Wildlife Matrix

Map Category	*Justification*	*Goals*	*Recommendations*
Core Wildlife Habitat – Water Bodies Rivers, streams, lakes, reservoirs, wetlands, riparian areas, and habitats supporting conservation populations of westslope cutthroat trout and Arctic grayling *Note: All water bodies across the county are considered core wildlife habitat. However, all water bodies could not be shown on the map because the scale is not detailed enough. Major rivers and Channel Migration Zones are on the map. Other surface water features and wetland layers can be found at the Montana State Library: http://geoinfo.msl.mt.gov/.*	Water bodies provide important habitat for fish and wildlife. Water bodies are listed as Aquatic and Terrestrial Community Types of Greatest Conservation Need in Montana's State Wildlife Action Plan[1]. Westslope cutthroat trout and Arctic grayling are Montana Species of Concern. Rivers, streams, and their associated riparian areas are used as movement corridors by a wide variety of aquatic and terrestrial species.	• Protect water quality, stream stability, natural stream processes, aquatic habitat and connectivity, and fish and wildlife habitat by conserving water bodies, their associated riparian areas, and, in some situations, associated uplands. • Retain existing wetland and riparian areas by avoiding or minimizing human disturbances associated with developments such as buildings, roads, docks, and other structures. • Maintain the natural hydrological and ecological functions of wetlands and riparian areas by minimizing fragmentation and degradation of these sites.	• Improve watercourse setback regulations to maintain vegetated buffers and infrastructure setbacks, as recommended in the Fish and Wildlife Recommendations for Subdivision Development in Montana[2]. • Use Channel Migration Zone studies[3] to avoid placing infrastructure in the future channel of a river or 100-year floodplain. • Design road crossings to minimize delivery of sediments and other pollutants to nearby waterbodies while providing aquatic organism passage, which allows permanent, bidirectional movements of fish and other aquatic organisms through or beneath human infrastructure such as culverts, bridges, diversion dams, etc. Refer to Montana's Stream Permitting Guide[4] for design and maintenance recommendations. • Design instream hydraulic structures (e.g., culverts, bridges, etc.) that are sized to pass, at a minimum, a 50-year flood event. • Limit ponds and water features, and encourage xeriscaping to conserve water, which is especially important in basins closed to further appropriations.

		• Maximize the ability for wetlands, riparian areas, and, in some situations, associated uplands, to function as fish and wildlife habitat. • Encourage water conservation measures to ensure there is enough ground and surface water to feed area streams and riparian habitats.	
Core Wildlife Habitat – Bald and Golden Eagle Nests *Note: Eagle nests are not on the map and should be identified on a site-specific basis using field observation and data from the Montana Natural Heritage Program (MTNHP). There could be new nests on the landscape that are not in the MTNHP database.*	The Bald and Golden Eagle Protection Act is a federal law that prohibits destruction or disturbance of bald and golden eagles or their nests.	• Protect and conserve bald and golden eagle nests from human disturbances associated with developed facilities such as buildings, roads, and trails. • Reduce the potential risk for violations associated with the Bald and Golden Eagle Protection Act.	• Determine if there are bald or golden eagle nests within 0.5 miles of a proposed development project. Contact the Montana Natural Heritage Program for the most current data, but there could be new nests on the landscape that are not in the MTNHP database. • Consult with the U.S. Fish and Wildlife Service, FWP, and the Montana Bald Eagle Management Guidelines[5] if there is a bald or golden eagle nest within 0.5 miles of a proposed development project. • Maintain vegetated buffers of no disturbance around active nests. The appropriate buffer width will vary based on the type of development and site characteristics. Consult with the U.S. Fish and Wildlife Service and FWP for guidance.
Core Wildlife Habitat – Other Important Wildlife Habitat	The foothills of the Bridger Mountains and Gallatin Range south of Bozeman provide	• Minimize human-wildlife conflicts. • Avoid creating impediments to	• Provide education and outreach on living with wildlife principles. More information can be found at https://fwp.mt.gov/conservation/living-with-wildlife and

Elk and mule deer winter range in the foothills of the Bridger Mountains; elk and mule deer winter range along the Gallatin Range south of Bozeman; wildlife habitat surrounding Big Sky; and wildlife habitat near Hebgen Lake. Bozeman Pass and the Hebgen Lake area are also important for wildlife movement and migration.	important winter range for elk and mule deer. This is supported by extensive FWP wildlife survey data from 1975 to present, including mule deer studies in the Bridgers[6]. Winter range provides food and protection from harsh weather conditions. The area around Big Sky provides important habitat for bears, elk, and moose. The Hebgen Lake area provides important habitat for bears, elk, moose, and bison[1]. Bozeman Pass is important for wildlife movement and migration, which is supported by a model predicting grizzly bear movement[7]. FWP biologists have identified the Hebgen Lake area as important for wildlife movement and migration. Wildlife movement occurs at a variety of spatial and temporal scales	wildlife movement and migration. • Minimize the fragmentation and loss of habitat. • Maintain FWP's ability to manage wildlife effectively and as non-habituated herds. Minimize the potential for subdivision to lead to problematic concentrations of big game. • Minimize the potential for dangerous encounters between humans and bears, and maintain grizzly bear and black bear populations.	https://fwp.mt.gov/conservation/species/bear/bear-aware. • Apply a higher level of wildlife consideration in development design and review. Use the recommended approach and design standards, such as clustering homes and connecting open space, in the Fish and Wildlife Recommendations for Subdivision Development in Montana[2]. • Limit fencing or encourage wildlife friendly fencing. • Ensure land use plans and regulations provide for building densities and connected open spaces that maintain core habitats and allow for wildlife movement and migration. • Prioritize these areas for conservation easements, depending on willing landowners and available resources. • Implement development design standards that would reduce human-bear conflicts, such as requiring bear-resistant facilities for garbage collection.

	facilitating access to food, breeding, and shelter resources within and across core habitats, and facilitating genetic exchange among populations or subpopulations of wildlife species. In addition, these areas classified as core wildlife habitat provide important habitat for a variety of other game and non-game species, including Montana Species of Concern. The Hebgen Lake area is part of a Tier 1 Terrestrial Focal Area in Montana's State Wildlife Action Plan[1], which identifies species and habitats that are in greatest need of conservation. The Bridger Mountains are listed as a Tier 2 Terrestrial Focal Area.		
Higher Value for Wildlife Areas that may have some native habitat and where	In the northern portion of the county, landcover data[8] indicates there is some	• Minimize human-wildlife conflicts. • Avoid creating impediments to	• Provide education and outreach on living with wildlife principles. More information can be found at https://fwp.mt.gov/conservation/living-with-wildlife and

there is higher wildlife use. This includes areas in the northern portion of Gallatin County and along the Highway 191 corridor near Big Sky.	native habitat. FWP survey data[6] indicates pronghorn antelope, elk, and mule deer use and move through these areas. In addition, the riparian areas, wetlands, and cottonwood galleries provide habitat for a suite of other game and non-game species, such as nesting songbirds, upland game birds, waterfowl, and webless migratory birds (e.g., staging areas for sandhill cranes). Bighorn sheep use and move through the area north of Big Sky which includes the Highway 191 corridor[9]. Elk also use and move through the Highway 191 corridor from Big Sky south to Yellowstone National Park[9]. The Gallatin Wildlife Management Area provides important habitat for a variety of wildlife. In areas mapped as higher value	wildlife movement and migration. • Minimize the fragmentation and loss of habitat. • Maintain FWP's ability to manage wildlife effectively and as non-habituated herds. Minimize the potential for subdivision to lead to problematic concentrations of big game. • Minimize the potential for dangerous encounters between humans and bears, and maintain grizzly bear and black bear populations.	https://fwp.mt.gov/conservation/species/bear/bear-aware. • Determine appropriate level of wildlife consideration in development design and review on a case-by-case basis. Use the recommended approach and design standards in the Fish and Wildlife Recommendations for Subdivision Development in Montana[2], as appropriate. • Limit fencing or encourage wildlife friendly fencing. • Ensure land use plans and regulations provide for building densities that allow for continued wildlife use. • Consider these areas for conservation easements, depending on willing landowners and available resources. • Implement development design standards that would reduce human-bear conflicts, such as requiring bear-resistant facilities for garbage collection.

	for wildlife, there is increased wildlife use which creates the potential for increased human-wildlife conflicts.		
Lower Value for Wildlife Areas that are mostly agricultural land or subdivisions and where there is lower wildlife use. This includes the areas surrounding Bozeman and Belgrade and the unincorporated area of Big Sky.	Landcover[8], cadastral[10], and structure[11] data indicate these areas are mostly agricultural land or subdivisions. FWP survey data[6] indicates low wildlife use. Wildlife species may travel through this area so there is a need to reduce human-wildlife conflicts and avoid creating barriers to wildlife movement.	• Minimize human-wildlife conflicts. • Avoid creating impediments to wildlife movement and migration. • For Big Sky, minimize the potential for dangerous encounters between humans and bears, and maintain grizzly bear and black bear populations.	• Provide education and outreach on living with wildlife principles. More information can be found at https://fwp.mt.gov/conservation/living-with-wildlife and https://fwp.mt.gov/conservation/species/bear/bear-aware. • Determine appropriate level of wildlife consideration in development design and review on a case-by-case basis. Use the recommended approach and design standards in the Fish and Wildlife Recommendations for Subdivision Development in Montana[2], as appropriate. • Encourage wildlife friendly fencing. • For Big Sky, implement development design standards that would reduce human-bear conflicts, such as requiring bear-resistant facilities for garbage collection.
Urban/Urbanizing Areas Incorporated areas and adjacent urban development, including Bozeman, Belgrade, Manhattan, Three Forks, and West Yellowstone	Municipalities[12] and already approved major subdivisions[13] show existing and planned urban development. The focus should be on reducing human-wildlife conflicts and managing urban wildlife.	• Minimize human-wildlife conflicts	• Provide education and outreach on living with wildlife principles. More information can be found at https://fwp.mt.gov/conservation/living-with-wildlife and https://fwp.mt.gov/conservation/species/bear/bear-aware. • Apply a lower level of wildlife consideration in development design and review.

[1] Montana Fish, Wildlife and Parks. 2015. Montana's State Wildlife Action Plan. Montana Fish, Wildlife and Parks, Helena, Montana, USA.

[2] Montana Fish, Wildlife and Parks. 2012. Fish and Wildlife Recommendations for Subdivision Development in Montana. Montana Fish, Wildlife and Parks, Helena, Montana, USA.

[3] Thatcher, T. and K. Boyd. 2017. Channel Migration Zones for the Gallatin, East Gallatin, Madison, and Jefferson Rivers, Montana State Library, Helena, Montana, USA.

[4] Montana Department of Natural Resources and Conservation. 2020. Montana Stream Permitting: A Guide for Conservation District Supervisors, Helena, Montana, USA.

[5] Montana Bald Eagle Working Group. 2010. Montana Bald Eagle Management Guidelines: An Addendum to Montana Bald Eagle Management Plan, 1994, Montana Fish, Wildlife and Parks, Helena, Montana, USA.

[6] Montana Fish, Wildlife and Parks. 1975 - present. Unpublished wildlife survey data.

[7] Peck, C. P., F. T. van Manen, C. M. Costello, M. A. Haroldson, L. A. Landenburger, L. L. Roberts, D. D. Bjornlie, and R. D. Mace. 2017. Potential paths for male-mediated gene flow to and from an isolated grizzly bear population. Ecosphere 8(10):e01969. 10.1002/ecs2.1969

[8] Montana Natural Heritage Program. 2017. Montana Landcover 2017, Montana State Library, Helena, Montana, USA.

[9] Montana Fish, Wildlife and Parks. 2019. Elk Kernel Density Estimator from GPS Collars 2002-2005, Gallatin portions only, quartile breaks and Bighorn Kernel Density Estimator from GPS Collars 2018-2018, quartile breaks. Unpublished data.

[10] Montana Department of Revenue. 2019. OwnerParcel, Montana State Library, Helena, Montana, USA.

[11] Gallatin County. 2019. Structures, Gallatin County, Bozeman, Montana, USA.

[12] Gallatin County. 2019. City Boundaries, Gallatin County, Bozeman, Montana, USA.

[13] Gallatin County. 2019. Major Subdivisions, Gallatin County, Bozeman, Montana, USA.