Petroleum County, Montana

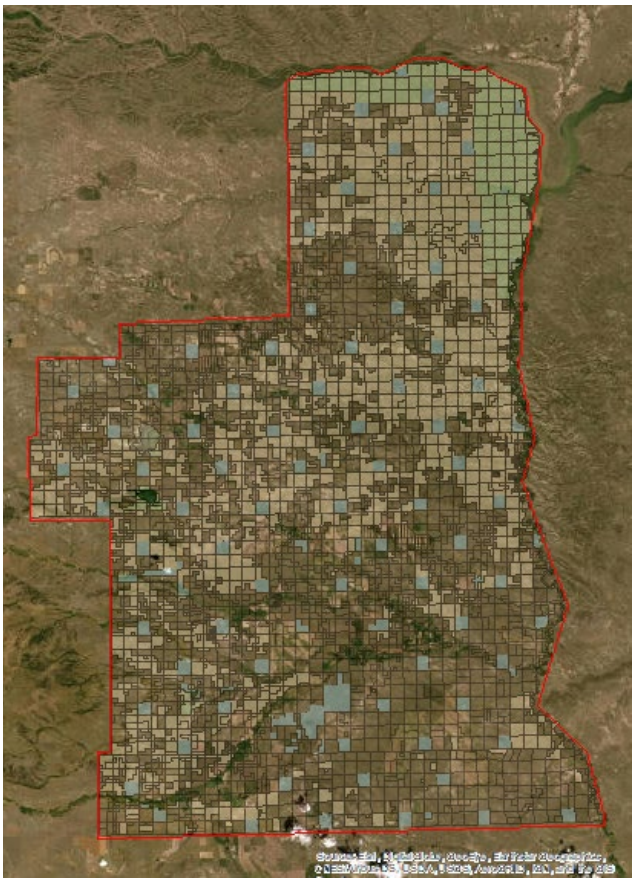
Long Range Plan

Completed in Cooperation with the Petroleum County Conservation District and Local Work Group – 2020

Section I: Introduction

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

The development of this document is based on information provided by producers and partners during Local Work Group (LWG) meetings as well as the Conservation District's Long-Range Work Plan Meeting. This document will be reviewed and modified annually (at a minimum). Attendees of the 2019 LWG include: Winnett ACES, Department of Natural Resource and Conservation (DNRC), Musselshell Watershed Coalition (MWC), MSU Extension, Big Sky Watershed Core Members, Petroleum County Conservation District (PCCD), local producers, and NRCS staff.



Vision:

Work cooperatively with partners and producers in Petroleum 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:

We deliver conservation solutions so agricultural producers can protect natural resources and feed a growing world.

Time Frame:

This Long-Range plan is for 5 years (2020-2025). This plan will be reviewed annually and amended as needed to provide up to date information on ever-changing resource conditions and needs.

Section II: Natural Resource Inventory

Petroleum County is located in Central Montana with the Musselshell River bordering to the East and the Missouri River bordering to the North. Petroleum County has a land area of 1,058,366 acres or 1,653 square miles. Land ownership is a mix of federal, state, and private land. BLM owns 329,680 acres (31%), state owns 63,947 acres (6%), FWS (primarily CMR) owns 56,081 acres (5%) and private land totals 608,628 acres (58%). The county seat is Winnett. About 85% of the county is rangeland, pastureland or grazable forest, and 14% is cropland.

Elevation ranges from 2,250 to 4,000 feet. The mean annual precipitation is about 13 inches and the mean annual temperature is 42 to 47 degrees F. The frost-free season is 105 to 135 days.

Landscape in Petroleum County is generally rolling prairie and sagebrush steppe with areas of timbered sandstone ridges. Breaks areas along the Missouri and Musselshell rivers create a broken, timbered landscape that falls away to cottonwood and willow river bottoms.

Human:

Petroleum County area was first settled by Europeans in the 1870s and 1880s following establishment of Fort Maginnis to the West in 1880. Stock growers moved into the Musselshell river area about that time. From 1911 to 1915, squatters and homesteaders set up on 320-acre parcels and began to develop these parcels for agriculture. In the 1930s many of these were abandoned and reverted to U.S. Government. These lands eventually became BLM lands. (3)

According to 2017 Census of Agriculture, 104 farms comprise 592,558 acres and the average farm size is 5,698 acres. The average age for the population in this county is 52 years old (2). The main crops in Petroleum County are wheat, barley, alfalfa and grass hay. There are approximately 10,881 acres irrigated in 2017 (2). Beef production (cow/calf operations) is the main economic enterprise (2). Wildlife and Recreation are also large economic drivers in this county. An abundance of big game (i.e. elk, mule deer and upland birds) and access to fisheries of the Missouri River and Fort Peck Reservoir, draw hunters and sportsmen to this area. Historically, petroleum production has been a large economic enterprise as well but has declined in recent times.

Soils:

Petroleum County occurs within MLRA 58A, Sedimentary Plains. Dominant ecosites are Clayey, Silty and Shallow (3). See ecological site descriptions for these sites for further detail. Most cropped soils in the county are considered Highly Erodible Land. Wind erosion is a prominent concern on cropped fields. Salinity and reductions in organic matter are concerns on both crop and rangeland soils.

Saline seeps are occurring throughout the county on both range and crop acres. Recent high moisture and precipitation patterns may be contributing to these seeps. Salinity issues not only affect water quality, but impact both crop land and grazing land productivity. Some areas of salinity are naturally forming. Proper management of crop land can positively affect the impacts of saline seep caused from farming practices.

A general history of overuse by livestock on native range, as well as conventional farming methods that include tillage and fallow, have also contributed to a general reduction in organic matter and overall soil health in Petroleum County soils.

Prime and other important farmland is located throughout Petroleum County and make up about 6% of the county's soils (3). These soils are considered prime in the places that they are irrigated. According to 2017 Census of Agriculture, there are approximately 10,881 acres of irrigated cropland in the county.

Water:

Tributaries of the Musselshell River drain nearly the entire survey area. Drainage of the northernmost part of the county is through small, northward-flowing tributaries of the Missouri River. Soda Creek flows eastward into the Missouri River (Fort Peck Reservoir) along the west side of U L Bend. Crooked Creek, just south of Soda Creek, flows into the part of Fort Peck Reservoir that was formerly the Musselshell River Valley. The major drainage southward from Crooked Creek consists of Dovetail, Blood, and Box Elder Creeks. McDonald and Flat Willow Creeks are tributaries to Box Elder Creek. Yellow Water Creek joins Flat Willow Creek several miles above its confluence with Box Elder Creek. (3)

None of the streams of the county carry large amounts of water, and most of the minor streams do not flow except during spring runoff or after intensive rainfall or extended rainy periods. The minor streams in the county are, from north to south, Soda, Drag, Cat, Mud Spring, and North Willow Creeks. Sage and Dry Blood Creeks are tributaries to Blood Creek. Bear, South Fork Bear, Fords, and Buffalo Creeks are lesser tributaries of Box Elder Creek. All of the above streams drain eastward on a relatively low gradient. (3)

All the larger creeks of the survey area have flood plains along their courses. Low alluvial terraces are not uncommon. The alluvium on these flood plains and terraces consists of sand, pebbles, and cobbles, but mainly of silt and clay. (3)

Wild Horse Lake, which is natural, lies in an undrained depression west of Box Elder Creek between South Fork Bear and Fords Creeks. Of the several other impounded bodies of water in the county, the largest, which is fed by an irrigation canal, is War Horse Lake. (Petroleum County Soil Survey) (3)

Petrolia Reservoir is located Southeast of Winnett and is an impoundment of Flatwillow creek. This reservoir provides irrigation infrastructure to farms below the reservoir. It also provides recreation in the form of fishing and water sports.

Montana DEQ lists several water bodies within Petroleum County as impaired. Musselshell river, Flatwillow creek, Box Elder creek, McDonald creek, Fords creek, and Blood creek are all listed on the 303(d) list as impaired. Causes for impairment include, but are not limited to alteration in stream-side or littoral vegetative covers, flow regime

modification, habitat alterations, sedimentation, salinity, etc. Sources include, but are not limited to crop production, grazing in riparian areas, and natural sources. (5)

Livestock water in this county is supplied by both stock ponds/reservoirs and well and pipeline. In recent years, many stock ponds throughout the county have become "sour" due to increased sulfates from subsurface leaching during high moisture years. These sulfates have increased to toxic levels for livestock and many have been breached. There are a significant number of artesian wells flowing in this county. In the past, capping and decommissioning projects have addressed free flowing wells. There is further need to cap and decommission more of these free-flowing wells in the county. In general, livestock water distribution is a limiting factor in grazing management. Lack of livestock water is contributing to rangeland health concerns by reducing grazing management capabilities.

Air and Energy:

Petroleum County has no air quality concerns identified by DEQ. Energy has not been identified as a resource concern. There is no alternative energy production such as wind farms, in Petroleum County.

Plants:

Petroleum County is predominately rangeland and grazing land is the predominate land use. Again, the county lies within MLRA 58A sedimentary plains. The Landscape is a combination of mixed grass prairie and sagebrush steppe. Climax plant species of the dominant ecosites include; bluebunch wheatgrass, green needlegrass, Wyoming big sagebrush and western wheatgrass. Grazing management is generally focused on proper grazing utilization of the decreaser species, bluebunch wheatgrass and green needlegrass. Ponderosa pine is a climax species along ridges and breaks. Improper grazing use and lack of historic fire regime has created plant community composition issues across most ecosites (6). Crested wheatgrass stands that were historically planted to "improve" range production, have created a habitat and plant resource concern over many acres. These crested wheatgrass stands have resulted in monocultures that provide poor forage, reduce plant diversity and provide virtually no habitat value to wildlife.

Noxious weeds are present in Petroleum County and create degraded plant condition – undesirable plant productivity and health and inadequate structure and composition resource concerns. Leafy spurge, spotted knapweed, Russian knapweed, whitetop, and Canada thistle are examples of common noxious weeds found on range and pasture. Invasive winter annuals such as cheatgrass and Japanese brome are an excessive plant pest pressure concern on range, pasture and cropland as well. Salt cedar is an emerging issue along riparian areas of the Missouri, Musselshell, Boxelder and Flatwillow drainages. The extent of salt cedar is not completely known and needs further mapping at this time. Control efforts are in place to address weeds, but more management is needed to keep these weeds from spreading and claiming more range, pasture and cropland

Forage for hay and 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 small grains/fallow (mostly chemical fallow). 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, prickly lettuce, Russian thistle, cheatgrass, and other broadleaf annuals.

The Montana Natural Heritage Program (MTNHP) Plant Species of Concern Report last updated on April 16, 2020 lists 5 plant species of concern that may be found in Petroleum 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.

Animals:

Petroleum County ranks 45th of counties for livestock, poultry and products sales. Of this, cattle and calves sales are number one for the county. Other domestic animals found in the county include pigs, sheep, goats, and horses. (2)

Wildlife is abundant in this county. Sagebrush and grassland habitats are relatively intact and provide habitat for a suite of important and threatened songbirds. Sage-grouse are an important species of concern in the county. Ungulates such as elk, mule deer, and antelope thrive throughout the area. Other animals include, but are not limited to, coyotes, fox, badgers, prairie dogs, turkey, beaver, bobcats, mountain lions and various small mammals.

Montana's State Wildlife Action Plan identifies the Sage Grouse Core Area as one of the top Terrestrial Focal Areas in the state. Part of this core area occurs in Fergus County. "This Focal Area contains one of the greater sage-grouse core areas and has large contiguous habitat…Livestock grazing is a major land use in the area and proper management practices are critical to maintaining the area's SGCN habitat values." [8]

Elk are a wildlife species which are somewhat controversial in this county. They provide hunters with a significant recreational and hunting opportunity, yet they compete for forage with domestic livestock and create issues for land managers when planning crop rotations and fencing projects.

Fisheries for walleye, sauger, northern pike, channel catfish, paddlefish, yellow perch and other panfish exist in the larger river systems that border the county. Pallid sturgeon is found in the upper Missouri and is listed as an Endangered species. A variety of other fish including northern redbelly dace, sturgeon chub, paddlefish, blue sucker, sicklefin chub, and sauger, are listed as Sensitive species. (7)

The U.S. Fish and Wildlife Service Endangered, Threatened, Proposed and Candidate Species list dated December 12, 2019 identifies two species for Petroleum County: pallid sturgeon (endangered) and red knot (threatened).

The MTNHP Animal Species of Concern Report last updated April 16, 2020 identifies 42 animals in Petroleum County. (7) 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.

Section III: Conservation Activity Analysis

NRCS:

In the past 5 years, the NRCS office in Winnett 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).

National Sage Grouse Initiative (SGI) has been a successful source of EQIP funding in Petroleum county. Majority of the county lies within core sage grouse habitat and large-scale ranch planning to address threats to sage grouse has occurred. Practices associated with SGI have been water and fence infrastructure (fence, wells, pumping plants, pipelines and tanks), prescribed grazing and fence marking.

Cropland practices have included cover crop, range planting and forage and biomass plantings. Many of these practices have been associated with SGI special initiative to seed cropland back to grass to address threats to sage grouse habitat.

In general, water on grazing land to facilitate improved grazing management has been a priority in the county. Whether or not these grazing land resource concerns are addressed through SGI or other fund pools, there is continued interest in these grazing land infrastructure practices.

Partners and Potential Partners:

Petroleum County Conservation District

Winnett ACES

FSA

MSU extension

Montana Salinity Control

Petroleum County Commissioners

Petroleum County Weed District

Montana Fish Wildlife and Parks

Nature Conservancy

Pheasants Forever

Montana Dept of Natural Resources & Conservation (DNRC)

Bureau of Land Management

Charles M. Russell Wildlife Refuge (USFWS)

Petrolia Irrigation District

Musselshell Watershed Coalition

Missouri River Conservation District Council

World Wildlife Fund

Bird Conservancy of the Rockies

Montana State University

Partner Contributions to Conservation:

Partner	Project	Timeframe	Location
PCCD	Flowing Wells		County wide
PCCD	Education in schools-AgDay	ongoing	County wide
PFW (USFWS)	Water development/fence	2018 - present	County wide

ACES	Conservation Committee	2019 - present	County wide (Musselshell Plains)
ACES/PFW/Bird Conservancy of the Rockies	Grassland bird monitoring	2017 – present	County wide
ACES & MSU	Range/Soil Monitoring (Carbon)	2017 – present	County wide
Duck Unlimited	Cottonwood Regeneration/monitoring	2012 - 2016	Along Musselshell River
Montana Salinity Control	Salinity well monitoring	2009 – present	County wide

Section IV: Natural Resource Problems and Desired Future Outcomes

Grazing land Health:

Cattle are the largest agriculture market in Petroleum County (2). 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. Improper grazing management and overgrazing continues to be a concern whether it is from overuse or underuse. Degraded Plant Condition – Undesirable Plant Productivity and Health and Inadequate Structure and Composition Are resource concerns associated with livestock grazing on range and pasture. Lack of watering facilities to help distribute cattle throughout the pasture also contributes to poor livestock distribution and overuse. Trailing by livestock, often creates gully and general erosion. This often occurs in heavily used winter pastures where grazing periods are often extended due to weather constraints. 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 is very high. Proper grazing management with facilitating water and fence improvements can positively affect range, pasture, and riparian health as well as wildlife habitat, it reduces sedimentation and can impact overall hydrologic function.

Education on proper grazing management strategies and the use of complimentary and introduced pastures or cover crops for grazing are options to defer use and 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.

Inadequate Habitat is a concern on range and pasture. Proper grazing management facilitated by structural practices, will help to combat this concern. Conversion of native range to cropland continues to be a concern regarding habitat continuity and cover for grassland birds as well as erosion (wind and water).

Excessive Plant Pest Pressure is a resource concern on range and pasture. Noxious weeds have a negative impact on grazing land. Though efforts have been made in the past to address leafy spurge, spotted knapweed, whitetop, follow up treatment is needed. The spread of noxious weeds is a legitimate concern throughout the county. These weeds take over grazing areas, reducing the desirable vegetation, and reduce production and carrying capacity. Salt cedar is emerging as a priority weed concern along riparian corridors within the county. Missouri and Musselshell watersheds are seeing an increase of salt cedar density and Flatwillow Cooperative Weed Management Area has been identified as an area of concern. Invasive winter annual grasses including cheatgrass and Japanese brome continue to negatively impact forage quality and production as well as plant community composition. Ventenata is an emerging invasive grass in Montana though it has not been recorded in Petroleum County at this time. Efforts should be made to stop establishment or spread of this plant in Petroleum County. Integrated Pest Management, using all tools for weed control, should be applied to address invasives in Petroleum County.

Wildfire Hazard and Excessive Biomass Accumulation is a resource concern identified in Petroleum County. Historic fire suppression can be blamed for increased fuel loads, conifer encroachment and alterations in plant community composition (i.e. increases in club moss or conifer encroachment into sage-steppe). Accumulation of excessive biomass and loss of a natural historic fire return interval has negatively impacted plant community composition on range and grazing lands.

Soil Health:

Poor soil health occurs and impacts the overall function of the soil and results in resource concerns such as wind and water erosion, reduced organic matter, soil compaction, pests/disease, soil acidity, salinity and chemical resistance by weeds. Soil health on cropland is a concern throughout the county where cropland is present. A few producers in Petroleum County have begun to adopt components of the 5 soil health principles. More education and information need to be provided to help producers understand the importance of adopting soil health principles. 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 lack of diversity, use of chemicals, lack of living roots during fallow periods and increased soil temperatures associated with fallow. Diversification of the cropping system, including the use of cover crops, will help increase microbial activity, reduce tillage, and overall improve the health of the soil. Some producers in the county have made management decisions to implement the principles of soil health, while others have continued to farm by conventional tillage and high inputs. 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 to defer use on native range. This in turn, will have a positive effect on rangeland health. By improving soil health, we can address wind and water erosion, soil compaction, crop pests, disease, soil acidity, and chemical resistance by weeds.

Salinity caused from wheat/fallow rotations, 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:

Nutrients in surface water, salts in surface water, excessive sediments in surface water are all Water Quality Degradation resource concerns that have been identified in waters of Petroleum County. Water quality concerns are tied to healthy soils and healthy plant communities. In a functioning ecosystem, soil and plants act as a filter for water whether it be surface or ground water. Agronomic practices including cropping and grazing near riparian areas, can impact water quality with increased turbidity, sediments, salts and other contaminants. Annual flooding increases 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 and riparian health. Water quality is highly important for livestock health and production. Stock ponds are often of poor quality for cattle and are frequently high in sulfates and total dissolved solids. From an animal health and production perspective, there is a need for higher quality water that may only come from well sources

Water Quantity:

Water quantity is a limiting factor for managing grazing lands in this county. In this semi-arid landscape, surface water for livestock may be widely dispersed or unreliable in the late summer. Wells may be 1,000 to 2,000 feet + deep in many areas.

Irrigators in this county continue to rely on flood irrigation to water crops where irrigation is present. There has been a need to update much of the irrigation infrastructure as many of the ditches and canals are experiencing seepage and general decay. Conversion from flood to sprinkler irrigation would likely improve irrigation efficiency and show a water savings in irrigated areas. Conversion to sprinkler irrigation may also have positive impacts to salinity on certain soils.

Resiliency to Natural Disaster:

Petroleum County experiences highly volatile weather patterns and climate. As a result of ever-changing weather conditions, this county experiences frequent natural disaster. Fire, drought, and flood create safety, economic, and ecological issues.

Fire is a natural part of the historic disturbance regime on all ecosites in this county. Again, Wildfire Hazard and Excessive Biomass Accumulation is a resource concern identified. Historic fire suppression can be blamed for increased fuel loads, conifer encroachment and alterations in plant community composition (i.e. increases in club moss or conifer encroachment into sage-steppe). These alterations may be affecting hydrology and habitat value for a suite of wildlife from large mammals to small grassland songbirds. There has been an increased potential for catastrophic fire as seen by the Lodge Pole Fire Complex in 2017. Efforts to reduce fuel loads by mechanical thinning have taken place on both private and BLM range acres and should continue. Prescribed fire to reduce fuel loads, as well prescribed fire to manage plant community composition should not be overlooked. In the past, liability issues have hindered efforts to use prescribed fire as a range management tool on private land. In the Great Basin, winter annuals have impacted natural fire regimes which in turn have further degraded plant communities in that area. Here in Petroleum County, grazing management and targeted grazing should be a tool used to manage these annuals, so we do not follow in the footsteps of the Great Basin. Following catastrophic fire, there has been a need to rebuild grazing land infrastructure so that producers can recover and move forward with proper management of grazing lands. This will likely be needed in the future.

Drought is a natural and common occurrence in this region. Drought can impact animal and range health as well as production. Drought should be expected and planned for. Proper management of grazing lands and improving soil health on all land uses will build resiliency against drought and the production swings associated with it. Lack of surface water for livestock has been an issue in times of drought. There will be a need to address livestock water in the future times of drought.

Flooding occurs on a seemingly more and more frequent basis in the county. Large scale flooding has occurred in this county in 2011, 2014, 2016 and 2018. Recent flooding has contributed to loss of bank stability, irrigation infrastructure, sedimentation, and hydrologic function in many streams, drainages and riparian areas. Flooding has also contributed to spread of noxious weeds. There has been a need in this county to stabilize banks, reconstruct irrigation infrastructure, and reseed fields following flooding. EQIP, ECP and EWP have been used in the past to address resource concerns created by flooding. It is expected that these programs will be needed in the future to address damage from future floods.

Section V: Prioritization of Natural Resource Problems and Desired Outcomes

Petroleum County Local Work Group met on 2/28/2019 and Petroleum County Conservation District developed their 2020-2025 Long-Range Plan in January 2020. The following objectives and resource concerns were assembled at these meetings but prioritized by NRCS conservationist in the Winnett field office based on professional judgement. Prioritization of conservation objectives are as follows:

I. Objective: Grazinglands Resources and Conservation
   a. Resource Concerns:
      i. Undesirable plant health and vigor – Reduced range/pasture health associated with grazing practices and lack of infrastructure.
      ii. Plant community composition - Reduced range/pasture health associated with grazing practices and lack of infrastructure.
      iii. Wildfire Hazard, excessive biomass accumulation – occurring on grazed forest and rangeland.
      iv. Plant pest pressure – Noxious weeds such as salt cedar, leafy spurge, and knapweeds.
      v. Inadequate Habitat – Continuity and Cover/Shelter for grassland songbirds and sage-grouse.
   b. Desired Outcomes
      i. Maintain and Improve range and pasture health in Petroleum County by improving grazing management and infrastructure to facilitate management.
      ii. Establish and treat target areas of noxious weed concern.
      iii. Improve habitat for grassland songbirds and sage-grouse on range and pasture through increased grazing management and proper use. May include seeding crop back to perennial vegetation and providing infrastructure.

II. Objective: Soil Health Resources and Conservation
   a. Resource Concerns:
      i. Soil quality degradation – habitat for microbiology on range, pasture and crop.
      ii. Soil quality degradation – organic matter depletion on range, pasture and crop.
      iii. Soil quality degradation – Compaction on pasture and crop.
      iv. Soil erosion – Sheet/rill, wind, gully on crop.
   b. Desired Outcomes:
      i. Maintain and improve soil health on cropland by implementing the 5 Principles of Soil Health (Soil armor, minimize soil disturbance, plant diversity, continual live plant/root, livestock integration)
      ii. Reduce existing tillage
      iii. Reduce fallow
      iv. Incorporate cover crops into rotations.
      v. Seeding back to diverse perennial cover.

III. Objective: Water Resources and Conservation
   a. Resource Concerns:
      i. Water Quality Degradation – Sediment in surface water.
      ii. Water Quality Degradation – Nutrients in surface water.
      iii. Water Quality Degradation – Salts in surface water.
      iv. Inadequate Habitat – Riparian and wetland habitat for fish and wildlife.
   b. Desired Outcomes
      i. Improve surface water quality through proper grazing management.

ii. Apply offsite and additional livestock water infrastructure to facilitate proper grazing management.
iii. Maintain and improve riparian health.
iv. Reduce salinity on crop, range and pasture by seeding recharge areas.
v. Improve fisheries, riparian and mesic habitat for grassland songbirds, sage grouse and fish species of concern by improving irrigation infrastructure, proper grazing management and facilitating practices.

Sources:

1 – 2016 US Census

2 – 2017 Census for Agriculture – Petroleum County Profile

3- Soil Survey of Petroleum County, Montana, United States Department of Agriculture.

4 – Montana Cadastral Mapping Project, (www.gis.mt.gov) 2018

5 – Montana DEQ 2018 Integrated Report and 303(d) list

6 – MLRA 58A Ecological Site Descriptions – USDA

7 - mt.gov – Montana Natural Heritage Program – Species of Concern Report Petroleum County

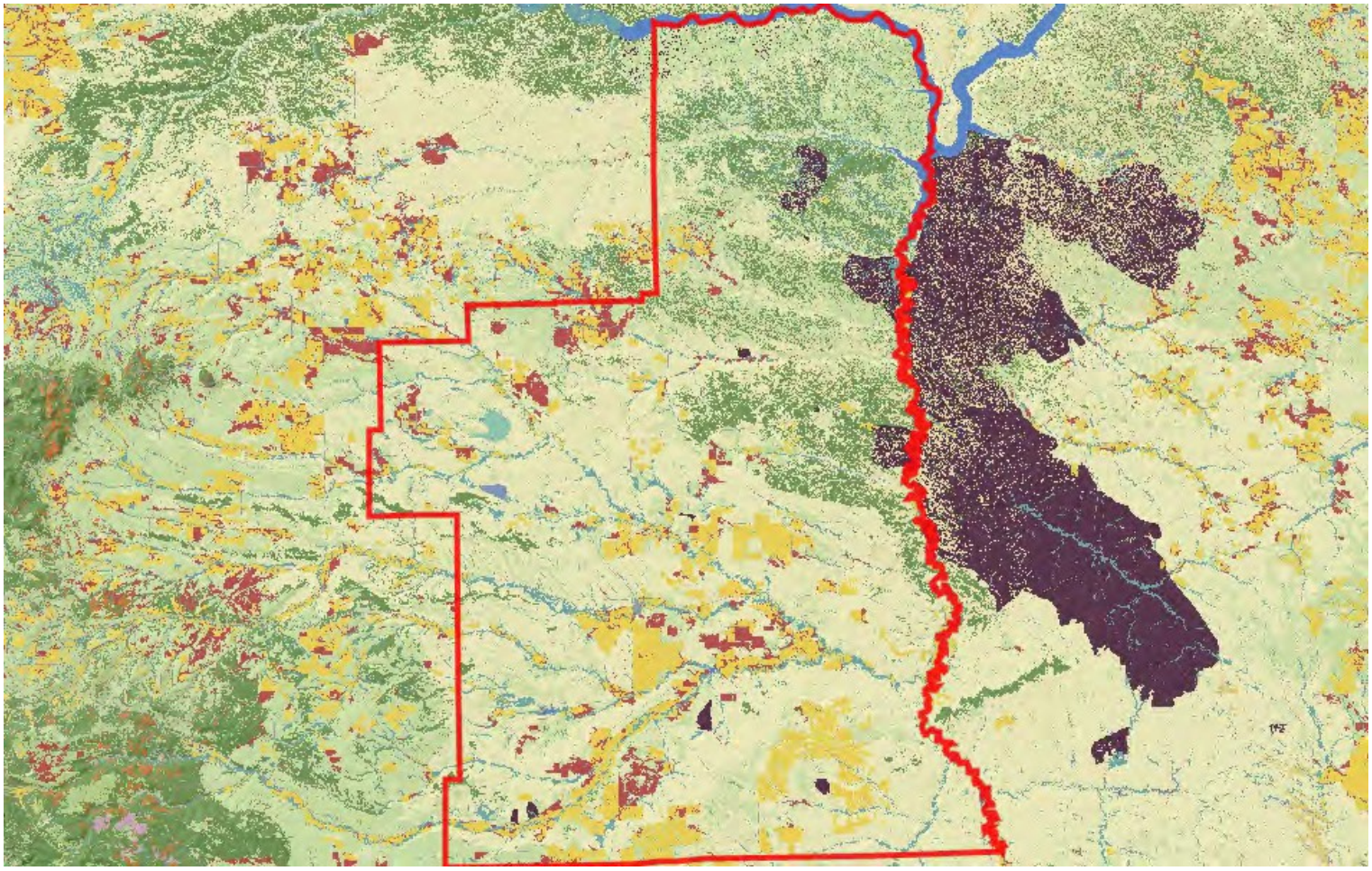
8 - Montana's State Wildlife Action Plan 2015 Final – page 106

MONTANA Natural Heritage Program
Aprogram of the **Montana State Library's Natural Resource Information System** operated by the **University of Montana**.

Latitude	Longitude
46.75018	-107.79922
47.59478	-108.74222

Land Cover

Summarized by: **Petroleum** *(County)*



45% (*481,216 Acres*)

Shrubland, Steppe and Savanna Systems

Sagebrush Steppe

Big Sagebrush Steppe

This widespread ecological system occurs throughout much of central Montana, and north and east onto the western fringe of the Great Plains. In central Montana, where this system occurs on both glaciated and non-glaciated landscapes, it differs slightly, with more summer rain than winter precipitation and more precipitation annually. Throughout its distribution, soils are typically deep and non-saline, often with a microphytic crust. This shrub-steppe is dominated by perennial grasses and forbs with greater than 25% cover. Overall shrub cover is less than 10 percent. In Montana and Wyoming, stands are more mesic, with more biomass of grass, and have less shrub diversity than stands farther to the west, and 50 to 90% of the occurrences are dominated by Wyoming big sagebrush with western wheatgrass (*Pascopyrum smithii*). Japanese brome (*Bromus japonicus*) and cheatgrass (*Bromus tectorum*) are indicators of disturbance, but cheatgrassis typically not as abundant as in the Intermountain West, possibly due to a colder climate. The natural fire regime of this ecological system maintains a patchy distribution of shrubs, preserving the steppe character. Shrubs may increase following heavy grazing and/or with fire suppression. In central and eastern Montana, complexes of prairie dog towns are common in this ecological system.

18% (*188,034 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 curtiseta)* dominated vegetation are found in northernmost Montana and North Dakota, and are associated with productive sites, now mostly converted to farmland. Forb diversity is typically high. In areas of southeastern and central Montana where sagebrush steppe borders the mixed grass prairie, common plant associations include Wyoming big sagebrush-western wheatgrass (*Artemisia tridentata* ssp. *wyomingensis/ Pascopyrum smithii*). Fire and grazing are the primary drivers of this system. Drought can also impact it, in general favoring the shortgrass component at the expense of the mid-height grasses. With intensive grazing, cool season exotics such as Kentuc ky 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 Kentuc ky bluegrass (*Poa pratensis*)/western wheatgrass *(Pascopyrum smithii)* or into pure crested wheatgrass (*Agropyron cristatum)* stands.

8% (*83,479 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.

6% (*66,523 Acres*)

Forest and Woodland Systems

Conifer-dominated forest and woodland (xeric-mesic)

Great Plains Ponderosa Pine Woodland and Savanna

These ponderosa pine (*Pinus ponderosa*) occurrences differ from the Rocky Mountain Ponderosa Pine Woodland and Savanna systems in that they are typically found within the matrix of the Great Plains grassland systems. They are often surrounded by mixed-grass prairie, in places where available soil moisture is higher or soils are more coarse and rocky. Elevation ranges from 1,189 meters (3,900 feet) in southeastern Montana to 1,646 m (5,400 feet) in north-central Montana. Occurrences are usually on east- and north-facing aspects. These woodlands can be physiognomically variable, ranging from very sparse patches of trees on drier sites, to nearly closed-canopy forest stands on north slopes or in draws where available soil moisture is higher.

4% (*44,871 Acres*)

Wetland and Riparian Systems

Floodplain and Riparian

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, Clarkâ€™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 systemâ€™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.

Sparse and Barren Systems
Bluff, Badland and Dune

4% (*41,884 Acres*)

Great Plains Badlands

The Western Great Plains Badlands ecological system occurs within the mixed grass and sand prairie regions of eastern and southeastern Montana, where the land lies well above or below its local base level, shaped by the carving action of streams, erosion, and erosible parent material. It is easily recognized by its rugged, eroded, and often colorful land formations, and the relative absence of vegetative cover. In those areas with vegetation, species can include scattered individuals of many dryland shrubs or herbaceous taxa, including curlycup gumweed (*Grindelia squarrosa*), threadleaf snakeweed (*Gutierrezia sarothrae*) (especially with overuse and grazing), greasewood (*Sarcobatus vermiculatus*), Gardnerâ €™s saltbush (*Atriplex gardneri*), buckwheat (*Eriogonum* species), plains muhly (*Muhlenbergia cuspidata*), bluebunch wheatgrass (*Pseudoroegneria spicata*), and Hookerâ€™s sandwort (*Arenaria hookeri*). Patches of sagebrush (*Artemisia* spp.) can also occur. Climate is typical of mid continental regions with long severe winters and warm summers. Precipitation ranges from 7 to 14 inches per year, with two-thirds of the precipitation falling during the summer, and a third falling in the spring. The sedimentary parent material of exposed rocks and the resultant eroded clay soils are derived from Cretaceous sea beds and are often fossil-rich. Dominant soil types are in the order Entisols. These mineral soils are found primarily on uplands, slopes, and creek bottoms and are easily erodible. The growing season is short, averaging 115 days, with a range from 100 days on the Canadian border to 130 days on the Wyoming border. Land use is limited, except for off-highway vehicle recreation and incidental grazing.

Recently Disturbed or Modified
Introduced Vegetation

3% (*35,057 Acres*)

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.

Grassland Systems
Lowland/Prairie Grassland

3% (*29,630 Acres*)

Great Plains Sand Prairie

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

Forest and Woodland Systems
Conifer-dominated forest and woodland (xeric-mesic)

3% (*29,072 Acres*)

Rocky Mountain Foothill Woodland-Steppe Transition

This inland Pacific Northwest ecological system occurs in the foothills of the Montana Rocky Mountains, where it forms a broad ecotone between true forests ad true steppe, shrublands, or grasslands, typically on warm, dry, exposed sites too droughty to support a closed tree canopy. This is not a fire-maintained system. The "steppe" character results from a climate-edaphic interaction that results in a graminiod-dominated landscape with widely scattered trees; even in the absence of fire, a "woodland" or "forest" structure will not be obtained. Occurrences are found on all slopes and aspects; however, moderately steep to very steep slopes or ridgetops on southerly or western aspects are most common. They can be found on glacial till, glacio-fluvial sand and gravel, dune, basaltic rubble, colluvium, deep loess or volcanic ash-derived soils, with characteristic features of good aeration and drainage, coarse texture, and an abundance of mineral material. Ponderosa pine (*Pinus ponderosa*) or Douglas-fir (*Pseudotsuga menziesii*)are the predominant conifers. Limber pine (*Pinus flexilis*)may be present in some occurrences. In fire-protected transition areas with big sagebrush steppe systems, antelope bitterbrush (*Purshia tridentata*), Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis),* big sagebrush (*Artemisia tridentata* ssp. *tridentata*), and three-tip sagebrush (*Artemisia tripartita*) may be common. Deciduous shrubs such as common ninebark (*Physocarpus malvaceus*), commonsnowberry (*Symphoricarpos albus*), or birch leaf spiraea (*Spiraea betulifolia)may* be abundant in occurrences west of the Continental Divide. Important grass species include bluebunch wheatgrass (*Pseudoroegneria spicata*), Sandbergâ€™s bluegrass (*Poa secunda*), needle and thread (*Hesperostipa comata*), needlegrass (*Achnatherum*species), and bottlebrush squirreltail (*Elymus elymoides*). This system is very similar to Northern Rocky Mountain Ponderosa Pine Woodland and Savanna, but with more widely scattered trees.

Additional Limited Land Cover

1% (*14,020 Acres*) Pasture/Hay

1% (*9,215 Acres*) Open Water

1% (*8,847 Acres*) Greasewood Flat

1% (*8,017 Acres*) Recently burned forest

1% (*6,420 Acres*) Other Roads
<1% (*4,481 Acres*) Burned Sagebrush
<1% (*3,312 Acres*) Great Plains Floodplain
<1% (*3,027 Acres*) Recently burned grassland
<1% (*2,902 Acres*) Great Plains Saline Depression Wetland
<1% (*2,339 Acres*) Great Plains Shrubland
<1% (*2,116 Acres*) Great Plains Wooded Draw and Ravine
<1% (*1,948 Acres*) Shale Badland
<1% (*1,175 Acres*) Major Roads
<1% (*945 Acres*) Emergent Marsh
<1% (*446 Acres*) Recently burned shrubland
<1% (*366 Acres*) Introduced Riparian and Wetland Vegetation
<1% (*347 Acres*) Low Intensity Residential
<1% (*194 Acres*) Great Plains Open Freshwater Depression Wetland
<1% (*140 Acres*) Developed, Open Space
<1% (*106 Acres*) Great Plains Cliff and Outcrop
<1% (*95 Acres*) Great Plains Closed Depressional Wetland
<1% (*62 Acres*) High Intensity Residential
<1% (*49 Acres*) Commercial / Industrial
<1% (*47 Acres*) Oil and Oil / Gas
<1% (*31 Acres*) Post-Fire Recovery
<1% (*8 Acres*) Injection

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

Animal Species of Concern

Species List Last Updated **04/16/2020**

42 Species of Concern
1 Special Status Species
Filtered by the following criteria:
County = Petroleum (based on mapped Species Occurrences)

MONTANA Natural Heritage Program

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
42 Species
Filtered by the following criteria:
County = Petroleum (based on mapped **Species Occurrences**)

MAMMALS (MAMMALIA) — 6 SPECIES — COUNTY = PETROLEUM (based on mapped **Species Occurrences**)

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	HABITAT
Cynomys ludovicianus Black-tailed Prairie Dog	Sciuridae Squirrels	G4	S3		Sensitive - Known on Forests (CG)	SENSITIVE	SGCN3	15%	71%	Grasslands
		Species Occurrences verified in these Counties: Big Horn, Blaine, Carbon, Carter, Cascade, Chouteau, Custer, Fallon, Fergus, Garfield, Golden Valley, Hill, Jefferson, Judith Basin, Lewis and Clark, Liberty, Mccone, 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 to decline and has affected colony size and dynamics. Ongoing threats from disease and persecution due to perceived competition with grazing make long-term status of this species uncertain.							
Lasiurus borealis Eastern Red Bat	Vespertilionidae Bats	G3G4	S3			SENSITIVE		0%	46%	Riparian forest
		Species Occurrences verified in these Counties: Big Horn, Blaine, Carbon, Carter, Cascade, Chouteau, Custer, Daniels, Fergus, Garfield, Glacier, Hill, Judith Basin, Lewis and Clark, Mccone, 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 and fall. Tree roosting bat 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 state.							
Lasiurus cinereus Hoary Bat	Vespertilionidae Bats	G3G4	S3			SENSITIVE	SGCN3	2%	100%	Riparian and forest
		Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Deer Lodge, Fallon, Fergus, Flathead, Gallatin, Garfield, Glacier, Golden Valley, Granite, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Lincoln, Madison, Mccone, 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							
Mustela nigripes Black-footed Ferret	Mustelidae Weasels	G1	S1	LE; XN	Endangered, Experimental Nonessential on Forests (CG)	ENDANGERED	SGCN1	12%	1%	Grasslands
		Species Occurrences verified in these Counties: Big Horn, Blaine, Fergus, Garfield, Petroleum, Phillips, Valley								
Myotis lucifugus Little Brown Myotis	Vespertilionidae Bats	G3	S3				SGCN3	3%	100%	Generalist
		Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Deer Lodge, Fallon, Fergus, Flathead, Gallatin, Garfield, Glacier, Golden Valley, Granite, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Lincoln, Madison, Mccone, 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:** Species is common and widespread, but under significant threat of catastrophic declines due to White-Nose Syndrome, a fungal disease responsible for the collapse of populations of this species in the eastern US.							

Sorex merriami Merriam's Shrew	**Soricidae** Shrews	G4	S3				SGCN3	9%	57%	Sagebrush grassland
		Species Occurrences verified in these Counties: Beaverhead, Big Horn, Carbon, Carter, Cascade, Chouteau, Custer, Hill, Mccone, Park, Petroleum, Phillips, Powder River, Prairie, Rosebud, Sweet Grass, Teton, Valley, Wheatland								

BIRDS (AVES) — **23 SPECIES**
COUNTY = PETROLEUM (based on mapped **Species Occurrences**)

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	HABITAT
Anthus spragueii Sprague's Pipit	**Motacillidae** Pipits	G3G4	S3B	MBTA; BCC11; BCC17		SENSITIVE	SGCN3	18%	67%	Grasslands
		Species Occurrences verified in these Counties: Blaine, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Fallon, Fergus, Gallatin, Garfield, Glacier, Golden Valley, Hill, Judith Basin, Lewis and Clark, Liberty, Madison, Mccone, Meagher, Musselshell, Park, Petroleum, Phillips, Pondera, Prairie, Richland, Roosevelt, Rosebud, Sheridan, Stillwater, Sweet Grass, Teton, Toole, Valley, Wheatland, Wibaux **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 the species faces threats 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%	Grasslands
		Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Dawson, Deer Lodge, Fallon, Fergus, Flathead, Gallatin, Garfield, Glacier, Golden Valley, Granite, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Lincoln, Madison, Mccone, Meagher, 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%	Riparian forest
		Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Dawson, Deer Lodge, Fallon, Fergus, Flathead, Gallatin, Garfield, Glacier, Golden Valley, Granite, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Lincoln, Madison, Mccone, Meagher, Mineral, Missoula, Musselshell, Park, Petroleum, Phillips, Pondera, Powder River, Powell, Prairie, Ravalli, Richland, Roosevelt, Rosebud, Sanders, Sheridan, Silver Bow, Stillwater, Sweet Grass, Teton, 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 hydrology and grazing.								
Athene cunicularia Burrowing Owl	**Strigidae** Owls	G4	S3B	MBTA; BCC17	Sensitive - Known on Forests (CG) Sensitive - Suspected on Forests (HLC)	SENSITIVE	SGCN3	2%	82%	Grasslands
		Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Dawson, Fallon, Fergus, Gallatin, Garfield, Glacier, Golden Valley, Hill, Jefferson, Lewis and Clark, Liberty, Madison, Mccone, Musselshell, Petroleum, Phillips, Pondera, Powder River, Prairie, Ravalli, Roosevelt, Rosebud, Sheridan, Stillwater, Teton, Toole, Treasure, Valley, Wheatland, Yellowstone **State Rank Reason:** Species has a negative short-term population trend.								
Buteo regalis Ferruginous Hawk	**Accipitridae** Hawks / Kites / Eagles	G4	S3B	MBTA; BCC10; BCC17		SENSITIVE	SGCN3	11%	95%	Sagebrush grassland
		Species Occurrences verified in these Counties: Beaverhead, Blaine, Broadwater, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Fallon, Fergus, Gallatin, Garfield, Glacier, Golden Valley, Hill, Jefferson, Judith Basin, Lewis and Clark, Liberty, Madison, Mccone, Meagher, Musselshell, Park, Petroleum, Phillips, Pondera, Powder River, Prairie, Roosevelt, Rosebud, Sheridan, 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%	Grasslands
		Species Occurrences verified in these Counties: Big Horn, Blaine, Carbon, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Fallon, Fergus, Garfield, Glacier, Golden Valley, Hill, Judith Basin, Lewis and Clark, Liberty, Mccone, Musselshell, Petroleum, Phillips, Powder River, Prairie, Richland, Roosevelt, Rosebud, Sheridan, Stillwater, Sweet Grass, Teton, Toole, 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 spatial distribution of grazing and fire regimes it is dependent on.								
Catharus fuscescens Veery	**Turdidae** Thrushes	G5	S3B	MBTA		SENSITIVE	SGCN3	6%	100%	Riparian forest
		Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Cascade, Chouteau, Custer, Deer Lodge, Fergus, Flathead, Gallatin, Glacier, Granite, Hill, Jefferson, Lake, Lewis and Clark, Liberty, Lincoln, Madison, Mccone, Meagher, Mineral, Missoula, Musselshell, Park, Petroleum, Phillips, Pondera, Powder River, Powell, Ravalli, Richland, Roosevelt, Rosebud, Sanders, Silver Bow, Stillwater, Sweet Grass, Teton, Wheatland, Yellowstone								

Centrocercus urophasianus Greater Sage-Grouse	**Phasianidae** Upland Game Birds	G3G4	S2		Sensitive - Known on Forests (BD) Sensitive - Suspected on Forests (CG, HLC)	SENSITIVE	SGCN2	17%	75%	Sagebrush
		Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Chouteau, Custer, Dawson, Deer Lodge, Fallon, Fergus, Gallatin, Garfield, Golden Valley, Hill, Madison, Mccone, Meagher, Musselshell, Park, Petroleum, Phillips, Powder River, Prairie, Rosebud, Silver Bow, Stillwater, Sweet Grass, Treasure, Valley, Wheatland, Wibaux, Yellowstone									
Centronyx bairdii Baird's Sparrow	**Passerellidae** New World Sparrows	G4	S3B	MBTA; BCC11; BCC17		SENSITIVE	SGCN3	27%	67%	Grasslands
		Species Occurrences verified in these Counties: Blaine, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Fallon, Fergus, Glacier, Hill, Judith Basin, Lewis and Clark, Liberty, Mccone, Meagher, Musselshell, Petroleum, Phillips, Powder River, Prairie, Richland, Roosevelt, Rosebud, Sheridan, Stillwater, Sweet Grass, Teton, Toole, Treasure, Valley, Wheatland, Wibaux, Yellowstone **State Rank Reason:** Montana populations were declining until recently and the species is declining in most or the surrounding states and provinces.								
Charadrius montanus Mountain Plover	**Charadriidae** Plovers	G3	S2B	MBTA; BCC11; BCC17		SENSITIVE	SGCN2	20%	73%	Grasslands
		Species Occurrences verified in these Counties: Blaine, Broadwater, Carbon, Fergus, Garfield, Golden Valley, Jefferson, Madison, Musselshell, Petroleum, Phillips, Rosebud, Teton, Toole, Treasure, Valley, Wheatland								
Coccyzus erythropthalmus Black-billed Cuckoo	**Cuculidae** Cuckoos	G5	S3B	MBTA; BCC11; BCC17		SENSITIVE	SGCN3, SGIN	4%	95%	Riparian forest
		Species Occurrences verified in these Counties: Big Horn, Cascade, Chouteau, Custer, Dawson, Fallon, Fergus, Garfield, Mccone, Musselshell, Petroleum, Phillips, Powder River, Prairie, Richland, Roosevelt, Rosebud, Stillwater, Treasure, Valley, Wibaux, Yellowstone								
Dolichonyx oryzivorus Bobolink	**Icteridae** Blackbirds	G5	S3B	MBTA			SGCN3	9%	100%	Moist grasslands
		Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Fallon, Fergus, Flathead, Gallatin, Garfield, Glacier, Granite, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Madison, Mccone, Meagher, Missoula, Musselshell, Park, Petroleum, Phillips, Powder River, Powell, 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.								
Gymnorhinus cyanocephalus Pinyon Jay	**Corvidae** Jays / Crows / Magpies	G3	S3	MBTA; BCC17			SGCN3	5%	55%	Open conifer forest
		Species Occurrences verified in these Counties: Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Fergus, Gallatin, Garfield, Golden Valley, Jefferson, Lewis and Clark, Musselshell, Park, Petroleum, Phillips, Powder River, Rosebud, Stillwater, Sweet Grass, Wheatland, Yellowstone								
Haemorhous cassinii Cassin's Finch	**Fringillidae** Finches	G5	S3	MBTA; BCC10			SGCN3	11%	62%	Drier conifer forest
		Species Occurrences verified in these Counties: Beaverhead, Big Horn, Broadwater, Carbon, Cascade, Chouteau, Custer, Deer Lodge, Fergus, Flathead, Gallatin, Glacier, Golden Valley, Granite, Jefferson, Judith Basin, Lake, Lewis and Clark, Lincoln, Madison, Meagher, Mineral, Missoula, Musselshell, Park, Petroleum, Phillips, Powder River, Powell, Ravalli, Rosebud, Sanders, Silver Bow, Stillwater, Sweet Grass, Teton, Wheatland, Yellowstone **State Rank Reason:** Data show recent short-term declines in population for this species								
Lanius ludovicianus Loggerhead Shrike	**Laniidae** Shrikes	G4	S3B	MBTA; BCC10; BCC17		SENSITIVE	SGCN3	4%	100%	Shrubland
		Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Fallon, Fergus, Gallatin, Garfield, Glacier, Golden Valley, Hill, Jefferson, Liberty, Madison, Mccone, Meagher, Musselshell, Petroleum, Phillips, Pondera, Powder River, Prairie, Richland, Roosevelt, Rosebud, Sheridan, Stillwater, Sweet Grass, Teton, Toole, Valley, Wheatland, Wibaux, Yellowstone								
Nucifraga columbiana Clark's Nutcracker	**Corvidae** Jays / Crows / Magpies	G5	S3	MBTA	Species of Conservation Concern on Forests (FLAT)		SGCN3	9%	84%	Conifer forest
		Species Occurrences verified in these Counties: Beaverhead, Big Horn, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Deer Lodge, Fergus, Flathead, Gallatin, Glacier, Golden Valley, Granite, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Lincoln, Madison, Meagher, Mineral, Missoula, Musselshell, Park, Petroleum, Phillips, Pondera, 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; BCC11; BCC17		SENSITIVE	SGCN3	19%	100%	Grasslands
		Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Deer Lodge, Fallon, Fergus, Flathead, Gallatin, Garfield, Glacier, Golden Valley, Granite, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Madison, Mccone, Meagher, 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								

Oreoscoptes montanus Sage Thrasher	**Mimidae** Thrashers / Mockingbirds / Catbirds	G4	S3B	MBTA; BCC10; BCC17		SENSITIVE	SGCN3	9%	84%	Sagebrush
		Species Occurrences verified in these Counties: Beaverhead, Big Horn, Broadwater, Carbon, Carter, Chouteau, Custer, Fallon, Gallatin, Garfield, Golden Valley, Jefferson, Lewis and Clark, Madison, Musselshell, Park, Petroleum, Phillips, Powder River, Prairie, Richland, Rosebud, Sanders, Silver Bow, Stillwater, Sweet Grass, Valley, Wheatland, Yellowstone								
Pipilo chlorurus Green-tailed Towhee	**Passerellidae** New World Sparrows	G5	S3B	MBTA			SGCN3	3%	60%	Shrub woodland
		Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Chouteau, Custer, Deer Lodge, Fergus, Gallatin, Garfield, Granite, Jefferson, Judith Basin, 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%	Grasslands
		Species Occurrences verified in these Counties: Beaverhead, Blaine, Broadwater, Chouteau, Daniels, Fergus, Glacier, Golden Valley, Hill, Judith Basin, Lewis and Clark, Liberty, Madison, Mccone, Musselshell, Petroleum, Phillips, Pondera, Roosevelt, 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 range in northeast Montana appear to be relatively stable, declines are occurring in much of the species' global breeding range.								
Spizella breweri Brewer's Sparrow	**Passerellidae** New World Sparrows	G5	S3B	MBTA; BCC10; BCC17		SENSITIVE	SGCN3	12%	100%	Sagebrush
		Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Chouteau, Custer, Dawson, Deer Lodge, Fallon, Fergus, Flathead, Gallatin, Garfield, Glacier, Golden Valley, Granite, Hill, Jefferson, Lake, Lewis and Clark, Liberty, Lincoln, Madison, Mccone, Meagher, 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:** Species faces threats from loss of sagebrush habitats it is dependent on as a result of habitat conversion for agriculture and increased frequency of fire as a result of weed encroachment and drought.								
Sterna forsteri Forster's Tern	**Laridae** Gulls / Terns	G5	S3B	MBTA		SENSITIVE	SGCN3	1%	59%	Wetlands
		Species Occurrences verified in these Counties: Beaverhead, Blaine, Cascade, Chouteau, Hill, Lake, Lewis and Clark, Petroleum, Phillips, Powell, Roosevelt, Sheridan, Teton								
Sterna hirundo Common Tern	**Laridae** Gulls / Terns	G5	S3B	MBTA		SENSITIVE	SGCN3	5%	50%	Large rivers, lakes
		Species Occurrences verified in these Counties: Blaine, Broadwater, Cascade, Chouteau, Daniels, Flathead, Hill, Lake, Mccone, Petroleum, Phillips, Roosevelt, Sheridan, Teton, Valley								

REPTILES (REPTILIA)

4 SPECIES
COUNTY = PETROLEUM (based on mapped **Species Occurrences**)

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	HABITAT
Apalone spinifera Spiny Softshell	**Trionychidae** Softshell Turtles	G5	S3			SENSITIVE	SGCN3	2%	26%	Prairie rivers and larger streams
	Species Occurrences verified in these Counties: Big Horn, Blaine, Carbon, Cascade, Chouteau, Custer, Dawson, Fergus, Garfield, Glacier, Golden Valley, Lewis and Clark, Musselshell, Petroleum, Phillips, Pondera, Prairie, Richland, Rosebud, Stillwater, Sweet Grass, Teton, Toole, Treasure, Wheatland, Wibaux, Yellowstone									
Heterodon nasicus Plains Hog-nosed Snake	**Colubridae** Colubrid Snakes	G5	S2		Sensitive - Known on Forests (CG)	SENSITIVE	SGCN2, SGIN	8%	63%	Friable soils
	Species Occurrences verified in these Counties: Big Horn, Blaine, Carter, Cascade, Chouteau, Custer, Dawson, Fallon, Garfield, Hill, Mccone, Musselshell, Petroleum, Phillips, Powder River, Prairie, Richland, Roosevelt, Rosebud, Sheridan, Stillwater, Toole, Treasure, Valley, Yellowstone									
Lampropeltis gentilis Western Milksnake	**Colubridae** Colubrid Snakes	G5	S2		Sensitive - Known on Forests (CG)	SENSITIVE	SGCN2	2%	51%	Rock outcrops
	Species Occurrences verified in these Counties: Big Horn, Blaine, Carbon, Custer, Dawson, Fergus, Garfield, Musselshell, Petroleum, Phillips, Powder River, Rosebud, Stillwater, Yellowstone									
Phrynosoma hernandesi Greater Short-horned Lizard	**Phrynosomatidae** Sagebush / Spiny Lizards	G5	S3		Sensitive - Known on Forests (CG) Sensitive - Suspected on Forests (HLC)	SENSITIVE	SGCN3, SGIN	19%	66%	Sandy / gravelly soils
	Species Occurrences verified in these Counties: Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Dawson, Fergus, Gallatin, Garfield, Glacier, Golden Valley, Hill, Lewis and Clark, Liberty, Mccone, Musselshell, Petroleum, Phillips, Pondera, Powder River, Prairie, Richland, Roosevelt, Rosebud, Silver Bow, Stillwater, Sweet Grass, Teton, Toole, Treasure, Valley, Wheatland, Wibaux, Yellowstone									

AMPHIBIANS (AMPHIBIA)

1 SPECIES
COUNTY = PETROLEUM (based on mapped **Species Occurrences**)

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	HABITAT
Anaxyrus cognatus Great Plains Toad	**Bufonidae** True Toads	G5	S2		Sensitive - Known on Forests (CG)	SENSITIVE	SGCN2	8%	62%	Wetlands, floodplain pools
		Species Occurrences verified in these Counties: Big Horn, Blaine, Carter, Cascade, Chouteau, Custer, Garfield, Golden Valley, Hill, Lewis and Clark, Liberty, Mccone, Musselshell, Petroleum, Phillips, Powder River, Prairie, Rosebud, Sheridan, Stillwater, Toole, Valley, Yellowstone **State Rank Reason:** Current trend is unknown due to a scarcity of observations, but long-term declines are possible due to declines in ephemeral waterbodies (bison wallows). Species faces threats from habitat loss including development of native habitat, and reduced availability of burrows due to black-tailed prairie dog declines.							

FISH (ACTINOPTERYGII)

8 SPECIES
COUNTY = PETROLEUM (based on mapped **Species Occurrences**)

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	HABITAT
Chrosomus eos Northern Redbelly Dace	**Cyprinidae** Minnows	G5	S3				SGCN3	4%	27%	Small prairie rivers
		Species Occurrences verified in these Counties: Blaine, Cascade, Chouteau, Daniels, Dawson, Fergus, Golden Valley, Hill, Judith Basin, Lewis and Clark, Mccone, Meagher, Musselshell, 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 and/or declining numbers, 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%	Small prairie streams
		Species Occurrences verified in these Counties: Blaine, Cascade, Chouteau, Fergus, Golden Valley, Judith Basin, Meagher, Musselshell, Petroleum, Phillips, Pondera, Stillwater, Teton, 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 because of limited and/or declining numbers, range and/or habitat, even though it may be abundant in some areas.							
Cycleptus elongatus Blue Sucker	**Catostomidae** Suckers	G3G4	S2S3				SGCN2-3	1%	7%	Large prairie rivers
		Species Occurrences verified in these Counties: Blaine, Cascade, Chouteau, Custer, Dawson, Fergus, Garfield, Hill, Liberty, Mccone, Petroleum, Phillips, Powder River, Prairie, Richland, Roosevelt, Rosebud, Treasure, Valley, Wibaux **State Rank Reason:** The Blue Sucker is currently listed as an "S2S3" species of concern in Montana because they are potentially at risk of extirpation in the state, because of limited and/or declining numbers, range and/or habitat, even though it may be abundant in some areas.							
Macrhybopsis gelida Sturgeon Chub	**Cyprinidae** Minnows	G3	S2S3			SENSITIVE	SGCN2-3	17%	7%	Large prairie rivers
		Species Occurrences verified in these Counties: Blaine, Cascade, Chouteau, Custer, Dawson, Fergus, Mccone, Petroleum, Phillips, Powder River, Prairie, Richland, Roosevelt, Rosebud, Valley, Wibaux **State Rank Reason:** The Sturgeon Chub is currently listed as an "S2S3" species of concern in Montana because they are potentially at risk of extirpation in the state, because of limited and/or declining numbers, range and/or habitat, even though it may be abundant in some areas. Population losses from the Fort Peck Section of the Missouri River and the Bighorn River are likely permanent, but recent losses from the Powder River basin are being reversed through recolonization (Stagliano 2014).							
Macrhybopsis meeki Sicklefin Chub	**Cyprinidae** Minnows	G3	S1				SGCN1	16%	3%	Large prairie rivers
		Species Occurrences verified in these Counties: Blaine, Custer, Dawson, Fergus, Mccone, Petroleum, Phillips, Prairie, Richland, Roosevelt, Valley, Wibaux **State Rank Reason:** The Sicklefin Chub is currently listed as "S1" in MT due to extremely limited and/or rapidly declining population numbers, range and/or habitat, making it highly vulnerable to extirpation in the state. It only occupies specific sections of the large mainstem Missouri and Yellowstone Rivers unaffected by reservoirs.							
Polyodon spathula Paddlefish	**Polyodontidae** Paddlefishes	G4	S2			SENSITIVE	SGCN2	1%	5%	Large prairie rivers
		Species Occurrences verified in these Counties: Blaine, Chouteau, Custer, Dawson, Fergus, Garfield, Hill, Liberty, Mccone, Petroleum, Phillips, Prairie, Richland, Roosevelt, Rosebud, Valley, Wibaux **State Rank Reason:** The paddlefish is currently ranked "S2" in Montana because it is at risk, because of very limited and/or potentially declining population numbers, range and/or habitat, making it vulnerable to global extinction or extirpation in the state.							
Sander canadensis Sauger	**Percidae** Perches	G5	S2			SENSITIVE	SGCN2	1%	15%	Large prairie rivers
		Species Occurrences verified in these Counties: Big Horn, Blaine, Carbon, Carter, Cascade, Chouteau, Custer, Dawson, Fallon, Fergus, Garfield, Hill, Liberty, Mccone, Musselshell, Petroleum, Phillips, Powder River, Prairie, Richland, Roosevelt, Rosebud, Stillwater, Teton, Treasure, Valley, Wibaux, Yellowstone **State Rank Reason:** The Sauger is currently listed as an "S2" species of concern in Montana because they are at risk of extirpation in the state, because of limited and/or declining numbers, range and/or habitat, even though it may be abundant in some areas. Population losses from the reservoir sections of the Missouri River and the Bighorn River are likely permanent. Competition and hybridization from the introduced walleye is another threat to native sauger populations.							

Scaphirhynchus albus Pallid Sturgeon	**Acipenseridae** Sturgeons	G2	S1	LE		ENDANGERED	SGCN1	10%	1%	Large prairie rivers
Species Occurrences verified in these Counties: Blaine, Cascade, Chouteau, Custer, Dawson, Fergus, Garfield, Mccone, Petroleum, Phillips, Powder River, Prairie, Richland, Roosevelt, Rosebud, Valley, Wibaux **State Rank Reason:** The Pallid Sturgeon is currently listed as "S1" in MT due to extremely limited and/or rapidly declining population numbers, range and/or habitat, making it highly vulnerable to global extinction or extirpation in the state. The pallid sturgeon is one of the rarest fishes in North America and was federally listed as endangered in 1990. The Pallid Sturgeon has been declining during at least the past 50 years with only about 200 adults remaining in the upper Missouri River and limited natural reproduction.									

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 6/29/2020, from http://mtnhp.org/SpeciesOfConcern/?AorP=a

Montana Natural Heritage - SOC Report Species List Last Updated **04/16/2020**

Plant Species of Concern

5 Species of Concern
2 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 = Petroleum (based on mapped Species Occurrences)

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Introduction

Species of Concern

Species of Concern
5 Species
Filtered by the following criteria:
County = Petroleum (based on mapped **Species Occurrences**)

FLOWERING PLANTS - DICOTS (MAGNOLIOPSIDA) — 5 SPECIES
COUNTY = PETROLEUM (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	HABITAT
Kochia americana Red Sage	Bassia americana Green Molly	Amaranthaceae Amaranth (Pigweed) Family	G5	S2				2	Saline/Alkaline Sites
			Species Occurrences verified in these Counties: Beaverhead, Petroleum **State Rank Reason:** The species is at the periphery of its range in Beaverhead County where it is known from one large extant population on BLM and private lands, two historical locations and two other locations that need additional survey work. Agricultural conversion has significantly reduced available habitat. Additional impacts to *K. americana* from agriculture, grazing and/or invasive weeds are possible.						
Physaria brassicoides Double Bladderpod		Brassicaceae Mustards	G5	S3				3	Breaklands/badlands
			Species Occurrences verified in these Counties: Carbon, Carter, Custer, Petroleum, Phillips, Powder River, Stillwater **State Rank Reason:** Double bladderpod is endemic to a restricted area of the northern Great Plains, and is known in Montana only from a handful of populations. Populations occur on a mix of federal, state and private ownerships. Impacts to the species from livestock grazing and invasive weeds are minimal at this time as the typically steep, sparsely-vegetated habitat is not conducive to grazing. Yellow sweetclover was observed at one location and it may eventually have a negaitive impact on the species.						
Physaria ludoviciana Silver Bladderpod	Lesquerella ludoviciana	Brassicaceae Mustards	G5	S2S3					Sandy sites
			Species Occurrences verified in these Counties: Carbon, Carter, Cascade, Chouteau, Fallon, Fergus, Garfield, Golden Valley, Lewis and Clark, Mccone, Petroleum, Phillips, Powder River, Prairie, Rosebud, Sheridan, Teton, Valley **State Rank Reason:** Rare in Montana. Primarily a plains species which barely enters eastern Montana where it is restricted to sandy sites. Locally common at one site and threats to the species' viability appear to be minimal at this time.						
Psilocarphus brevissimus Dwarf woolly-heads		Asteraceae Aster/Sunflowers	G4	S2S3		Sensitive - Known on Forests (KOOT)		3	Wetland/Riparian
			Species Occurrences verified in these Counties: Cascade, Lincoln, Petroleum, Phillips, Sanders, Valley **State Rank Reason:** Limited data combined with the posibility that several reported observations from western MT may be mis-identified with other Psilocarphus species make a precise determination of the species' status difficult.						
Triodanis leptocarpa Slim-pod Venus'-looking-glass	Specularia leptocarpa	Campanulaceae Bellflower Family	G5?	S3					
			Species Occurrences verified in these Counties: Big Horn, Carter, Cascade, Chouteau, Custer, Park, Petroleum, Phillips, Powder River, Rosebud, Stillwater, Sweet Grass, Valley **State Rank Reason:** Triodanis leptocarpa is common in the southern Great Plains and extends into eastern and central Montana. It occurs in grasslands, grass-dominated rocky slopes, and sagebrush-dominated grasslands. It has been found in grazed and ungrazed lands and appears to tolerate some disturbance. Approximately 14 locations were documented prior to 1958 and occur in central Montana. Approximately 14 locations were documented since 1974 and mostly occur in eastern Montana. Re-visits to known locations and current population data is greatly needed.						