

Long Range Plan Granite County, Montana

Section I. Introduction

Vision: Improve natural resources for the public and increase sustainability for agricultural producers within Granite County.

Mission: To effectively address natural resource concerns with assistance from agricultural producers, partners, and concerned citizens.

Purpose: This plan is intended to be a guide for future investment in the natural resources of Granite County. As a guide, this document will be reviewed annually and modified as needed to reflect changing resource goals and objectives.

The Granite County Long Range Plan was developed by the USDA-Natural Resources Conservation Service (NRCS) – Philipsburg and Deer Lodge Field Offices, Granite Conservation District, and Granite County. The initial timeframe covered by this plan is five years, ending in 2025.

Additional local partners were also consulted during the completion of this plan. Existing resource plans and management plans from partners have been referenced in completing this document. A full listing of resources can be found in the “Source” section.

Partners in Natural Resources

- USDA Farm Service Agency (FSA)
- Clark Fork Coalition
- US Fish and Wildlife Service (USFWS)
- US Bureau of Land Management (BLM)
- US Forest Service (USFS)
- Montana Fish, Wildlife & Parks (FWP)
- Montana Dept. of Natural Resources and Conservation (DNRC)
- Trout Unlimited (TU)
- Ducks Unlimited (DU)
- Intermountain West Joint Venture (IWJV)
- Five Valleys Land Trust
- Soil and Water Conservation Districts of Montana (SWCDM)
- Montana Association of Conservation Districts (MACD)

Section II. Natural Resource Inventory

Granite County includes a diversity of landforms and ecosystems. The area contains an abundance of lakes, rivers, streams, wetlands and are dominated by forests, grassland, and shrub communities. The lowlands where bunchgrass communities historically dominated transition to the Rocky Mountains with low-altitude forests of Douglas-fir, lodgepole pine, and ponderosa pine with a mosaic of intermittent open grassland. The highest point in the county is Warren Peak in the Anaconda Range at 10,463 feet, which forms the southern boundary of Granite County. The county contains portions of the Sapphire Range as the western boundary, Flint Creek Range as the eastern boundary, and the John Long Range in the middle of the county traversing north/south. From a resource management perspective, this diversity of landforms creates unique challenges and opportunities. The main watercourses in the county include the Clark Fork River traversing east/west, Flint Creek and Rock Creek both traversing south/north and discharging into the Clark Fork River.

Humans

According to the most recent statistics available from the US Bureau of Census, the population of Granite County was estimated at 3,358 in 2017. Population composition is estimated to be 97.5% white, 0.4% American Indian, 0.1% African American, 0.1% Asian and 1.9% identifying as other or two or more races (US Census Bureau, 2017). Granite County covers 1,733 square miles and shares county borders with Deer Lodge County to the southeast, Ravalli County to the west, Missoula County to the northwest and Powell County to the east/northeast. The largest city in the county is Philipsburg which also serves as the county seat with a population of 920 in the 2016 estimated census.

Most of the land in Granite County is publicly owned (65%), with most of the public land managed by the US Forest Service (60%). The remainder of the public lands are managed by the Bureau of Land Management, State of Montana, and other federal and state agencies. Private land ownership (35%) is located along the valley floor of Flint Creek and Rock Creek and scattered upland timber locations.

Table 1 – Land Use in Granite County – Granite County Growth Policy

<i>Land Use/Land Cover</i>	<i>Acreage</i>	<i>Percent of the County</i>
Evergreen Forest	776,327	70%
Rangeland	243,989	22%
Cropland	51,016	4.6%
Tundra and Exposed Rock	13,308	1.2%
Deciduous and Mixed Forest	13,308	1.2%
Lakes and Wetlands	7,763	0.7%
Urban	2,218	0.2%
Mine/Quarry	1,109	0.1%
Total County Acres	1,109,038	100%

Agriculture

According to the National Agricultural Statistics Survey 2018 Census data, Granite County is home to 163 farms covering an area of about 285,419 acres; the average farm size is 1,751 acres. Over 19,000 acres of agricultural lands are in winter forage production for the 18,800 cattle and 400 sheep in the county.

Over the past twenty-eight years (census years 1990-2018) the population of Granite County has increased 32.6% (US Bureau of Census, 1990 – 2,548 to 2018 – 3,378). The average farm size in the county has decreased during this time. In recent years, the NRCS Philipsburg Field Office has been working with properties that have been divided into smaller tracts. Often these smaller-scale landowners have different viewpoints and goals than those within the traditional agricultural community. Additionally, many are from other areas or states and are unfamiliar with the issues affecting high elevation/low precipitation landscapes.

Soils, Geology, and Water

The field work for the Granite County Soil Survey (Soil Survey Area MT621) was completed in 1997. Much of the information in this paper is taken from the Soil Survey Manuscript along

with land-use data from the Montana Department of Revenue Final Land Unit Classification (FLU).

General Nature of the Area

Granite County contains portions of five mountain ranges: Garnet Range, Sapphire Mountains, John Long Mountains, Flint Creek Range, and Anaconda Range.

The county includes about 1,109,038 acres and about 70 percent is forest land, 22 percent range, 2 percent irrigated cropland and pasture, and 1 percent non-irrigated hay land.

The soil survey lies within two Major Land Resource Areas (MLRA) including: 44A – Northern Rocky Mountain Valleys and 43B – Central Rocky Mountains.

Parent Material

Most of the soils in the survey area formed in alluvium derived from mixed sources or from material weathered from bedrock. Types of this bedrock include andesite, argillite, basalt, granite, limestone, quartzite, rhyolite, sandstone, and shale.

Soils that formed in argillites and quartzites are generally loamy. Soils that formed in materials weathered from granite are generally sandy. Soils that formed in mixed alluvium are either clayey or loamy.

Agronomy

The Drummond-Hall area is the major crop producing region and includes irrigated barley, oats, and hay. Wet soils are mainly used for hay production and pasture. The Phillipsburg Valley is the other major crop producing region and includes some small grains, hay, and pasture grown under irrigation. Forage production is used mainly to support the large number of cattle in the valley.

Prime Farmland and Other Important Farmland

Prime Farmland - There are relatively small acreages of Prime farmland in Granite County and these mostly occur in the valleys near Hall and Phillipsburg. They make up around 1 percent of the total acreage in the county.

Prime if Irrigated - These areas are mainly in the irrigated river valleys and make up about 1.3 percent.

Farmland of Statewide Importance - These are mainly found on elevated landscapes above the major river valleys and make up around 2.2 percent of total.

Farmland of Local Importance - These are concentrated in the river valleys and include areas that are too limited by climate to be included with the other designations but still produce good yields of hay and pasture. These lands make up around 7 percent of total acreage in the county.

Water

Precipitation: Granite County averages 14 inches rain per year with an additional 52 inches of snowfall. Generally, precipitation is lowest in the valleys and increases with elevation. Approximately 67 percent of annual precipitation falls during the growing season.

Rivers, Streams, and Lakes: Granite County waterways drain into the Clark Fork River Watershed (east/west flow), with contributions from Flint Creek (east half of county) and Rock Creek (west half of county); both flowing south/north. The northern portion of Granite County (north of I-90) drain into the Clark Fork River via small streams and intermittent waterways. Georgetown Lake is a 2,818-acre impoundment on the North Fork of Flint Creek on the border of Granite and Deer Lodge Counties. Originally called the Bi-Metallic Reservoir it was created in 1885 to produce power for the town of Philipsburg and nearby Bi-Metallic milling operation. In the early 1900s the dam provided power to the Anaconda Copper Mining Company and the smelter in Anaconda. Numerous summer homes, vacation rentals, and camping areas now surround Georgetown Lake. Many alpine lakes and streams are in the Sapphire Range, Flint Creek Range, and Anaconda Range providing abundant recreational opportunities. Montana's State Wildlife Action Plan identifies all streams, rivers, floodplain, riparian, and wetland community types across the state as "Community Types of Greatest Conservation Need". The plan defines this as meaning there is a clear obligation to use resources to implement conservation actions that provide direct benefit to these community types. The plan also provides lists of SOCs associated with each community type. The plan (specifically pages 6-7 and 14-64) can be viewed at:

<http://fwp.mt.gov/fishAndWildlife/conservationInAction/actionPlan.html>

Impaired Waters: The Montana Department of Environmental Quality (MT DEQ) is required by the Clean Water Act to assess Montana's water quality and prepare a report every two years. The Montana Water Quality Report and List of Impaired Waters (known as the Integrated Report) combines reporting information for the Clean Water Act Section 305(b) assessment of water bodies and the Section 303(d) list of water bodies that do not meet water quality standards. Water bodies not meeting standards need pollution reduction studies, called Total Maximum Daily Loads (TMDLs). TMDLs also include plans to improve water quality to eventually meet standards. Although TMDLs have not been completed for all the impaired streams in Granite County, there is enough information available to identify impairments. These can be found in the most recent Integrated Report on Montana DEQ's website <http://deq.mt.gov/Water/Resources/Report>. Also, additional information is included in the appendix report: Montana DEQ Flint-Rock Impaired Waters.

Irrigation: Large-scale irrigation projects began in conjunction with mining development in the mid-1800s and continued through the 1900s. The mining industry and its associated communities required agricultural development for a food supply, and therefore irrigation projects were developed in the semi-arid region. The earliest recorded water right in Granite County dates to 1866, over 20 years before Montana received statehood. Three main reservoirs were built and improved during the last 135 years: Georgetown Lake (1885), East Fork Reservoir (1938), and Willow Creek Reservoir (1960). These reservoirs have a significant portion of their storage capacity committed to irrigation: Georgetown Lake (50% power generation, 50% irrigation), East Fork Reservoir (100%), and Willow Creek Reservoir (100%). The impacts of irrigation have drastically altered the hydrology of the county and continue to affect watercourses today.

Agricultural irrigation is the largest water use in Granite County. Historically irrigation occurred via flooding through an outdated, under-maintained system of ditches and canals. Many irrigators have already converted most of the flood irrigation to sprinkler systems which includes hand lines, wheel lines, and pivots. However, there are still many acres that are irrigated by flooding. The most common types of irrigated cropland are pasture and hay.

Flood irrigation in the basin can generally be characterized as “wild flood” meaning the flooding is often completed via a series of contour ditches over uneven topography. This uneven irrigation causes numerous dry areas within each field while also causing over-irrigation of other areas. Flood irrigation on uneven topography creates significant amounts of runoff. This runoff not only wastes water but also reduces water quality in streams and waterbodies as the runoff often carries elevated levels of nutrients, sediments and higher water temperatures directly into waterways.

In addition to inefficiency and runoff, the negative impacts of flood irrigation to aquatic ecosystems are significant. Flood irrigation infrastructure has created many barriers to fish survival (bull trout and westslope cutthroat trout in particular) and fish passage due to dewatering, elevated temperatures, disconnected tributaries and lack of fish screening (leading to entrainment). The increased demand for irrigation water during dry years leaves little water for both fish and irrigation during late summer and early fall.

Water quantity is a serious issue in Granite County for several reasons. The basin receives very little precipitation in the form of season rainfall and lacks significant reservoir storage to provide the stream system with flushing events. The main source of water is snowmelt, which in recent years has decreased from historical levels. A combination of low precipitation levels and over-appropriation of water rights has created a situation of excessive dewatering as well as some conflict between water users, regulatory bodies and non-governmental organizations. The State of Montana closed the basin to new water permits in 1995 (excluding livestock and domestic wells less than 30 gallons per minutes), but the effects of over-appropriation continue to be substantial.

Wildlife

Federal and State Listed Species

Where they are found, federal and state listed plant and animal species offer valuable opportunities to partner with landowners and conservation partners to protect and improve associated habitats. USFWS Ecological Services Division lists the following threatened species as present within Granite County: bull trout (*Salvelinus confluentus*), Canada lynx (*Lynx canadensis*), and grizzly bear (*Ursus arctos horribilis*). None of Montana’s federally endangered

species are known to reside within the county. One proposed species (wolverine, *Gulo gulo luscus*) and one candidate species (whitebark pine, *Pinus albicaulis*) are also considered present. According to the Montana Natural Heritage Program, Granite County contains 44 state listed animal Species of Concern (see MT Species of Concern - Animal spreadsheet). These species consist of 11 mammal species, 21 bird species, 2 reptile species, 1 amphibian species, 2 fish species, 1 insect species, and 6 mollusk species. Habitats generally associated with these species are diverse including both terrestrial and aquatic types and comprise mountain streams, rivers, lakes, grasslands, riparian forests, conifer forests, wetlands, and sagebrush. More specialized species on the list can be found only in association with Granite County's rocky slopes, alpine zones, and forested habitat caves.

A total of 40 state listed plant Species of Concern also can be found within Granite County (see MT Species of Concern - Plant spreadsheet). They are generally comprised of 2 fern species, 26 dicot species, 6 monocot species, 5 bryophytes, and 1 conifer species. Most of these species subsist in Granite's common general habitat types (grasslands, riparian, forests) but a few specialized species can only be found in more limited habitats including rock talus, alpine zones, and fens.

Canada Lynx

According to the USFWS, Canada lynx in unit 3 (Northwestern Montana and Northeastern Idaho) have a 98% probability of persistence through 2025 and a 90% probability of persistence through 2050 (USFWS 2017). The USFWS Species Status Assessment for the Canada lynx (USFWS 2017) states: "Unit 3 - Recent research, monitoring, and habitat mapping refinements indicate that habitats capable of supporting resident lynx in this and other western geographic units are naturally less abundant and more patchily-distributed than was thought when the DPS was listed. For example, earlier estimates that western Montana supported 1,000 or more lynx were based on broad assumptions regarding habitat suitability and lynx distribution that are not supported by current understanding of lynx habitat requirements (see section 4.2.3). Currently, this unit is thought to be capable of supporting 200-300 resident lynx. How the current population compares to historical conditions is uncertain, but we find no evidence that this unit historically supported a larger resident population or a substantially broader distribution of habitat capable of doing so. Lynx habitats in this unit are naturally patchy and fragmented due to topography and elevational and moisture (aspect) constraints. We concur with the expert panel

that resident lynx are very likely to persist in this unit at years 2025 and 2050, and likely to do so at 2100. Over the longer-term, we expect continued climate warming and associated impacts, perhaps especially increased wildfire activity, to reduce the amount and quality of lynx habitat in this unit, reducing lynx numbers and likely decreasing the population's resilience. Although the timing and extent of climate-mediated habitat decline is highly uncertain and fire-driven habitat loss typically would be temporary, wildfire size, frequency, and intensity have increased in this unit over the past few decades, and this pattern is expected to continue with projected climate warming."

Grizzly Bear

As of October 2019, the grizzly bear is listed as a threatened species under the Endangered Species Act. Although grizzly bears remain under the jurisdiction of the USFWS, much of the day-to-day management is done by the FWP within the bounds of what listing allows. Grizzly bear recovery in the Northern Rocky Mountains is facilitated by the Interagency Grizzly Bear Committee (IGBC). The IGBC covers five different recovery ecosystems, one of which is the Northern Continental Divide Ecosystem (NCDE). Northern Granite County occurs within the NCDE. The NCDE subcommittee is comprised of the USFWS, in cooperation with FWP, USFS, BLM, National Park Service, Blackfeet Tribe and Confederated Salish and Kootenai Tribes. The NCDE has a target goal of 500 or more grizzly bears for the 17 counties that make up the NCDE. Grizzly bears are mainly located in the northern part of Granite County, but sightings have occurred in all the mountainous areas of the county.

Bull Trout

Bull trout (*Salvelinus confluentus*) are listed as a threatened species in Granite County. Bull trout require the "5 C's" which are clean, cold, clear, complex, and connected habitat. Because of their specific habitat needs, they are more vulnerable to environmental degradation than other fish species. Their numbers have severely declined due to habitat loss and human caused habitat degradation. FWP, DNRC, National Wildlife Federation, USFWS, USFS, and many other organizations have developed the "Restoration Plan for Bull Trout in the Clark Fork River Basin and Kootenai River Basin Montana". This comprehensive plan is intended for the management, conservation, and restoration of bull trout and their habitat. Bull trout exist in low numbers in the upper end of the Clark Fork River drainage because of severe habitat degradation by

contamination of heavy metals from past mining efforts in the area. This human caused habitat degradation starts in the tributaries of Flint Creek and continues into the Clark Fork River.

Figure 1. Montana Bull Trout Distribution



The Clark Fork River Basin, an important foraging, migrating, and overwintering bull trout habitat, is currently undergoing a 43-mile long clean-up process administered by the Montana Department of Environmental Quality. The heavy metals (cadmium, copper, zinc, and lead) and arsenic in

the river are from historic mining, milling and smelting processes linked to the Anaconda Company operations in Butte, Anaconda, and throughout the Flint Creek watershed. The clean-up area in the watershed ranges from the headwaters near Warm Springs Creek in Powell County through Granite County, and extending up Flint Creek and its tributaries.

Wolverine

The wolverine is listed as a proposed species. Wolverines are limited to alpine tundra and primarily coniferous forests in western Montana. They are generally solitary having a wide range and are opportunistic omnivores. Small and medium size rodents and carrion, especially ungulate carcasses, generally make up most of their diet.

Whitebark Pine

Whitebark pine is listed as a candidate species. Whitebark pine is a common component of subalpine forests occurring in all major mountain ranges of western and central Montana. Populations have been severely impacted by mountain pine beetle outbreaks and by the introduction of white pine blister rust caused by a non-native fungus. Major declines in whitebark pine have been noted across its range.

Fish Species

According to the FWP Statewide Fisheries Management Plan and Guide, westslope cutthroat trout are present in many of the tributary streams in the Upper Clark Fork. Angling restrictions and habitat improvements have sought to improve westslope cutthroat numbers. Many of the cutthroat populations in the Upper Clark Fork Basin show little to no hybridization with

introduced rainbow trout. Additionally, fluvial forms still remain in a number of locations. While westslope cutthroat trout are relatively uncommon in the mainstem of the Upper Clark Fork River, the species does provide a unique fishing opportunity in a river largely dominated by brown trout. Information is lacking on the abundance and life histories of mountain whitefish and non-game native fishes. Efforts are needed to describe these and monitor trends. High mountain lakes, irrigation reservoirs, and streams support abundant fish populations. However, quality of habitat has been degraded by development activities. Water diversion structures block access to spawning grounds over much of the original ranges of bull trout and cutthroat trout. Irrigation return flows adversely affect streams with increased nutrients but also provide improved late season flows.

Wetlands

Wetlands are amongst the most important and beneficial ecosystems on the landscape. Wetlands provide critical biological, ecological, and economic benefits including flood attenuation, water filtration, carbon sequestration, and drought resiliency. Further, wetlands are home to 31% of all U.S. plant species, half of all North American bird species use wetlands at some point in their lifecycle, and nearly half of all threatened or endangered species in the US are also associated with wetlands. Granite County contains a diverse array of wetland types. A total of 39,521 acres of wetlands can be found within the county borders. Of these, 27,432 (69%) acres are palustrine (lacking flowing water), 2,809 (7%) are lacustrine (lake associated) in nature, 2,232 (6%) acres are riverine (river associated), and 7,048 (18%) acres are located within riparian zones.

Private Ownership Conservation Lands

Conservation easements are generally considered a valuable conservation tool. Depending on the specific parameters written into the deed language, land can be protected for decades or even perpetuity for the purposes of protecting plant or animal habitat, landscape features (e.g. wetlands) or land management activities like farming and ranching. Granite County contains a total of 21,598 acres (2% of County total) under some form of conservation easement. Of these, 16,522 acres are associated with private easement holders (land trusts, animal conservation organizations, etc.). The remaining easements are federally owned (420 acres) and state or

locally owned (4,656 acres). Of the federal acres, the United States Department of Agriculture currently holds 338 acres under easement within the county.

Granite County lies within Bird Conservation Region 10 but does not currently contain any Important Bird Areas designated within the county. Other privately-owned designated conservation lands in the county encompass 5 acres (<1%), all owned by The Nature Conservancy.

Noxious and Invasive Species

Granite county hosts a large variety of noxious and invasive species issues, and total treatment and control of all invasive species in all areas is not feasible. However, identification and treatment of new and emerging threats should be prioritized. In addition, opportunities for integrated approaches to dealing with specific geographic areas and/or species should be sought.

Vegetative Weed Species

Granite County is home to a wide diversity of both annual and perennial weed species. Notable weed species include black henbane (*Hyoscyamus niger*), sulfur cinquefoil (*Potentilla recta*), tall buttercup (*Ranunculus acris*), whitetop (*Cardaria draba*), yellow toadflax (*Linaria vulgaris*), Dalmatian toadflax (*Linaria genistifolia*), houndstongue (*Cynoglossum officinale*), field bindweed (*Convolvulus arvensis*), leafy spurge (*Euphorbia esula*), Canada thistle (*Cirsium arvense*), spotted knapweed (*Centaurea maculosa*), and wild caraway (*Carum carvi*).

One weed that is spreading in Granite County is wild caraway, an introduced seed crop that has become an invasive weed throughout the West. Caraway likes wet areas, which is why it is a problem in irrigated hay fields and pastures. The basal rosette of caraway impedes grass and alfalfa growth by spreading across the soil surface. The plant is not well-utilized by livestock. Few control methods are known and mainly rely on herbicides, irrigation reduction or cessation and grazing deferment. Small infestations can be controlled by hand-pulling before seed-set.

<https://bcinvasives.ca/invasive-species/identify/invasive-plants/wild-caraway>

It is important to remain vigilant regarding new and invasive weeds. Another weed species of concern is the annual grass Ventenata (*Ventenata dubia*). Ventenata has been recently observed in Granite County and is known to take over native range, pastures, hay fields, and right of ways.

In Idaho, where *ventenata* has become established, the state has seen a 50 percent decrease in production of land that this species has invaded (MSU Extension – *Ventenata*, 2018).

Aquatic Invasive Species

Aquatic invasive species (AIS) are not yet prevalent within the area. Fish, Wildlife and Parks lists curly leaf pondweed (*Potamogeton crispus*) as the only aquatic invasive in the Clark Fork River drainage. <http://fwp.mt.gov/fishAndWildlife/species/ais/speciesId/default.html>

In addition to vegetative AIS, Montana has recently had a positive detection for invasive mussels. Since this detection the state of Montana has set up check stations around the state. There has not been any detections of zebra or quagga mussels in the county yet.

Grazing Land

Approximately 22% of Granite County (243,989 acres) supports rangeland vegetation. In addition, 38,815 acres of forest supports forest land understory vegetation that is suitable for grazing. Cow/calf operations are one of the major farming enterprises, constituting about 84 % of farm income. Pastureland makes up 71% of farmland. The average size of a farm unit is approximately 1,751 acres. Most grazing occurs on dryland or irrigated pasture. The range is used primarily for grazing by domestic livestock; however, it also is used as wildlife habitat, recreational areas, and watershed and has esthetic value. Rangelands consist mostly of open range and forested areas. Rainfall averages 14 inches annually and 52 inches of snow in the higher elevations.

Poor grazing management, invasive species, and changes in fire regime are responsible for rangelands moving away from climax plant communities. However, there are still some examples of excellent climax communities in Granite County. Some rangelands are in an invaded state or have been lost to conifer encroachment and development. Some rangelands have decreased in productivity to overgrazing, invasive species, or any combination of these pressures.

The introduction of large numbers of livestock during the early 1900s upset the balance of native plant communities. Continuous, season-long grazing and over stocking has damaged rangelands. Bunchgrasses declined, and undesirable shrubs, weeds and grasses increased. Exotic species such as timothy, redtop, smooth brome and orchard grass were planted for hay and pasture and

these plants displaced native rangeland vegetation in some areas. Houndstongue, orange hawkweed, Dalmatian toadflax, yellow toadflax, baby's breath, Canada thistle, spotted knapweed, purple loosestrife, oxeye daisy, and other noxious weeds were accidentally introduced during the early and mid-1900s. These plants eventually out competed many native grasses. Annual grasses are also outcompeting native species and include medusahead (*Taeniatherum caput-medusae*), cheatgrass (*Bromus tectorum*), and most recently ventenata. Invasive species management and correct grazing management will improve rangeland resources and bring grazing levels closer to climax community production.

Achieving healthy, sustainable rangelands through proper grazing management is an important management concern in the area. Implementation of rotational grazing systems is necessary to improve and/or maintain the kinds and amounts of native plants that make up the historic native plant communities. Similarity index is often less than 50 percent on greater than 50 percent of the rangeland acres. Production on many of the ecological sites in the survey areas is below the potential of what those sites can produce when in their historic climax condition. Much of the acreage was once dominated by tall-growing and high-producing bunchgrasses. Presently it is dominated by low producing native grasses, introduced grasses, noxious weeds, and brush. The amount of forage produced on these low similarity index sites can be as low as one-third of the potential annual production.

Major Land Resource Area Vegetation Descriptions

Portions of MLRAs 43AA, 43AB, 43B, 44AA, and 44AB overlap within the county. Common grassland communities are as follows:

43AA – Bluebunch Community

Bluebunch wheatgrass, rough fescue, needle-and-thread, needlegrass, prairie Junegrass, Sandberg bluegrass, sedge

43AB – Rough Fescue Community

Rough Fescue, Bluebunch wheatgrass, Idaho fescue, green needlegrass, needle-and-thread, needlegrass species, prairie Junegrass, Sandberg bluegrass, western wheatgrass, thickspike wheatgrass, sedge species

43B-Rough Fescue Community

Rough fescue, bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, needle grass, oatgrass, prairie Junegrass, sedge species

44AA-Bluebunch Wheatgrass Community

Rough fescue, needle-and-thread, green needlegrass, Sandberg bluegrass, prairie Junegrass, western wheatgrass, thickspike wheatgrass

44AB-Taller Bunchgrass Community

Rough fescue, bluebunch wheatgrass, Idaho fescue, green needlegrass, needle-and-thread, needlegrass species, prairie Junegrass, Sandberg bluegrass, western wheatgrass, thickspike wheatgrass, sedge species

Common Forbs for all MLRAs: Western yarrow, cudweed sagewort, lupine, rosy pussytoes, Missouri goldenrod, aster, arnica, prairie smoke, nineleaf biscuitroot, bitterroot, larkspur, penstemon species, buckwheat, western stonecrop, arrowleaf balsamroot, milkvetch species, mariposa lily, field chickweed, meadow deathcamas, phlox species, potentilla, Indian paintbrush

Common Shrubs for all MLRAs: Fringed sagewort, Wyoming big sagebrush, rubber rabbitbrush, green rabbit brush, Woods' rose, antelope bitterbrush, common snowberry, Saskatoon service berry, chokecherry, currant

Forestland

The valleys in Granite County are often grasslands with forests of black cottonwood, quaking aspen, ponderosa pine, and Douglas-fir in the draws and bordering streams and rivers. Above the valley floor, grasslands give way to forest. Forest stands differ mostly because of soil and climate variations. Temperature and moisture are important climatic factors affecting forest growth and composition. Elevation and aspect are topographic features that further influence temperature and moisture. Ponderosa pine occupies the warm-dry end of the climatic gradient; subalpine fir is on the cool moist end at the highest elevations. Douglas-fir is the most common tree species. Other common trees are lodgepole pine, limber pine, Engelmann spruce, and Rocky Mountain juniper. Western larch occurs north of the town of Garnet in the Elk Creek drainage and in small areas elsewhere in the Garnet Mountains. Forest understory plant communities exhibit the same diversity. Bluebunch wheatgrass, rough and Idaho fescue, and arrow leaf balsamroot predominate on drier sites. Pinegrass, elk sedge, heartleaf arnica, common snowberry, white spiraea, twinflower, mallow ninebark, and Saskatoon serviceberry are common in the more moderate environments. Pinegrass, common bear grass, grouse whortleberry, dwarf

and blue huckleberry, common snowberry, and white spiraea typify the cool-moist forest types. Granite County is 70% forested, 80% of which is federal, and state owned, and 93,000 acres in private ownership.

The historic fire regime in lowland ponderosa pine forest would be frequent, low intensity fires with fire free intervals of 5 to 25 years. In the Douglas-fir forests, the natural, uninhibited fire regime would be fire free intervals of about 45 years, with low to moderate intensity fires that maintained forests in a state where the tree species present, spacing between trees, and understory vegetation are well adapted to fire in healthy state. Lodgepole pine forests experience a longer duration fire interval from 100 to 500 years and are stand replacing.

A century of fire suppression and manipulation of the natural disturbance mechanisms leave many forests, both public and private, in a state that fires quickly surpass the historic norm and become high severity, stand replacement fires. The county has a Community Wildfire Protection Plan that discusses this topic in detail.

Forest insect and disease issues are ever-present and in a constant state of flux. The current issues in Granite County include: bark beetles, spruce budworm, mistletoe infestations, and root rot. The manipulation of disturbance mechanisms has increased the number of trees per acre far beyond the natural system sustainability and skewed the forest tree species composition toward those more susceptible to insects, disease, and wildfire. This situation complicates and limits forest management options.

Section III. Conservation Activity Analysis

Recent NRCS Practice Implementation

NRCS work in Granite County has historically focused on meeting the needs of the Local Working Group's priorities. These priorities have shifted between grazing, irrigation, forestry and weed control over the past twenty years. The projects covering the most acreage during the last two decades are prescribed grazing (5,051 acres) and herbaceous weed control (2,088 acres). Other common practices include grazing-related practices such as fencing (16 miles), spring developments (44), livestock pipeline (7.6 miles) and watering facilities (62 total) (Table 2). Multiple other practices have been contracted to lesser extents.

Table 2. NRCS Environmental Quality Incentive Program (EQIP) implementation of commonly applied practices from 2000 to 2020.

<i>Practice Name</i>	<i>Applied</i>	<i>Unit</i>	<i>Number of Projects</i>
Bruch Management	25	Acres	5
Fence	16	Miles	64
Fuel Break	812	Acres	62
Herbaceous Weed Treatment Pest Management	2,088	Acres	107
Structure for Water Control	8	Number	8
Irrigation Pipeline	8,126	Feet	6
Sprinkler System	349	Acres	6
Forest Stand Improvement	234	Acres	24
Woody Residue Treatment	214	Acres	21
Tree/Shrub Establishment	26	Acres	7
Spring Development	44	Number	44
Livestock Pipeline	7.6	Miles	55
Watering Facility	62	Number	62
Prescribed Grazing	5,051	Acres	9
Water Well	5	Number	5
Pumping Plant	10	Number	10

Partners

The Clark Fork Coalition

(This is a summary from the Clark Fork Coalition website. For more information visit <https://clarkfork.org/>)

The Clark Fork Coalition achieves its mission by protecting clean water, restoring degraded waterways, and engaging people in the critical work of caring for their rivers. Those strategies are grounded in a deep commitment to collaboration and a strong dedication to win-win solutions. We ensure our work is science-based, community-focused, stakeholder-informed, and fueled and sustained by diverse partnerships. That's been a winning solution for the river since 1985, and we're proud of what we've accomplished together. Here are some highlights:

- Launching a world-class restoration of the Upper Clark Fork River by winning a \$200 million settlement to clean up toxic mining wastes along 56 miles of river, while securing \$77 million to restore the area to health.
- Removing Milltown Dam near Missoula and restoring the historic confluence of the Clark Fork and Blackfoot rivers.
- Leading community-based opposition to dangerous large-scale mines proposed for the headwaters of the Blackfoot River and beneath the Cabinet Mountains Wilderness.
- Pioneering cleanup and restoration on a working cattle ranch at our Dry Cottonwood Creek Ranch in the Deer Lodge Valley.
- Directly engaging thousands of people caring for their river through education programs and a vibrant and active Volunteer River Corps.
- Re-watering and reconnecting tributaries to main-stem rivers by brokering voluntary water transactions that have returned billion gallons of water to thirsty streams since 2003.
- Improving water quality, removing fish barriers, improving irrigation efficiency, and enhancing fish and wildlife habitat by working with private and public landowners to restore streams in the Bitterroot, Blackfoot, Nine Mile and Upper Clark Fork.

Five Valleys Land Trust

(This is a summary from the Five Valleys Land Trust website. For more information visit <http://www.fvlt.org>)

With our rich tradition of public lands, it's easy to assume that the government is responsible for all the open space, trails, parks, and other outdoor amenities we enjoy in and around our community. But these things often take the hard work, generosity, and dedication of private citizens. That certainly has been the case in western Montana.

As early as 1971 our founders were increasingly nervous about the pace of residential and commercial development in and around the community. They wondered what might happen to the open lands, rivers, and streams that made living here so special. In 1972, they formed the Five Valleys River Park Association with a \$100 grant and got to work creating the riverfront park system that is now so important to life in Missoula.

After acquiring and creating parklands along the Clark Fork and Bitterroot Rivers, they promoted the passage of Montana's first public open space bond in 1980. Before the end of that decade the River Park Association became Five Valleys Land Trust.

We've expanded much since then with an amazing network of board, staff, volunteers, supporters, and partners who have contributed to an impressive list of projects and accomplishments. We've conserved more than 70,000 acres across western Montana, and we're just getting started.

Granite Conservation District

The conservation district cooperates with the NRCS Philipsburg Field Office and works closely with NRCS in an advisory capacity to steer conservation priorities.

Natural Resource Issues to be Addressed

The Philipsburg NRCS Field Office is very fortunate to work with engaged and enthusiastic partners in our local conservation districts and conservation groups. There are many natural resource concerns that need addressed throughout the county. These include, but are not limited to:

Salmonid Conservation: Improving habitat and populations of westslope cutthroat trout and bull trout through increased instream flows, removal of passage barriers, increased irrigation efficiency, fish screens, and riparian health (i.e. vegetation establishment, grazing exclusion, beaver mimicry).

Drought Resiliency: Restoring and improving hydrological conditions through riparian health, beaver dam mimicry, wetland restoration and enhancement, mesic area restoration, increased stream flow; volume and duration, alternative stock water sources, and increased irrigation efficiency.

Forest Health: Improving forest conditions by mimicking natural disturbance regimes, restoring and enhancing riparian vegetation and aspen stands, reducing wildfire and disease risk, and enhancing forest diversity in understories and canopies.

Grassland Conservation: Improve the conditions of native rangeland through reducing conifer encroachment and improving grazing management. Improve the conditions of pastureland through increasing diversity, soil health principles, and grazing management.

Noxious Weeds: Reduce the incidence of noxious weeds and strategically target infestations.

Wildlife Conflict: Reduce the incidences of livestock losses to predators and negative impacts to predator populations through deterrent strategies and management actions. Install wildlife friendly infrastructure. Improve wildlife habitat in areas that are not likely to result in conflict.

Water Quality: Clean-up of heavy metals and other mining associated pollutants must continue throughout the Flint Creek and Willow Creek watersheds, in addition to continuing to address other non-point-source pollutants.

Education: Provide information to landowners on innovative conservation practices.

Section IV. Natural Resource Problems and Desired Future Outcomes

The Philipsburg NRCS Field Office and our local partners have identified the following natural resource problems as those that can most readily be addressed during the 5-year course of this Long Range Plan. During calendar year 2020, NRCS will host meetings in Granite County with the conservation district to re-evaluate natural resource issues for the NRCS Long Range Plan. The Philipsburg FO will also work with partners during the development and implementation of Targeted Implementation Plans (TIPs) within the Long Range Plan.

Forestry: Forest Stand Health & Vigor

Concern Description: Forest stand improvement projects that reduce disease and insect risk and/or increase vigor and quality are a priority with forest landowners. However, intermediate treatment of timber stands is labor intensive and generally low profit for contractors, making the jobs undesirable.

Trend: Forests, like most ecosystems, are in a constant state of change. Often, management actions are driven by economics rather than conservation. Consequently, there is a perpetual need for practices such as intermediate treatments that improve conditions but incur costs rather than make a profit.

Potential Conservation Practices: Forest Stand Improvement (666), Woody Residue Treatment (384), Herbaceous Weed Treatment (315)

Desired Future Conditions: Healthy forests with diverse species composition, diverse age classes, and improved health and vigor.

Objective: Develop a TIP that strategically focuses FA and TA on at least one high priority area for improving forest health.

Forestry: Fuels Reduction

Concern Description: Fuels reduction to decrease wildfire risk is a concern anywhere that human dwellings and structures interface with forestland. As more people move into the suburban and exurban forest, there is an increased risk to human safety associated with wildfire. Moreover, fire management resources must be used to address areas of human habitation as a top priority in the event of wildfires.

Trend: Human populations continue to expand into the forest/urban interface which increases risk and need for fuels reduction.

Potential Conservation Practices: Fuel Break (383), Forest Stand Improvement (666), Woody Residue Treatment (384), Herbaceous Weed Treatment (315)

Desired Future Conditions: Reduced wildfire risk.

Objective: Reduce the wildfire risk to life and property. Develop a TIP that strategically focuses FA and TA resources for fuel reduction.

Aspen Regeneration

Concern Description: Quaking aspen stands are in decline throughout the Rocky Mountains. As an early successional species, aspen stands require some disturbance regime to regenerate. Many stands have become decadent or have been replaced by conifers due to alteration of disturbance, particularly fire regime. Grazing/browsing can also limit recruitment of young aspen clones. Aspen regeneration is important to wildlife habitat and ecosystem health.

Trend: Reduced incidence of disturbance through fire suppression results in the continued decline of aspen stands. Grazing pressure from domestic and wild animals suppresses younger age class clones.

Potential Conservation Practices: Forest Stand Improvement (666), Restoration of Rare and Declining Habitats (643), Fence (382), Upland Wildlife Habitat Management (645)

Desired Future Conditions: NRCS and partners can strategically identify watersheds where aspen regeneration practices are feasible and needed to maintain forest and habitat diversity.

Objective: Identify at least one area in the next five years with ready, willing, and able landowners to treat 50 percent of the decadent aspen stands with regeneration techniques.

Riparian

Concern Description: Restoration and management of riparian areas is a high priority for many partners and landowners. Partners have already completed work to limit riparian grazing and restore hydrology. Despite these strides, significant riparian area degradation remains throughout the county on tributaries and major streams.

Trend: The current trend is static except for areas where partners have initiated projects, which show improvement.

Potential Conservation Practices: Fence (382), Restoration of Rare and Declining Habitats (643), Prescribed Grazing (528)

Desired Future Conditions: Strategically install structural practices and initiate management on high priority streams and tributaries.

Objective: Implement a TIP on at least one high priority watershed in the Flint Creek and/or Rock Creek drainages where management and beaver mimicry can be used to restore riparian areas. The overall goal will be to establish beaver colonies in areas where landowners can tolerate their presence.

Conifer Encroachment

Concern Description: Intermountain grasslands are a valuable resource for wildlife and agriculture. Several factors including effective precipitation, elevation, soils, and disturbance regimes affect the occurrence of these grasslands. Since humans have altered the natural fire regime that historically limited conifer recruitment in these grasslands, many areas are subject to increased conifer encroachment. The encroachment reduces forage availability for wild and domestic ungulates, reduces stream flow, and makes some areas unsuitable for grassland obligate wildlife. Reintroducing fire to these ecosystems would be the best way to reduce conifer encroachment. However, in many areas fire is not a socially acceptable solution. The best available alternative is to remove conifers through mechanical or chemical methods to maintain grasslands.

Trend: Conifer encroachment is spreading across more acres each year in the county. Producers are aware of the problem but are generally not addressing it on their own.

Potential Conservation Practices: Brush Management (314), Prescribed Grazing (528), Woody Residue Treatment (384), Forest Stand Improvement (666), Herbaceous Weed Treatment (315)

Desired Future Conditions: Conifer encroachment will be removed through mechanical or other means to restore intermountain grassland areas.

Objective: Identify one or more areas with conifer encroachment where a TIP may be implemented to restore native rangeland.

Irrigation

Concern Description: Irrigation is fundamental to agriculture in Granite County. Most of the irrigated ground in the area is used for hay production. Numerous diversions are present on rivers and streams throughout the area, and there are three irrigation reservoirs. Many of these delivery systems are antiquated and in need of vast infrastructure improvements. The main areas for improvement include retrofitting diversion structures to reduce fish entrainment, updating water delivery conveyances to gravity pressure where possible, converting from open ditch to pipeline to reduce system losses, improving water measurement abilities, reducing system waste including stemming the significant tailwater return flows and providing alternative stockwater options to reduce off-season delivery through canals for livestock water. On-farm improvements are also needed throughout the system. Currently, some wild-flood irrigation exists on steep slopes. Many areas could be converted to gravity irrigation, and alternative stockwater options and overall improvements of efficiency and reductions in off-site movements of water, sediments and nutrients should be developed. Improving the efficiency of all these irrigation systems to improve instream flows is also a high priority. Working with partners to address multiple resource benefits is a key goal of the Philipsburg Field Office.

Trend: Sprinkler system cost has been a substantial barrier to improving irrigation efficiencies in Granite County. The primary crop on irrigated lands is forage/hay for winter feed. Since it's a low value crop produced in an area with a short growing season, necessary for livestock production, the cost vs. benefit is marginal without financial assistance.

Potential Conservation Practices: Irrigation Pipeline (430), Pumping Plant (533), Diversion (362), Fish Screen and other structures for water control (587), Sprinkler System (442), Irrigation Water Management (449)

Desired Future Conditions: Increase irrigation efficiency where possible to promote increased in-stream flows. Reduce fish entrainment and improve connectivity of tributaries to mainstems.

Objective: Continue systematically identifying high priority clusters of projects with the end goal of updating efficiencies throughout the major irrigation areas in the county.

Noxious Weeds

Concern Description: Weeds are a constant natural resource issue in Granite County. The type of weeds and density of each within the counties is more information than will be discussed in this document. However, a few notable species are black henbane, sulfur cinquefoil, tall buttercup, whitetop, yellow toadflax, Dalmatian toadflax, houndstongue, field bindweed, leafy spurge, Canada thistle, spotted knapweed, and common caraway.

Emerging threats is another weed-related issue that could be addressed. Aggressively targeting new threats should be a cornerstone of any active weed management plan and should be a high priority for focusing resources whenever possible. Common caraway and ventenata grass are currently emerging threats in the county.

Trend: Weed pressure throughout the county varies from year to year based on climate and precipitation, as well as new invasions. Some areas that were previously infested with leafy spurge, houndstongue, and spotted knapweed have seen reductions due to the introduction of biological controls. In other areas, weeds are increasing.

Potential Conservation Practices: Herbaceous Weed Treatment (315), Range Planting (550), Critical Area Planting (342), Prescribed Grazing (528), Integrated Pest Management (595)

Desired Future Conditions: A realistic goal would be a strategic course of action that allows NRCS, partners, and producers to quickly and efficiently deal with new invasions and to implement mitigation measures on established weeds that allow for management and minimize negative impacts.

Objective: Elimination of invasive weeds is often not feasible. Our proposed alternative is to strategically manage established noxious weeds for the least impact on natural resources. A

targeted is to intensive effort in aggressively removing newly invading weeds before they become well established.

Wildlife and Habitat

Concern Description: Wildlife and habitat are key priorities for many natural resource partners in Granite County. Forest health, grassland conservation, wetland conservation, riparian management, and stream restoration have long been points of interest with landowners and partners throughout the county, and all contribute to the quality of habitat. There are also concerns with wildlife conflicts such as wild ungulate competition with livestock, fence damage, and losses to large carnivores. Fisheries improvements, particularly for westslope cutthroat trout and bull trout, have and will continue to be a priority in the counties. There is great potential to address fisheries concerns where these issues are intertwined with irrigation and riparian health.

Trend: Variable

Potential Conservation Practices: TBD

Desired Future Conditions: TBD

Objective: TBD

Soil Health

Concern Description: Soil health remains an area of interest in the county. Many producers are interested in improving their soil health and increasing the sustainability of their agricultural operations. Producers have started to adopt cover crops, but adoption is still low. Encouraging more landowners to adopt soil building practices should be prioritized. Livestock producers are interested in improving soil health through innovative management techniques including bale grazing, high stock density, use of electric fence, and increased plant recovery periods.

Trend: Flat

Potential Conservation Practices: TBD

Desired Future Conditions: TBD

Objective: Considering a soil health TIP on hayland that encourages grazing cover crops during renovation years. Encouraging a 5 to 7 year rotation with one hayfield in cover crops each year.

Pasture and Range Improvements

Concern Description: Pastures (dry and irrigated) in the county are in fair to poor condition. The conditions are a result of both poor grazing management and poor species selection and diversity. Targeting improvements to both grazing and/or species selection could provide significant resource benefits.

Livestock grazing management is of key importance in protecting existing range resources. Livestock herd rotation and varied grazing season usage are important tools that landowners can utilize to manage their livestock. For areas that are already heavily invaded by annual grasses and weeds, the best course of action is often to time grazing events to coincide with peak palatability of the non-desirable species while working to limit usage when desirable species are most susceptible to grazing pressures.

Trend: Flat

Potential Conservation Practices: TBD

Desired Future Conditions: TBD

Objective: TBD

Section V. Prioritization of Natural Resource Problems and Desired Future Outcomes

The prioritization of natural resource problems is based on those that can be addressed by NRCS funding in FY 2020. These projects have partner support; ready, willing, and able landowners; and enough resource inventory to substantiate the priority. The following projects will be developed into Targeted Implementation Plans to be evaluated for funding in FY2020.

Forestry: Forest Stand Health & Vigor

Concern Description: Forest stand improvement projects that reduce disease and insect risk and/or increase vigor and quality are a priority with forest landowners. However, intermediate treatment of timber stands is labor intensive and generally low-profit for contractors, making the jobs undesirable.

Trend: Forests, like most ecosystems, are in a constant state of change. Often, management actions are driven by economics rather than conservation. Consequently, there is a perpetual need for practices such as intermediate treatments that improve conditions but incur costs rather than make a profit.

Potential Conservation Practices: Forest Stand Improvement (666), Woody Residue Treatment (384)

Desired Future Conditions: Healthy forests with diverse species composition, diverse age classes, and improved health and vigor.

Objective: Develop a TIP that strategically focuses FA and TA on at least one high priority area for improving forest health.

Source:

Granite county Growth Policy: http://co.granite.mt.us/wp-content/uploads/2014/02/GrowthPolicy_2013.pdf

US Census Bureau, <https://www.census.gov/quickfacts/fact/table/>

National Ag Statistics Service: <https://www.nass.usda.gov>

NASS National Agriculture Statistics Service.

https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/Montana/cp30039.pdf

Montana Department of Environmental Quality, <http://deq.mt.gov/Water/Resources/report>
EPA-Air quality
https://www3.epa.gov/airquality/urbanair/sipstatus/reports/mt_elembypoll.html#pm-10_1987_333

MT DEQ Air Quality <http://deq.mt.gov/Air/2017Air/Standards/airnonattainment>

Granite County Soil Survey, NRCS, USDA.

<https://www.nrcs.usda.gov/wps/portal/nrcs/surveylist/soils/survey/state/?stateId=MT>

Montana Climate Office. University of Montana.

<http://climate.umt.edu/atlas/precipitation/default.php>

Montana Natural Heritage Program. Montana Official State Website. October 2019.

<http://mtnhp.org>

U.S. Fish and Wildlife Service. Endangered, Threatened, Proposed and Candidate Species by Montana Counties, Endangered Species Act, December 12, 2019

https://www.fws.gov/montanafieldoffice/Endangered_Species/Listed_Species/countylist.pdf

U.S. Fish and Wildlife Service. 2017. Species Status Assessment for the Canada lynx (*Lynx canadensis*) Contiguous United States Distinct Population Segment. Version 1.0, October 2017. Lakewood, Colorado.

https://www.fws.gov/mountain-prairie/es/species/mammals/lynx/SSA2018/01112018_SSA_Report_CanadaLynx.pdf

Grizzly Bear Management Plan for Western Montana, Draft Programmatic Environmental Impact Statement. Montana Fish Wildlife and Parks. June 2006.

U. S. Fish and Wildlife Service. 1993 Grizzly Bear Recovery Plan. Missoula, Montana. 181pp.

Montana Bull Trout Restoration Team. Restoration Plan for Bull Trout in the Clark Fork River Basin and Kootenai River Basin Montana. June 2000.

The description of granite county forests is from the print version of the NRCS soil survey. Acreage figures derived from USFS Forest Inventory and Analysis Program; Inventory EVALIDator web application and from the University of Montana Extension

Appendix:

Maps

- Granite County Important Farmlands
- Landuse – MT Dept. of Revenue Final Land Classification
- Western Montana Population Density – Granite County Growth Policy

USDA – National Agriculture Statistics Service
2017 Census of Agriculture Granite County Profile

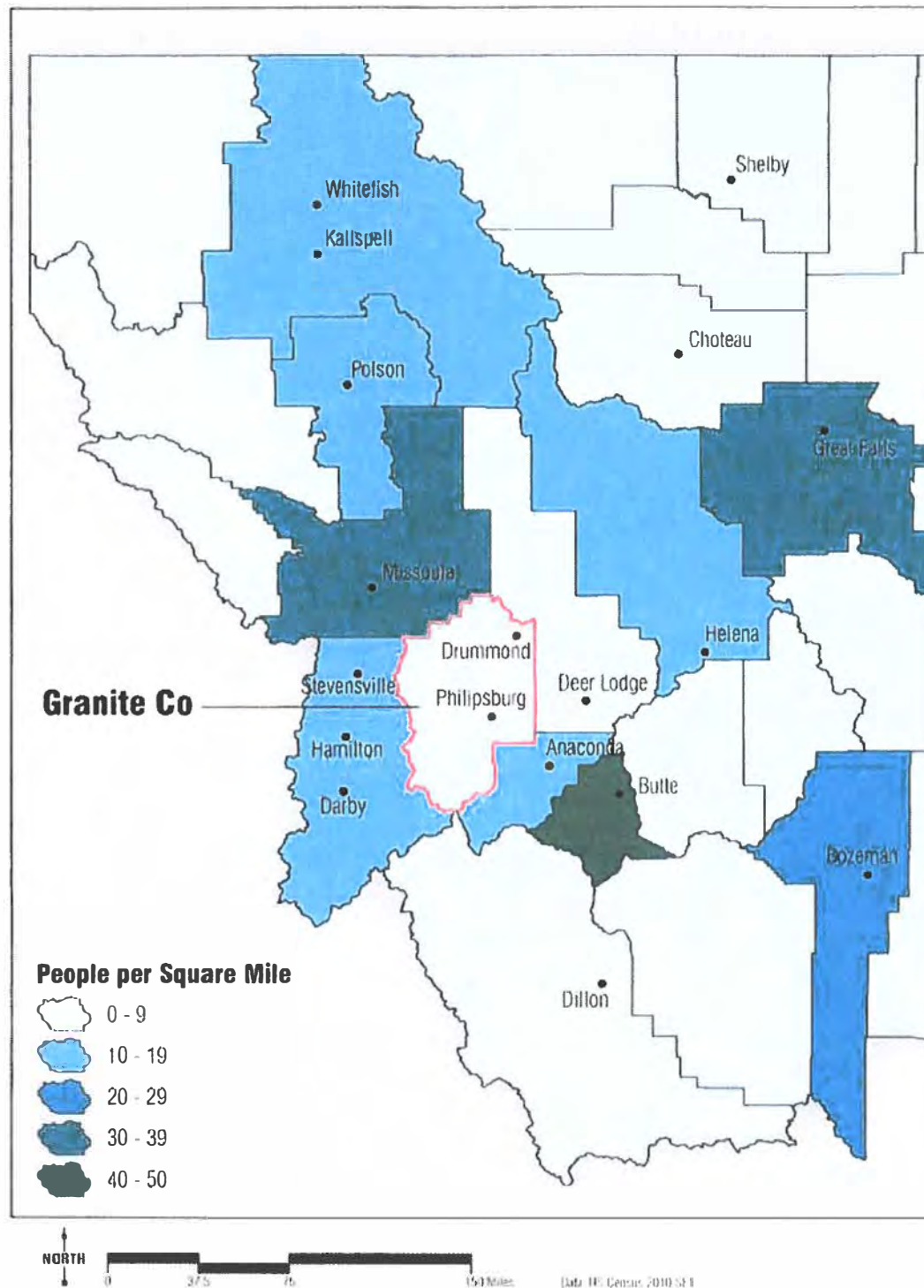
Montana Natural Heritage Program
Introduction to Land Management
Land Management Summarized

Montana Natural Heritage Program
Introduction to Wetland and Riparian
Wetland and Riparian Summarized

United States Department of the Interior
Endangered, Threatened, Proposed and Candidate Species

State of Montana
Montana DEQ Flint-Rock Impaired Waters
Montana Species of Concern: Animal
Montana Species of Concern: Plant

Western Montana Population Density



Source: Montana NRIS, US Census 2010



Granite County Montana



Total and Per Farm Overview, 2017 and change since 2012

	2017	% change since 2012
Number of farms	151	-7
Land in farms (acres)	285,656	(Z)
Average size of farm (acres)	1,892	+8
Total	(\$)	
Market value of products sold	17,898,000	-7
Government payments	268,000	+76
Farm-related income	1,233,000	+40
Total farm production expenses	15,792,000	+17
Net cash farm income	3,606,000	-46
Per farm average	(\$)	
Market value of products sold	118,530	+1
Government payments (average per farm receiving)	5,460	-7
Farm-related income	20,892	+45
Total farm production expenses	104,584	+27
Net cash farm income	23,881	-42

1 Percent of state agriculture sales

Share of Sales by Type (%)

Crops	16
Livestock, poultry, and products	84

Land in Farms by Use (%) ^a

Cropland	10
Pastureland	71
Woodland	18
Other	1

Acres irrigated: 31,861

11% of land in farms

Land Use Practices (% of farms)

No till	4
Reduced till	3
Intensive till	7
Cover crop	1

Farms by Value of Sales

	Number	Percent of Total ^a
Less than \$2,500	50	33
\$2,500 to \$4,999	5	3
\$5,000 to \$9,999	6	4
\$10,000 to \$24,999	9	6
\$25,000 to \$49,999	4	3
\$50,000 to \$99,999	22	15
\$100,000 or more	55	36

Farms by Size

	Number	Percent of Total ^a
1 to 9 acres	11	7
10 to 49 acres	15	10
50 to 179 acres	16	11
180 to 499 acres	31	21
500 to 999 acres	15	10
1,000 + acres	63	42

Market Value of Agricultural Products Sold

	Sales (\$1,000)	Rank in State ^b	Counties Producing Item	Rank in U.S. ^b	Counties Producing Item
Total	17,898	49	56	2,439	3,077
Crops	2,946	52	56	2,573	3,073
Grains, oilseeds, dry beans, dry peas	(D)	49	54	(D)	2,916
Tobacco	-	-	-	-	323
Cotton and cottonseed	-	-	-	-	647
Vegetables, melons, potatoes, sweet potatoes	-	-	42	-	2,821
Fruits, tree nuts, berries	(D)	21	27	(D)	2,748
Nursery, greenhouse, floriculture, sod	-	-	35	-	2,601
Cultivated Christmas trees, short rotation woody crops	-	-	9	-	1,384
Other crops and hay	2,680	35	56	941	3,040
Livestock, poultry, and products	14,952	44	56	1,859	3,073
Poultry and eggs	1	45	53	2,102	3,007
Cattle and calves	14,330	43	56	1,015	3,055
Milk from cows	(D)	25	25	(D)	1,892
Hogs and pigs	(D)	(D)	54	(D)	2,856
Sheep, goats, wool, mohair, milk	218	34	55	733	2,984
Horses, ponies, mules, burros, donkeys	57	43	56	1,745	2,970
Aquaculture	-	-	13	-	1,251
Other animals and animal products	(D)	25	52	(D)	2,878

Total Producers ^c		Percent of farms that:		Top Crops in Acres ^d	
Sex		Have internet access	90	Forage (hay/haylage), all	24,584
Male	172			Wheat for grain, all	184
Female	124			Barley for grain	(D)
				Corn for silage or greenchop	(D)
				Apples	(D)
Age		Farm organically	-	Livestock Inventory (Dec 31, 2017)	
<35	12			Broilers and other meat-type chickens	(D)
35 – 64	165			Cattle and calves	19,392
65 and older	119			Goats	38
		Sell directly to consumers	3	Hogs and pigs	(D)
Race				Horses and ponies	694
American Indian/Alaska Native	3			Layers	174
Asian	-			Pullets	-
Black or African American	-			Sheep and lambs	1,078
Native Hawaiian/Pacific Islander	-			Turkeys	-
White	288	Hire farm labor	28		
More than one race	5				
		Are family farms	96		
Other characteristics					
Hispanic, Latino, Spanish origin	-				
With military service	31				
New and beginning farmers	61				

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

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

^d Crop commodity names may be shortened; see full names at www.nass.usda.gov/go/cropnames.pdf. ^e Position below the line does not indicate rank. (D) Withheld to avoid disclosing data for individual operations. (NA) Not available. (Z) Less than half of the unit shown. (-) Represents zero.

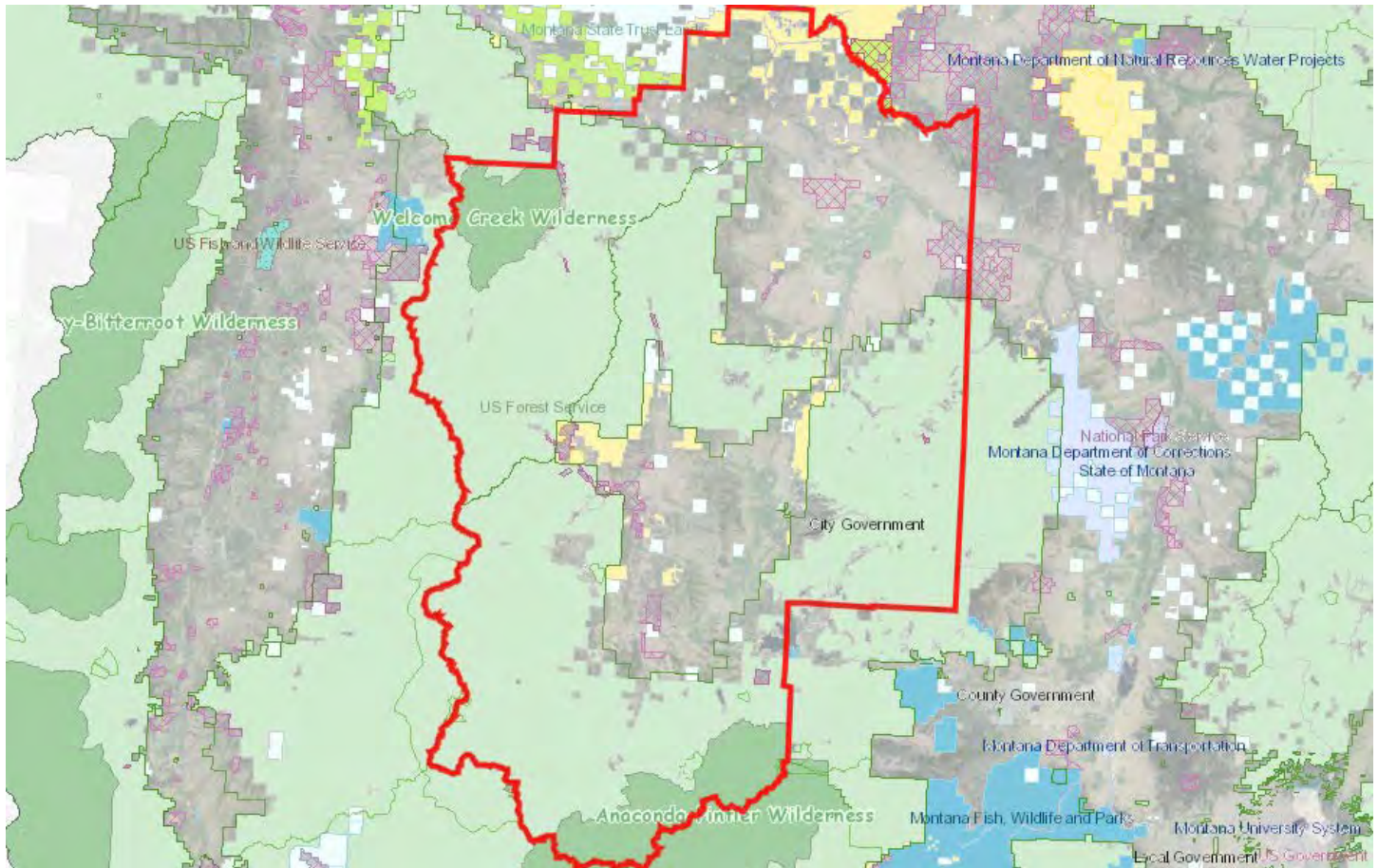


A program of the Montana State Library's
Natural Resource Information System
operated by the University of Montana.

Land Management

Summarized by: **Granite** (County)

Latitude	Longitude
45.92664	-113.04586
46.84424	-113.83249



Land Management Summary

	Ownership	Tribal	Easements	Other Boundaries (possible overlap)
Public Lands	722.089 Acres (65%)			
Federal	701,307 Acres (63%)			
US Forest Service				
USFS Owned	662,773 Acres (60%)			
USFS Ranger Districts				722,543 Acres
☐ Beaverhead-Deerlodge National Forest, Pintler Ranger District (Phillipsburg Office)				524,043 Acres
☐ Bitterroot National Forest, Stevensville Ranger District				1 Acres
☐ Lolo National Forest, Missoula Ranger District				198,499 Acres
USFS National Forest Boundaries				722,543 Acres
☐ Beaverhead-Deerlodge National Forest				524,043 Acres
☐ Bitterroot National Forest				1 Acres
☐ Lolo National Forest				198,499 Acres
USFS Wilderness Areas				71,194 Acres
☐ Anaconda-Pintler Wilderness				42,979 Acres
☐ Welcome Creek Wilderness				28,215 Acres
USFS Wilderness Study Areas				10 Acres
☐ Sapphire Wilderness Study Area				10 Acres
USFS Research Natural Areas				2,221 Acres
☐ Dexter Basin Research Natural Area				1,106 Acres

Land Management Summary

	Ownership	Tribal	Easements	Other Boundaries (possible overlap)
 Goat Flat Research Natural Area				224 Acres
 Sapphire Divide Research Natural Area				662 Acres
 Windy Ridge Research Natural Area				229 Acres
USFS Special Interest Areas				531 Acres
 West Fork Buttes Botanical Area				531 Acres
US Bureau of Land Management	38,534 Acres (3%)			
 BLM Owned	38,534 Acres (3%)			
BLM Wilderness Study Areas				514 Acres
 Quigg Wilderness Study Area				514 Acres
BLM Areas of Critical Environmental Concern				651 Acres
 Rattler Gulch Limestone Cliffs Area of Critical Environmental Concern				19 Acres
 Squaw Rock Area of Critical Environmental Concern				632 Acres
State	19,816 Acres (2%)			
Montana State Trust Lands	19,780 Acres (2%)			
MT State Trust Owned	19,780 Acres (2%)			
Montana Fish, Wildlife and Parks	31 Acres (<1%)			
 MTFWP Owned	31 Acres (<1%)			
MTFWP Fishing Access Sites				39 Acres
 Bearmouth Fishing Access Site				31 Acres
 Drummond Fishing Access Site				7 Acres
 Gillies Bridge Fishing Access Site				1 Acres
Montana University System				
MUS Experimental Areas				3 Acres
 Lubrecht State Experimental Forest				3 Acres
Montana Department of Transportation				
 MDOT Owned				
State of Montana	5 Acres (<1%)			
 State of Montana Owned	5 Acres (<1%)			
Local	966 Acres (<1%)			
Local Government	966 Acres (<1%)			
 Local Government Owned	966 Acres (<1%)			
Private Conservation Lands	5 Acres (<1%)			
 TNC Owned	5 Acres (<1%)			
Conservation Easements			21,598 Acres (<2%)	
Private			16,522 Acres (1%)	
 Montana Land Reliance			3,165 Acres (<1%)	
 The Nature Conservancy			5,371 Acres (<1%)	
 Rocky Mountain Elk Foundation				
 Five Valleys Land Trust			7,986 Acres (1%)	
State and Local			4,656 Acres (<1%)	
 Montana Fish, Wildlife and Parks			4,522 Acres (<1%)	
 Montana Department of Transportation			134 Acres (<1%)	
Federal			420 Acres (<1%)	
 US Forest Service			82 Acres (<1%)	
 US Department of Agriculture			338 Acres (<1%)	
Private Lands or Unknown Ownership	364,064 Acres (33%)			

Introduction to Land Management

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

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

Public and private conservation land polygons are attributed with the name of the entity that owns it. The data are derived from the statewide Montana Cadastral Parcel layer. Conservation easement data shows land parcels on which a public agency or qualified land trust has placed a conservation easement in cooperation with the land owner. The dataset contains no information about ownership or status of the mineral estate. For questions about the dataset or to report errors, please contact the Montana Natural Heritage Program at (406) 444-5354 or mtnhp@mt.gov. You can download various components of the Land Management Database and view associated metadata at the Montana State Library’s [GIS Data List](#) at the following links:

[Public Lands](#)

[Conservation Easements](#)

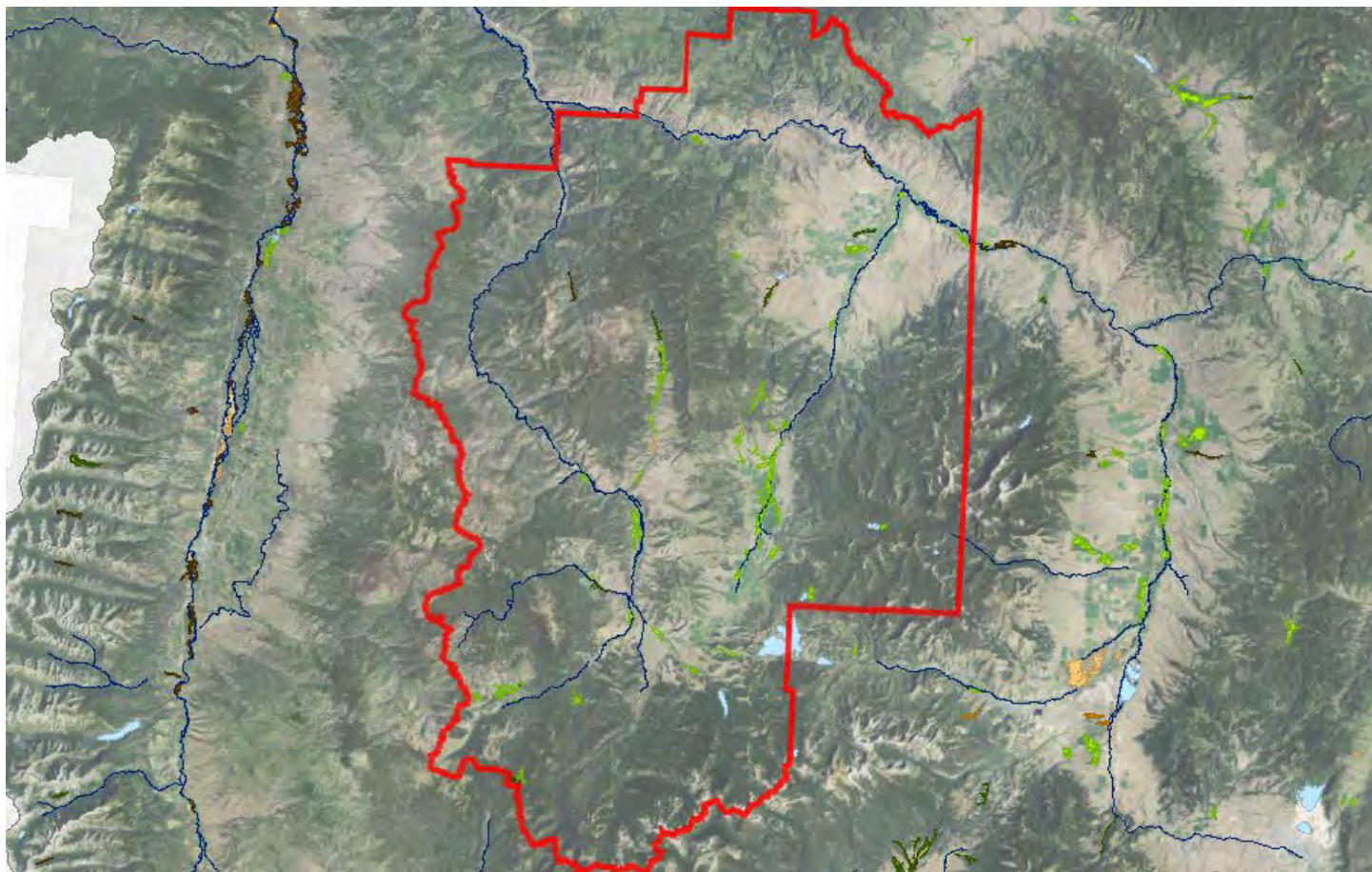
[Private Conservation Lands](#)

[Managed Areas](#)

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

Wetland and Riparian

Summarized by: **Granite** (County)



Wetland and Riparian Mapping

P- Palustrine

UB – Unconsolidated Bottom F – Semipermanently Flooded (no modifier) x -Excavated G – Intermittently Exposed (no modifier)			8 Acres 7 Acres 1 Acres 25 Acres	PUBF PUBFx PUBG	P – Palustrine, UB – Unconsolidated Bottom Wetlands where mud, silt or similar fine particles cover at least 25% of the bottom, and where vegetation cover is less than 30%.
AB – Aquatic Bed F – Semipermanently Flooded (no modifier) b - Beaver h - Diked/Impounded x - Excavated G – Intermittently Exposed (no modifier) b - Beaver h - Diked/Impounded x - Excavated K – Artificially Flooded x -Excavated			693 Acres 378 Acres 23 Acres 20 Acres 17 Acres 524 Acres 485 Acres 2 Acres 20 Acres 17 Acres 12 Acres 12 Acres	PABF PABFb PABFh PABFx PABG PABGb PABGh PABGx PABKx	

US – Unconsolidated Shore A – Temporarily Flooded (no modifier) h - Diked/Impounded C – Seasonally Flooded (no modifier) h - Diked/Impounded x – Excavated			22 Acres 11 Acres 11 Acres 22 Acres 20 Acres 2 Acres <1 Acres	PUSA PUSAh PUSC PUSCh PUSCx	P – Palustrine, US – Unconsolidated Shore Wetlands with less than 75% areal cover of stones, boulders, or bedrock. AND with less than 30% vegetative cover AND the wetland is irregularly exposed due to seasonal or irregular flooding and subsequent drying.
EM – Emergent A – Temporarily Flooded (no modifier) f - Farmed h - Diked/Impounded x – Excavated B – Saturated (no modifier) C – Seasonally Flooded (no modifier) f - Farmed h - Diked/Impounded x – Excavated E – Seasonally Flooded-Saturated (no modifier) F – Semipermanently Flooded (no modifier) f - Farmed h - Diked/Impounded x – Excavated			13,341 Acres 12,595 Acres 632 Acres 77 Acres 37 Acres 803 Acres 803 Acres 6,241 Acres 6,075 Acres 75 Acres 78 Acres 13 Acres <1 Acre <1 Acres 139 Acres 111 Acres 12 Acres 12 Acres 4 Acres	PEMA PEMAf PEMAh PEMAx PEMB PEMC PEMCf PEMCh PEMCx PEME PEMF PEMFf PEMFh PEMFx	P – Palustrine, EM – Emergent Wetlands with erect, rooted herbaceous vegetation present during most of the growing season.
SS – Scrub-Shrub A – Temporarily Flooded (no modifier) h - Diked/Impounded x – Excavated B – Saturated (no modifier) C – Seasonally Flooded (no modifier) b - Beaver h - Diked/Impounded F – Semipermanently Flooded (no modifier) h - Diked/Impounded			3,795 Acres 3,770 Acres 22 Acres 3 Acres 2 Acres 2 Acres 944 Acres 877 Acres 46 Acres 21 Acres 4 Acres 2 Acres 2 Acres	PSSA PSSAh PSSAx PSSB PSSC PSSCb PSSCh PSSF PSSFh	P – Palustrine, SS – Scrub-Shrub Wetlands dominated by woody vegetation less than 6 meters (20 feet) tall. Woody vegetation includes tree saplings and trees that are stunted due to environmental conditions.
FO – Forested A – Temporarily Flooded (no modifier) h - Diked/Impounded			857 Acres 856 Acres 1 Acres	PFOA PFOAh	P – Palustrine, FO - Forested Wetlands dominated by woody vegetation greater than 6 meters (20 feet) tall.

L – Lacustrine (Lakes)

1- Limnetic

UB – Unconsolidated Bottom			L – Lacustrine (Lakes), 1 – Limnetic, UB – Unconsolidated Bottom	
G – Intermittently Exposed		22 Acres	<i>Deep waterbodies with mud or silt covering at least 25% of the bottom.</i>	
h - Diked/Impounded	22 Acres	L1UBGh		
H – Permanently Flooded		2,630 Acres		
(no modifier)	405 Acres	L1UBH		
h - Diked/Impounded	2,225 Acres	L1UBHh		

2- Littoral

AB – Aquatic Bed			L – Lacustrine (Lakes), 2 – Littoral, AB – Aquatic Bed	
G – Intermittently Exposed		77 Acres	<i>Shorelines with vegetation growing on or below the water surface for most of the growing season.</i>	
(no modifier)	30 Acres	L2ABG		
h - Diked/Impounded	47 Acres	L2ABGh		
US – Unconsolidated Shore			L – Lacustrine (Lakes), 2- Littoral, US – Unconsolidated Shore	

A – Temporarily Flooded		21 Acres	
h - Diked/Impounded	21 Acres	L2USAh	
C – Seasonally Flooded		59 Acres	
h - Diked/Impounded	59 Acres	L2USCh	

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

R – Riverine (Rivers)

2 - Lower Perennial

UB – Unconsolidated Bottom		3 Acres		R – Riverine (Rivers), 2 – Lower Perennial, UB - Unconsolidated Bottom <i>Stream channels where the substrate is at least 25% mud, silt or other fine particles.</i>
F – Semipermanently Flooded				
x – Excavated	3 Acres	R2UBFx		
G – Intermittently Exposed		1 Acres		
(no modifier)	1 Acres	R2UBG		
H – Permanently Flooded		104 Acres		R – Riverine (Rivers), 2 – Lower Perennial, US - Unconsolidated Shore <i>Shorelines with less than 75% areal cover of stones, boulders, or bedrock and less than 30% vegetation cover. The area is also irregularly exposed due to seasonal or irregular flooding and subsequent drying.</i>
(no modifier)	104 Acres	R2UBH		
US – Unconsolidated Shore				
A – Temporarily Flooded		54 Acres		
(no modifier)	54 Acres	R2USA		

3 - Upper Perennial

UB – Unconsolidated Bottom		109 Acres		R – Riverine (Rivers), 3 – Upper Perennial, UB - Unconsolidated Bottom <i>Stream channels where the substrate is at least 25% mud, silt or other fine particles.</i>
F – Semipermanently Flooded				
(no modifier)	109 Acres	R3UBF		
G – Intermittently Exposed		548 Acres		
(no modifier)	548 Acres	R3UGB		
H – Permanently Flooded		1,033 Acres		R – Riverine (Rivers), 3 – Upper Perennial, US - Unconsolidated Shore <i>Shorelines with less than 75% areal cover of stones, boulders, or bedrock and less than 30% vegetation cover. The area is also irregularly exposed due to seasonal or irregular flooding and subsequent drying.</i>
(no modifier)	1,033 Acres	R3UBGH		
US – Unconsolidated Shore				
A – Temporarily Flooded		147 Acres		
(no modifier)	147 Acres	R3USA		
C – Seasonally Flooded		13 Acres		
(no modifier)	13 Acres	R3USC		

4 - Intermittent

SB – Stream Bed		5 Acres		R – Riverine (Rivers), 4 – Intermittent, SB – Stream Bed <i>Active channel that contains periodic water flow.</i>
A – Temporarily Flooded				
x – Excavated	5 Acres	R4SBAx		
C – Seasonally Flooded		215 Acres		
(no modifier)	29 Acres	R4SBC		
x – Excavated	186 Acres	R4SBCx		

Rp – Riparian

1 - Lotic

SS – Scrub-Shrub (no modifier)	1,674 Acres	Rp1SS	Rp – Riparian, 1 – Lotic, SS – Scrub-Shrub <i>This type of riparian area is dominated by woody vegetation that is less than 6 meters (20 feet) tall. Woody vegetation includes tree saplings and trees that are stunted due to environmental conditions.</i>
FO – Forested (no modifier)	4,101 Acres	Rp1FO	Rp – Riparian, 1 – Lotic, FO - Forested <i>This riparian class has woody vegetation that is greater than 6 meters (20 feet) tall.</i>
EM – Emergent (no modifier)	1,268 Acres	Rp1EM	Rp – Riparian, 1 – Lotic, EM - Emergent <i>Riparian areas that have erect, rooted herbaceous vegetation during most of the growing season.</i>

2 - Lentic

FO – Forested (no modifier)	5 Acres	Rp2FO	Rp – Riparian, 2 – Lentic, FO - Forested <i>This riparian class has woody vegetation that is greater than 6 meters (20 feet) tall.</i>
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Introduction to Wetland and Riparian

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

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

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

A detailed overview, with examples, of both wetland and riparian classification systems and associated codes can be found at: http://mtnhp.org/help/MapViewer/WetRip_Classification.asp

Literature Cited

- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Fish and Wildlife Service, FWS/OBS-79/31. Washington, D.C. 103pp.
- Federal Geographic Data Committee. 2013. Classification of wetlands and deepwater habitats of the United States. FGDC-STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington, D.C.
- U.S. Fish and Wildlife Services. 2009. A system for mapping riparian areas in the western United States. Division of Habitat and Resource Conservation, Branch of Resource and Mapping Support, Arlington, Virginia.



United States Department of the Interior

Fish and Wildlife Service

Ecological Services
Montana Field Office
585 Shepard Way, Suite 1
Helena, Montana 59601-6287
Phone: (406) 449-5225, Fax: (406) 449-5339



ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA COUNTIES* Endangered Species Act

December 12, 2019

C = Candidate

LT = Listed Threatened

LE = Listed Endangered

P = Proposed

PCH = Proposed Critical Habitat

CH = Designated Critical Habitat

XN = Experimental non-essential population

*Note: Generally, this list identifies the counties where one would reasonably expect the species to occur, not necessarily every county where the species is listed

County/Scientific Name	Common Name	Status
BEAVERHEAD		
<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	LT
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Lynx canadensis</i>	Canada Lynx	LT
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Pinus albicaulis</i>	Whitebark Pine	C
BIG HORN		
<i>Mustela nigripes</i>	Black-footed Ferret	LE
BLAINE		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Charadrius melodus</i>	Piping Plover	LT
BROADWATER		
<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	LT
<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
CARBON		
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Zapada glacier</i>	Western Glacier Stonefly	LT
<i>Pinus albicaulis</i>	Whitebark Pine	C

County/Scientific Name	Common Name	Status
CARTER		
<i>Grus americana</i>	Whooping Crane	LE
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	LT
CASCADE		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Lynx canadensis</i>	Canada Lynx	LT
<i>Calidris canutus rufa</i>	Red Knot	LT
<i>Charadrius melodus</i>	Piping Plover	LT
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Pinus albicaulis</i>	Whitebark Pine	C
CHOUTEAU		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Lynx canadensis</i>	Canada Lynx	LT
<i>Charadrius melodus</i>	Piping Plover	LT
<i>Calidris canutus rufa</i>	Red Knot	LT
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
CUSTER		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE
<i>Grus americana</i>	Whooping Crane	LE
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	LT
DANIELS		
<i>Grus americana</i>	Whooping Crane	LE
<i>Charadrius melodus</i>	Piping Plover	LT
DAWSON		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE
<i>Grus americana</i>	Whooping Crane	LE
<i>Charadrius melodus</i>	Piping Plover	LT
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	LT
DEER LODGE		
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Lynx canadensis</i>	Canada Lynx	LT
<i>Calidris canutus rufa</i>	Red Knot	LT
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Pinus albicaulis</i>	Whitebark Pine	C
FALLON		
<i>Grus americana</i>	Whooping Crane	LE
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	LT
<i>Charadrius melodus</i>	Piping Plover	LT
FERGUS		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Lynx canadensis</i>	Canada Lynx	LT
<i>Pinus albicaulis</i>	Whitebark Pine	C

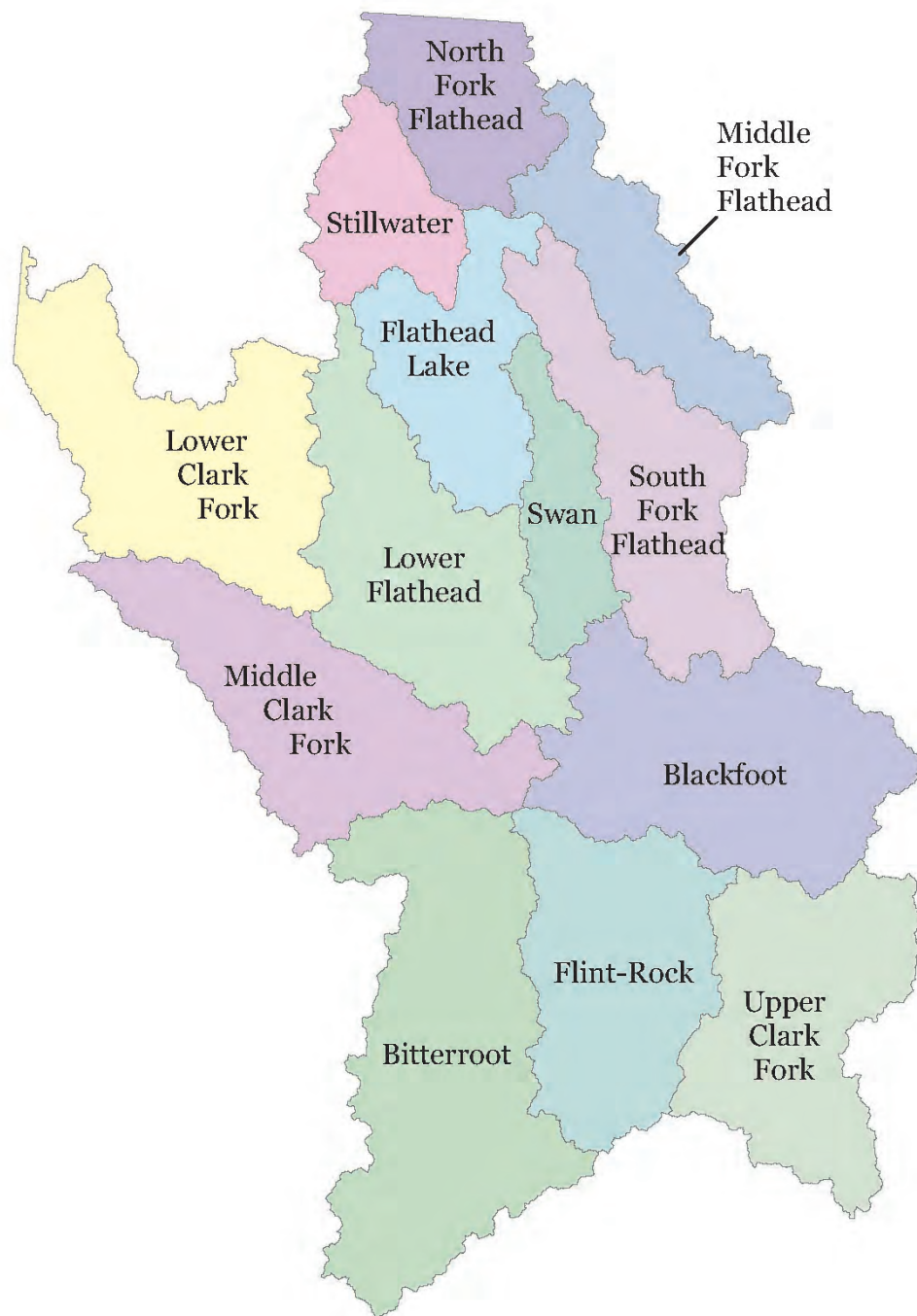
County/Scientific Name	Common Name	Status
FLATHEAD		
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Silene spaldingii</i>	Spalding's Campion	LT
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Coccyzus americanus</i>	Yellow-billed cuckoo (western pop.)	LT
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Lednia tumana</i>	Meltwater Lednian Stonefly	LT
<i>Pinus albicaulis</i>	Whitebark Pine	C
GALLATIN		
<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	LT
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Pinus albicaulis</i>	Whitebark Pine	C
GARFIELD		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Grus americana</i>	Whooping Crane	LE
<i>Charadrius melodus</i>	Piping Plover	LT, CH
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE
GLACIER		
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Lednia tumana</i>	Meltwater Lednian Stonefly	LT
<i>Zapada glacier</i>	Western Glacier Stonefly	LT
<i>Pinus albicaulis</i>	Whitebark Pine	C
GOLDEN VALLEY		
<i>Lynx canadensis</i>	Canada Lynx	LT
<i>Calidris canutus rufa</i>	Red Knot	LT
<i>Pinus albicaulis</i>	Whitebark Pine	C
GRANITE		
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Pinus albicaulis</i>	Whitebark Pine	C
HILL		
JEFFERSON		
<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	LT
<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
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

County/Scientific Name	Common Name	Status
LAKE		
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Howellia aquatilis</i>	Water Howellia	LT
<i>Silene spaldingii</i>	Spalding's Campion	LT
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Coccyzus americanus</i>	Yellow-billed cuckoo (western pop.)	LT
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Lednia tumana</i>	Meltwater Lednian Stonefly	LT
<i>Pinus albicaulis</i>	Whitebark Pine	C
LEWIS AND CLARK		
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Calidris canutus rufa</i>	Red Knot	LT
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Pinus albicaulis</i>	Whitebark Pine	C
LIBERTY		
<i>Calidris canutus rufa</i>	Red Knot	LT
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Pinus albicaulis</i>	Whitebark Pine	C
LINCOLN		
<i>Acipenser transmontanus</i>	White Sturgeon (Kootenai River Pop.)	LE
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Silene spaldingii</i>	Spalding's Campion	LT
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Pinus albicaulis</i>	Whitebark Pine	C
MADISON		
<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	LT
<i>Lynx canadensis</i>	Canada Lynx	LT
<i>Calidris canutus rufa</i>	Red Knot	LT
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Pinus albicaulis</i>	Whitebark Pine	C
McCONE		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Charadrius melodus</i>	Piping Plover	LT, CH
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE
<i>Grus americana</i>	Whooping Crane	LE
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	LT
MEAGHER		
<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
MINERAL		
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Lynx canadensis</i>	Canada Lynx	LT
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Pinus albicaulis</i>	Whitebark Pine	C

County/Scientific Name	Common Name	Status
MISSOULA		
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Howellia aquatilis</i>	Water Howellia	LT
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Coccyzus americanus</i>	Yellow-billed cuckoo (western pop.)	LT
<i>Calidris canutus rufa</i>	Red Knot	LT
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Pinus albicaulis</i>	Whitebark Pine	C
MUSSELSHELL		
PARK		
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Pinus albicaulis</i>	Whitebark Pine	C
PETROLEUM		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Calidris canutus rufa</i>	Red Knot	LT
PHILLIPS		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Charadrius melodus</i>	Piping Plover	LT, CH
<i>Mustela nigripes</i>	Black-footed Ferret	LE, XN
<i>Grus americana</i>	Whooping Crane	LE
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE
<i>Calidris canutus rufa</i>	Red Knot	LT
PONDERA		
<i>Charadrius melodus</i>	Piping Plover	LT
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Pinus albicaulis</i>	Whitebark Pine	C
POWDER RIVER		
<i>Grus americana</i>	Whooping Crane	LE
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	LT
POWELL		
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Pinus albicaulis</i>	Whitebark Pine	C
PRAIRIE		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE
<i>Grus americana</i>	Whooping Crane	LE
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	LT
<i>Charadrius melodus</i>	Piping Plover	LT

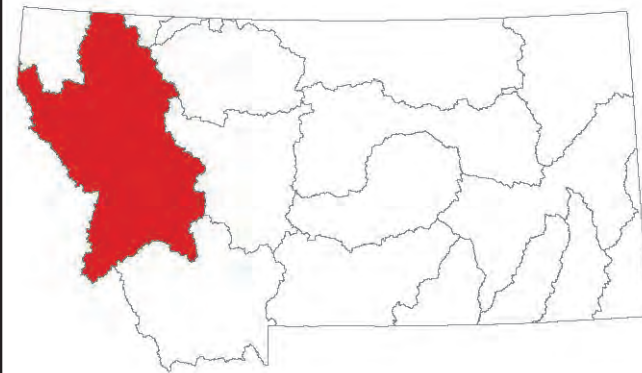
County/Scientific Name	Common Name	Status
RAVALLI		
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Lynx canadensis</i>	Canada Lynx	LT
<i>Coccyzus americanus</i>	Yellow-billed cuckoo (western pop.)	LT
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Pinus albicaulis</i>	Whitebark Pine	C
RICHLAND		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Charadrius melodus</i>	Piping Plover	LT, CH
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE
<i>Grus americana</i>	Whooping Crane	LE
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	LT
ROOSEVELT		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Charadrius melodus</i>	Piping Plover	LT, CH
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE
<i>Grus americana</i>	Whooping Crane	LE
<i>Calidris canutus rufa</i>	Red Knot	LT
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	LT
ROSEBUD		
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Grus americana</i>	Whooping Crane	LE
SANDERS		
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Lynx canadensis</i>	Canada Lynx	LT
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Silene spaldingii</i>	Spalding's Campion	LT
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Pinus albicaulis</i>	Whitebark Pine	C
SHERIDAN		
<i>Charadrius melodus</i>	Piping Plover	LT, CH
<i>Grus americana</i>	Whooping Crane	LE
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE
<i>Calidris canutus rufa</i>	Red Knot	LT
SILVER BOW		
<i>Salvelinus confluentus</i>	Bull Trout	LT
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Lynx canadensis</i>	Canada Lynx	LT
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Pinus albicaulis</i>	Whitebark Pine	C
STILLWATER		
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Charadrius melodus</i>	Piping Plover	LT
<i>Calidris canutus rufa</i>	Red Knot	LT
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Pinus albicaulis</i>	Whitebark Pine	C

County/Scientific Name	Common Name	Status
SWEET GRASS		
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Pinus albicaulis</i>	Whitebark Pine	C
TETON		
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Calidris canutus rufa</i>	Red Knot	LT
<i>Charadrius melodus</i>	Piping Plover	LT
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Pinus albicaulis</i>	Whitebark Pine	C
TOOLE		
<i>Calidris canutus rufa</i>	Red Knot	LT
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Pinus albicaulis</i>	Whitebark Pine	C
TREASURE		
No listings at this time		
VALLEY		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE
<i>Grus americana</i>	Whooping Crane	LE
<i>Charadrius melodus</i>	Piping Plover	LT, CH
<i>Calidris canutus rufa</i>	Red Knot	LT
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	LT
WHEATLAND		
<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
WIBAUX		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE
<i>Grus americana</i>	Whooping Crane	LE
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	LT
<i>Charadrius melodus</i>	Piping Plover	LT
YELLOWSTONE		
<i>Grus americana</i>	Whooping Crane	LE
<i>Calidris canutus rufa</i>	Red Knot	LT



Pend Oreille Sub-Major Basin Columbia River Basin

USGS HUC	HUC NAME
17010201	Upper Clark Fork
17010202	Flint-Rock
17010203	Blackfoot
17010204	Middle Clark Fork
17010205	Bitterroot
17010207	Middle Fork Flathead
17010208	Flathead Lake
17010209	South Fork Flathead
17010210	Stillwater
17010211	Swan
17010212	Lower Flathead
17010206	North Fork Flathead
17010213	Lower Clark Fork



Montana Department of
Environmental Quality



Appendix A: Impaired Waters

HUC: 17010202 Flint-Rock

Watershed: Pend Oreille

TMDL Planning Area	ID305B	Waterbody Name/Location	Category	Size	Units	Use Class	Beneficial Use				Cause Name *	Source Name *
						AqL	Ag	DW	Rec			
Clark Fork River	MT76E001_010	CLARK FORK RIVER, Flint Creek to Blackfoot River	4A	50.93	MILES	B-1	N	F	N	N	Alteration in stream-side or littoral vegetative covers Arsenic Cadmium Chlorophyll-a Copper Iron Lead Mercury Nitrogen, Total Phosphorus, Total Zinc	Channelization Grazing in Riparian or Shoreline Zones Mill Tailings Mine Tailings Municipal Point Source Discharges
Rock	MT76E002_020	EAST FORK ROCK CREEK, East Fork Reservoir to mouth (Middle Fork Rock Creek)	4A	9.74	MILES	B-1	N	X	X	N	Alteration in stream-side or littoral vegetative covers Chlorophyll-a Flow Regime Modification Nitrogen, Total Phosphorus, Total Sedimentation/Siltation Temperature	Agriculture Crop Production (Irrigated) Forest Roads (Road Construction and Use) Grazing in Riparian or Shoreline Zones Impacts from Hydrostructure Flow Regulation/modification Source Unknown
Rock	MT76E002_030	WEST FORK ROCK CREEK, headwaters to mouth (Rock Creek)	4A	25.15	MILES	B-1	N	X	F	X	Aluminum Sedimentation/Siltation	Impacts from Abandoned Mine Lands (Inactive) Placer Mining Subsurface (Hardrock) Mining
Rock	MT76E002_040	UPPER WILLOW CREEK, headwaters to mouth (Rock Creek)	4C	21.7	MILES	B-1	N	X	X	X	Alteration in stream-side or littoral vegetative covers Flow Regime Modification Physical substrate habitat alterations	Crop Production (Irrigated) Grazing in Riparian or Shoreline Zones
Rock	MT76E002_050	BREWSTER CREEK, East Fork to mouth (Rock Creek)	4C	4.57	MILES	B-1	N	X	X	F	Fish Passage Barrier Flow Regime Modification	Crop Production (Irrigated) Source Unknown
Rock	MT76E002_060	SOUTH FORK ANTELOPE CREEK,	4A	2.93	MILES	B-1	N	X	X	N	Alteration in stream-side or littoral	Forest Roads (Road Construction and Use)

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Appendix A: Impaired Waters

HUC: 17010202 Flint-Rock

Watershed: Pend Oreille

TMDL Planning Area	ID305B	Waterbody Name/Location	Category	Size	Units	Use Class	AqL	Ag	DW	Rec	Cause Name *	Source Name *
Rock	MT76E002_060	SOUTH FORK ANTELOPE CREEK, headwaters to mouth (Antelope Creek), T6N R15W S22	4A	2.93	MILES	B-1	N	X	X	N	vegetative covers Nitrate/Nitrite (Nitrite + Nitrate as N) Nitrogen, Total Phosphorus, Total Sedimentation/Siltation	Grazing in Riparian or Shoreline Zones Silviculture Activities
Rock	MT76E002_061	ANTELOPE CREEK, headwaters to mouth (Rock Creek)	4A	6.9	MILES	B-1	N	X	X	X	Sedimentation/Siltation	Grazing in Riparian or Shoreline Zones Unspecified Unpaved Road or Trail
Rock	MT76E002_070	QUARTZ GULCH, headwaters to mouth (Eureka Gulch)	4A	3.43	MILES	B-1	N	X	F	X	Alteration in stream-side or littoral vegetative covers Aluminum Lead Sedimentation/Siltation	Grazing in Riparian or Shoreline Zones Impacts from Abandoned Mine Lands (Inactive) Placer Mining Silviculture Activities
Rock	MT76E002_080	BASIN GULCH, headwaters to mouth (Eureka Gulch)	4A	1.45	MILES	B-1	N	X	N	X	Alteration in stream-side or littoral vegetative covers Arsenic	Impacts from Abandoned Mine Lands (Inactive) Placer Mining
Rock	MT76E002_090	EUREKA GULCH, confluence of Quartz Gulch and Basin Gulch to mouth (Un-Named Ditch)	4A	1.93	MILES	B-1	N	X	N	X	Alteration in stream-side or littoral vegetative covers Arsenic Mercury Sedimentation/Siltation	Natural Sources Open Pit Mining Placer Mining
Rock	MT76E002_100	SCOTCHMAN GULCH, headwaters to mouth (Upper Willow Creek)	4A	6.88	MILES	B-1	N	X	F	N	Aluminum Nitrogen, Total Phosphorus, Total Sedimentation/Siltation	Agriculture Forest Roads (Road Construction and Use) Grazing in Riparian or Shoreline Zones Impacts from Abandoned Mine Lands (Inactive) Placer Mining Rangeland Grazing Silviculture Harvesting
Rock	MT76E002_110	SLUICE GULCH, headwaters to mouth (Rock Creek)	4A	6.33	MILES	B-1	N	X	N	N	Alteration in stream-side or littoral vegetative covers Arsenic	Grazing in Riparian or Shoreline Zones Impacts from Abandoned Mine Lands (Inactive)

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Appendix A: Impaired Waters

HUC: 17010202 Flint-Rock

Watershed: Pend Oreille

TMDL Planning Area	ID305B	Waterbody Name/Location	Category	Size	Units	Use Class	AqL	Ag	DW	Rec	Cause Name *	Source Name *
Rock	MT76E002_110	SLUICE GULCH, headwaters to mouth (Rock Creek)	4A	6.33	MILES	B-1	N	X	N	N	Copper Nitrate/Nitrite (Nitrite + Nitrate as N) Nitrogen, Total Sedimentation/Siltation	
Rock	MT76E002_120	FLAT GULCH, headwaters to mouth (Rock Creek)	4A	2.99	MILES	B-1	N	X	F	N	Aluminum Iron Nitrogen, Total Phosphorus, Total Sedimentation/Siltation	Forest Roads (Road Construction and Use) Grazing in Riparian or Shoreline Zones Impacts from Abandoned Mine Lands (Inactive) Rangeland Grazing Silviculture Activities
Rock	MT76E002_160	MINERS GULCH, headwaters to mouth (Upper Willow Creek), T8N R15W S23	4A	5.42	MILES	B-1	N	X	F	F	Sedimentation/Siltation	Grazing in Riparian or Shoreline Zones Impacts from Abandoned Mine Lands (Inactive) Silviculture Activities Source Unknown
Flint	MT76E003_011	FLINT CREEK, Georgetown Lake to confluence with Boulder Creek	4A	28.09	MILES	B-1	N	F	N	N	Alteration in stream-side or littoral vegetative covers Arsenic Copper Flow Regime Modification Lead Mercury Phosphorus, Total Sedimentation/Siltation	Agriculture Grazing in Riparian or Shoreline Zones Impacts from Abandoned Mine Lands (Inactive)
Flint	MT76E003_012	FLINT CREEK, Boulder Creek to mouth (Clark Fork River)	4A	16.92	MILES	B-1	N	F	N	F	Alteration in stream-side or littoral vegetative covers Arsenic Copper Iron Lead Nitrogen, Total	Agriculture Grazing in Riparian or Shoreline Zones Impacts from Abandoned Mine Lands (Inactive) Streambank Modifications/destabilization

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Appendix A: Impaired Waters

HUC: 17010202 Flint-Rock

Watershed: Pend Oreille

TMDL Planning Area	ID305B	Waterbody Name/Location	Category	Size	Units	Use Class	Beneficial Use				Cause Name *	Source Name *
						AqL	Ag	DW	Rec			
Flint	MT76E003_012	FLINT CREEK, Boulder Creek to mouth (Clark Fork River)	4A	16.92	MILES	B-1	N	F	N	F	Phosphorus, Total Sedimentation/Siltation Turbidity	
Flint	MT76E003_020	DOUGLAS CREEK, confluence of Middle and South Forks to mouth (Flint Creek), T9N R13W S10	4A	7.07	MILES	B-1	N	F	X	F	Nitrogen, Nitrate Phosphorus, Total Physical substrate habitat alterations	Channelization Impacts from Abandoned Mine Lands (Inactive) Silviculture Activities
Flint	MT76E003_030	NORTH FORK DOUGLAS CREEK, headwaters to mouth (Middle Fork Douglas Creek)	4A	3.13	MILES	B-1	N	X	N	X	Alteration in stream-side or littoral vegetative covers Cadmium Copper Lead Zinc	Grazing in Riparian or Shoreline Zones Impacts from Abandoned Mine Lands (Inactive)
Flint	MT76E003_040	FRED BURR CREEK, Fred Burr Lake to mouth (Flint Creek)	4A	11.21	MILES	B-1	N	F	N	F	Alteration in stream-side or littoral vegetative covers Arsenic Lead Mercury	Agriculture Grazing in Riparian or Shoreline Zones Mill Tailings
Flint	MT76E003_050	SOUTH FORK LOWER WILLOW CREEK, headwaters to mouth (Lower Willow Creek Reservoir)	4A	13.34	MILES	B-1	N	F	N	X	Antimony Arsenic Cadmium Copper Lead Mercury	Mill Tailings Mine Tailings
Flint	MT76E003_060	BOULDER CREEK, headwaters to mouth (Flint Creek)	4A	14.23	MILES	B-1	N	F	N	X	Arsenic Lead Mercury Physical substrate habitat alterations Zinc	Impacts from Abandoned Mine Lands (Inactive) Silviculture Harvesting

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Appendix A: Impaired Waters

HUC: 17010202 Flint-Rock

Watershed: Pend Oreille

TMDL Planning Area	ID305B	Waterbody Name/Location	Category	Size	Units	Use Class	Beneficial Use				Cause Name *	Source Name *
						AqL	Ag	DW	Rec			
Flint	MT76E003_070	BARNES CREEK, headwaters to mouth (Flint Creek)	4A	8.87	MILES	B-1	N	X	I	N	Chlorophyll-a	Crop Production (Irrigated)
											Iron	Impacts from Abandoned Mine Lands (Inactive)
											Nitrate/Nitrite (Nitrite + Nitrate as N)	Managed Pasture Grazing
											Nitrogen, Total	
											Phosphorus, Total	
											Sedimentation/Siltation	
Flint	MT76E003_090	PRINCETON GULCH, headwaters to mouth (Boulder Creek)	4A	3.89	MILES	B-1	N	F	X	X	Nitrate	Placer Mining
											Physical substrate habitat alterations	
Flint	MT76E003_100	DOUGLAS CREEK, headwaters to where stream ends, T7N R14W S25	4A	3.76	MILES	B-1	N	X	N	I	Antimony	Impacts from Abandoned Mine Lands (Inactive)
											Arsenic	Silviculture Activities
											Cadmium	Streambank Modifications/destabilization
											Copper	
											Iron	
											Lead	
											Mercury	
											Physical substrate habitat alterations	
											Sedimentation/Siltation	
Zinc												
Flint	MT76E003_110	SMART CREEK, headwaters to mouth (Flint Creek), T9N R13W S21	4A	11.6	MILES	B-1	N	F	N	F	Alteration in stream-side or littoral vegetative covers	Freshets or Major Flooding
											Arsenic	Grazing in Riparian or Shoreline Zones
											Iron	Impacts from Abandoned Mine Lands (Inactive)
											Nitrogen, Total	Silviculture Harvesting
											Phosphorus, Total	Watershed Runoff following Forest Fire
											Sedimentation/Siltation	
Flint	MT76E003_130	CAMP CREEK, headwaters to terminus, T7N R14W S25	4A	1.8	MILES	B-1	N	F	N	X	Alteration in stream-side or littoral vegetative covers	Channelization
											Arsenic	Habitat Modification - other than Hydromodification
											Cadmium	Impacts from Abandoned Mine Lands (Inactive)

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HUC: 17010202 Flint-Rock

Watershed: Pend Oreille

TMDL Planning Area	ID305B	Waterbody Name/Location	Category	Size	Units	Use Class	AqL	Ag	DW	Rec	Cause Name *	Source Name *
Flint	MT76E003_130	CAMP CREEK, headwaters to terminus, T7N R14W S25	4A	1.8	MILES	B-1	N	F	N	X	Copper Fish Passage Barrier Lead Zinc	
Flint	MT76E003_140	ROYAL GOLD CREEK, headwaters to mouth (Boulder Creek)	4A	3.3	MILES	B-1	N	X	X	X	Copper Lead	Impacts from Abandoned Mine Lands (Inactive)
Clark Fork - Drummond	MT76E004_010	WALLACE CREEK, headwaters to mouth (Clark Fork River)	4A	4.32	MILES	B-1	N	F	F	X	Copper	Impacts from Abandoned Mine Lands (Inactive)
Clark Fork - Drummond	MT76E004_020	CRAMER CREEK, headwaters to mouth (Clark Fork River)	4A	11.98	MILES	B-1	N	F	N	N	Aluminum Cause Unknown Lead Physical substrate habitat alterations Sedimentation/Siltation	Highway/Road/Bridge Runoff (Non-construction Related) Impacts from Abandoned Mine Lands (Inactive) Source Unknown
Clark Fork - Drummond	MT76E004_030	TENMILE CREEK, headwaters to mouth (Bear Creek-Clark Fork River)	4A	4.92	MILES	B-1	N	F	F	N	Alteration in stream-side or littoral vegetative covers Phosphorus, Total Sedimentation/Siltation	Grazing in Riparian or Shoreline Zones Silviculture Activities
Clark Fork - Drummond	MT76E004_041	HARVEY CREEK, headwaters to Grouse Gulch	4C	11.96	MILES	B-1	N	F	F	F	Physical substrate habitat alterations	Streambank Modifications/destabilization
Clark Fork - Drummond	MT76E004_042	HARVEY CREEK, Grouse Gulch to mouth (Clark Fork River)	4C	4.01	MILES	B-1	N	F	F	X	Flow Regime Modification Physical substrate habitat alterations	Agriculture Streambank Modifications/destabilization
Clark Fork - Drummond	MT76E004_050	MULKEY CREEK, headwaters to mouth (Clark Fork River)	4A	5.99	MILES	B-1	N	X	X	N	Sedimentation/Siltation	Low Water Crossing Source Unknown
Clark Fork - Drummond	MT76E004_060	RATTLER GULCH, headwaters to mouth (Clark Fork River), T11N R13W S22	4A	8.08	MILES	B-1	N	F	F	N	Alteration in stream-side or littoral vegetative covers Chlorophyll-a Flow Regime Modification Phosphorus, Total Sedimentation/Siltation	Forest Roads (Road Construction and Use) Grazing in Riparian or Shoreline Zones Silviculture Harvesting

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Appendix A: Impaired Waters

HUC: 17010202 Flint-Rock

Watershed: Pend Oreille

TMDL Planning Area	ID305B	Waterbody Name/Location	Category	Size	Units	Use Class	Beneficial Use				Cause Name *	Source Name *
AqL	Ag	DW	Rec									
Clark Fork - Drummond	MT76E004_070	DEEP CREEK, headwaters to mouth (Bear Creek, which is a tributary to Clark Fork River near Bearmouth)	4A	5.12	MILES	B-1	N	F	F	N	Chlorophyll-a Flow Regime Modification Nitrate/Nitrite (Nitrite + Nitrate as N) Sedimentation/Siltation	Placer Mining Silviculture Harvesting Subsurface (Hardrock) Mining
Clark Fork - Drummond	MT76E004_080	ANTELOPE CREEK, headwaters to mouth (Clark Fork River)	4C	8.45	MILES	B-1	N	X	X	X	Alteration in stream-side or littoral vegetative covers Physical substrate habitat alterations	Grazing in Riparian or Shoreline Zones Loss of Riparian Habitat Streambank Modifications/destabilization

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Montana Species of Concern: Animal

Species_Subgroup	Species_Section	ELCODE	S_Sci_Name	S_Com_Name	Alt_Sci_Names	Alt_Com_Names	Family_Sci_Name	Family_Com_Name	G_Rank	S_Rank	S_Rank_Reasons	USESA	USFS_Formatted	BLM	FWP_SWAP	COUNTY	MT Status	Pcnt_Breed_Rng_In_MT	Pcnt_MTs_Is_Breed_Rng	Short_Habitat
Mammals (Mammalia)		AMACC08010	Corynorhinus townsendii	Townsend's Big-eared Bat			Vespertilionidae	Bats	G4	S3	Species is widespread, but uncommon and appears to occur at low densities. Disturbance of cave and mine roosts and the hard closure of occupied mines threaten long-term persistence.		Sensitive - Known on Forests (BD, BRT, CG, HLC, KOOT, LOLO)	SENSITIVE	SGCN3	Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Fergus, Flathead, Gallatin, Garfield, Granite, Jefferson, Judith Basin, Lake, Lewis and Clark, Lincoln, Madison, Mccone, Meagher, Mineral, Missoula, Musselshell, Park, Phillips, Powder River, Powell, Prairie, Ravalli, Richland, Roosevelt, Rosebud, Sanders, Silver Bow, Stillwater, Treasure, Valley, Yellowstone	SOC	5	87	Caves in forested habitats
Mammals (Mammalia)		AMAJF03010	Gulo gulo	Wolverine			Mustelidae	Weasels	G4	S3		P	Proposed on Forests (BD, BRT, CG, HLC, KOOT, LOLO)	SENSITIVE	SGCN3	Beaverhead, Broadwater, Carbon, Cascade, Deer Lodge, Flathead, Gallatin, Glacier, Granite, Jefferson, Judith Basin, Lake, Lewis and Clark, Lincoln, Madison, Meagher, Mineral, Missoula, Park, Pondera, Powell, Ravalli, Sanders, Silver Bow, Stillwater, Sweet Grass, Teton, Wheatland	SOC	0	37	Boreal Forest and Alpine Habitats
Mammals (Mammalia)		AMACC05030	Lasiurus cinereus	Hoary Bat			Vespertilionidae	Bats	G3G4	S3					SGCN3	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	SOC	2	100	Riparian and forest
Mammals (Mammalia)		AMAJH03010	Lynx canadensis	Canada Lynx			Felidae	Cats	G5	S3		LT; CH	Threatened on Forests (BD, BRT) Threatened, Critical Habitat on Forests (CG, HLC, KOOT, LOLO)	THREATENED	SGCN3	Carbon, Flathead, Gallatin, Glacier, Granite, Lake, Lewis and Clark, Lincoln, Missoula, Park, Pondera, Powell, Stillwater, Sweet Grass, Teton	SOC	1	40	Subalpine conifer forest
Mammals (Mammalia)		AMACC01010	Myotis lucifugus	Little Brown Myotis		Little Brown Bat	Vespertilionidae	Bats	G3	S3	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.				SGCN3	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	SOC	3	100	Generalist
Mammals (Mammalia)		AMACC01090	Myotis thysanodes	Fringed Myotis			Vespertilionidae	Bats	G4	S3	Although this species is distributed across much of Montana, recent surveys have found it to be uncommon within range. Species occasionally uses caves to over-winter so threats to persistence from White-Nose Syndrome are a concern, but due to its western distribution the extent of impacts are as yet unknown.			SENSITIVE	SGCN3	Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Custer, Deer Lodge, Fergus, Flathead, Gallatin, Granite, Jefferson, Judith Basin, Lake, Lewis and Clark, Lincoln, Madison, Meagher, Mineral, Missoula, Powder River, Powell, Prairie, Ravalli, Rosebud, Sanders, Silver Bow, Teton, Treasure	SOC	0	64	Riparian and dry mixed conifer forest
Mammals (Mammalia)		AMAJF01020	Pekania pennanti	Fisher	Martes pennanti		Mustelidae	Weasels	G5	S3			Sensitive - Known on Forests (BD, BRT, HLC, KOOT, LOLO)	SENSITIVE	SGCN3	Beaverhead, Deer Lodge, Flathead, Glacier, Granite, Lake, Lewis and Clark, Lincoln, Mineral, Missoula, Pondera, Powell, Ravalli, Sanders, Teton	SOC	1	31	Mixed conifer forests
Mammals (Mammalia)		AMABA01250	Sorex hoyi	Pygmy Shrew			Soricidae	Shrews	G5	S3	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 vulnerable than many small mammal species.				SGCN3	Beaverhead, Flathead, Granite, Hill, Lake, Lewis and Clark, Lincoln, Missoula, Powell, Sanders, Sheridan, Teton, Valley	SOC	1	15	Open conifer forest, grasslands, and shrublands,

Montana Species of Concern: Animal

Species Subgroup	Species Section	ELCODE	S_Sci_Name	S_Com_Name	Alt_Sci_Names	Alt_Com_Names	Family_Sci_Name	Family_Com_Name	G_Rank	S_Rank	S_Rank_Reasons	USESA	USFS Formatted	BLM	FWP_SWAP	COUNTY	MT Status	Pcnt_Breed_Rng_In_MT	Pcnt_MT_Is_Breed_Rng	Short_Habitat
Mammals (Mammalia)		AMABA01030	Sorex preblei	Preble's Shrew			Soricidae	Shrews	G4	S3	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 vulnerable than many small mammal species.				SGCN3	Beaverhead, Big Horn, Chouteau, Dawson, Deer Lodge, Fergus, Gallatin, Golden Valley, Granite, Judith Basin, Lewis and Clark, Lincoln, Madison, Missoula, Phillips, Powell, Ravalli, Sheridan, Silver Bow, Sweet Grass, Teton, Valley, Wheatland	SOC	28	79	Sagebrush grassland
Mammals (Mammalia)		AMAFF17020	Synaptomys borealis	Northern Bog Lemming			Cricetidae	New World Mice / Rats / Voles	G5	S2	Although populations of this species exist across much of western Montana, most appear isolated due to the species-specific habitat requirements and total area occupied is relatively small. Species faces significant threats to persistence from degradation of wetland habitats and isolation of populations that increase risk of local extirpation.		Sensitive - Known on Forests (BD, BRT, HLC, KOOT, LOLO)		SGCN2, SGIN	Beaverhead, Flathead, Granite, Lewis and Clark, Lincoln, Missoula, Ravalli	SOC	1	14	Conifer forest wetland
Mammals (Mammalia)		AMAJB01020	Ursus arctos	Grizzly Bear	Ursus arctos horribilus	Brown Bear	Ursidae	Bears	G4	S2S3		PS: LT; XN	Threatened on Forests (BD, CG, HLC, KOOT, LOLO)	THREATENED	SGCN2-3	Beaverhead, Carbon, Cascade, Chouteau, Deer Lodge, Flathead, Gallatin, Glacier, Granite, Jefferson, Lake, Lewis and Clark, Liberty, Lincoln, Madison, Mineral, Missoula, Park, Pondera, Powell, Ravalli, Sanders, Silver Bow, Stillwater, Sweet Grass, Teton, Toole	SOC	1	22	Conifer forest
Birds (Aves)		ABNKC12060	Accipiter gentilis	Northern Goshawk			Accipitridae	Hawks / Kites / Eagles	G5	S3		MBTA			SGCN3	Beaverhead, Big Horn, Broadwater, Carbon, Carter, Cascade, Deer Lodge, Fergus, Flathead, Gallatin, Glacier, Granite, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Lincoln, Madison, Meagher, Mineral, Missoula, Park, Pondera, Powder River, Powell, Ravalli, Rosebud, Sanders, Silver Bow, Stillwater, Sweet Grass, Teton, Wheatland	SOC	2	68	Mixed conifer forests
Birds (Aves)		ABNKC22010	Aquila chrysaetos	Golden Eagle			Accipitridae	Hawks / Kites / Eagles	G5	S3		BGEPA; MBTA; BCC17		SENSITIVE	SGCN3	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	SOC	3	100	Grasslands
Birds (Aves)		ABNGA04010	Ardea herodias	Great Blue Heron			Ardeidae	Bitterns / Egrets / Herons / Night-Herons	G5	S3	Small breeding population size, evidence of recent declines, and declining regeneration of riparian cottonwood forests due to altered hydrology and grazing.	MBTA			SGCN3	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	SOC	3	100	Riparian forest
Birds (Aves)		ABPBJ18080	Catharus fuscescens	Veery			Turdidae	Thrushes	G5	S3B		MBTA		SENSITIVE	SGCN3	Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Cascade, Chouteau, Custer, Deer Lodge, Fergus, Flathead, Gallatin, Glacier, Granite, 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	SOC	6	100	Riparian forest

Montana Species of Concern: Plant

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Ferns and Fern Allies (Pteridophyta)	PPOPH01000	Botrychium sp. (SOC)	Moonworts (SOC)		Ophioglossaceae	Adder's-Tongue / Moonworts	G1G3	S1S3	This is a general record for Botrychium species tracked by MTNHP. MTNHP tracks and maintains observation data for all Botrychium species in the state excluding B. multifidum and B. virginianum which are fairly common and readily identifiable from all other Botrychiums. Global and State Ranks for this record are placeholders only to allow Botrychium SOC to appear in searches using global and state ranks. For information pertinent to specific Botrychium species, please see the individual species accounts.		Deer Lodge, Flathead, Glacier, Granite, Jefferson, Lake, Lewis and Clark, Lincoln, Missoula, Park, Pondera, Powell, Ravalli, Sanders, Sweet Grass, Teton	SOC	
Ferns and Fern Allies (Pteridophyta)	PPSEL01110	Selaginella selaginoides	Northern Spikemoss		Selaginellaceae	Spike-mosses	G5	S2S3	Rare in Montana, where it is known from a few occurrences from the southwest portion of the state. Little survey data are available for known occurrences.		Beaverhead, Deer Lodge, Granite, Madison	SOC	Wet, mossy soil (montane /subalpine)
Gymnosperm (Conifers)	PGPIN04010	Pinus albicaulis	Whitebark Pine		Pinaceae	Fir / Hemlock / Larch / Pine / Spruce	G3?	S3	Whitebark pine is a common component of subalpine forests and a dominant species of treeline and krummholtz habitats. It occurs in almost all major mountain ranges of western and central Montana. Populations of whitebark pine in Montana and across most of western North America have been severely impacted by past mountain pine beetle outbreaks and by the introduced pathogen, white pine blister rust. The results of which have been major declines in whitebark pine populations across large areas of its range. Additionally, negative impacts associated with encroachment and increased competition from other trees, primarily subalpine fir have occurred as a result of fire suppression in subalpine habitats.	Candidate on Forests (BD, BRT, CG, HLC, KOOT, LOLO)	Beaverhead, Broadwater, Carbon, Cascade, Deer Lodge, Fergus, Flathead, Gallatin, Glacier, Granite, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Lincoln, Madison, Meagher, Mineral, Missoula, Park, Pondera, Powell, Ravalli, Sanders, Silver Bow, Stillwater, Sweet Grass, Teton, Toole, Wheatland	SOC	Subalpine forest, timberline
Flowering Plants - Dicots (Magnoliopsida)	PDADO01010	Adoxa moschatellina	Musk-root		Adoxaceae	Moschatel Family	G5	S3	Sparsely distributed across southwest Montana. Populations are generally small, though they occur in habitats not generally impacted by human disturbance or invasive weeds. Building of roads and trails may potentially impact populations.	Sensitive - Known on Forests (BD, CG, LOLO)	Carbon, Cascade, Granite, Jefferson, Madison, Meagher, Park, Stillwater	SOC	Rock/Talus
Flowering Plants - Dicots (Magnoliopsida)	PDAST0H160	Antennaria densifolia	Dense-leaved Pussytoes		Asteraceae	Aster/Sunflowers	G4G5	S1	Known from one high elevation site in the Anaconda-Pintler Wilderness on the border of Deerlodge and Granite counties. The single occurrence is in a designated wilderness, which should protect it from most human-caused disturbance. However, it is susceptible to trail-building and maintenance activities.	Sensitive - Known on Forests (BD)	Deer Lodge, Granite, Ravalli	SOC	Alpine
Flowering Plants - Dicots (Magnoliopsida)	PDFAB0F7V0	Astragalus scaphoides	Bitterroot Milkvetch		Fabaceae	Pea Family	G3	S3	Bitterroot milkvetch occurs only in Lemhi County, Idaho and Beaverhead County, Montana. In Montana, the documented occurrences are confined to an area from the Grasshopper Creek drainage south to the Tendoy Mountains. The total number of individual plants has been estimated in the tens of thousands, but occupied habitat is likely less than 700 acres.	Sensitive - Known on Forests (BD)	Beaverhead, Granite	SOC	Sagebrush- grassland
Flowering Plants - Dicots (Magnoliopsida)	PDPLM02011	Collomia debilis var. camporum	Alpine Collomia		Polemoniaceae	Phlox Family	G5T2	S1S2	Only known from a few sites in western Montana and Lemhi County, Idaho, from low elevation scree, talus or rocky slopes. Negative impacts from human disturbance and weed invasion are possible. Current status of most of the documented locations is not known. Survey and monitoring data are needed.		Granite, Missoula, Ravalli	SOC	Rock/Talus (Valleys to Montane)
Flowering Plants - Dicots (Magnoliopsida)	PDBRA110S0	Draba crassa	Thick-leaf Whitlow- grass		Brassicaceae	Mustards	G3G4	S3	Scattered across southwest Montana where it is known from alpine slopes in several mountain ranges. Overall abundance and distribution is still poorly known, though it is likely to be more common than collections indicate.		Beaverhead, Carbon, Deer Lodge, Granite, Madison, Park, Stillwater	SOC	Alpine
Flowering Plants - Dicots (Magnoliopsida)	PDBRA112U0	Draba daviesiae	Bitterroot Draba	Draba apiculata var. daviesiae	Brassicaceae	Mustards	G3	S3	A Montana endemic, known from several occurrences in alpine areas of the Bitterroot Mountains. Overall abundance and distribution are still poorly known though the high elevation habitat would likely limit most potential impacts.		Beaverhead, Granite, Ravalli	SOC	Alpine
Flowering Plants - Dicots (Magnoliopsida)	PDBRA110W0	Draba densifolia	Dense-leaf Draba		Brassicaceae	Mustards	G5	S2	Draba densifolia is distributed in the western half of the state in four moderate to large populations, six small occurrences and nine historical or poorly documented occurrences. Occupied habitats are at moderate to high elevation which help to minimize disturbance to some of the populations. However, livestock grazing, invasive weeds and off-road ATV use impact some populations.		Beaverhead, Flathead, Gallatin, Glacier, Granite, Jefferson, Lewis and Clark, Park, Pondera, Powell, Ravalli, Silver Bow, Sweet Grass	SOC	Alpine

Montana Species of Concern: Plant

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Flowering Plants - Dicots (Magnoliopsida)	PDDRO02010	Drosera anglica	English Sundew		Droseraceae	Sundew Family	G5	S3	Known from over two dozen populations in the state, most of these are moderate to large-sized, healthy populations. Most occurrences are on federally managed lands with several of these in designated wilderness areas, research natural areas or Glacier National Park which help to protect the occurrences from many potential threats. However, one population is vulnerable to ski area expansion and activity, and the species may be negatively impacted by fire as observations at one location appear to indicate. Plants are also sensitive to and negatively impacted by trampling of peat mats on which the species grow.	Sensitive - Known on Forests (BD, BRT, CG, HLC, KOOT, LOLO)	Beaverhead, Flathead, Granite, Lake, Lewis and Clark, Lincoln, Madison, Missoula, Park, Powell, Ravalli, Sanders	SOC	Fens
Flowering Plants - Dicots (Magnoliopsida)	PDAST3M5W0	Erigeron lackschewitzii	Lackschewitz' Fleabane		Asteraceae	Aster/Sunflowers	G3	S3	Endemic to Montana and adjacent Alberta though the large majority of the species' range is in Montana. Though many of the individual occurrences are small in size, the species is distributed over a relatively wide area along the Rocky Mtn Front south to the Flint Creek Range. The high elevation habitat reduces the potential for detrimental impacts.	Sensitive - Known on Forests (HLC)	Flathead, Glacier, Granite, Lewis and Clark, Pondera, Powell, Teton	SOC	Alpine
Flowering Plants - Dicots (Magnoliopsida)	PDPGN087F0	Eriogonum crosbyae	Crosby's Buckwheat	Eriogonum capistratum var. muhlickii, Eriogonum chrysops [misapplied]	Polygonaceae	Buckwheat Family	G4	S3	Rare to Uncommon. This entity is restricted to high elevation sites in the Bitterroot Range and in the Anaconda-Pintlers, where it may be locally common in some areas. Good population data are lacking for most occurrences, though it's long-term viability does not appear to be a major concern at this time due, in part, to the remoteness of its habitat.		Deer Lodge, Gallatin, Granite, Ravalli	SOC	Alpine
Flowering Plants - Dicots (Magnoliopsida)	PDAST470E0	Grindelia howellii	Howell's Gumweed	Grindelia paysonorum	Asteraceae	Aster/Sunflowers	G3	S2S3	In Montana, Grindelia howellii is known from over 100 mapped occurrences. However, most populations are small and many occur on roadsides or other similarly disturbed habitat. This habitat preference in conjunction with the short-lived nature of the species means occurrences may drift from place to place or from year to year and as a result many occurrences may be ephemeral. These attributes make determination of population numbers as well as the number of extant populations at any given time difficult to assess. Invasive weeds are a threat to many occurrences, as the habitat occupied by G. howellii is also favorable for many weedy species. Application of herbicides to control these weeds, especially along roadsides may also have a direct, negative impact.	Sensitive - Known on Forests (LOLO) Sensitive - Suspected on Forests (HLC, KOOT) Species of Conservation Concern on Forests (FLAT)	Granite, Missoula, Powell	SOC	Vernally moist sites (Open, Low-elevation)
Flowering Plants - Dicots (Magnoliopsida)	PDAPI180B0	Ligusticum verticillatum	Idaho Lovage		Apiaceae	Parsley/Carrot Family	G4G5	S3	Ligusticum verticillatum occurs in northern Idaho, western Montana, and British Columbia. It has been found in Lincoln and Ravalli Counties, growing in moist forests and meadows of spruce-fir habitats, becoming common in Idaho. Herbarium specimens from Missoula and Granite Counties may be mis-identified. Current data on locations, population sizes, and threats is greatly needed.		Granite, Lincoln, Missoula, Ravalli	SOC	
Flowering Plants - Dicots (Magnoliopsida)	PDSAX0U220	Micranthes apetalata	Tiny Swamp Saxifrage	Saxifraga integrifolia Hook. var. apetalata, Saxifraga apetalata	Saxifragaceae	Saxifrage Family	G3Q	S2?	Known from two occurrences, one in the East Pioneers and one in the Absaroka-Beartooth Wilderness. Both occurrences are known from single specimen collections. Though little data are available for the species in Montana, the alpine habitat in which it grows is not generally subject to negative impacts from human disturbance.		Beaverhead, Carbon, Deer Lodge, Granite, Madison, Silver Bow	SOC	Alpine
Flowering Plants - Dicots (Magnoliopsida)	PDSAX0U1R0	Micranthes tempestiva	Storm Saxifrage	Saxifraga tempestiva	Saxifragaceae	Saxifrage Family	G2G3	S2S3	State endemic known from approximately a dozen extant sites in southwest Montana. The high elevation habitat of the species in conjunction with approximately half of the populations in designated wilderness areas minimize the potential for negative impacts to the species.	Sensitive - Known on Forests (BD, BRT) Sensitive - Suspected on Forests (HLC)	Beaverhead, Deer Lodge, Granite, Ravalli	SOC	Alpine
Flowering Plants - Dicots (Magnoliopsida)	PDSCR1K0X0	Pedicularis pulchella	Mountain Lousewort		Orobanchaceae	Broomrape Family	G3	S3	Restricted to high elevation areas of southern Montana. Limited data are available for the species and it may be more common than the few collections indicate.		Carbon, Deer Lodge, Gallatin, Granite, Madison, Park, Powell	SOC	Alpine
Flowering Plants - Dicots (Magnoliopsida)	PDSCR1L0C0	Penstemon angustifolius	Narrowleaf Penstemon		Plantaginaceae	Plantain Family	G5	S2S3	Over a dozen, small extant and/or presumed extant occurrences are known in southeast Montana, plus a few historical collections from the same area. Only one of the known populations appears to be relatively large. Additional suitable, but unsurveyed habitat likely exists in eastern Montana.		Carter, Dawson, Fallon, Granite	SOC	Sandy sites

Montana Species of Concern: Plant

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Flowering Plants - Dicots (Magnoliopsida)	PDPLM0D190	Phlox kelseyi var. missoulensis	Missoula Phlox	Phlox missoulensis	Polemoniaceae	Phlox Family	G3	S3	Missoula phlox is a state endemic known from over 2 dozen occurrences in west-central Montana, most of which are moderate to large-sized. Populations occur on a mix of ownerships, including private lands which host several occurrences. The Waterworks Hill population is infested with several noxious weeds and heavy recreational trail use also occurs within the occupied habitat. Other populations appear to be at much less risk though some impacts from invasive weeds, recreational use and development are possible.	Sensitive - Known on Forests (BD, HLC)Sensitive - Suspected on Forests (LOLO)	Cascade, Granite, Jefferson, Judith Basin, Lewis and Clark, Madison, Meagher, Missoula, Powell, Teton	SOC	Slopes/ridges (Open, foothills to subalpine)
Flowering Plants - Dicots (Magnoliopsida)	PDBRA220T0	Physaria carinata	Keeled Bladderpod	Lesquerella carinata, Lesquerella carinata var. languida, Lesquerella paysonii [misapplied in MT], Physaria carinata ssp. carinata	Brassicaceae	Mustards	G3G4	S1S2	Physaria carinata is restricted to areas of calcareous limestone substrates on low elevation, south-facing grasslands of Granite and Beaverhead Counties. Population numbers appear to have declined significantly in at least several of the occurrences in the Garnet Mountains from the time they were first documented in the 1980's and early 1990's. During this time period, spotted knapweed densities have increased in the area and the noxious weed is now a dominant plant in most of the keeled bladderpod sites. At least one previous study has documented decreased vigor and survivorship of keeled bladderpod in knapweed infested areas.	Sensitive - Known on Forests (BD)	Beaverhead, Granite, Musselshell	SOC	Grassland slopes (low-elevation)
Flowering Plants - Dicots (Magnoliopsida)	PDRAN0L1Y0	Ranunculus orthorhynchus	Straightbeak Buttercup		Ranunculaceae	Buttercup Family	G5	S1S2	Rare in Montana, where is is known from the western portion of the state based upon several specimen collections. However, only one collection has been made in the past two decades. Additional data are need to determine this species' status.		Deer Lodge, Flathead, Glacier, Granite, Lake, Mineral, Missoula, Sanders	SOC	Wetland/Riparian (Montane)
Flowering Plants - Dicots (Magnoliopsida)	PDRAN0L220	Ranunculus pedatifidus	Northern Buttercup		Ranunculaceae	Buttercup Family	G5	S3	Rare in Montana. Documented in the state from several collections. Additional data are needed to more precisely determine the species' status.		Carbon, Flathead, Glacier, Granite, Liberty, Teton	SOC	Meadows/Woodland s (Montane to Alpine)
Flowering Plants - Dicots (Magnoliopsida)	PDGRO021K0	Ribes triste	Swamp Red Currant		Grossulariaceae	Currants / Gooseberries	G5	S2?	Rare in Montana, where it is known from a few collections from the western portion of the state. Additional data are needed.		Beaverhead, Deer Lodge, Granite, Mineral, Ravalli	SOC	Forest openings (Mesic, montane/subalpine)
Flowering Plants - Dicots (Magnoliopsida)	PDAST8B060	Saussurea weberi	Weber's Saw-wort		Asteraceae	Aster/Sunflowers	G3	S2	Known from one large occurrence in the Anaconda-Pintler Range in the alpine zone. The remote, high-elevation habitat should greatly minimize the potential for any negative impacts to the viability of the species in the state. Population estimates from the single, documented occurrence vary widely. Additional population data are needed.	Sensitive - Known on Forests (BD)	Deer Lodge, Granite, Park	SOC	Alpine
Flowering Plants - Dicots (Magnoliopsida)	PDCAR0X090	Stellaria crassifolia	Fleshy Stitchwort		Caryophyllaceae	Pink Family	G5	S2	Rare in Montana where it is known from a few sparsely distributed locations that are mostly poorly documented.		Beaverhead, Carbon, Glacier, Granite	SOC	Wetland/Riparian
Flowering Plants - Dicots (Magnoliopsida)	PDSCR1W020	Synthyris canbyi	Mission Mountain kittentails		Plantaginaceae	Plantain Family	G2G3	S2S3	State endemic with 10 occurrences restricted to high elevation, open, rocky slopes in the Mission and Swan Ranges. As such, habitat is not generally prone to human disturbance and most occurrences are in designated wilderness areas. Additional occurrences likely exist across the known range of the species.		Flathead, Granite, Lake, Missoula, Ravalli	SOC	Alpine
Flowering Plants - Dicots (Magnoliopsida)	PDRAN0M010	Thalictrum alpinum	Alpine Meadowrue		Ranunculaceae	Buttercup Family	G5	S2	Rare in Montana, where it is known from approximately two dozen sites mostly on public land. Its habitat is vulnerable to hydrological alteration. Grazing can be beneficial, except where it leads to stream downcutting and loss of riparian habitat.	Sensitive - Known on Forests (BD)Sensitive - Suspected on Forests (CG, HLC)	Beaverhead, Deer Lodge, Granite	SOC	Wetland/Riparian
Flowering Plants - Dicots (Magnoliopsida)	PDFAB40110	Trifolium gymnocarpon	Hollyleaf Clover		Fabaceae	Pea Family	G5	S2	Known from many sites within the West Fork Bitterroot River drainage, which would encompass one large metapopulation. Also known in Montana from one disjunct occurrence in the Rock Creek drainage on the Lolo National Forest. Invasive weeds, particularly spotted knapweed, are a problem in some of the habitat occupied by the species. However, Trifolium gymmocarpon, as with other clover species, appears capable of tolerating or even benefitting from some disturbance.	Sensitive - Known on Forests (BRT, LOLO)Sensitive - Suspected on Forests (BD)	Granite, Ravalli	SOC	Open areas (foothills and montane)
Flowering Plants - Monocots (Liliopsida)	PMCYP038Y0	Carex multicostata	Many-ribbed Sedge		Cyperaceae	Sedges	G5	S2S3	A rare species in Montana, scattered in the mountains of the southwest and south-central portions of the state. Very little data are available for the species in Montana. However, the potential for negative impacts to the populations appears to be low.		Beaverhead, Carbon, Gallatin, Granite, Missoula, Park, Ravalli	SOC	Grasslands (Montane)