounding states and provinces.									
Certhia americana Brown Creeper	Certhiidae Creeppers	G5	S3	MBTA			SGCN3	4%	53%
Species Occurrences verified in these Counties: Beaverhead, Broadwater, Carbon, Carter, Cascade, Chouteau, Deer Lodge, Fergus, Flathead, Gallatin, Glacier, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Lincoln, Madison, Meagher, Mineral, Missoula, Park, Powder River, Powell, Ravalli, Rosebud, Sanders, Silver Bow, Stillwater, Teton, Wheatland									
Coccothraustes vespertinus Evening Grosbeak	Fringillidae Finches	G5	S3	MBTA			SGCN3	3%	100%
Species Occurrences verified in these Counties: Beaverhead, Broadwater, Carbon, Carter, Cascade, Chouteau, Fergus, Flathead, Gallatin, Glacier, Golden Valley, Lake, Lewis and Clark, Lincoln, Madison, Meagher, Mineral, Missoula, Musselshell, Park, Pondera, Powder River, Powell, Ravalli, Sanders, Silver Bow, Stillwater, Teton, Valley, Wheatland, Wibaux, Yellowstone									
State Rank Reason: Populations in Montana and across North America have experienced rangewide declines, although the causes of these declines are unclear (BCC10)									
Dolichonyx oryzivorus Bobolink	Icteridae Blackbirds	G5	S3B	MBTA			SGCN3	9%	100%
Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Fallon, Garfield, Glacier, Granite, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Madison, McConne, Meagher, Missoula, Musselshell, Park, Petroleum, Phillips, Prairie, Ravalli, Richland, Roosevelt, Rosebud, Sanders, Sheridan, Stillwater, Sweet Grass, Teton, Valley, Wheatland, Wibaux, Yellowstone									
State Rank Reason: Species has undergone recent large population declines in Montana and a patchwork of declines and increases have been documented in surrounding states and provinces.									
Haemorhous cassinii Cassin's Finch	Fringillidae Finches	G5	S3	MBTA; BCC10			SGCN3	11%	62%
Species Occurrences verified in these Counties: Beaverhead, Big Horn, Broadwater, Carbon, Cascade, Chouteau, Custer, Deer Lodge, Fergus, Flathead, Gallatin, Granite, Jefferson, Judith Basin, Lake, Lewis and Clark, Lincoln, Madison, Meagher, Mineral, Missoula, Musselshell, Park, Petroleum, Phillips, Powder River, Powell, Silver Bow, Stillwater, Sweet Grass, Teton, Wheatland, Yellowstone									
State Rank Reason: Data show recent short-term declines in population for this species									
Icterus naevius Varied Thrush	Turdidae Thrushes	G5	S3B	MBTA			SGCN3	1%	37%
Species Occurrences verified in these Counties: Broadwater, Cascade, Flathead, Gallatin, Glacier, Golden Valley, Granite, Judith Basin, Lake, Lewis and Clark, Mineral, Missoula, Park, Pondera, Powell, Ravalli, Sanders, Teton									
State Rank Reason: The Varied Thrush has undergone recent population declines in Montana and across the Northern Rockies and where timber harvest, insect outbreaks, and loss of suitable breeding habitat.									
Leucosticte atrata Black Rosy-Finch	Fringillidae Finches	G4	S2	MBTA; BCC10			SGCN2, SGIN	38%	20%
Species Occurrences verified in these Counties: Beaverhead, Broadwater, Carbon, Cascade, Deer Lodge, Granite, Jefferson, Judith Basin, Madison, Meagher, Mineral, Missoula, Musselshell, Park, Petroleum, Phillips, Powder River, Powell, Silver Bow, Stillwater									
Leucosticte tephrocotis Gray-crowned Rosy-Finch	Fringillidae Finches	G5	S2B, S5N	MBTA			SGCN2, SGIN	1%	29%
Species Occurrences verified in these Counties: Cascade, Flathead, Glacier, Judith Basin, Lewis and Clark, Teton									
Nucifraga columbiana Clark's Nutcracker	Corvidae Jays / Crows / Magpies	G5	S3	MBTA	Species of Conservation Concern on Forests (FLAT)		SGCN3	9%	84%
Species Occurrences verified in these Counties: Beaverhead, Big Horn, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Deer Lodge, Fergus, Flathead, Glacier, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Lincoln, Madison, Meagher, Mineral, Missoula, Musselshell, Park, Petroleum, Phillips, Powder River, Powell, Ravalli, Sanders, Silver Bow, Stillwater, Sweet Grass, Teton, Toole, Wheatland, Yellowstone									
Numenius americanus Long-billed Curlew	Scolopacidae Sandpipers	G5	S3B	MBTA; BCC10; BCC17		SENSITIVE	SGCN3	19%	100%
Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Deer Lodge, Flathead, Gallatin, Garfield, Glacier, Golden Valley, Granite, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Madison, McConne, Meagher, Mineral, Missoula, Musselshell, Park, Petroleum, Phillips, Pondera, Powder River, Powell, Prairie, Ravalli, Richland, Roosevelt, Rosebud, Sanders, Sheridan, Stillwater, Sweet Grass, Teton, Toole, Treasure, Valley, Wheatland, Wibaux, Yellowstone									
Pipilo chlorurus Green-tailed Towhee	Passerellidae New World Sparrows	G5	S3B	MBTA			SGCN3	3%	60%
Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Chouteau, Custer, Deer Lodge, Fergus, Gallatin, Garfield, Golden Valley, Lake, Lewis and Clark, Madison, Meagher, Musselshell, Park, Petroleum, Phillips, Powder River, Silver Bow, Stillwater, Sweet Grass, Valley, Wheatland, Yellowstone									
State Rank Reason: Populations in Montana and across the Northern Rockies have undergone recent declines.									

Rhynchophanes mccownii McCown's Longspur	Calcariidae Longspurs and Snow Buntings	G4	S3B	MBTA; BCC10; BCC11; BCC17		SENSITIVE	SGCN3	41%	79%
Species Occurrences verified in these Counties: Beaverhead, Blaine, Broadwater, Chouteau, Daniels, Fergus, Glacier, Golden Valley, Hill, Judith Basin, Lewis and Clark, Lincoln, Musselshell, Petroleum, Phillips, Pondera, Rosebud, Sheridan, Stillwater, Sweet Grass, Teton, Toole, Valley, Wheatland, Yellowstone									
State Rank Reason: Species faces threats from cover type conversion and altered grazing and fire regimes, and although populations in the core of their breeding appear to be relatively stable, declines are occurring in much of the species' global breeding range.									
Strix nebulosa Great Gray Owl	Strigidae Owls	G5	S3	MBTA		SENSITIVE	SGCN3, SGIN	2%	46%
Species Occurrences verified in these Counties: Beaverhead, Carbon, Deer Lodge, Flathead, Gallatin, Granite, Jefferson, Judith Basin, Lake, Lewis and Clark, Lincoln, Park, Powell, Ravalli, Silver Bow, Sweet Grass, Teton, Wheatland									
Troglodytes pacificus Pacific Wren	Troglodytidae Wrens	G5	S3	MBTA			SGCN3	1%	39%
Species Occurrences verified in these Counties: Beaverhead, Broadwater, Cascade, Fergus, Flathead, Gallatin, Glacier, Granite, Jefferson, Judith Basin, Lake, Lincoln, Madison, Meagher, Mineral, Missoula, Park, Powell, Ravalli, Sanders, Stillwater, Sweet Grass, Teton									

AMPHIBIANS (AMPHIBIA)

COUNTY = JUDITH BASIN (based on map)

SCIENTIFIC NAME COMMON NAME TAXA SORT	FAMILY (SCIENTIFIC) FAMILY (COMMON)	GLOBAL RANK	STATE RANK	USFWS	USFS	BLM	FWP SWAP	% OF GLOBAL BREEDING RANGE IN MT	% OF MT THAT IS BREEDING RANGE
Anaxyrus boreas Western Toad	Bufonidae True Toads	G4	S2		Sensitive - Known on Forests (BD, BRT, CG, HLC, KOOT, LOLO)	SENSITIVE	SGCN2	6%	38%
Species Occurrences verified in these Counties: Beaverhead, Chouteau, Deer Lodge, Flathead, Gallatin, Glacier, Granite, Jefferson, Judith Basin, Lake, Lewis and Clark, Meagher, Mineral, Missoula, Park, Pondera, Powell, Ravalli, Sanders, Silver Bow, Teton									
State Rank Reason: Over the last few decades this species has undergone serious declines in abundance due primarily to infection with Chytrid fungus. While decoupling appear to have stabilized in the last decade, changes to abundance across the species range within Montana remain unknown. Significant threats to the remain from continued impacts of disease and mortality of adults and young during breeding and local migration.									

FISH (ACTINOPTERYGII)

COUNTY = JUDITH BASIN (based on map)

SCIENTIFIC NAME COMMON NAME TAXA SORT	FAMILY (SCIENTIFIC) FAMILY (COMMON)	GLOBAL RANK	STATE RANK	USFWS	USFS	BLM	FWP SWAP	% OF GLOBAL BREEDING RANGE IN MT	% OF MT THAT IS BREEDING RANGE
Chrosomus eos Northern Redbelly Dace	Cyprinidae Minnows	G5	S3				SGCN3	4%	27%
Species Occurrences verified in these Counties: Blaine, Cascade, Chouteau, Daniels, Dawson, Fergus, Golden Valley, Hill, Judith Basin, Lewis and Clark, McCone, Petroleum, Phillips, Pondera, Richland, Roosevelt, Sheridan, Stillwater, Sweet Grass, Teton, Toole, Valley, Wheatland, Wibaux									
State Rank Reason: The Northern Redbelly Dace is currently listed as an "S3" species of concern in Montana because they are potentially at risk because of limited range and/or habitat, even though it may be abundant in some areas.									
Chrosomus eos x Chrosomus neogaeus Northern Redbelly X Finescale Dace	Cyprinidae Minnows	GNA	S3			SENSITIVE	SGCN3		20%
Species Occurrences verified in these Counties: Blaine, Cascade, Chouteau, Fergus, Golden Valley, Judith Basin, Meagher, Musselshell, Petroleum, Phillips, Pondera, Valley, Wheatland									
State Rank Reason: The Northern Redbelly/Finescale Dace Hybrid is currently listed as an "S3" species of concern in Montana because they are potentially at risk declining numbers, range and/or habitat, even though it may be abundant in some areas.									
Oncorhynchus clarkii lewisi Westslope Cutthroat Trout	Salmonidae Trout	G5T4	S2		Sensitive - Known on Forests (BD, BRT, CG, HLC, KOOT, LOLO)	SENSITIVE	SGCN2		34%
Species Occurrences verified in these Counties: Beaverhead, Broadwater, Cascade, Chouteau, Deer Lodge, Fergus, Flathead, Gallatin, Glacier, Granite, Jefferson and Clark, Lincoln, Madison, Meagher, Mineral, Missoula, Park, Pondera, Powell, Ravalli, Sanders, Silver Bow, Teton, Wheatland									
State Rank Reason: The Westslope Cutthroat trout is currently ranked "S2" in Montana because it is at risk due to very limited and/or potentially declining population habitat, making it vulnerable to extirpation in the state.									

Potential Species of Concern

Special Status Species

Additions To Statewide List

Species Removed From Statewide List

Species of Greatest Inventory Need

Citation for data on this website:

Montana Animal Species of Concern Report. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on 4/2/2020, from <http://mtnhp.org/SpeciesOfConcern/?AorP=a>

U.S. Fish and Wildlife Service's Endangered, Threatened, Proposed and Candidate Species list

JUDITH BASIN		
<i>Lynx canadensis</i>	Canada Lynx	LT
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Pinus albicaulis</i>	Whitebark Pine	C