



Badlands on the Cedar Creek Anticline. Katrina Johnson.

WIBAUX COUNTY LONG RANGE PLAN

USDA NRCS WIBAUX FIELD OFFICE

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SECTION I: INTRODUCTION

VISION: Ensuring the land in Wibaux County supports a sustainable ecosystem.

MISSION: To be knowledge-intensive, to educate, to develop and maintain partnerships and to be the essential link between conservation and sustainable agriculture.

PURPOSE: Working to heal the land with living ecosystems in order to promote conservation and maximize sustainable agriculture. We will be the innovators, working toward regenerative agriculture and resiliency.

ENTITIES WHO PARTICIPATE: Wibaux Conservation District, Montana State University Extension Service, Wibaux County Commissioners, the Wibaux County Weed Board, Montana Department of Natural Resources and Conservation Eastern Lands Office, Montana Fish Wildlife & Parks, USDA Natural Resources Conservation Services Field and Area Offices, the United States Fish & Wildlife Service, The Northern Plains Joint Venture, local farmers, ranchers and landowners.

TIME-FRAME: This is a five-year plan that goes from 2019 to 2023. The Long-Range Plan will be reviewed every year in March.

SECTION II: NATURAL RESOURCE INVENTORY

History of Wibaux County

Grass, bison and the Plains Indians were residents of Wibaux County in the early 1800s, then from the 1850s to the early 1900s it was great cattle country. The severe winters of 1880 and 1881 caused sixty to 95% death loss in cattle. The Northern Pacific Railway came through in 1881. In 1904 with the passing of the Homestead Act settlers were coming to establish farms.

Wibaux County came into existence in 1914. There was an increase in types of livestock and crops over the next few years with chickens, sheep, hogs, horses and mules. Common crops were corn, winter and spring wheat, rye, oats, barley, flax and hay.

The old timers say one year in three will be a drought year. The rangelands in Wibaux County that were in good condition suffered less from the droughts than those grazed closely. Silty range sites would support green needlegrass (*Nassella viridula*), needle and thread (*Hesperostipa comata*), western wheatgrass (*Pascopyrum smithii*), slender wheatgrass (*Elymus trachycaulus*), and blue grama (*Bouteloua gracilis*). The continuously overgrazed silty sites would have blue grama, Sandberg bluegrass (*Poa secunda*), and prairie Junegrass (*Koeleria Macrantha*). Cactus (*Opuntia polyantha*), broom snakeweed (*Gutierrezia sarothrae*), curly cup gumweed (*Grindelia squarrosa*), green sage wort (*Artemisia dracunculus*), and rubber rabbitbrush (*Ericameria nauseosa*), would increase. When overgrazing occurred, the plants had limited root systems and the soil washed or blew away near the plant bases.

The scoria (clinker) knobs were dominated by threadleaf sedge and little bluestem. Overflow range sites supported western wheatgrass, switchgrass and big bluestem. Plant communities on Beaver Creek were dominated by second growth cottonwoods, green ash, American elm, box elder, willow, hawthorn, dogwood, rose, plum, chokecherry and buffaloberry.

In summary, at the time of the Wibaux County Soil Survey was published in 1958 a comment was made "...the tendency is to decrease the acreage used for cultivation and to increase that seeded to grasses."

*Our Soil * Our Strength*

General Information

Wibaux County sits about halfway between Wyoming and Canada on the border of North Dakota in eastern Montana. Dawson and Prairie Counties border Wibaux County to the west, Richland to the north and Fallon County to the south. See Appendix A1 Wibaux County. Wibaux County is the second smallest, by area, of the 56 counties in Montana, covering only 889.27 square miles or 568,960 acres. It ranks the same, 55 out of 56, for square miles of water, having less than one.

The Yellowstone River marks the northwest boundary of the county for just under three miles. Apart from this, there are no rivers or major river tributaries in Wibaux County. Most of the streams in the area are ephemeral. Beaver Creek is the only perennial stream in the county.

Elevation averages 2,694 feet above sea level. The highest point in the county is 3,425 feet on an unnamed hilltop in Township 11N Range 59E a few miles due west of Bobiny Road. The lowest elevation in the county is 1,976 feet on the Yellowstone River bank.

The growing season in Wibaux County typically lasts for 140 days from around May 11 to around September 28. Average annual precipitation ranges from 15-16 inches per year in the south-central part of the county to 13-14 inches in the far north. Appendix A2 shows the range of average annual precipitation in Wibaux County. Relative effective precipitation can be thought of as usable rainfall, the portion of the total precipitation which becomes available for plant growth. Relative effective precipitation throughout the county is depicted in Appendix A3.

PEOPLE

The United States Census Bureau reported a population of 1,034 people in the county in 2018, an increase of 1.7% since 2010. Approximately 589 people, roughly 57% of the county's residents, live in town of Wibaux, the only incorporated community in the county (US Census Bureau, 2019).

There were 172 farms in Wibaux County in 2012 on 545,333 acres. Average farm size in 2012 was 3,171 acres. The number of farms decreased to 137 in 2017 while average farm size increased in 2017 to 3,762. Of these, 17 farms' principal operators were new or beginning farmers, defined as those who have been in the business for 10 years or less. The average age of producers in Wibaux County is 60.4 years; four out of five producers are male.

About 80% of all operations use no-till or minimum till cropping strategies while the remaining continue to employ intensive tillage. Cover crops are grown as part of the cropping rotation on eight farms in the county and nine farms are at least partly irrigated (USDA NASS, 2019).

Land dedicated to producing crops and the number of farms raising each crop type for calendar year 2017 is shown in Figure 1.

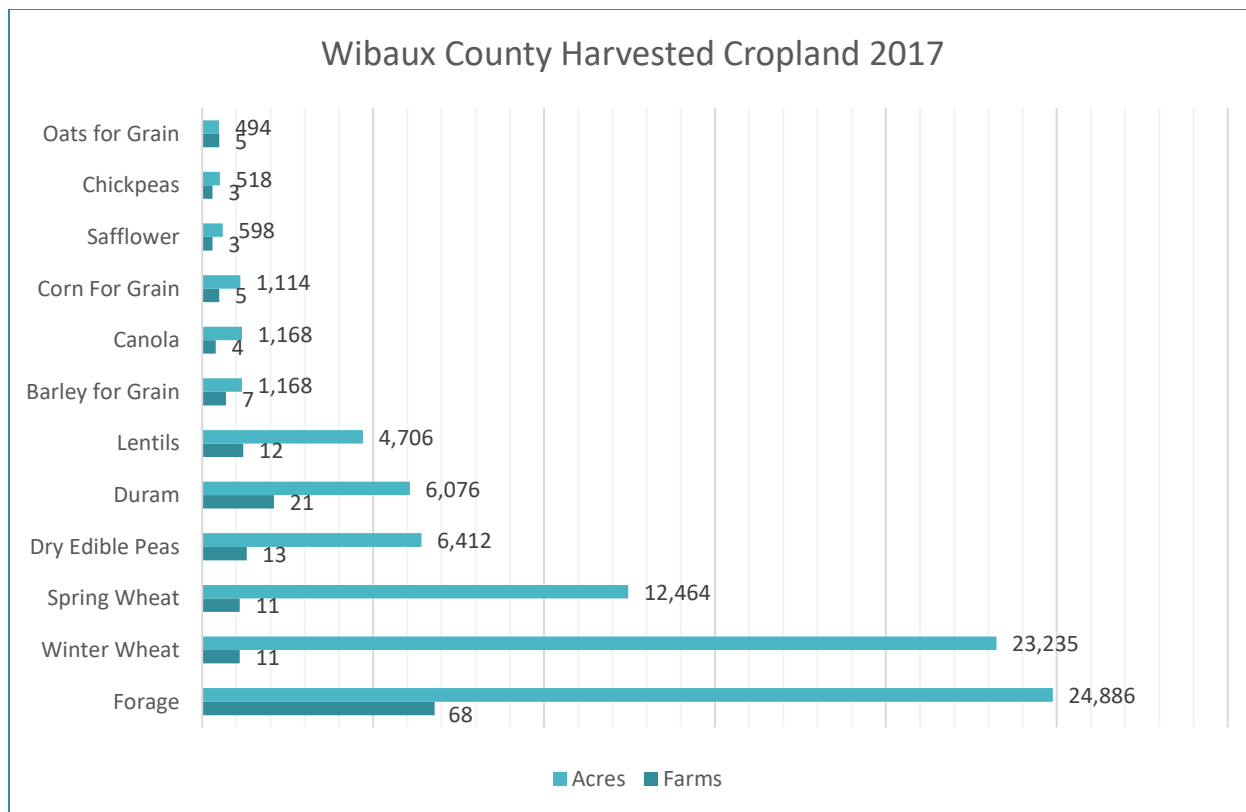


Figure 1 Harvested cropland acres, type, and number of farms for Wibaux County, Montana in 2017

The chart illustrates that Wibaux County’s agriculture is typical of the rural counties in eastern Montana. A large percentage of cropland is dedicated to producing feed and forage for livestock. Among row crops, dryland wheat is most prevalent.

Livestock sales in the county in 2017 totaled 12,552 head of cattle and 1,630 sheep (USDA NASS, 2019). Most livestock producers are commercial cow/calf operators, then purebred breeders, and some yearlings.

LANDCOVER/LAND USE

Landcover Types

Landcover types in the county are approximately 58% grassland and 19% cultivated crops with smaller areas of badlands, riparian zones, sagebrush steppe, woody draws and introduced vegetation. The Pierre shale soils on Cedar Creek support a forest of ponderosa pine (*Pinus ponderosa*) and Rocky Mountain juniper (*Juniperus scopulorum*). See the map of Wibaux County landcover in Appendix A4. Descriptions of ecological systems follow.

Great Plains Mixedgrass Prairie covers much of the eastern two-thirds of Montana and over 309,000 acres (54% of the land), in the county. Soils are primarily fine and medium-textured. Grasses typically comprise the greatest canopy cover, and western wheatgrass is usually dominant. Other species include thickspike wheatgrass (*Elymus lanceolatus*), green needlegrass, blue grama, and needle and thread. Forb diversity is typically high. In areas where sagebrush steppe borders the mixed grass prairie, common plant associations include Wyoming big sagebrush (*Artemisia tridentata ssp. Wyomingensis*)—western wheatgrass. Fire and grazing are the primary drivers of this system. Drought can also impact it,

in general favoring the shortgrass component at the expense of the mid-height grasses. With intensive grazing, cool season exotics such as Kentucky bluegrass (*Poa pratensis*), smooth brome (*Bromus inermis*), and Japanese brome (*Bromus japonicus*) increase in dominance (MNHP, 2019).

Great Plains Sand Prairie is considered unique due to coarse textured soils with exposed caprock sandstone formations occurring across the landscape. It is found on about 7% of the landscape in Wibaux County. Native plant communities are dominated by needle and thread with little bluestem (*Schizachyrium scoparium*), and threadleaf sedge (*Carex filifolia*), on the finer textured soils. Rhizomatous warm season grasses prairie sand reed (*Calimovilfa longifolia*), sand bluestem (*Andropogon hallii*), and big bluestem (*Andropogon gerardii*), occur intermittently on coarser soils (MNHP, 2019).

Great Plains Badlands are areas containing highly eroded, rugged and often colorful landforms with sparse vegetation. Badlands areas provide habitat for mule deer and other wildlife but support only intermittent grazing. There are approximately 33,363 acres of this system in the county.

Wooded draws occur on steeper slopes or in canyon bottoms where deep loamy soils and higher moisture levels support Rocky Mountain juniper (*Juniperus scopulorum*) and deciduous trees such as green ash (*Fraxinus pennsylvanicus*) and chokecherry (*Prunus virginiana*). Although they are relatively few and scattered, wooded draws are valuable habitat for many species of birds, small mammals and mule deer (MNHP, 2019). These cover around 33,000 acres in Wibaux County.

Big Sagebrush Steppe occurs throughout much of central and eastern Montana; it is found in small patches surrounded by mixed grass prairie south and west of Bar Nothing Road in the southwest corner of the county. The system is characterized by soils that are typically deep and non-saline and dominated by perennial grasses and forbs with a shrub cover of less than 10%. Wyoming big sagebrush is the most common shrub component. Sagebrush typically increases in the system following heavy grazing and fire suppression (MNHP, 2019).

Great Plains Ponderosa Pine Woodland and Savannah systems are often surrounded by mixed-grass prairie. Rocky Mountain juniper is a common overstory associate of this system. Understories are commonly comprised of shrubs such as western snowberry (*Symphoricarpos occidentalis*) and skunk bush sumac (*Rhus trilobata*), and grassland species such as blue grama side-oats grama (*Bouteloua curtipendula*), and prairie June grass (*Koeleria macrantha*). These woodlands can be structurally variable, ranging from very sparse patches of trees on drier sites, to nearly closed-canopy forest stands on north slopes or in draws where available soil moisture is higher (MNHP, 2019). In Wibaux County, this system is found just to the east of the Cedar Creek Anticline on about 42,000 acres. Conifer encroachment in the Cedar Creek drainage is discussed further in Section IV.

Areas of the Great Plains Riparian system occur along the Yellowstone River, Beaver Creek, and other drainages. Plains cottonwood (*Populus deltoides*), and narrowleaf cottonwood (*Populus angustifolia*), dominate areas of higher soil water content or higher water tables; an understory of willow (*Salix spp*), is common (MNHP, 2019). While riparian areas cover only around 3% of the land in the county, they are considered important for hay production as well as wildlife cover and habitat.

Introduced upland vegetation systems are described as significantly altered and disturbed by introduced forbs. Natural vegetation types are no longer recognizable. Typical species that dominate these areas

are knapweed (*Centaurea spp.*), Canada thistle (*Cirsium arvense*), leafy spurge (*Euphorbia esula*), and sweetclover (*Melilotus spp.*), (MNHP, 2019). This system also occurs across approximately 3% of the landscape (MNHP, 2019).

Land Ownership

Most of the land in Wibaux County is privately owned. The Bureau of Land Management administers 55,183.18 acres or about 9.6 % of the land in the county; Montana Department of Natural Resources and Conservation manages another 33,801.4 acres, around 6% of the county. US Fish & Wildlife Service oversees 800 acres on the Lamesteer National Wildlife Refuge, discussed further on page 21. The locations of public land parcels are shown in Appendix A5. Lamesteer NWR is the green polygon in Township 12N Range 60E.

GEOLOGY AND SOILS

LRR & MLRAS

Land Resource Regions (LRR) are large geographic areas that are characterized by a pattern of soils, climate, water resources and land uses. Major Land Resource Areas (MLRAs) are subregions of the Land Resource Regions (LRR), and comprise smaller, homogeneous areas. MLRA's represent landscape-level areas with distinct physiography, geology, climate, water, soils, biological resources and land uses. These features are incorporated into the distinctions between ecological sites.

Nearly all of Wibaux County lies within MLRA 54, Rolling Soft Shale Plain. This MLRA is part of LRR F, Northern Great Plains Spring Wheat Region.

MLRA 58A, Northern Rolling High Plains, Northern Part, MLRA 58C, Northern Rolling High Plains, North Eastern Part and MLRA 60 B, Pierre Shale Plains, Northern Part are all within LRR G, Western Great Plains Range and Irrigated Region.

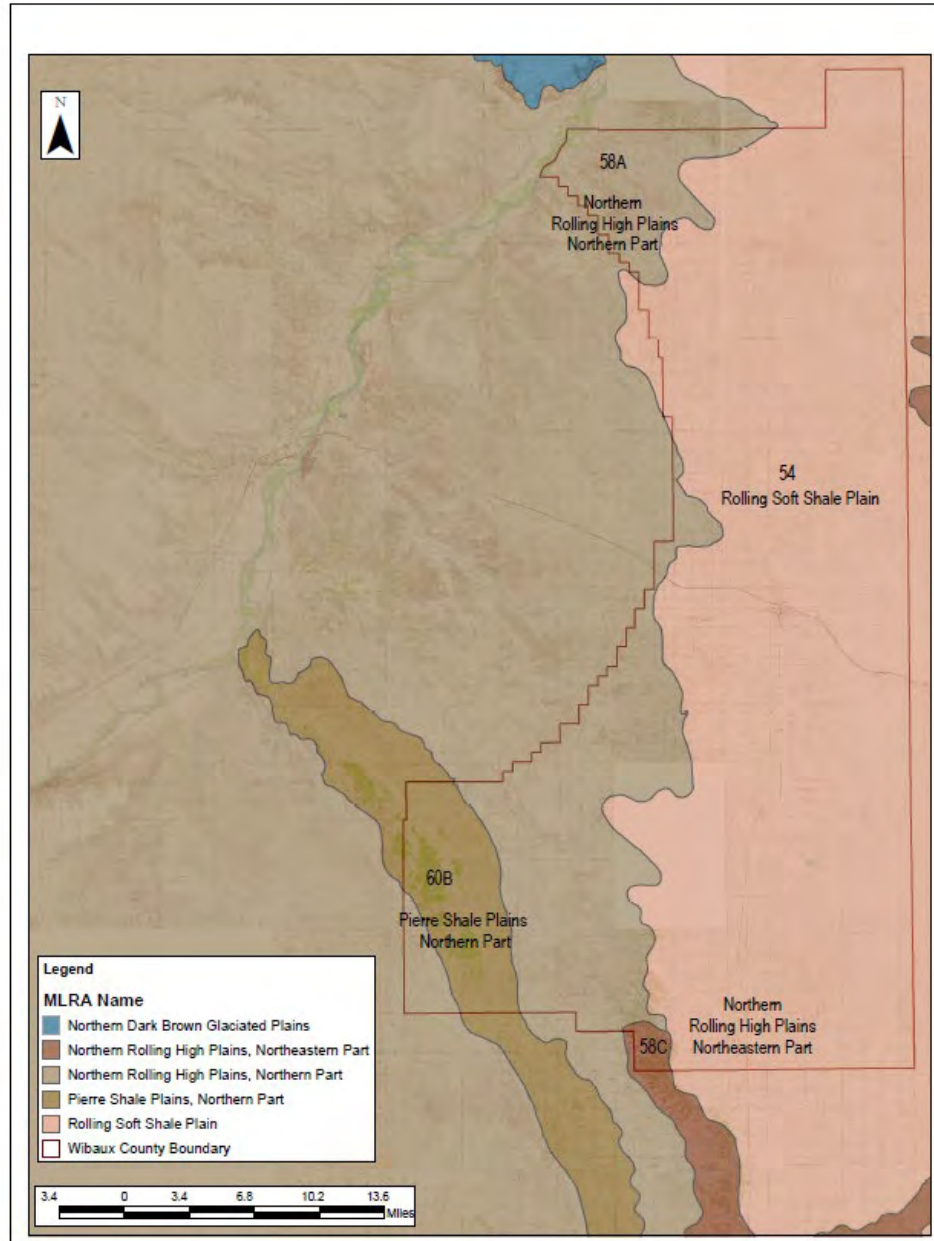


Figure 2 Wibaux County MLRAs

Appendix A6 is a map of the United States’ Land Resource Regions. LRR F and LRR G are labeled.

MLRA 54, 58A, 58C and 60B are part of the Missouri Plateau Unglaciated Section of the Great Plains Province of the Interior Plains. MLRA 54, Rolling Soft Shale Plain, is dominantly unglaciated, but the eastern and northern edges have been glaciated. The area is on an old, moderately dissected, rolling plain with some local badlands, buttes, and isolated hills. Terraces are adjacent to broad flood plains along most of the major drainages. Dominant Soil orders in this MLRA are Mollisols and Entisols.

MLRA 58A, Northern Rolling High Plains, Northern Part is an area of what were plateaus and terraces; these have been eroded over time. High flat-top buttes are prominent features of the landscape in some areas. Badlands are found along some stretches of the major rivers. The principal sources of

groundwater are the soft, calcareous shales, sandstones and silt stones of the Fort Union, Fox Hills and Hell Creek Formations. Dominant soil orders in this MLRA are Mollisols and Entisols.

MLRA 58C, Northern Rolling High Plains, North Eastern Part, is known as the Missouri Badlands. It is old terraces and plateaus that have been eroded by the Missouri River and its tributaries.

Most of the groundwater comes from the Fort Union Aquifer. The water is soft, contains high levels of selenium, total dissolved solids and salinity. It can be used for domestic purposes and livestock but is unsuitable for irrigation. Entisols and Mollisols are the dominant soil orders.

MLRA 60B, Pierre Shale Plains, Northern Part, is also an area of ancient terraces and plateaus that have been deeply eroded. Shale plains are a unique feature of this MLRA. They typically have long, smooth, gentle to strong slopes. Dominant soil orders are Alfisols, Entisols and Vertisols; soils typically have smectitic mineralogy, meaning the soils are typically two parts clay to one part other.

Water for livestock in the upland is usually available only in small, man-made dams. Groundwater is found only in small deposits of sand and gravel in the Fox Hills Sandstone and Hell Creek Formation. It is generally hard or very hard due to sodium bicarbonate or sulfate. Practically all the land in MLRA 60B is used for livestock production (NRCS, 2006).

Soil orders definitions:

Alfisols are in semiarid to moist areas. These soils result from weathering processes that leach clay minerals and other constituents out of the surface layer and into the subsoil. The soils formed primarily under forest or mixed vegetative cover and are productive for most crops.

Entisols are soils that show little or no evidence of development. They occur in areas of recently deposited parent materials or in areas where erosion or deposition rates are faster than the rate of soil development, such as dunes, steep slopes, and flood plains.

Mollisols are soils that have a dark-colored surface horizon containing relatively high amounts of organic matter. These soils are quite fertile. They characteristically form under grass in regions that experience seasonal moisture deficit, such as the Great Plains.

Vertisols have a high content of expanding clay minerals. They undergo pronounced changes in volume with changes in moisture content. Cracks open and close periodically and show evidence of soil movement in the profile. These soils transmit water very slowly and have undergone little leaching. They tend to be high in natural fertility.

Geology

Geologic formations underlying Wibaux County are shown in Appendix A7. A formation in this context is a rock unit that has a distinctive appearance compared to surrounding rock layers and is of enough thickness and extension to be plotted on a map. Formations often contain a variety of related or interlayered rock types and are sometimes divided into smaller units called members.

The Fort Union Formation underlies most of Wibaux County. Shown as one block on the map, the formation includes the Sentinel Butte, Tongue River and Ludlow Members. The Fox Hills Formation includes the Colgate, Timber Lake and Trail Town Members. Fox Hills, Hell Creek and Pierre Shale Formations occur only in the southwest corner of the county in the Cedar Creek Anticline (Vuke, 2007).

Fort Union Formation (TKfu). Paleocene.

- Sentinel Butte Member (Tfsb)—Dark gray shale with interbedded lignite and gray sandstone. Nonmarine. Thickness 656 feet.
- Tongue River Member of Fort Union Formation (Tftr)—Yellowish orange sandstone, sandy and silty carbonaceous shale, and coal. Thickness as much as 984 feet.
- Ludlow Member of Fort Union Formation (Tfld)—Gray and brown shale, siltstone, silty or bentonitic claystone, sandstone, and coal. Alluvial plain with marine-influenced tongues. Thickness as much as 755 feet.

Pierre Formation (Kp). Cretaceous. Dark gray, partly silty shale with abundant bentonite beds and zones of gray, calcareous concretions. Marine. Thickness as much as 2,133 feet. Only the upper 164 feet are exposed.

Hell Creek Formation (Khc). Cretaceous. Light gray bentonitic clay stone that alternates with gray to brown sandstone interbedded with carbonaceous shale. Fluvial and flood plain. Thickness as much as 1,100 feet.

Fox Hills Formation (Khf). Cretaceous. Yellowish orange to gray, fine to medium grained non-calcareous sandstone in the upper part and interbedded sandstone, siltstone and black shale with calcareous concretion zone in the lower part. Marginal marine. Thickness 98-148 feet.

- Colgate Member (Kfhc). White to yellowish, fine-to medium-grained, porous sandstone. Brackish to marine shoreline. Only present near Glendive and in several other isolated areas. Thickness 130 feet.
- Timber Lake Member (Kftt). Yellowish orange to gray, fine- to medium grained, non-calcareous, hummocky-bedded sandstone. Thickness fifty to seventy-two feet.
- Trail City Member (Kftc). Yellowish orange, wavy-bedded siltstone and black shale with calcareous concretion zone. Thickness 33 feet.

Soil Associations

Soil associations are made up of adjacent soils that occur as areas large enough to be shown individually on the soil map but are shown as one unit because the time and effort of delineating them separately cannot be justified. A soil association is a landscape that has distinctive proportions and patterns of soils. It usually consists of one or more major soils and at least one minor soil and is named for the major soil(s). Soils in one association may occur in another, but in a different pattern. There are 11 soil associations in Wibaux County.

The **Rhoades-Flasher-Cushman** association occurs in the southwestern part of the county in exposures of Hell Creek and Fox Hills formations in the Cedar Creek Anticline.

Also found in the southwest part of the county, the **Pierre-Lismas-Rhoades-Moline** association is characterized by heavy clay soils and sparse grasslands often dominated by Rocky Mountain juniper.

The **Badlands-Bainville-Flasher-Midway** association borders the Pierre-Lismas-Rhoades-Moline association and is also found in the north and northwest areas of the county. This association is characterized by steep, eroding breaks with intricate stream patterns.

In southern Wibaux County, the **Moreau-Midway-Regent** association supports grazing and crops. It consists mostly of moderately heavy soils on mostly gently sloping terrain. On lesser slopes the soils are known to be very productive.

Bottomlands and low terraces of Beaver Creek and its tributaries are the locations of the **Farland-Savage-Harlem** association. Crops are grown extensively on these soils.

The **Flasher-Vebar** association consists of scattered areas of predominantly sandy soil. These soils are highly susceptible to wind erosion; sandstone outcrops are common in road cuts. Much of the area is farmed.

Occurring north of Wibaux, the **Bainville-Chama-Flasher** association is made up of silty soils with moderately steep to steep slopes. The steeply sloping areas were once farmed but crop production has largely been abandoned. Hay is grown on the Cherry soils which occur in the larger stream valleys.

Most of the **Bainville-Wibaux-Chama** association is too hilly to farm. It is characterized by buttes which have resisted erosion due to the presence of clinker. Clinker is a layer of reddish rock formed by baking of sediments above burned coal deposits. Clinker was produced when coal deposits exposed at the surface were ignited by lightning strikes or brush fires and burned naturally underground and near the surface for a period of hundreds of years.

In the eastern part of the county, the **Morton-Arnegard-Chama** soil association is said to be some of the best farming land in the county. It is mostly level to gently sloping with a few hills.

Wibaux-Morton-Chama-Bainville-Searing soil association: Wibaux soils are characterized by the scoria, or clinker hilltops described previously. Mixed farming and grazing take place on the other soils of this association, where topography ranges from hilly to sloping.

Many kinds of soil on varying slopes are included in **Chama-Morton-Bainville-Flasher** soil association (USDA NRCS Soils, 2019).

Prime Farmland, Farmland of Statewide Importance and Prime if Irrigated Farmland

Prime farmland is a designation assigned by U.S. Department of Agriculture defining land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these land uses. There is no Prime Farmland in Wibaux County.

Farmland of Statewide Importance are soils that have been determined to be of significance for production of food, feed, fiber, forage, and oilseed crops. These soils have an adequate and dependable water supply from precipitation or irrigation, favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt and sodium content, and few or no rocks. They are permeable to water and air, are not excessively erodible or saturated with water for a long period of time, and either do not flood frequently or are protected from flooding. They are available for farming, but could currently be cropland, pastureland, rangeland, forestland, or other land.

Prime if Irrigated Farmland soils are those with the best combination of physical and chemical characteristics for agriculture such as the soil quality and adequate growing season necessary to produce high yields of crops suited to the region but occur in areas of limited rainfall.

Table 1 Wibaux County Soils

Soils	Acres	Percent of Soils in The County
Farmland of Statewide Importance	59,738	10.5
Prime if Irrigated Farmland	35,889	6.3
All other Soils	473,333	83.2

Chama silt loam, 4 to 7 % slopes (Ca) makes up more than 45% of soils of Statewide Importance in the county. Chama soils developed on soft siltstone and sandstone. They are usually moderately sloping with medium runoff and medium organic matter and generally three to four feet deep. Chama silt loam is associated with Silty ecological site.

Over 60% of the areas designated Prime if Irrigated Farmland in Wibaux County are Soil Map Unit Vebar fine sandy loam 4 to 7% slope (Vb). Vebar soils developed from materials weathered from sandstone and sandy shale. Runoff is slow, permeability is moderately rapid and organic matter content is medium. Most of the areas of Vebar soils are under cultivation. The associated ecological site is Sandy. Appendix A8 shows the locations of the soils.

Hydric Soils

Hydric soils are characterized by frequent, prolonged saturation and low oxygen content, which lead to anaerobic chemical environments where reduced iron is present. This definition includes soils that developed under anaerobic conditions in the upper part but no longer experience these conditions due to hydrologic alteration such as those that have been artificially drained or are protected by ditches or levees.

Wibaux County has seven soils that meet the criteria for hydric soils. The total acres designated as Hydric Soils is 1,661.7 or just over 0.29 % of soils in the county.

Table 2 Hydric Soils

MU Symbol	Name	Phase	Landform	Acres	Hydric Criteria
Aa	Alluvial land	Lallie	Flood Plains	695.7	2, 4
E0701F	Dogtooth-Janesburg-Cabba complex, 6-35% slope	Harriet occasionally flooded	Drainageways	22.3	2
Fb	Farland-Harlem complex, 0-3 % slopes	Somewhat poorly drained	Flood Plains	521.1	2, 4
Ga	Glendive fine sandy loam, 2-6% slopes	Somewhat poorly drained	Flood Plains	4.2	2, 4
Gb	Grail silty clay loam, 2-4 % slopes	Somewhat poorly drained	Swales	29.6	2, 3
Ma	McKenzie-Hoven silty clays, 0-1% slopes	McKenzie	Depressions	216	2, 3
Ma	McKenzie-Hoven silty clays, 0-1% slopes	Hoven	Depressions	172.8	2

Hydric Criteria Definitions:

- 1: All Histels except Folistels and Histosols except Folist.
- 2: Map unit components that, based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or show evidence that the soil meets the definition of a hydric soil.
- 3: Map unit components that are frequently ponded for long duration or very long duration during the growing season that, based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States or show evidence that the soil meets the definition of a hydric soil.
- 4: Map unit components that are frequently flooded for long duration or very long duration during the growing season that, based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or show evidence that the soils meet the definition of a hydric soil.

Petroleum Resources

Wibaux County ranks fifth in Montana for oil production, accounting for 2.17 % of all oil produced in the State. There are 73 active wells in the county which produced 29,100 barrels in July 2019. For production of natural gas, Wibaux County is number 13 in the state. Gas is measured in MCF or thousand cubic feet; Wibaux County extracted 9,800 MCF in July of 2019 (ShaleXP, 2019).

Montana Department of Natural Resources & Conservation (DNRC) Board of Oil and Gas Conservation’s records for oil production in the county go back to 1986. This was the year of peak production, 1,386,282 barrels. Oil production steadily declined overall; 2018 showed the least oil produced, 164,334 barrels. Natural gas production has been tracked since 1999; it peaked in 1999 and has experienced steady decline (MT DNRC BOGC, 2019).

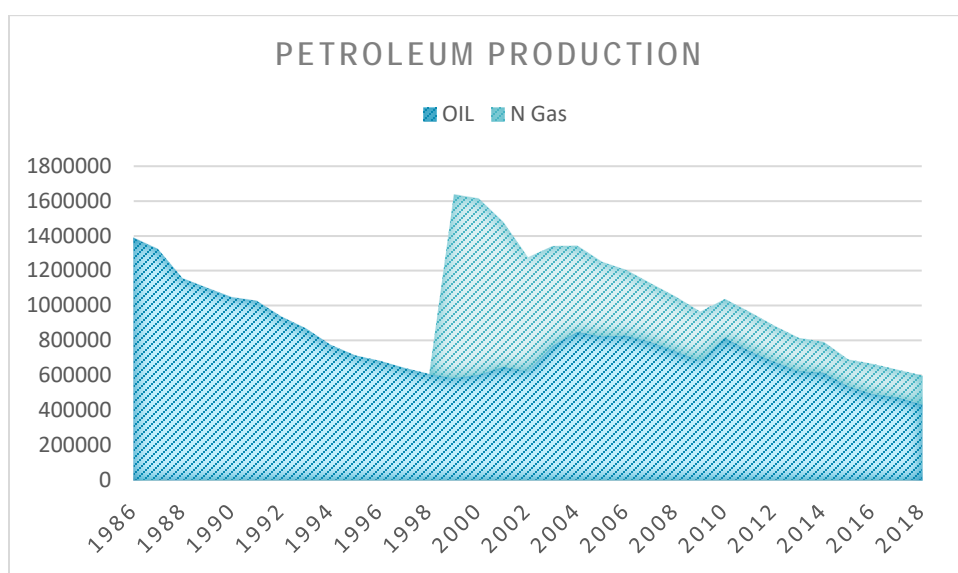


Figure 3 Petroleum Production

Nearly all the recorded oil and gas wells in Wibaux County are in Pine North Unit and Pine South Unit Fields in Townships 11 and 12N Range 57E in the southwest corner of the county along the Cedar Creek Anticline.

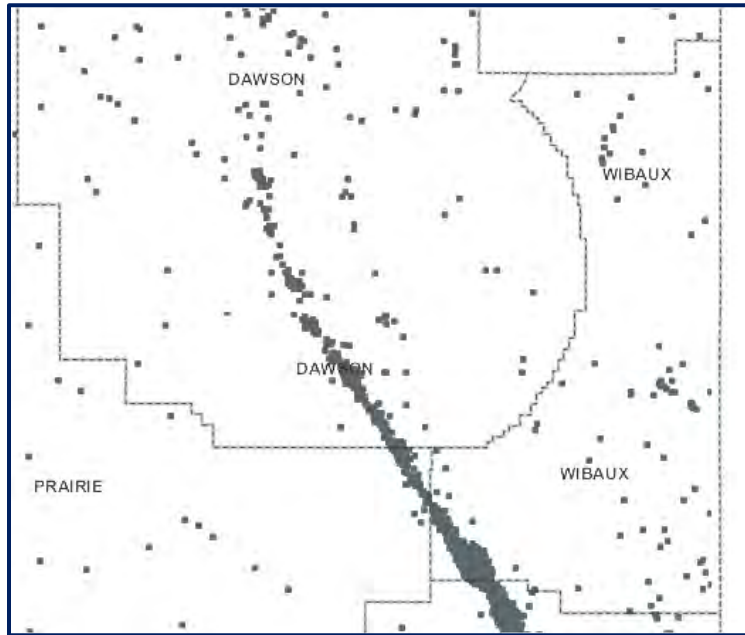


Figure 4 Distribution of Wells on the Cedar Creek Anticline



Figure 5 Google Earth image of petroleum development footprint, Pine Unit Oil Field, Section 10, Township 11 N Range 57 E.

Cedar Creek Anticline

Anticlines are folded rock formations that have an upward convex shape with the oldest rock at the core or the center of the arch. They are formed from rock that was originally relatively flat but was subjected to pressure from local faulting or plate tectonics causing the rock to wrinkle, compress and fold. Major uplift and granitic intrusions in the Black Hills occurred approximately 50 million years ago, accompanied by regional folding and faulting. Formation of the Cedar Creek Anticline is thought to have occurred during this time (Vuke, 2007).

Anticline formations can form structural traps that capture pockets of hydrocarbon. Impermeable rock beds above and surrounding the pockets trap the hydrocarbons, causing oil and natural gas to build up in the pore spaces in the reservoir rock at the core of the arch. The lower part of the reservoir rock often fills with salty water, sealing the hydrocarbons into the arch. The Cedar Creek Anticline is a collection of structural traps, inter-connected by faulting (Davis, John, Denbury Resources Inc. , 2013).

Located in southeast Montana, the Cedar Creek Anticline is a northwest trending structure stretching 115 miles southeast from Glendive, Montana through Dawson, Prairie and Fallon Counties to Buffalo, South Dakota. The feature is found on the flank of the Williston Basin. The structure is expressed at the surface in beds of Upper Cretaceous and Early Tertiary age; it is an asymmetric fold with the steep side on the west. This structure was discovered officially by members of the United States Geological Survey while mapping the coal deposits of Eastern Montana. Oil was discovered on the Cedar Creek Anticline in the Gas City Oil Field in 1951. Thirteen fields on the anticline have produced over a half billion barrels of oil from approximately 2,700 wells. (Davis, 2013).

WATER

Montana Fish Wildlife and Parks State Wildlife Action Plan

Montana's Fish Wildlife and Parks State Wildlife Action Plan (SWAP) identifies community types, Focal Areas, and species in Montana with significant issues that warrant conservation attention. The SWAP lists the Yellowstone River as one of the top 13 Aquatic Focal Areas in the State (Zieglar, 2019). The area of Yellowstone River and its tributaries (Figure 6) is one of 13 Tier I Aquatic Communities in the State. Tier I Communities are those with the 'greatest conservation need'. The SWAP states, "There is a clear obligation to use resources to implement conservation actions that provide direct benefit to these community types" (MT FWP, 2015).

The associated Species of Greatest Conservation Need (SGCN) are:

- Blue Sucker (*Cycleptus elongatus*)
- Northern Redbelly Dace (*Chrosomous eos*)
- Pallid Sturgeon (*Scaphirhynchus albus*)
- Shortnose Gar (*Lepisosteus platostomus*)
- Sturgeon Chub (*Macrhybopsis gelida*)
- Iowa Darter (*Etheostoma exile*)
- Paddlefish (*Polyodon spathula*)
- Sauger (*Sander Canadensis*)
- Sicklefin Chub (*Macrhybopsis meeki*)

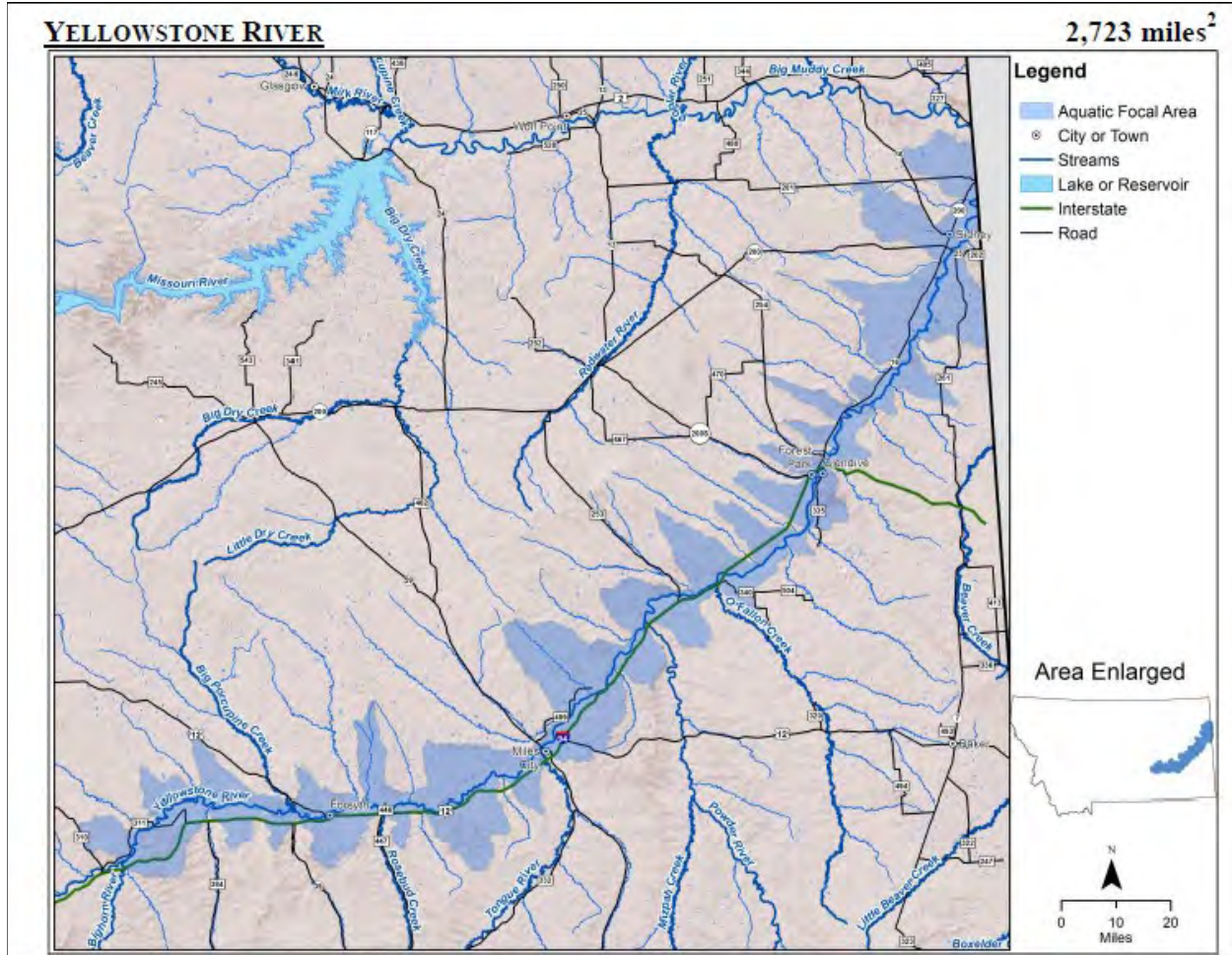


Figure 6 The Tier 1 Aquatic Community of the Yellowstone River (MT FWP, 2015)

The SWAP states,

“The Yellowstone River mainstem is home for many aquatic Species of Greatest Conservation Need (SGCN), native species, and a great diversity of game fish. It is an important river for spawning by the federally endangered pallid sturgeon. It also is an important river for a spawning migration of paddlefish from Lake Sakakawea. The paddlefish migration creates a high angler interest. There are several partnerships in this area including local conservation districts, state and federal agencies, and occasionally individual landowners. The majority of this watershed is held in private ownership. This area is heavily used by anglers, hunters, wildlife watchers, and other river recreationists.

Coal and gas development are a current impact to this Focal Area. Dewatering, as it relates to instream flow and fish habitat, and fish passage at multiple low head diversion dams, are other issues for the Focal Area. The future threats remain the same as current impacts if they are not addressed.” (MT FWP, 2015)

Hydrography

The Hydrologic Unit Code (HUC) is a numbering system for watersheds developed by the U.S. Geological Survey (USGS) to provide a common coding system for State and Federal agencies. The entire country

has been mapped with three levels of hydrological unit codes: 8-digit codes for large watersheds known as sub-regions, 10-digit codes for watersheds, and 12-digit codes for the smaller sub-watersheds.

Two major fourth-level (8-digit) watersheds or sub-basins divide Wibaux County; they are shown as black polygons and labeled in black in Figure 7. Water flows northwest from the Lower Yellowstone sub-basin into the Yellowstone River. Waters of the Beaver Creek sub-basin eventually make their way to the Little Missouri River in North Dakota. Fifth-level (ten-digit) watersheds are drawn and labeled in brown; twelve-digit sub-watersheds appear in the image as colored polygons.

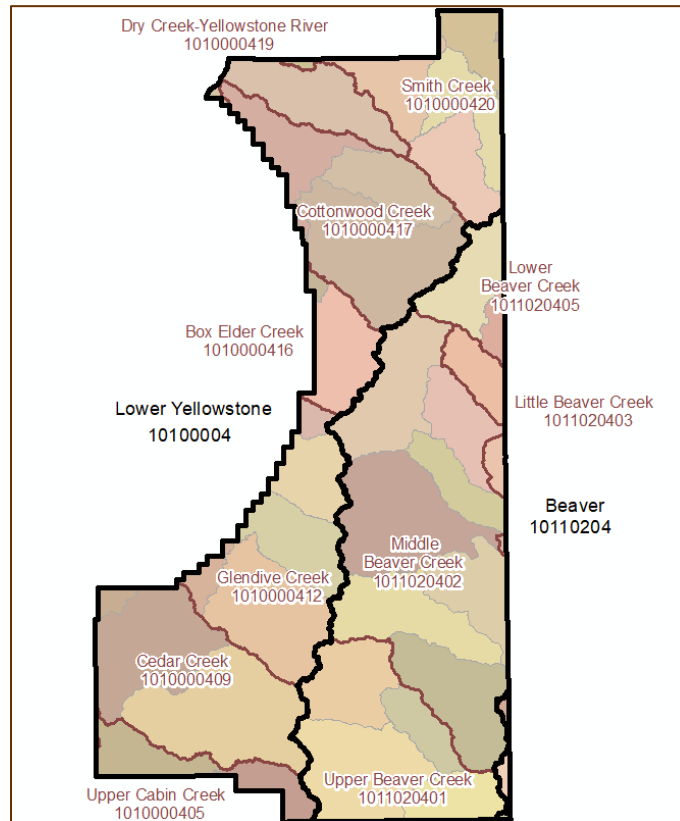


Figure 7 Wibaux County Hydrography

303(d) Listed Streams

Section 303(d) of the Clean Water Act requires states, territories and authorized tribes to develop, and update every two years, lists of water that are impaired or threatened by one or more pollutants. Impaired waters are those that don't meet one or more Water Quality Standards.

A Total Maximum Daily Load (TMDL) is the calculation of the maximum amount of a pollutant allowed to enter a waterbody for the waterbody to meet water quality standards for that pollutant. Information about the Clean Water Act, impaired waters, TMDL calculations and other topics pertaining to water quality can be found on the Environmental Protection Agency's Impaired Waters and TMDLs website at: <https://www.epa.gov/tmdl/overview-total-maximum-daily-loads-tmdls#1>

Montana Department of Environmental Quality's (DEQ) Clean Water Information Center lists eight Wibaux County waterbodies in one of five water quality categories.

Category 1: *Waters for which all applicable beneficial uses have been assessed and all uses are determined to be fully supported.*

Beaver Creek from the headwaters to the North Dakota border.

Category 3: *Waters for which there is insufficient data to assess the use-support of any applicable beneficial use; no use-support determinations have been made.*

Cedar Creek from the headwaters to forty-five miles above the mouth.

Category 4C: *Identified threats or impairments result from pollution categories such as dewatering or habitat modification and thus a TMDL is not required.*

Lamesteer National Wildlife Refuge does not fully support aquatic life. The probable cause is unknown, the probable source is agriculture.

Smith Creek, the entire stream, is listed for impairment to aquatic life. The probable cause is fish barriers at low water crossings.

Category 5: *Waters where one or more applicable beneficial uses are impaired or threatened, and a TMDL is required to address the factors causing the impairment or threat*

Yellowstone River from the Lower Yellowstone Diversion Dam to the North Dakota border is listed for impairment to aquatic life due to:

- Alteration in stream-side or littoral vegetative cover due to agriculture,
- Chromium, copper lead, nitrogen, and phosphorus from agriculture and natural and unknown sources and Total Dissolved Solids and pH from natural and unknown sources,
- Fish passage barrier from impacts of hydro-structure flow regulation modification.

Cottonwood Creek, all reaches, is listed for impairment to aquatic life for cadmium from natural and unknown sources, iron from natural sources, fish passage barrier due to hydro-structure and physical substrate habitat alterations from water diversions and channelization.

Glendive Creek, all reaches, is listed for impairment to aquatic life for cadmium, chromium, copper, iron, lead, nickel, selenium and zinc from natural and unknown sources. Grazing in riparian or shoreline zones is the source impairments caused by alterations in stream-side or littoral vegetative covers and sediment.

Category 5,5N: *Available data and/or information indicate that a water quality standard is exceeded due to an apparent natural source in the absence of any identified manmade sources.*

Cedar Creek from tributary confluence at 12N 57E Section 35 to tributary confluence at 13N 56E Section 27 is listed as impaired or partially impaired in its ability to support aquatic life owing to copper, iron, lead and selenium from natural sources (MT DEQ, 2019).

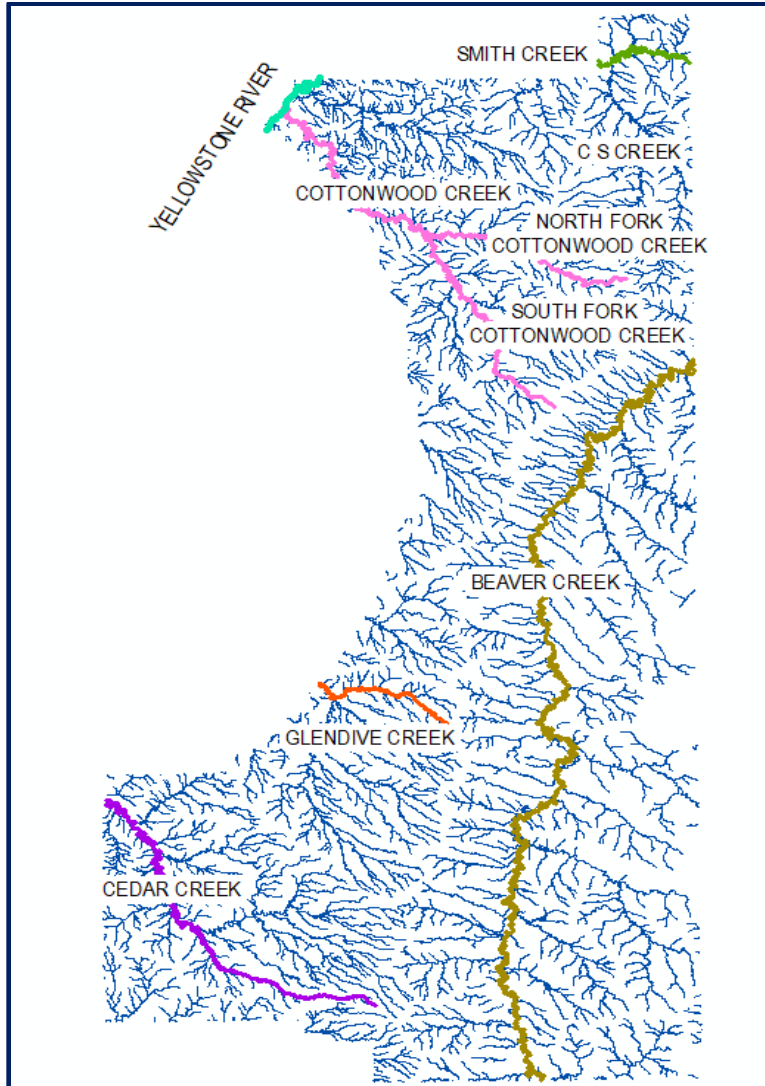


Figure 8 Wibaux County 303(d) listed streams

Groundwater

Most of the wells in the county produce water from sand and gravel contained in alluvium and from sandstone, coal seams and clinker in the Tongue River Aquifer which lies beneath the Fort Union geologic formation, shown in Appendix A7. The waters contained in Fox Hills Sandstone and the lower part of the Hell Creek Formation are a single aquifer because of similar lithology and hydraulic connection. These aquifers underly the formations shown in light green in the southwest corner of the same map.

Wells in the Fox Hills-Lower Hell Creek aquifer may yield as much as forty gallons per minute. Wells in other bedrock aquifers commonly yield 8 to 15 gallons per minute.

Montana Bureau of Mines and Geology (MBMG) Ground Water Information Center shows the following statistics for wells in Wibaux County:

Source

- 57% Unspecified members of the Fort Union Formation
- 23% Tongue River Member of the Fort Union Formation
- 6% Fox Hills-Hell Creek Aquifer
- 5.5% Hell Creek Formation

Depth

- 39% less than 100 feet
- 70% less than 300 feet
- 2.5% greater than 1000 feet

Fifty-seven percent of all wells are for livestock water; 26% are for public water supply or domestic use. MBGB has five monitoring wells in Wibaux County to measure changes in water quality and quantity over time (MBMG, 2019). Information on the locations, number of measurements and changes in the static water levels of the wells may be accessed at

<http://mbmgwic.mtech.edu/sqlserver/v11/data/dataProject.asp?MTCounty=WIBAUX&project=GWAA MON&datatype=swl&> .

Drinking Water

Rural households typically have private wells for domestic use. The town of Wibaux has a public water system on two wells which serves 550 people on 238 connections (MT DEQ, 2019).

AIR AND ENERGY**Air quality**

Montana Department of Environmental Quality Air Quality Bureau maintains air quality monitoring stations in Malta, Broadus and Sidney, Montana. Ambient temperature, wind speed and direction and pollutants including NO, NO₂, NO_x, ozone and particulate matter are monitored. There are no areas of non-attainment in Wibaux County (MT DEQ, 2019).

Utilities

GoldenWest Electric Co-operative serves rural customers in areas of Dawson, Fallon and Wibaux Counties. The Co-op includes 658 members and operates 1,120 miles of power lines. The company came on line in June of 1948. Montana Dakota Utilities serves residents of the town of Wibaux.

PLANTS AND ANIMALS**Lamesteer National Wildlife Refuge**

The National Wildlife Refuge System was founded by President Theodore Roosevelt in 1903 to protect wildlife habitat. Medicine Lake National Wildlife Refuge Complex was established in 1935 to provide stopover and breeding habitat for migratory birds. Units of the Refuge are located across northeastern Montana, with one isolated unit, Lamesteer National Wildlife Refuge (NWR), far to the south near Wibaux. Lamesteer NWR includes a wetland of about 110 acres; its reservoir is the only permanent water for many miles, providing nesting habitat for waterfowl and water for migrating birds and other wildlife. The US Fish & Wildlife Service's plan for the Medicine Lake National Wildlife Refuge and Montana Wetland Management District includes a proposal to remove the refuge from the National Wildlife Refuge System and relinquish the easement to private landowners (USFWS , 2019).

The Refuge is located south of Highway 7 in Sections 14 and 15, T12N R60E. See Appendix A5.

Plant Species of Concern

Montana Natural Heritage Program Field Guide describes plant Species of Concern as, “Native taxa that are at-risk due to declining population trends, threats to their habitats, restricted distribution, and/or other factors”. The plants listed in Table 3 occur rarely in the county and exhibit traits of environmental specificity allowing them to survive only in very particular niches. State Ranking is categorized as follows:

S1: At high risk because of extremely limited and/or rapidly declining population numbers, range and/or habitat, making it *highly vulnerable* to global extinction or extirpation in the state.

S2: At risk because of very limited and/or potentially declining population numbers, range and/or habitat, making it *vulnerable* to global extinction or extirpation in the state.

S3: Potentially at risk because of limited and/or declining numbers, range and/or habitat, even though it may be abundant in some areas (MNHP, 2019).

Common Name	Scientific Name	Type	State Rank
Swamp Milkweed	<i>Asclepias incarnata</i>	Milkweeds	S1
Prairie Goldenrod	<i>Solidago ptarmicoides</i>	Aster/Sunflowers	S2S3

Animal Species of Concern

There are 30 animal species designated Species of Concern in Montana. These are listed in Appendix A9. Information about Montana Animal Species of Concern is available through the Montana Heritage Program at <http://mtnhp.org/animal/default.asp>

The United States Fish and Wildlife Service lists five species of native animals as endangered or threatened under the Endangered Species Act in Wibaux County (USFWS, 2019).

Pallid Sturgeon (*Scaphirhynchus albus*). Listed Endangered

Pallid sturgeon are bottom dwelling, slow growing fish that feed primarily on small fish and immature aquatic insects. Adults have a flattened snout, a long slender tail and are armored with lengthwise rows of bony plates instead of scales. Pallid sturgeon can grow up to six feet long and weigh up to 80 pounds. The species is adapted to living close to the bottom of large, silty rivers; their preferred habitat has a diversity of depths and velocities formed by braided channels, sand bars, sand flats and gravel bars.

The Pallid sturgeon is one of the rarest fishes in North America; only about 200 adults remain in the upper Missouri River. It was federally listed as endangered in 1990 due to population decline caused by human alterations of the environment: impoundments, channelization and altered river hydrography, turbidity and temperature. The pallid sturgeon is currently listed as “S1” in Montana due to extremely limited or rapidly declining population numbers, range or habitat, making it highly vulnerable to global extinction or extirpation in Montana (MNHP, 2019).

Any NRCS undertaking that impacts the Yellowstone River bank below the ordinary high-water mark will require a consultation with the Corp of Engineers as well as a consultation with USFWS (Ellenburg, 2019).

Whooping Crane (*Grus americana*) –Listed Endangered

Whooping cranes are the world’s rarest crane and the tallest birds in North America. Adult height is about five feet, wingspan can be up to seven and one-half feet. Average adult weight is about fifteen pounds. Once found throughout North America, the last wild flock of whooping cranes had been reduced to fewer than twenty birds by the 1940’s due to habitat loss and hunting. Intensive conservation efforts and international cooperation between Canada and the United States rescued the species from extinction, but they remain extremely rare.

Habitat loss remains one of the biggest threats facing wild whooping cranes. Collisions with wind turbines and power lines are an ongoing threat (Audubon, 2019). Whooping crane utilize migratory habitat in eastern Montana. They are not known to breed in the state (MNHP, 2019).

Northern Long-Eared Bat (*Myotis septentrionalis*)—Listed threatened

In Montana this species is known to occupy specific habitat within a limited range along the Missouri and Yellowstone river drainages near the North Dakota border, as shown in Figure 8 from the MNHP Northern Myotis Field Guide. These small, light brown bats are most often found hibernating in abandoned mines in the river breaks in Richland County. In the summer they roost in riparian forested areas dominated by cottonwood trees. They emerge to feed at dusk using echolocation to hunt moths, flies, leaf hoppers and beetles.

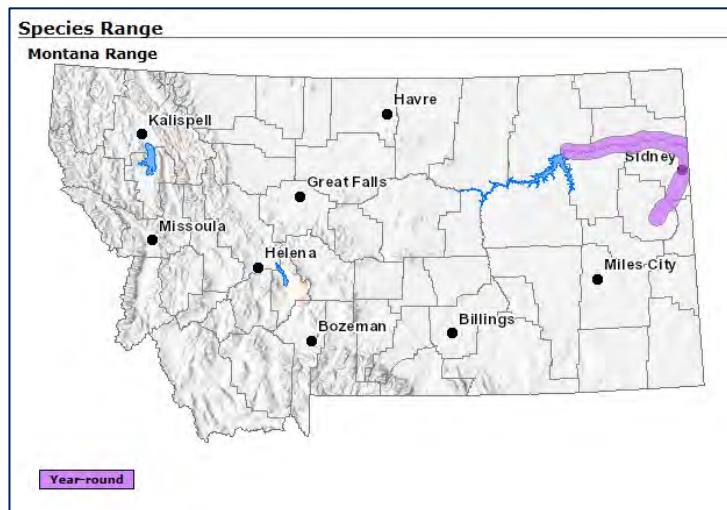


Figure 8 Limited range of the northern long-eared bat

Long-Eared Bat populations in other areas of the country have suffered tremendous losses due to white nose syndrome. Regional extinction has occurred in some locations. White-nose syndrome is caused by a fungus, (*Pseudogymnoascus destructans*). It attacks the bare skin of bats while they’re hibernating. As it grows it causes changes in bats’ behavior, causing them to become active during hibernation, using up the stored fat that they need to survive the winter. White-nose syndrome continues to spread rapidly across the United States and Canada, mostly through bat-to-bat contact.

According to the White-Nose Syndrome Response Team, there were no reported occurrences of the disease in long-eared bats in Montana as of August 2019 (WNS Response Team, 2019).

Other causes of population decline are due to extensive logging or tree thinning, human disturbance during hibernation and mortality from collisions with wind turbines. The species was officially listed as Threatened on April 2, 2015, under the Endangered Species Act (MNHP, 2019).

Least Tern (*Sternula antillarum*)—Listed Endangered

Least tern is North America's smallest tern. These little shorebirds are easily recognized by their yellow bills and legs. Although the species is widespread and common in places, the interior population has been classified as threatened, endangered or as a species of concern for most states because of loss of habitat. The interior population declined by about 88% between 1966 and 2015; interior least tern has been federally listed as endangered since 1985.

Least tern often nest in colonies; nesting sites are shallow scrapes on open ground near lake shores, on sandbars or along the riverside. Unfortunately, prime nesting habitat is often used by humans for recreation or residential development. Additionally, alterations to stream flows caused by dams, reservoirs, water diversion and other changes to river systems have eliminated most historic least tern nesting habitat. Wide channels dotted with sandbars, which are preferred by least terns, have been replaced by narrow, armor-banked rivers with highly altered flows. Fluctuating water levels from reservoir releases often destroy nesting sites (MT FWP, 2019).

Although "the interior population of the least tern is listed as endangered everywhere it occurs", (Ziegler, 2019) the National Audubon Society's map of Interior least tern habitat shows that least tern migration and breeding are uncommon in the central eastern Montana (Audubon, 2019).

Piping Plover (*Charadrius melodus*)—Listed Threatened, Designated Critical Habitat

Piping plover populations are also in decline due to habitat loss caused by alterations to river systems. These small shorebirds are distinguished by a single black band around their necks and very short yellow-to-orange bills with black tips. Piping plovers nest on shorelines and islands of alkali lakes in North Dakota and Montana and on sandbar islands and reservoir shorelines along the Missouri Rivers. Dam construction, water diversion and water withdrawals change river flow and drastically reduce the amount of available nesting habitat. Human activity has increased predation which decreases nest success and chick survival (MT NHP, 2019). NRCS Montana State Wildlife Biologist Pilar Ziegler writes, "The USFWS has designated critical habitat for piping plover, but none occurs in Wibaux County. Critical habitat is alkali lakes in Sheridan County, riverine and reservoir shorelines in Garfield, McCone, Phillips, Richland, Roosevelt and Valley Counties." (Ziegler, 2019).

Grassland Birds

Four species of grassland birds are Montana species of concern in Wibaux County: Baird's Sparrow (*Centronyx bairdii*), Chestnut-Collared Longspur (*Calcarius ornatus*), Sprague's Pipit (*Anthus spragueii*), and Brewer's Sparrow (*Spizella breweri*). (MNHP, 2019). Vickery, et al. (2000) explain the recent decline of grassland nesting bird, probable causes of their decline and in *Grassland Birds: An Overview of Threats and Recommended Management Strategies*. "During the past quarter century, grassland birds have experienced steeper, more consistent, and more widespread population declines than any other avian guild in North America. While some grassland species are Neotropical migrants, most are short-distance migrants that winter primarily in the southern U.S. and northern Mexico. The winter ecology of most grassland birds is poorly known; winter survivorship could be a critically important factor in the long-term declines that some species have experienced.

Shortgrass prairies evolved under intense grazing by prairie dogs and bison. Consequently the shortgrass prairie bird fauna evolved to select a variety of different site characteristics, created within

landscapes receiving grazing pressure ranging from light to severe. Unfortunately, current range management practices strive to graze rangelands uniformly. These practices remove or inhibit heterogeneous grazing impacts across landscapes, and do not favor the specific habitat requirements of many species. For example, Mountain Plovers require heavily grazed sites for breeding, but Lark Buntings prefer denser vegetation. Thus, moderate grazing everywhere is unlikely to result in suitable habitat for either species. In many locales, insufficient grazing has led to the invasion of grasslands by shrubs and forbs. Rather than opposing grazing as a management tool in all grasslands, conservation groups should encourage grazing that imitates natural conditions as closely as possible.” (Vickery, 2000).

Baird’s Sparrow



Prefers to nest in native prairie; requires a relatively complex plant structure including areas of light to no grazing. Feeds on seeds, insects and spiders.

Migrates from winter habitat in Mexico to the grasslands of the northern plains in Montana, North Dakota and Canada.

Loss of native prairie habitat due to agricultural conversion and loss of winter habitat due to overgrazing are thought to be causes of population decline (MNHP, 2019).

Chestnut-Collared Longspur

Prefers open, sparse vegetation in native pastures with short-to-medium grasses that have been recently disturbed (grazed, mowed or burned).

Summer diet includes insects, especially grasshoppers, caterpillars spiders and seeds. In the winter it eats seeds from grain, sunflowers and grasses.

Winter habitat is the grasslands of the southwestern United States and north-central Mexico. Breeding grounds are grasslands in Montana and North Dakota and southern Canada.



Conversion of native prairie to agriculture and urban development has eliminated the Chestnut-collared Longspur from much of its historical breeding range (MNHP, 2019).

Sprague's Pipit



Does not nest in cropland and are uncommon or absent in non-native grasslands. They tolerate some grazing of this habitat but do not nest where it is overgrazed. Prefer scattered shrubs and relatively little bare ground.

Summer diet is mostly insects and other arthropods, with some seeds. Little is known about the winter ecology and diet of Sprague's Pipit.

Breeds in the north-central United States in Minnesota, Montana, North Dakota and South Dakota as well as south-central Canada. Wintering occurs in the southern US.

Conversion from prairie to cropland and pasture along with excessive grazing are identified as the cause of this species' decline (MNHP, 2019).

Brewer's Sparrow

Prefers shrub-steppe habitat dominated by sagebrush.

Builds nests six to eight inches above the ground in big sagebrush.

The primary threat to Brewer's Sparrow breeding populations is fragmentation and loss of sagebrush shrubland and shrub-steppe habitats (MNHP, 2019).



Greater Sage-grouse

Montana, along with several other western states, has been the focus of multiple recent petitions to list the Greater sage-grouse (*Centrocercus urophasianus*) under the federal Endangered Species Act. The primary concerns for sage-grouse are loss and fragmentation of their habitat. In Montana habitat loss due to conversion of the sagebrush steppe to cropland and energy development is thought to be the biggest threats to Greater sage-grouse.

On September 22, 2015, the U.S. Fish and Wildlife Service determined that the greater sage-grouse did not warrant listing protections under the Endangered Species Act. It was decided that the primary threats to populations had been ameliorated by conservation efforts implemented by Federal, State, and private land owners (USFWS, 2015). In Montana, the greater-sage grouse is a species of concern. The Montana Natural Heritage Species of Concern Report lists the sage-grouse as category S2: *At risk*

because of very limited and/or potentially declining population numbers, range and/or habitat, making it vulnerable to global extinction or extirpation in the state (MNHP, 2019).

Core areas delineate essential habitat that would not be able to absorb significant levels of disturbance without substantial impact to the species of concern. Sage-grouse core areas provide habitat for 75% of all known breeding sage-grouse in Montana and represent landscapes of greatest biological importance to the long-term persistence of the species (USDA NRCS, 2019). Although much of Wibaux County has been determined to be general habitat for greater sage-grouse, no areas are said to be part of the species’ core area. Greater sage-grouse habitat in Wibaux County and surrounding areas is illustrated in Appendix A10.

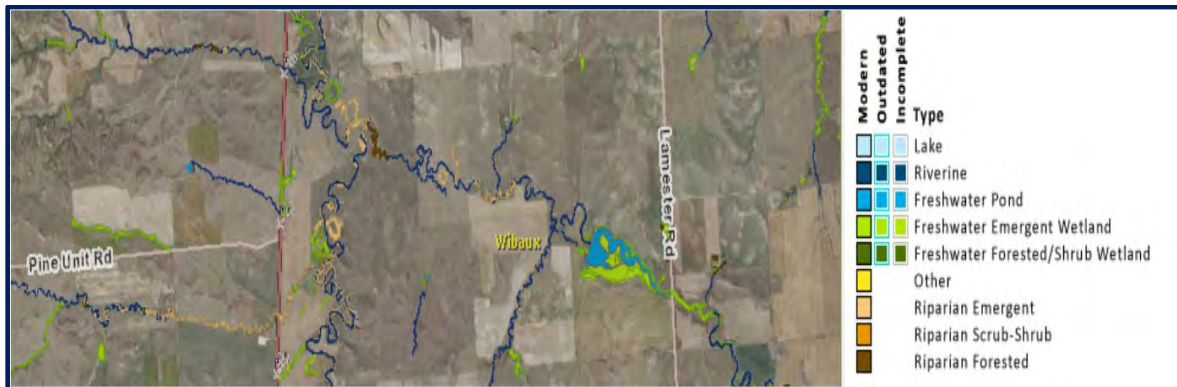


Figure 9 Wetlands and Riparian Areas on Beaver Creek

Wetlands/Riparian Areas

Figure 14 is an image from the Montana Natural Heritage Map Viewer, Wetland and Riparian mapping feature. Lamesteer National Wildlife Refuge is located on the right side of the map, Beaver Creek runs south to north on the left. The area shown represents typical distribution and composition of wetlands and riparian areas in the county. Beaver Creek is the only perennial stream in Wibaux County, supporting emergent wetlands and riparian areas as well as isolated forested riparian zones. These are described in the paragraph regarding the Great Plains Riparian landcover type in Landcover Types.

Emergent wetlands are common throughout the county as small areas in creeks and coulees. Freshwater ponds are nearly exclusively livestock water reservoirs. Some ephemeral streams support riparian forested zones in patchy patterns along the drainages.

MNHP provides an interactive map of wetlands and riparian areas in Montana. It can be accessed at <http://mtnhp.org/nwi/> (MT NHP , 2019) .

SECTION III: CONSERVATION ACTIVITY ANALYSIS

The Wibaux NRCS Field Office has implemented the following practices to benefit the soils, water, air, plants, animals, and the human resources of Wibaux County through conservation programs including the Environmental Quality Incentive Program (EQIP) and the Conservation Stewardship Program (CSP). The Wibaux Conservation District is supportive in conservation, education, workshops and tours. They

have provided technical assistance with biological control agents and shelterbelt design and planning. They help in identifying the natural resource concerns within the county.

Air Quality Impacts

Emissions of Greenhouse Gases, emission of particulate matter, emission of ozone precursors. The use of drift reduction techniques in cropland systems on 1,900 acres has benefited air quality; 2.8 acres of tree planting will reduce air temperature and air movement.

Animals, Inadequate Habitat for Fish and Wildlife.

Cooperators have chosen to rest approximately 775 acres of tame and native pastures through the nesting and fawning season. As part of CSP agreements, producers harvest hay and grain in a wildlife friendly manner on about 2,050 acres. NRCS has assisted in installing 5.4 miles of wildlife friendly fence. Wildlife escape ramps have been installed in twenty-one livestock water tanks. Tree planting has been applied to 2.8 acres with consideration given to wildlife for food, cover and shelter. We have worked to decommission water wells to protect wildlife.

Livestock Production Limitation

Inadequate Feed and forage, inadequate livestock water, inadequate livestock shelter.

The Wibaux Field Office has helped cooperators seed marginal cropland back to grass and add cover crops into rotations on 1,420 acres. This helps producers balance their feed and forage. Grass is planted where the livestock producers see a need for additional forage in their grazing system. This practice also gives producers opportunities to incorporate livestock back into their operations which will ultimately benefit cropland.

The Field Office has assisted with four new wells, 14.4 miles of stock water pipeline and thirty-five watering facilities to improve the availability of water for livestock and wildlife. The pipeline systems helped to improve livestock distribution and provide water in areas away from creeks and streams. This protects shorelines from loss of littoral and streamside vegetation, thus benefitting water quality and wildlife habitat. NRCS has assisted with installation of over three miles of fence to improve management of livestock on 2,000 acres. Three ranchers utilize the NUTBAL program which provides information on the nutritional quality of forage consumed by livestock. This helps the producers to maintain the highest possible plane of nutrition using the most feasible options for mineral supplementation and pasture rotation.

Plants

Degraded Plant Condition, undesirable productivity, health and vigor, excessive pest pressure, and inadequate plant structure and composition.

Water developments, fencing, prescribed grazing and monitoring key grazing areas, grass seedings, cover crops, noxious weed control, and forage harvest management are all tools that have helped landowners in Wibaux County address some of these plant resource concerns.

The Wibaux County Field Office has assisted in implementing herbaceous weed control on 8.2 acres of pasture and rangeland. Cooperators are actively scouting 15,800 more acres. We also work with landowners in cropland scenarios to utilize cover crops, no-till and diversity of rotation to reduce invasive and nuisance weeds on cropland.

The Wibaux Conservation District has helped with ordering biological control agents for control of leafy spurge and Canada thistle. The interest and success of biological control continues to grow.

Soil

Soil erosion, sheet rill and wind erosion, concentrated flow, gullies, excessive streambank erosion.

Soil Quality Degradation, Compaction; organic matter depletion.

NRCS in Wibaux has helped producers move toward addressing these resource concerns by switching to no-till on 200 acres, planting cover crops in place of chemical fallow or tillage, seeding marginal land back to grass, diversifying crop rotations and planting cocktail cover crop mixes on 1,420 acres. The Field Office also has seen an increase in soil organic matter and improved nutrient cycling. We are building soil and adding volume to our water storage bucket.

Installation of off-site watering facilities and fencing provide better distribution of livestock water and reduce trailing to water.

Water

Water Quality Degradation from excess nutrients in surface and ground waters, pesticides transported to surface and ground waters and excessive sediments surface water.

Insufficient Water from inefficient moisture management.

Excess Water caused by ponding, excess runoff and drifted snow.

The Wibaux NRCS has decommissioned three wells in the last four years. These old wells were often just an open pipe in the middle of the rangeland, pastureland or near an old farmstead. We are working to protect our precious groundwater resource from sediment, nutrients, pathogens, and dead animals.

Fencing, water developments and livestock management are helping to reduce the above resource concerns. Livestock operators are rotating their winter-feeding areas to reduce concentration of nutrients near streams, woody draws and intermittent drainages. Installing additional watering facilities, fencing, shelterbelts or portable windbreaks has also been beneficial in addressing the resource concerns.

Nutrient Management is implement with slow release fertilizers and improved spraying technologies.

There are reductions in runoff from cropland, rangeland and pastureland because of the improved conservation practices installed and more intensive management. Some of the cooperators are seeing improved infiltration and an increase in the soils' ability to capture and store water, resulting in increased production.

SECTION IV: NATURAL RESOURCE PROBLEMS & DESIRED OUTCOMES

Noxious and Nuisance Weeds

The Resource Concerns:

The primary noxious weeds in Wibaux County are Canada thistle, leafy spurge, hounds tongue and knapweed.

The Montana Department of Natural Resources and Conservation's Biennial Report, Fiscal Years 2016 through 2017 stated an increase in noxious weeds on DNRC lands of eleven to 14% over the 2014

through 2015 report. Noxious weeds occur along highways and within the Burlington Northern Santa Fe Rail Road right-of-way. There are noxious weeds present on many BLM allotments as well.

Detrimental effects of these invasive species are various and far-reaching:

- Noxious weeds and other invasive species are detrimental to the environment as they decrease the diversity of plant communities and displace native plant species.
- Plant community health and vigor and production are impacted by the excess pressure, especially in sensitive areas such as woody draws.
- Weeds can have negative effects on wildlife habitat, surface water and wetlands.
- Livestock producers are affected financially by loss of available forage as well as by receiving lower prices for cattle that go through the sales barn carrying burdock, hounds tongue or other seed in their coats.
- Weeds can reduce the productivity of crop and hayland and decrease the value of crops and hay. Finally, the presence of weeds reduces real estate values.

Resource Trends

The number and size of noxious weed infestations continue to increase throughout the county. Installation of natural gas pipelines creates areas of disturbance, prime territory for the introduction of noxious weeds. Big game numbers are increasing; incidents of noxious weed seed transfer increase as more animals move the seed across the landscape.

Landowners often do not have the time, equipment or financial resources to dedicate to noxious weed control. In some cases, poor management causes the spread of existing infestations or establishment of new ones. Often underestimating the challenges of noxious weed control contributes to the problem as well.

Need for Product and Services Analysis

The first requisite is to gather data from BLM, Montana DNRC, Wibaux County Weed District, NRCS, Wibaux Conservation District and landowners for an initial inventory of the size and locations of noxious weed infestations. Following this, Field Office staff and partners would send out weed surveys, determine the current level of management in affected areas and begin conservation planning. Potential partnerships will include the Wibaux County Weed District, Wibaux Conservation District, the Bureau of Land Management, Montana DNRC, Montana Weed Control Association, and the Montana Department of Agriculture. Partners may assist with outreach, inventory, planning or funding.

Desired Outcome

The desired outcome is to reduce noxious and nuisance weeds by 50% in geographically defined project areas. Our goal is to have healthy soils and healthy plants as parts of a healthy ecosystem. The objective is to have the nutrients, plants, water, and natural processes operating as a robust system that can handle the disturbance, unpredictable natural events and the highly variable climate of eastern Montana.

We will educate land managers about natural resource cycles, the importance of integrated pest management (IPM) including the use of biological control strategies, and PAMS (Prevention, Avoidance, Monitoring, Suppression) strategies. Our priority will be to increase knowledge of land management to mitigate the spread of noxious weeds and to prevent new infestations.

Our plan includes hosting events such as weed tours for land owners and the public, weed pull days with youth organizations, biocontrol insect collection days, spray days, plant identification workshops and others. We will cooperate with other agencies, entities and partners. Ultimately, we intend to improve plant health and vigor, maintain stronger, healthier plant communities and implement improved land management on all land uses.

Grassland Health

The Resource Concerns

It is estimated that 50% of Wibaux County experiences, to varying degrees, the concern of declining grassland health. Management practices that allow overstocking, overgrazing, patch grazing and season-long grazing or that do not change season of use contribute to the problem.

Resource concerns for rangeland health are:

- Undesirable plant productivity, health and vigor
- Inadequate plant community structure and composition
- Inadequate feed and forage for livestock
- Inadequate livestock water
- Excessive plant pest pressure
- Fish and wildlife habitat degradation
- Increased runoff and soil erosion
- Degradation of riparian areas and woody draws
- Reduced animal health

Resource Trends

There has been some increased commitment to conservation among ranching operations in Wibaux County. Structural practices have been the most common, with some producers taking on management practices as well. There may be many reasons for producers not fully adopting natural resource conservation as much as they could. These include the effects of drought, the livestock market, difficulty in securing funding, the cost of implementing the improvements, a lack of man-power and time, and aversion to change.

Need for Product and Services Analysis

Wibaux NRCS has written newspaper articles about grassland management and opportunities to take that management to a higher level. We then sent postcards to 86 cooperators in Wibaux County for a Tame Pasture Workshop in late October of 2019. The workshop was held with 18 in attendance and approximately five more who called wanting to get more information. We are currently continuing to work with those producers and getting pastureland conservation planning started.

Information is required to determine where the greatest need and the most interest in grassland conservation is among the livestock producers in the county. The Field Office would then define a geographic area containing land belonging to producers who are ready to move forward. Outreach would include mailing information and questionnaires, then hosting public meetings to discuss the resource concerns and strategies to address them under the Long-Range Plan. Partners could include Farm Service Agency staff and County Committee, Bureau of Land Management personnel, Wibaux Conservation District, non-government organizations (NGOs) and others.

Desired Outcomes

The desired outcome is to show improvement on 40% to 60% of the grassland acres involved in the project. Improvement may be measured as upward trends in rangeland health indicators and plant species diversity, balanced feed and forage, reduced runoff, and reduction in excessive plant pressure. As a result, the rangelands will be healthier and more resilient. Livestock producers will learn to operate in ways that reduce physical and financial stress, be more receptive to innovation and will have a more positive outlook. We will realize improved plant health and vigor and plant community structure and composition. Soil erosion will decrease, nutrient cycling will improve as will soil water infiltration, water quality, and perhaps most importantly, the quality of life for the ranchers and their families. This will create more opportunities to diversify income from agriculture.

Our goal is to have healthy soils and healthy plants as parts of a healthy ecosystem. The target is to have the nutrients, plants, water, and natural processes operating as a robust system that can handle the disturbance, unpredictable natural events and the highly variable climate of eastern Montana. We will provide education pertaining to natural resource processes and functions. Healthy rangeland is really all about management.

Little Bluestem Management

The Resource Concerns

Northern Wibaux County is the area most affected by little bluestem advance. The problem occurs on public and private rangeland in Richland, Dawson, Prairie and other Counties in eastern Montana. Cattle tend to avoid grazing little bluestem which puts more pressure on the other native species in the grazing area. If no changes are implemented, little bluestem will continue to increase, leading to more patch grazing, overgrazing and increased wildfire fuel loads. NRCS, Wibaux Conservation District, and the Richland County Conservation District have worked to address the issue in the past through a GLCI grant. The Bureau of Land Management and Montana DNRC continue to work to find solutions as well.

Resource Trends

Little bluestem is a decreaser grass species but in Wibaux County and surrounding areas it is increasing in abundance. This indicates that the species is not being grazed as intensely as other species, which leads to a decline in plant community diversity. Some of the contributing factors could be restricted season of use and uneven livestock distribution. The results are decreased rangeland productivity and diversity and increased dry fuel loads from prior years' decadent little bluestem.

Need for Product and Services Analysis

To begin, we would determine the location and size of affected areas and the number of interested producers to establish an appropriate project area. Wibaux Conservation District, Cathy Maynard, Geo-Spatial Analyst, and other NRCS personnel will assist with necessary inventory, assessment and mapping.

Desired Outcomes

There will be less little bluestem and it will be healthier. A 50% reduction will increase plant diversity and improved utilization.

Dam Rehabilitation

The Resource Concerns

Reservoirs throughout the county have become impaired due to the accumulation of silt and sediment. This leads to the resource issues of:

- Reduced water-storage capacity
- Increased potential of structural damage from soil erosion, headcutting and eventually breaching
- Reduced water quality for livestock and wildlife
- Potential danger to the health and safety of livestock
- Negative impact on rangeland plant resources due to land managers' limited ability to rotate cattle through grazing units

Some factors that may contribute to excess silt and sediment deposition in reservoirs may include lack of runoff from low snowpack years, deferred maintenance and the grazing systems in play upstream. Some of the siltation and deposition is the result of natural processes influenced by the geology and soils in the watershed.

In some areas of Wibaux County, ground water is far below the surface and difficult to access. Some wells are over 1,000 feet deep, drawing from beneath the Bear Paw Shale formation. Maintaining existing reservoirs at high functional capacity will benefit the rangeland plant and animal communities and will help the land managers financially as well.

If no action is taken, we will see continued decline in both quantity and quality of water resources for wildlife and livestock. Rangeland management strategies will become increasingly limited, invasive species and soil erosion will increase.

Resource Trends

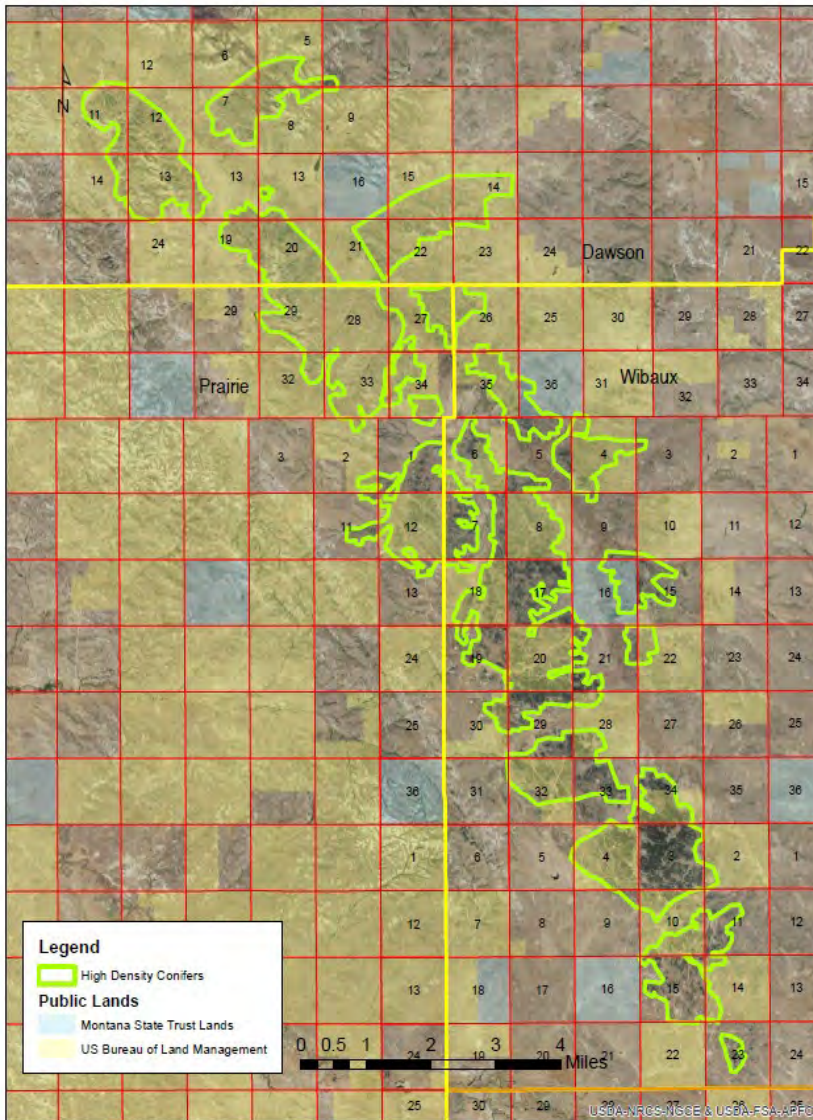
Limited available livestock water restricts the ability of landowners to change grazing season of use.

Need for Product and Services Analysis

Determining the potential for participation is the first step. A count of the landowners who would be interested in addressing the resource concerns through a Targeted Implementation Plan is needed. An inventory of the number, size and location of reservoirs and extensive information on the soils and geology of potential project areas would follow. The Field Office will request assistance from landowners, NRCS engineers, technicians and planners, and Bureau of Land Management and DNRC personnel. State and Area GIS specialists can assist by providing GIS data, imagery and maps. Non-government organizations could assist with outreach and possibly funding.

Desired Outcomes

The goal is to increase the capacity of and water quality in existing reservoirs. The target is to have the nutrients, plants, water, and natural processes operating as a resilient system that can persevere through disturbance, unpredictable natural events and the highly variable climate of eastern Montana. We will make information available to land managers on natural resource processes and functions. We want to assist as many cooperators as possible, given the feasibility of individual projects. We expect a great deal of interest in the focus areas. Cooperative involvement may include field days, workshops and collaborative management plans.



Conifer Encroachment

The Resource Concerns

Disruption of the natural fire regime is thought to be the greatest contributing factor to the unchecked advancement of Rocky Mountain juniper. Prior to settlement, grassland produced more biomass which resulted in greater quantities of fine fuel. Grazing reduced the fuel load and thereby the intensity of fires. Additionally, areas of heaviest density are in the North and South Pine Unit Oil Fields. Since the 1950s wildfires have been aggressively suppressed to prevent damage to oil field infrastructure.

Encroachment of Rocky Mountain juniper on rangelands reduces plant species diversity, forage availability and grazing area. Junipers remove far more soil water than grasses and forbs, and compete for space, sunlight and nutrients. Sage grouse habitat is degraded by juniper encroachment.

Figure 10 Conifer Encroachment Areas in the Cedar Creek Drainage.

The potential project areas are in the Southwest corner of Wibaux County and adjacent sections of Prairie and Dawson Counties. Ranchers along with the Bureau of Land Management and Montana DNRC are the primary stakeholders.

Resource Trends

These trees will continue to spread, decreasing forage production on grazing land, disrupting the hydrologic cycle and degrading wildlife habitat.

Need for Product and Services Analysis

Reduction of conifers will improve sage-grouse general habitat, rangeland productivity and grazing availability. Data must be gathered to determine the number of acres affected by conifer encroachment, areas suitable for treatment and their soils and ecological systems. NRCS staff can gather the information needed using GIS technology, density data and site characteristics. Sources of

information may include satellite imagery, historical maps, local knowledge, and on-site evaluation. The Bureau of Land Management Miles City Field Office has a great deal of information on the controlled burns conducted in Prairie and Wibaux Counties on Reno Creek Ranch in the late 1990s.

Desired Outcomes

The goal is to have fewer conifers on 30% to 50 % of the ranches in the TIP area. Grass production will increase; watershed function and wildlife habitat will improve. Landowners will increase knowledge and skill in managing for the resource concerns.

Soil Health, Cropland

The Resource Concerns

Central Wibaux County is the focus of the resource conservation issues associated with cropland soil health. Resource concerns are:

- Sheet and rill erosion
- Increased runoff
- Wind erosion
- Diminished crop and hay production
- Excess plant pressure from noxious weeds and others
- Low soil organic matter content
- Inadequate moisture management

Wibaux County and possibly some of Golden Valley County, North Dakota are affected.

Resource Trends

The Target Area for this resource concern is the cropland in:

- Township 14N Range 59E
- Township 14N Range 60E
- Township 15N Range 59E
- Township 15N Range 60E

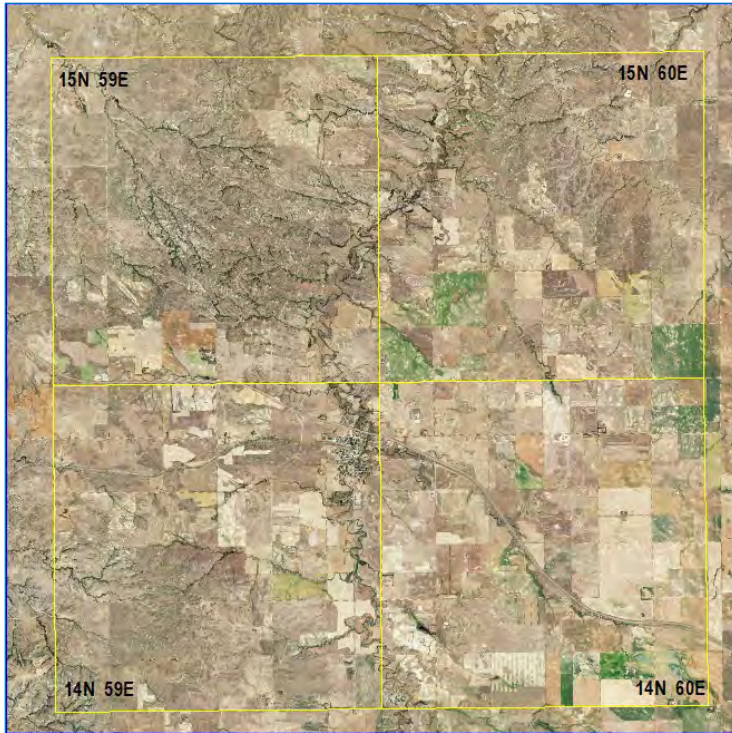


Figure 11 Target Area for Cropland Resource Concerns

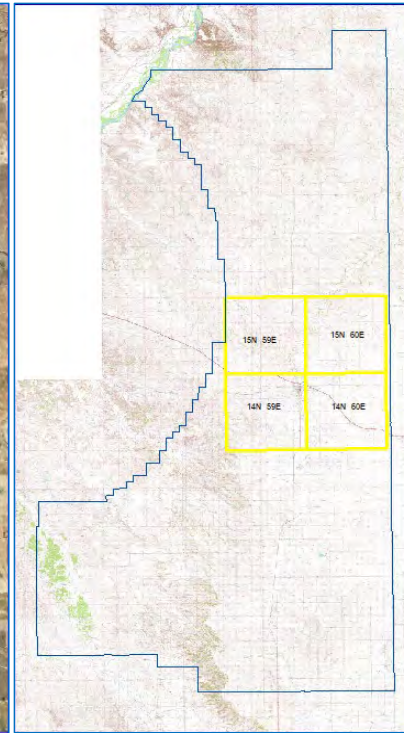


Figure 12 Target Area in Context of Wibaux County

In this area of Wibaux County there has been minimal change in farming practices. There may be many reasons for producers not adopting natural resource conservation as much as they could. There is a lack of knowledge about the resource, the importance of healthy soil and available strategies to improve soil health. Producers may not have the capital to initiate changes to their management systems, and some are reluctant to move away from traditional practices.

According to Farm Service Agency data, nearly half of this land is cropland, which in FSA’s lexicon includes all land that has been farmed. Some of the cropland may have been converted to perennial vegetation through CRP or natural processes. FSA records show that there are 141 farms in the four townships, shown in Figure 16. Individual producers may operate more than one farm.

Need for Product and Services Analysis

Information is needed to determine the number of interested producers in the four townships and the location and acres of potential project areas. Outreach to the producers could include mailing information and questionnaires, contacting the individual land owners to discuss the issue, and possibly hosting a meeting to talk about the resource concerns and strategies to address them under a Targeted Implementation Plan.

Participants would include farmers, Wibaux Conservation District, MSU Extension, Wibaux County Weed District, upland game bird associations, NRCS, Agronomists, the local Coop Elevators and others.

Desired Outcomes

Our goal is to have 30% to 60 % landowner involvement in the target area. The desired outcomes are to have sustainably healthy soils with adequate levels of organic matter, to reduce weed and pest pressure in crops, to mitigate soil loss and to increase cropland soil water holding capacity. We will increase acres set aside for pollinator and wildlife habitat and improve the resiliency of cropland to changing weather conditions. An additional benefit could be the potential reduction of the costs of crop production.

Degradation of the Lamesteer National Wildlife Refuge

The Resource Concerns

The Lamesteer Wildlife Refuge is located approximately twenty miles southeast of Wibaux. The land uses in the watershed are primarily cropland and hayland, with some pasture and rangeland. Ownership is mostly private and Montana DNRC. Impacts are continued nutrient loading and sediment in the wetlands primarily from farming and to a lesser extent, grazing in the watershed.

Resource Trends

Resource trends include reduced water quality, declining quality of fish and wildlife habitat, and reduced recreation in the area. Historical farming practices are largely responsible for the sediment deposition into the reservoir well as nutrient and pesticide loading.

Need for Product and Services Analysis

It will be necessary to determine all the current owners and operators, and current and historical farming practices. We can gather information from local producers, the Pierre Wibaux Museum, USFWS, Montana FWP and Wibaux Conservation District. Historical photos and satellite imagery would be helpful in the inventory. Interested cooperators could include producers, members of the community, recreationists, and the public. Federal agencies and other entities would be NRCS, USFWS, Montana FWP, the American Bird Conservancy and Pheasants Forever.

Desired Outcomes

Desired outcomes include increased recreational opportunities, birding, fishing, hunting and tourism, which will benefit the community in many ways. We would see an improvement in the quality of wildlife habitat and diversity of wildlife species. It is likely that the number and diversity of pollinators would increase also. We will have more advanced dryland farming practices with reduced inputs.

Saline Seeps

The Resource Concerns

Saline seeps occur randomly across the landscape. They are more common where recharge areas are part of a fallow rotation. Saline seeps are common on operations with little crop diversity, those that primarily produce low water-use crops, and where the recharge areas are above an impermeable layer in the soil. We do have some in no-till operations, but these are few. Resource concerns are inefficient use of water, low plant diversity and poor soil health. If nothing is done the seep will continue to grow. In some areas salts will accumulate to the point where the soil will no longer even grow weeds.

Resource Trends

There are fewer saline seeps than in years past due to diversification of cropping systems and the advancement of no-till. In 2003 we did multiple saline seep projects in conjunction with assistance from

the Montana Salinity Control Association. The current saline seeps will continue if management does not change.

Need for Product and Services Analysis

Education is needed for the farmers to understand the causes of and damage caused by saline seeps. Too many times they try to till the area to dry it out or get rid of the salt, only to compound the problem. There are around ten producers affected by saline seeps. NRCS can send questionnaires and compile cropping data and information about the soils in recharge and discharge areas. We would request assistance from Montana Salinity Control Association to install monitoring wells and to help determine where the water is coming from although we already have a pretty good idea.

Desired Outcomes

We hope to achieve healthier cropland that is productive, with diverse cropping systems to utilize the water in the soil profile before it travels through the profile to the impermeable layer. Salt affected areas will be reclaimed with grasses that can tolerate the saline conditions. We will offer opportunities for land managers to learn more about how to minimize, manage or eliminate saline seeps.

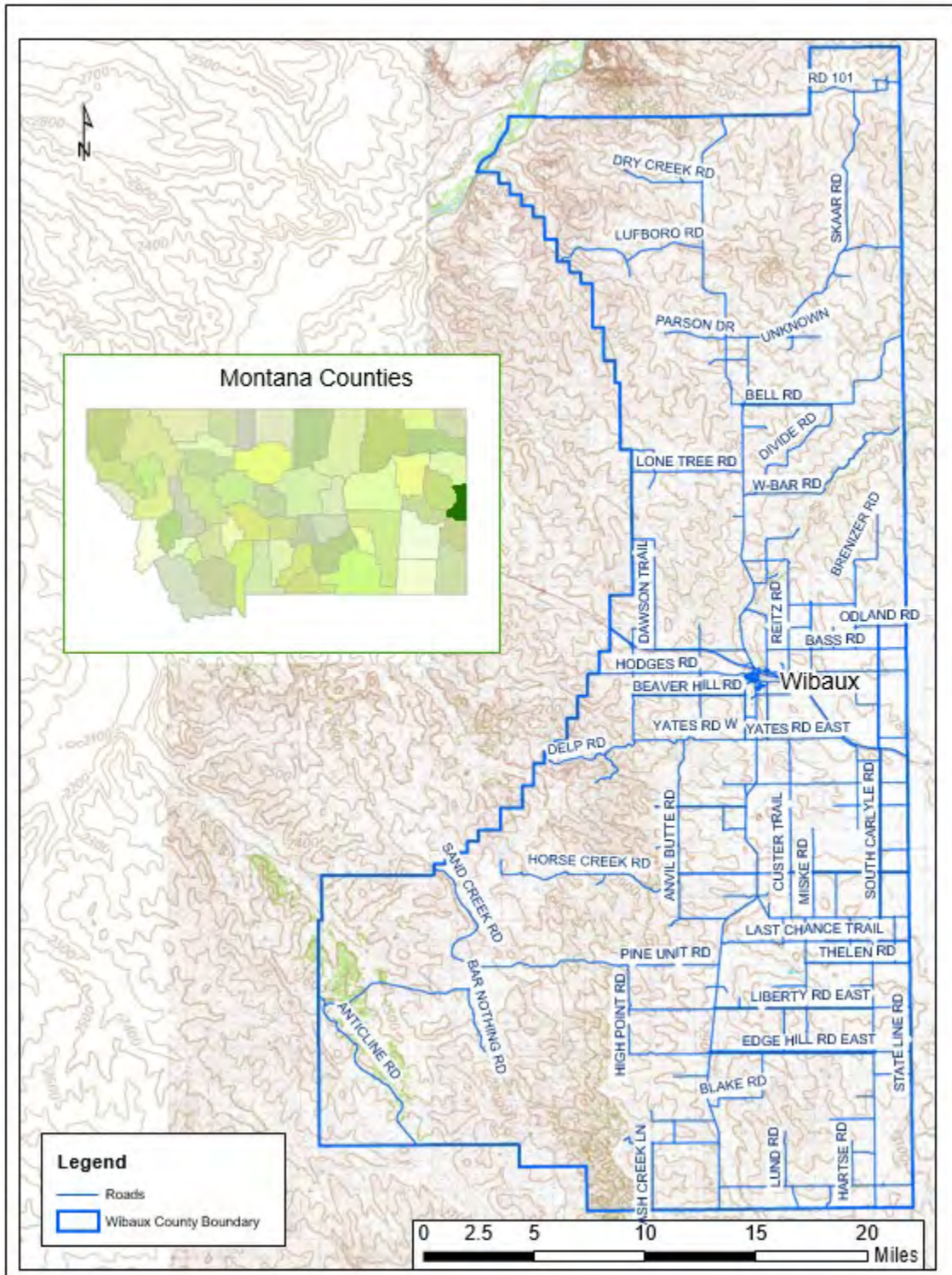
SECTION V PRIORITIZATION OF NATURAL RESOURCE ISSUES AND DESIRED OUTCOMES

The Local Work Group has met several times to discuss resource concerns in Wibaux County. See the meeting minutes in Appendix B. Our eight natural resource issues are prioritized as follows:

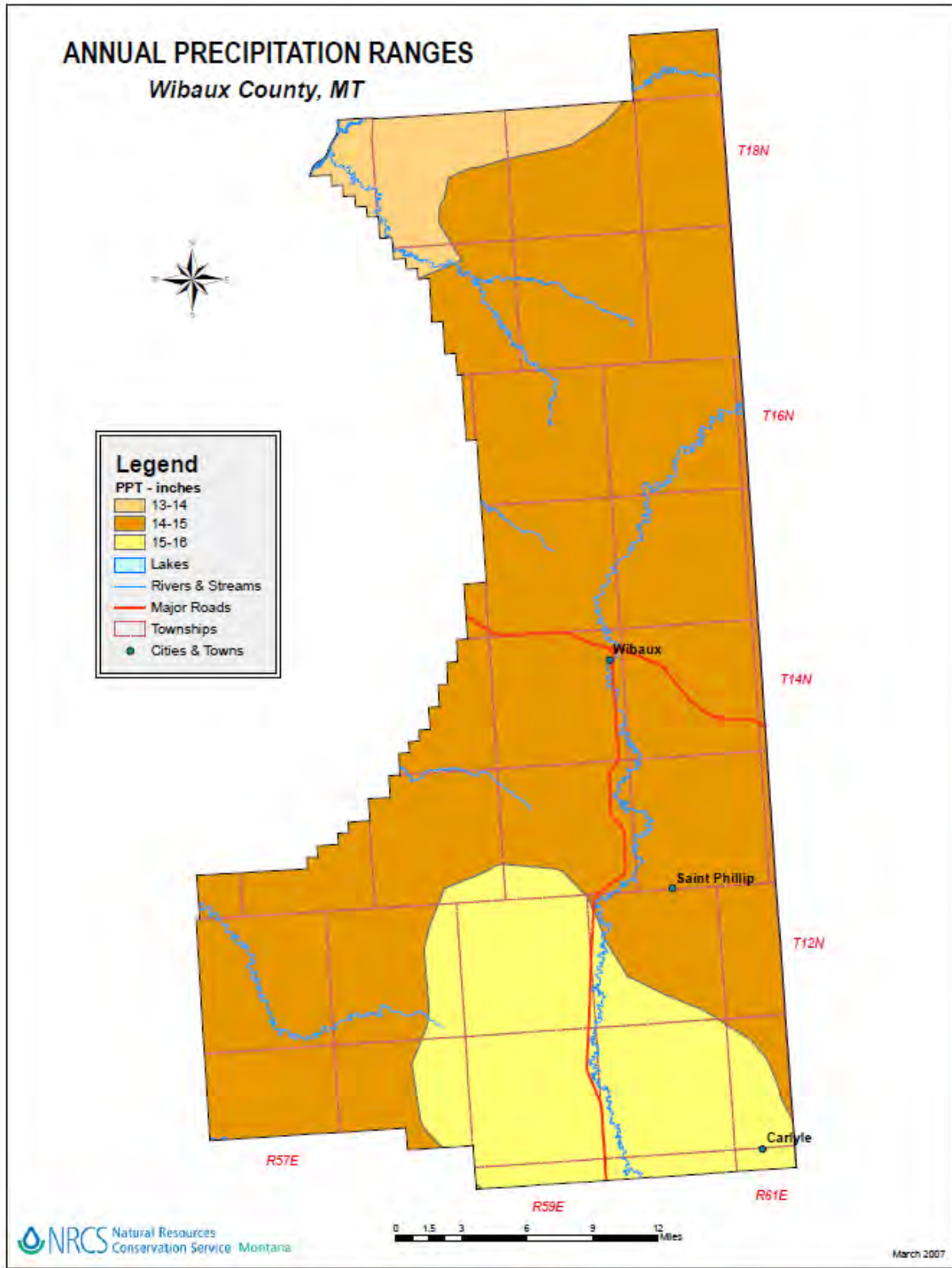
1. Noxious and Nuisance Weeds
2. Grassland Health
3. Little Bluestem Management
4. Dam Rehabilitation
5. Conifer Encroachment
6. Cropland Soil Health
7. Lamesteer National Wildlife Refuge
8. Saline Seeps

APPENDIX A

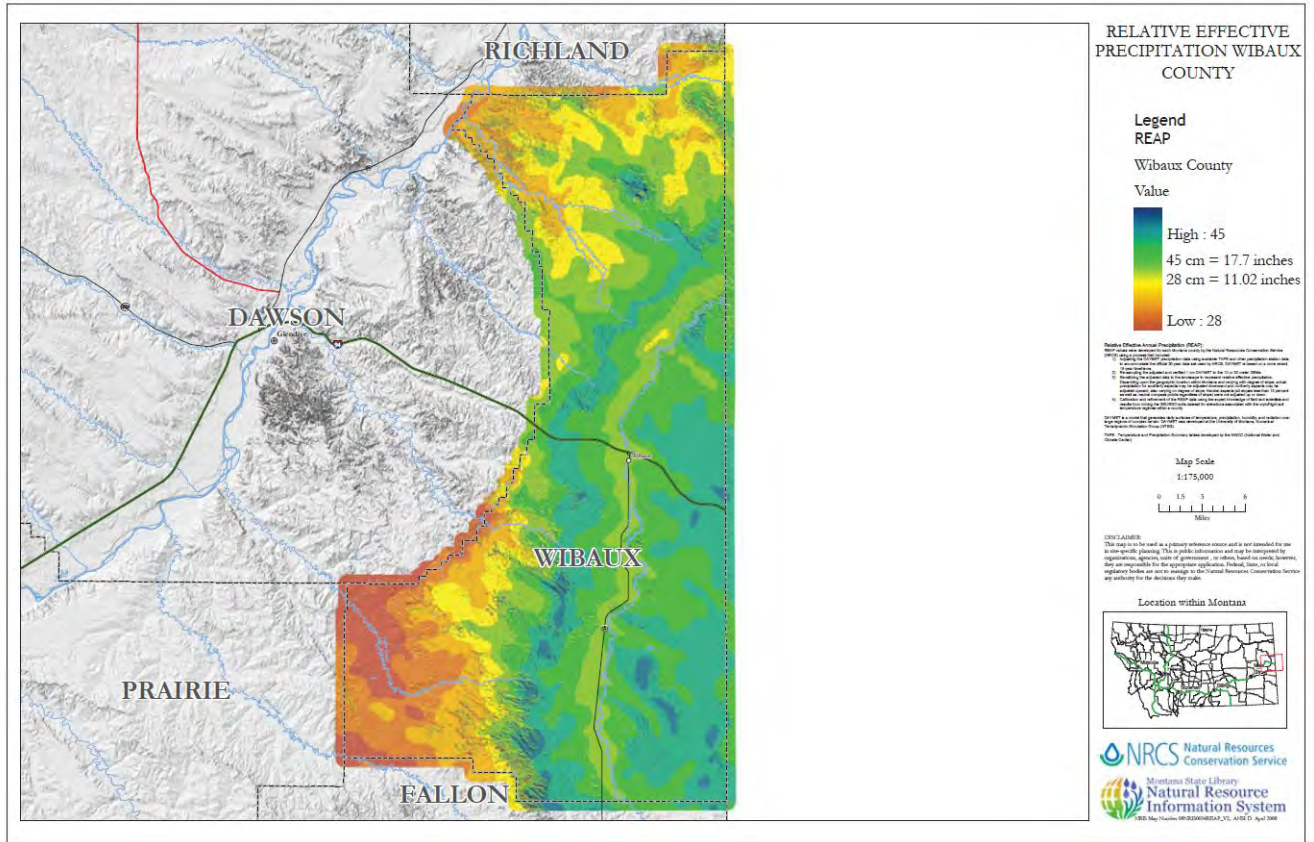
A1 Wibaux County



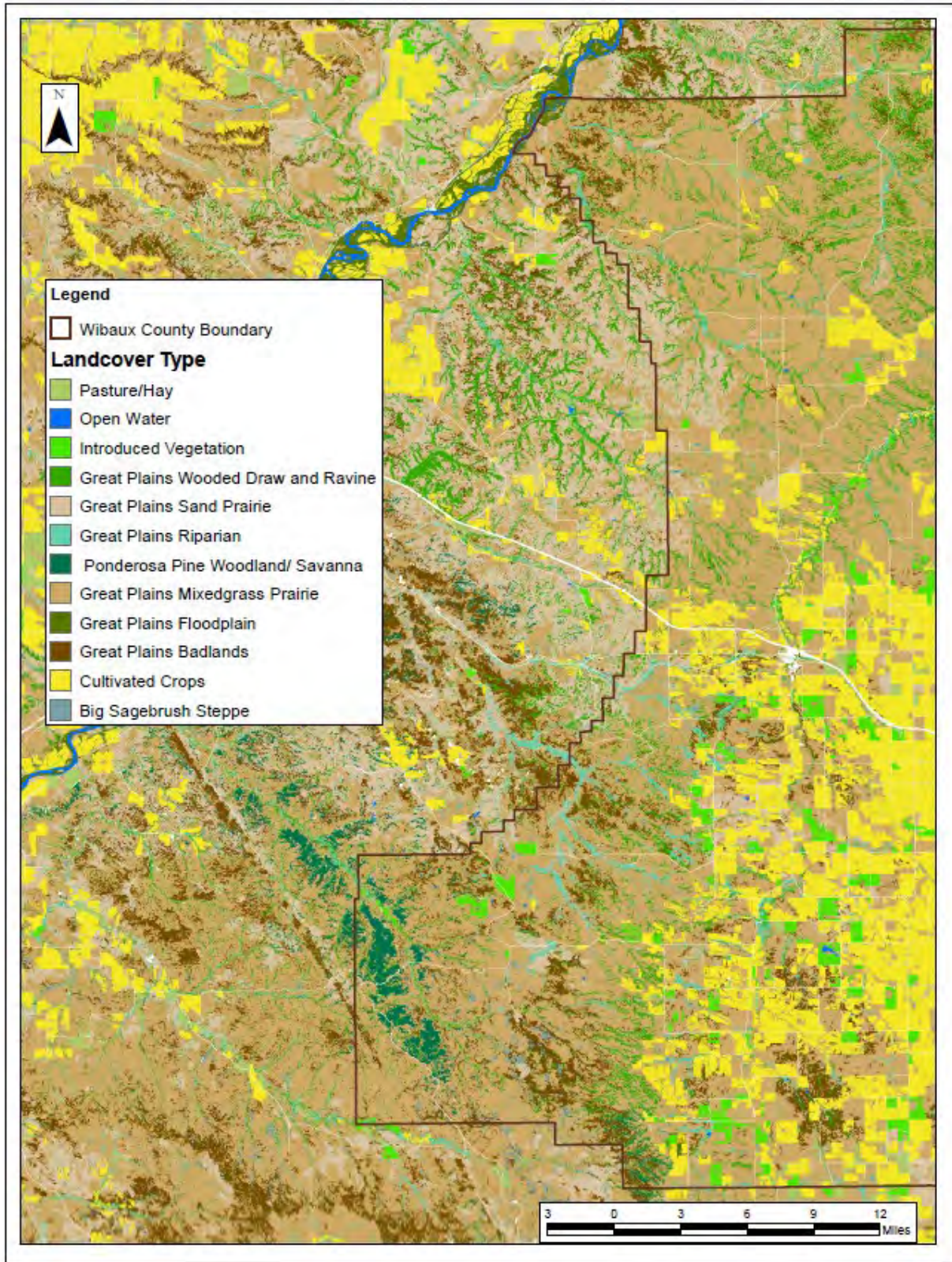
A2 Annual Precipitation



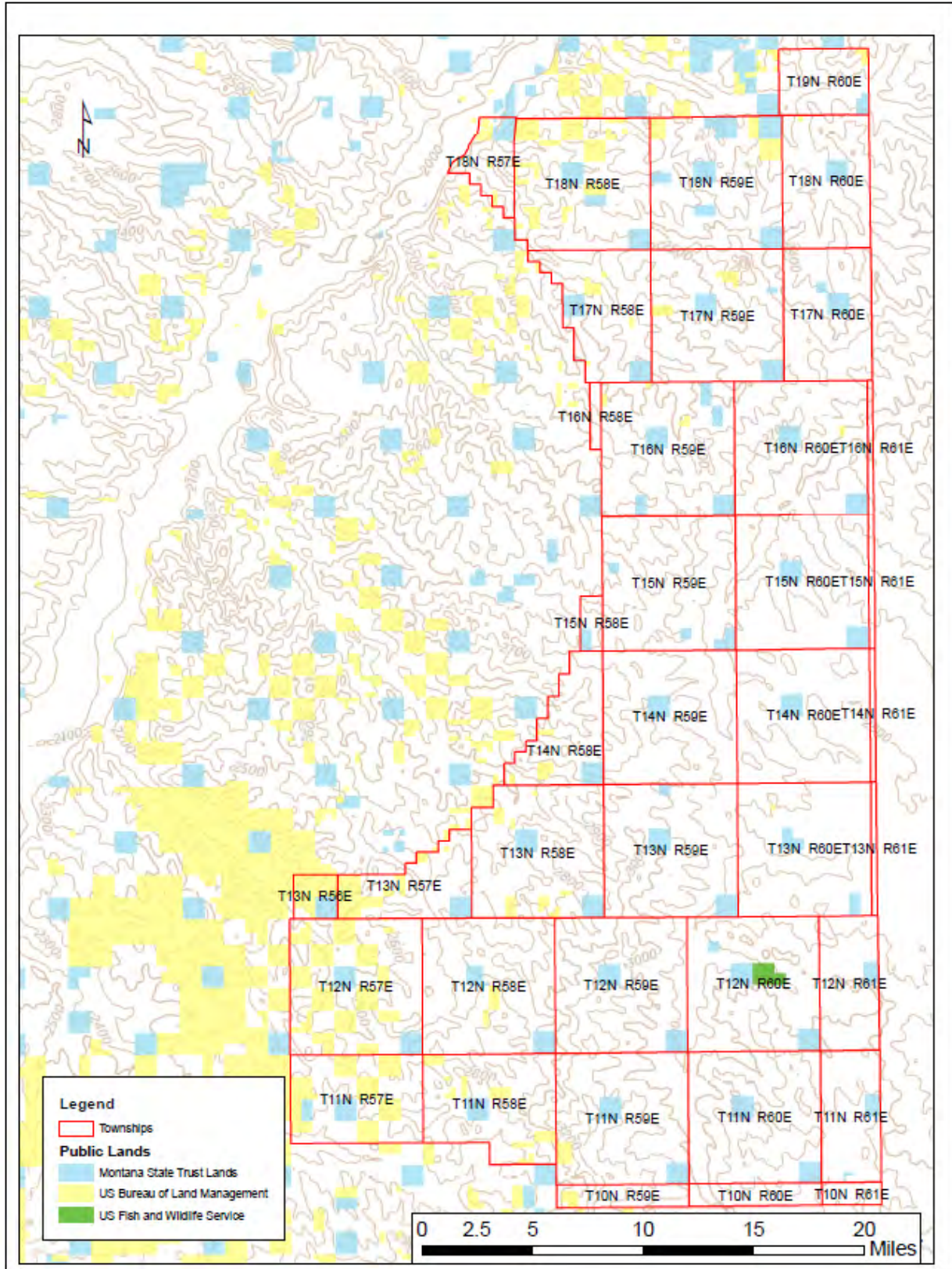
A3 Relative Effective Annual Precipitation



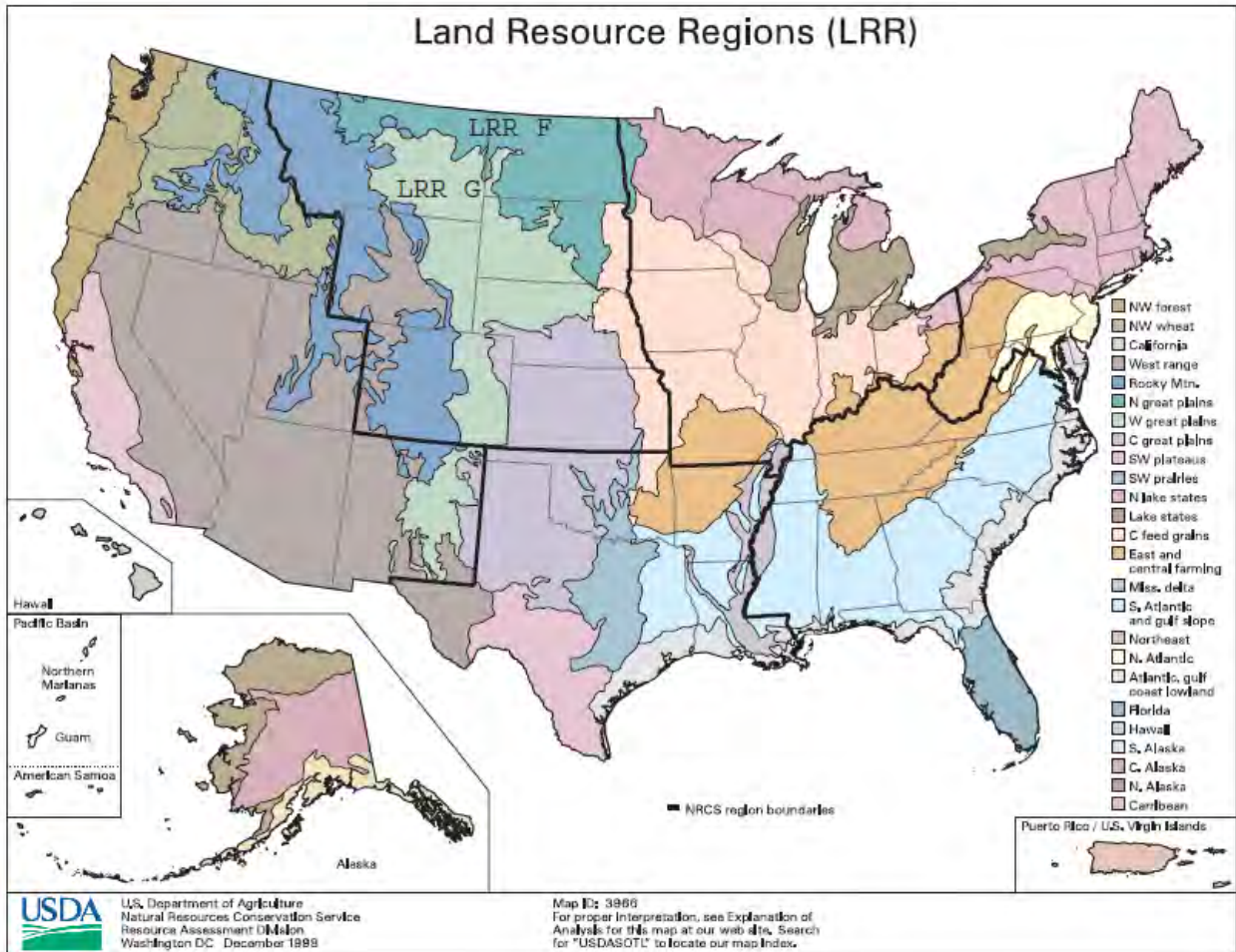
A4 Landcover



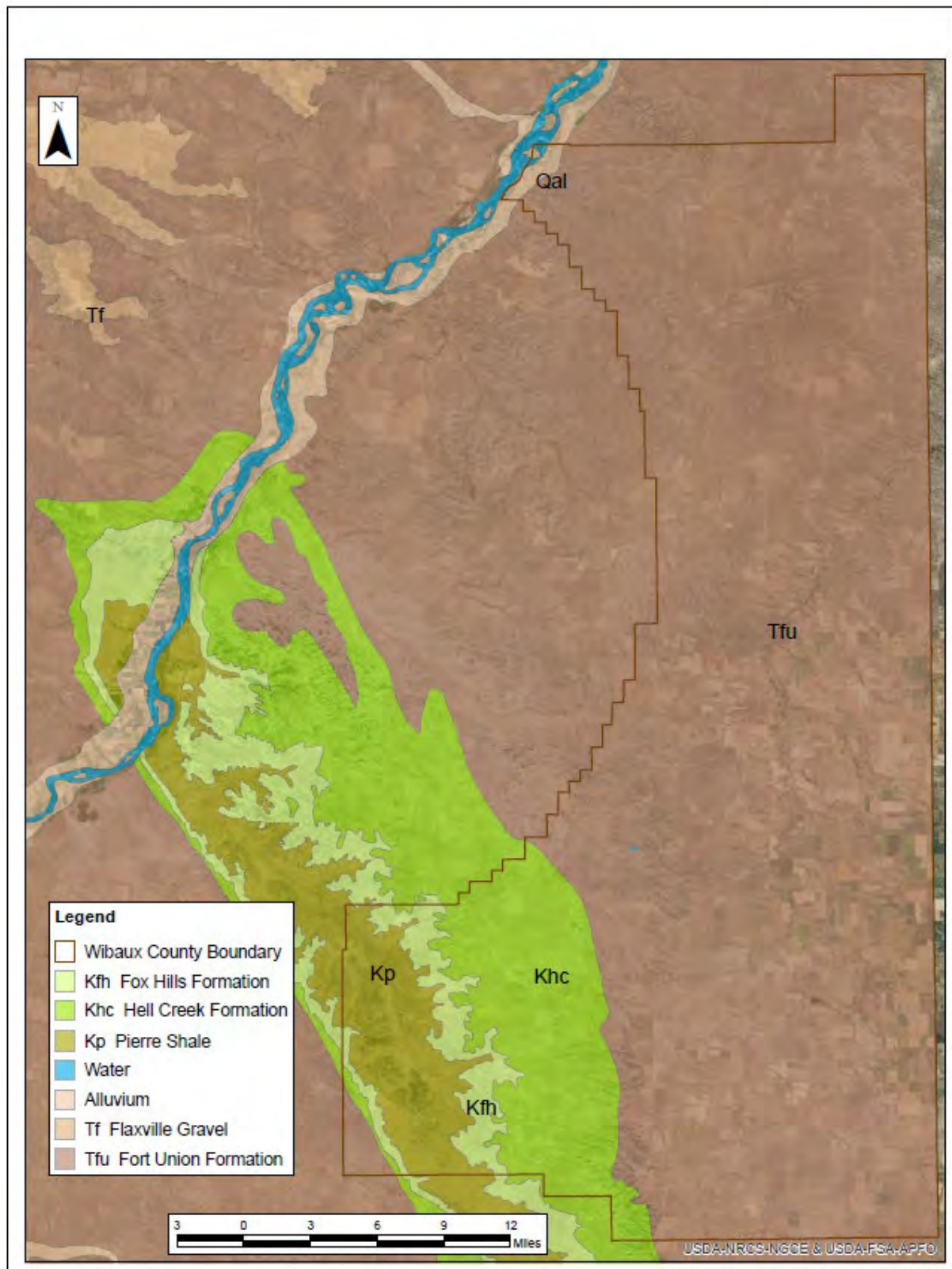
A5 Land Ownership



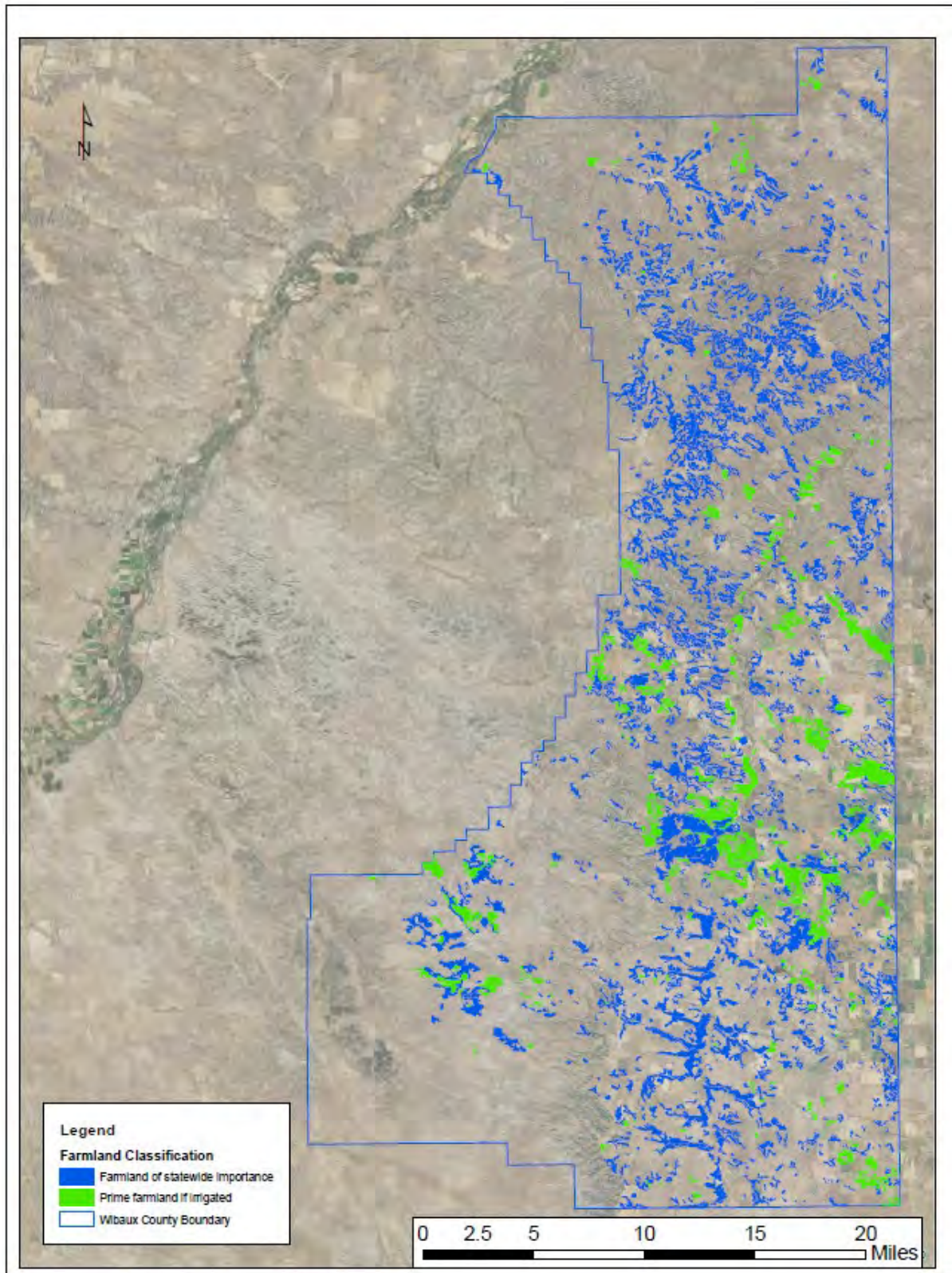
A6 Land Resource Regions



A7 Geology



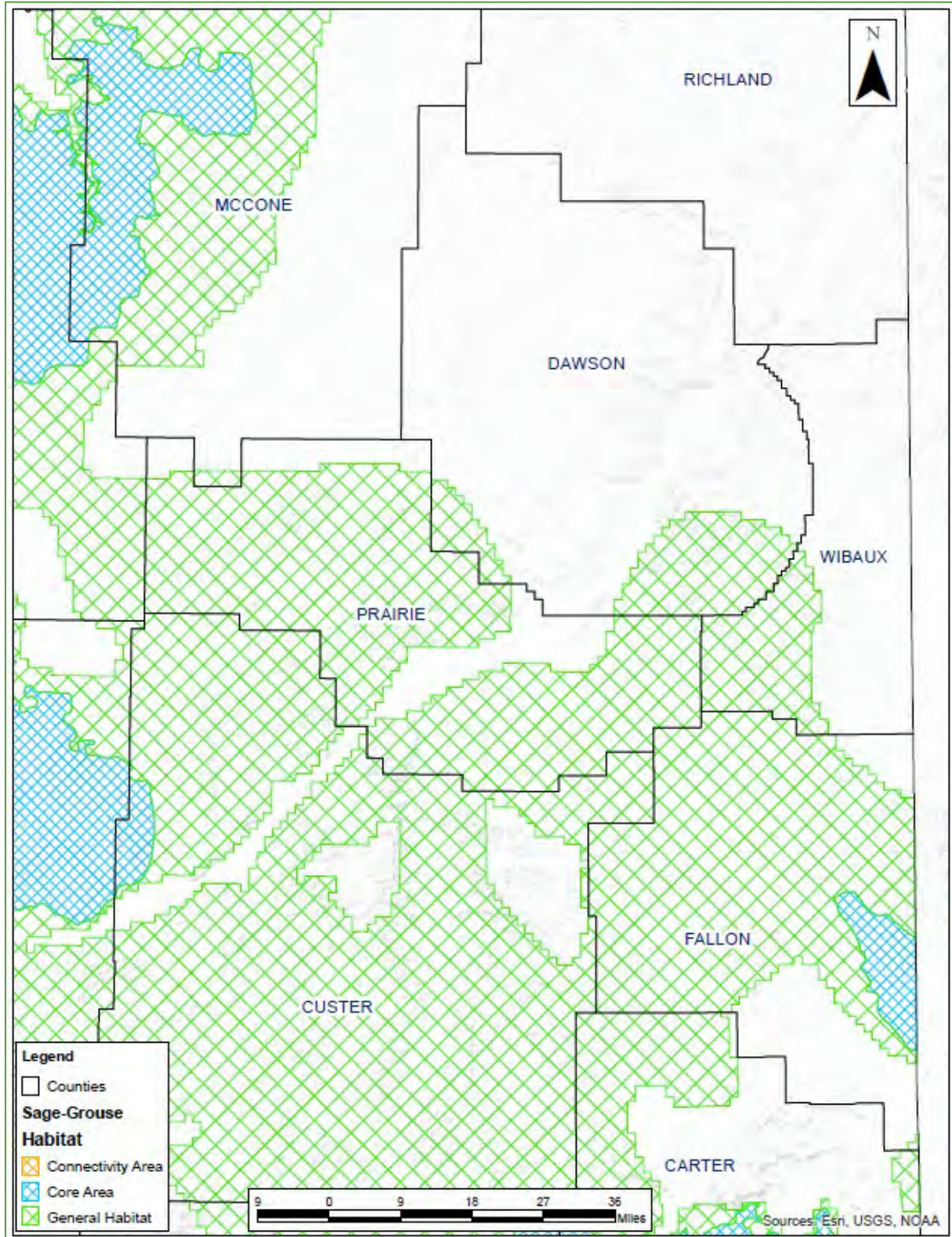
A8 Farmland of Statewide Importance and Prime if Irrigated Farmland



A9 Animal Species of Concern

Subgroup	Scientific Name	Common Name	State Rank	Habitat
Mammals	<i>Lasiurus cinereus</i>	Hoary Bat	S3	Riparian and forest
Mammals	<i>Myotis lucifugus</i>	Little Brown Myotis	S3	Generalist
Birds	<i>Anthus spragueii</i>	Sprague's Pipit	S3B	Grasslands
Birds	<i>Aquila chrysaetos</i>	Golden Eagle	S3	Grasslands
Birds	<i>Ardea herodias</i>	Great Blue Heron	S3	Riparian forest
Birds	<i>Buteo regalis</i>	Ferruginous Hawk	S3B	Sagebrush grassland
Birds	<i>Calcarius ornatus</i>	Chestnut-collared Longspur	S2B	Grasslands
Birds	<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	S2	Sagebrush
Birds	<i>Centronyx bairdii</i>	Baird's Sparrow	S3B	Grasslands
Birds	<i>Coccyzus americanus</i>	Yellow-billed Cuckoo	S3B	Prairie riparian forest
Birds	<i>Coccyzus erythrophthalmus</i>	Black-billed Cuckoo	S3B	Riparian forest
Birds	<i>Dolichonyx oryzivorus</i>	Bobolink	S3B	Moist grasslands
Birds	<i>Grus americana</i>	Whooping Crane	S1M	Wetlands
Birds	<i>Lanius ludovicianus</i>	Loggerhead Shrike	S3B	Shrubland
Birds	<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	S3B	Riparian forest
Birds	<i>Numenius americanus</i>	Long-billed Curlew	S3B	Grasslands
Birds	<i>Spizella breweri</i>	Brewer's Sparrow	S3B	Sagebrush
Birds	<i>Sternula antillarum</i>	Least Tern	S1B	Large prairie rivers
Reptiles	<i>Apalone spinifera</i>	Spiny Softshell	S3	Prairie rivers & streams
Reptiles	<i>Chelydra serpentina</i>	Snapping Turtle	S3	Prairie rivers& streams
Reptiles	<i>Phrynosoma hernandesi</i>	Greater Short-horned Lizard	S3	Sandy / gravelly soils
Fish	<i>Chrosomus eos</i>	Northern Redbelly Dace	S3	Small prairie rivers
Fish	<i>Cycleptus elongatus</i>	Blue Sucker	S2S3	Large prairie rivers
Fish	<i>Etheostoma exile</i>	Iowa Darter	S3	Small prairie rivers
Fish	<i>Lepisosteus platostomus</i>	Shortnose Gar	S1	Large prairie rivers
Fish	<i>Macrhybopsis gelida</i>	Sturgeon Chub	S2S3	Large prairie rivers
Fish	<i>Macrhybopsis meeki</i>	Sicklefin Chub	S1	Large prairie rivers
Fish	<i>Polyodon spathula</i>	Paddlefish	S2	Large prairie rivers
Fish	<i>Sander canadensis</i>	Sauger	S2	Large prairie rivers
Fish	<i>Scaphirhynchus albus</i>	Pallid Sturgeon	S1	Large prairie rivers

A10 Greater Sage-Grouse Habitat Types, Wibaux County, Montana & Surrounding Areas



APPENDIX B

B1 December 2018 Local Work Group Meeting Minutes

WIBAUX CONSERVATION DISTRICT
LOCAL WORK GROUP MEETING
December 4, 2018

The Local Group Meeting was called to order by Wibaux Conservation District Chairman Bob Petermann. There were 22 people present for the meeting. Bob read the minutes from the last Local Work Group meeting that was held on July 7, 2015.

At this time Terry Heck took over and was the facilitator for the meeting. Terry mentioned that the areas of concern will be what will be focused on in 2020 so this is a long-range plan so we will be prepared to present some issue in 2020. A commitment needs to be made on an issue/issues. There could be 15 to 17 million dollars available from the new Farm Bill.

The issues that were discussed at the meeting were:

- 1) Weed control. Invasive weeds and grasses. Why is the spread so rampant particularly leafy spurge? Who takes care of BLM land? With all the pipelines coming through the county, weeds are getting bad. Landowners need to make the pipeline company control the weeds.
- 2) Dam Rehabilitation. Why is it needed: Original design, location, is it breeched, silted in? Education on how to keep it intact.
- 3) Range Management: Over grazing, under grazing, stock density, electric fence. Range was the main focus for EQIP in the past
- 4) Water development: widespread use of solar units these days
- 5) Juniper encroachment: Junipers infringe on sage grouse. Methods may include burning or mechanical removal. The State of Montana Forest Program will help pay for a removal program
- 6) Saline Seeps: diverse cropping, cover crops, no-till. Recharge area and discharge area.
- 7) Wind and Water Erosion: Low residue crops offer no protection for erosion
- 8) Lack of productivity on hayland: Problem could be removing bio mass every year and not putting any back. There is a need to graze on the hayland. Need a plan to graze Little Blue Stem, maybe force them to eat it or bale graze on it.
- 9) Shelterbelts: most people now days are using fabricated windbreaks. They are movable and easily attainable.
- 10) Pipelines, wind towers, roads with inadequate culverts, education on new technology.

B2 March 2019 Local Work Group Meeting Flyer

UPCOMING LOCAL WORK GROUP MEETING

The Wibaux Conservation District and Wibaux NRCS will be convening the **Wibaux County Local Work Group**.

The Local work Group needs landowner, partner, and other agency input on the natural resource concerns in Wibaux County. The group will identify, discuss and prioritize focused conservation areas based on resource concerns. We need your input! Local priorities will impact NRCS assistance.

WHEN: March 26, 2019 7pm

WHERE: Wibaux County Courthouse -Courtroom

Light refreshments provided



If you can't make the meeting please call the Wibaux Conservation District or Wibaux NRCS at 406-796-2211 Ext 3 or email Katrina.johnson@mt.usda.gov or Renee.nelson@mt.nacdnet.net and let us know your concerns in Wibaux County on your farm/ranch or your community.

Be thinking about how does my soil, water, air, plants/trees, domestic animals and wildlife look. What problems or concerns do you have, or do you see in Wibaux County driving down the road?

Please contact Wibaux NRCS if you have special accommodations.
USDA is an Equal Opportunity Employer, Provider and Lender



B3 January 2021 Local Work Group Meeting Minutes

Wibaux County Local Work Group Meeting**January 12, 2021**

The meeting of the Wibaux County Local Work Group (LWG) was called to order at 5:10pm by Wibaux Conservation District Chairman Bob Petermann. The pledge of allegiance was recited. The following individuals were present: Bob Petermann, Ray Banister, Warren Emmet, Renee Nelson, Clay Petermann, Ted Dukart - Wibaux Weed Board, Danielle Harper- Wibaux County Extension Agent, Andrew Pettibone USFWS, Tayler Scherr -Bird Conservatory of the Rockies -by phone, Wibaux NRCS Katrina Johnson and Martin Ellenburg -Facilitator.

Katrina read the minutes of the January 2020 LWG meeting; the minutes were approved as read.

Clay Petermann from the Wibaux County Weed Coordinator reviewed what was done in 2020. The year went well and was able to have two crews spraying. Leafy spurge is in the northwest and southwest part of the county- Tordon & 2 4D, hounds tongue is along Beaver Creek and in buffalo berry areas, poison hemlock is along Beaver Creek and is new to the list- he has used 2-4D, Escort and Tordon granules, Canada thistle and Knapweed- the knapweed there are 3 patches up north and one patch south, most likely came in with mud. He has used Milestone /Grazon. The Weed Dept could always use more funds from the MT Dept of Transportation. Clay also commented that they can assist with biological control and there is 50% cost share with the county.

Next, Katrina went through the natural resource concerns and touched on each one briefly.

Noxious weeds and Nuisance weeds – see above

Grassland Health- Ray suggested we incorporate an electric fence and possible a shallow bury demonstration in Wibaux at some of our workshops or tours.

Little Bluestem Management – this primarily occurs in the northern part of Wibaux County, currently one cooperater in the county is working on additional water and fencing to make smaller pastures and implement prescribed grazing.

Dam Rehabilitation – some discussion on how pipelines provide better water quality and distribution, however dams provide benefits to wildlife and smaller amphibians.

Conifer Encroachment – there are funds available in the EQIP -SGI and more outreach is needed. This is specific to the SW part of Wibaux County.

Cropland Soil Health – MT NRCS has ramped up their importance of Soil Health and the soil health strategy in Montana. MT NRCS will also be integrating the soil health principles into all NRCS Montana functions; including the hiring Soil Health Specialist, implement soil health on all land uses according to best practices and science, and provide education, outreach and communication to employees, producers and partners on the adoption of soil health.

Lamesteer NWR – Andrew Pettibone gave an update that USFWS has about 25-40 of these smaller refuges in ND and MT. In 2010 on Lamesteer, they chose not to divest of the easement. At the dam inspection, there is a crack on one wing of the dam, he also mentioned this is a low priority for the USFWS to take care of at this time. The face of the dam is about 20- 25 ft and the average depth of Lamesteer he estimates to be 6-8ft. This dam is about 90 years old and the property is privately owned.

Saline seeps – Katrina mentioned that three local cooperators have been working with Montana Salinity Control Association out of Conrad, MT. Currently, two of the three cooperators will move forward with an EQIP/RCPP application for potential funding.

Katrina then gave an update on the Tame Pasture Improvement Project. This TIP funded 5 applications on approximately 4900 acres in 2020. Currently, to date approximately 14% of funds have been paid out on these projects in 2020. There were no applications submitted for FY 2021. The Wibaux NRCS will do outreach to see if there is interest and if none, there could be an opportunity to move it to a new locations /watershed where there is interest in 2022.

Katrina mentioned she has had about three inquires on grass seeding or renovation of old CRP stands, two people on little bluestem increases, one on soil health/cover crops and one cooperator inquiring about carbon sequestration. Martin mentioned that there is a TIP in Montana that is working to address old stands of CRP with new more diverse mixtures. The NRCS is working with others using two years cover crops and then seed to new grass mixture. Ray commented on the carbon sequestration cycle and that it is cycled rather than stored.

Martin brought up that there is a new EQIP/RCPP called the Northern Great Plains Grassland Conservation Project on seeding cropland back to grass, and many other practices. However, this is not available in Wibaux County.

Taylor worked on a TIP for seeding cropland to grass in Dawson County and the TIP also included wells, pipeline, tanks, fence, and management.

There was a comment on water rights, suggested contacting DNRC in Glasgow Montana.

Renee inquired about doing something for animal health, for example portable shelter for livestock. Martin mentioned this too is something that could be worked on and would tie back to soil health, weeds.

A motion was made by Ray Banister to continue with outreach and education. 2nd by Tim Barthel Motion carried.

The meeting was adjourned at 6:45pm

Respectfully submitted

Katrina A Johnson

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2023 Addition to Wibaux County Long Range Plan

The Wibaux Conservation District (WCD) voted on October 4, 2023 to add an additional resource concern of animal welfare/health to the Wibaux County Long Range Plan.

The WCD and Wibaux NRCS sought input from producers throughout Wibaux County that were significantly impacted by back-to-back historic winter storms that came in from the southeast. These storms were devastating to the cooperators of Wibaux County and as they did not have adequate shelter in this type of storm.

The questions were asked if they saw a need for livestock protection and the kinds and purpose for the added protection. There were 20 responses to the survey.

Purpose of Shelter: Animal Health (9), Rotate winter feeding areas (7), and alternative to woody draws (4)

Type of Shelter: Windbreaks (9) Portable Livestock Shelters (8), Permanent Livestock Shelter (8)

Therefore, we will add to the Wibaux County Long Range Plan:

- Resource concern of Animal Health/Welfare