	A	B	C	D	E	F	G
1	**Birds Evaluated for Species of Conservation Concern - For the Custer Gallatin National Forest Revised Forest Plan and Final EIS**	**Conservation Categories**	**Is the species known to occur in the plan area?**	**Distribution and Abundance in the Plan Area**	**Population Trend in the Plan Area**	**Habitat Description**	**Habitat Trend in the Plan Area**
2	Baird's Sparrow (Ammodramus bairdii)	SD-S2B	No; only one NHP observation record, in the Pryors GA during 2002. No records through 8 years of IMBCR bird monitoring program (RMADC 2017).	N/A	N/A	N/A	N/A
3	Bald Eagle (Haliaeetus leucocephalus)	SD-S1B, SD-S2N	Yes	A common and widespread raptor, with over 340 NHP observation records, including at least 16 nesting territories, across all but the Pryors GA.	Increase. Bald eagle numbers have greatly increased in Montana and South Dakota since pesticide threats were curbed through federal regulations. For example, Montana populations expressed a 96 percent increase in breeding pairs from 2000 - 2010, and as of 2015, increases were still occurring (Montana Bald Eagle Working Group 2016).	Prefers nesting along large reservoirs, lakes and rivers, usually in the largest trees available. In Montana, this is most often cottonwoods even when large conifers are present. Wintering habitat may include upland sites. (MNHP and MFWP 2017, MBEWG 2016).	Unknown, but based on the dramatic increase in eagle territories statewide, prey and nest tree availability are not likely declining.
4	Black and White Warbler (Mniotilta varia)	S2 (SD only)	No. Only one observation in plan area of a transient (migratory) individual, in 1956. No records through 8 years of IMBCR bird monitoring program (RMADC 2017).	N/A	N/A	N/A	N/A
5	Black Rosy-finch (Leucosticte atrata)	S2-MT	Yes	31 NHP observation records, primarily in the montane GAs where breeding likely occurs. One detection through IMBCR bird monitoring program, on the Custer portion of plan area.	Unknown. Inventory and monitoring data difficult to obtain due to remote and difficult to access breeding habitat. Not sampled well by IMBCR bird monitoring program.	Breeds in alpine cliffs and talus above tree line, primarily in designated wilderness areas. There are approximately 121,000 acres of alpine habiatats in the plan area (USDA Forest Service 2017). Species latitudinally and elevationally migrates to winter habitats in fields, cultivated lands, brushy areas, and areas with human habitation, primarily outside of plan area (MNHP and MFWP 2016).	Breeding habitat likely stable. Alpine cliff and talus habitats are harsh but no stressors exist to extensively or quickly change them; they are subject to slow or infrequent geologic and climatic forces such as weathering, avalanches and other mass movements that would likely maintain their conditions for long periods. Climate change effects uncertain.

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1	Relevant Life History & Other Information	Relevant Threats to Populations using the Plan Area	Is there sufficient scientific information available to conclude whether there is substantial concern for long-term persistence in the plan area?	Is this species identified as an SCC for the Draft EIS?	Rationale for SCC Determination	Best Available Scientific Information
2	N/A	N/A	N/A	No	Species is not known to occur in the plan area; species is not established or becoming established in plan area.	NHP observation records RMADC 2017. Web-based data application accessed May 13, 2016 from http://rmbo.org/v3/avian/ExploretheData.aspx
3	Long lived species with fidelity to nest areas and delayed age to first reproduction (4-6 years). Forages primarily on fish, waterfowl and carrion. Strong nationwide population recovery after pesticide prohibitions put in place. (MNHP and MFWP 2016)	No foreseeable population-level threats. Human activity could affect reproductive success but habituation is known to occur in this species where activities are not otherwise harmful (Guinn 2013).	Yes	No	Increasing population trend across both states, and lack of threats in plan area.	Guinn, J. 2013. Generational habituation and current bald eagle populations. Human-Wildlife Interactions 7:69-76. MBEWG. 2016. Bald eagle nesting populations and nest monitoring, 1980-2014. Final report. MFWP. 27 pp. MFWP and MNHP. 2016. Bald Eagle — Haliaetus leucocephalus. Montana Field Guide. Accessed from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=ABNKC10010
4	N/A	N/A	N/A	No	Species is not known to occur in the plan area; species is not established or becoming established in plan area.	NHP observation records RMADC 2017. Web-based data application accessed May 13, 2016 from http://rmbo.org/v3/avian/ExploretheData.aspx
5	Feed on insects (primarily summer) and seeds (primarily winter). Little information available for Montana as few nests have been found here. (MFWP and MNHP 2016)	Cliff and talus are geologically very stable, and not likely to substantially change for extremely long time periods. Climate change may be acting upon alpine environments but there is no empirical data to indicate whether or how this might affect the species. According to MNHP and MFWP (2016), no special management action appears to be required at this time.	Yes	No	Potential breeding habitat is fairly widely distributed in plan area, physical habitat features likely stable and population-level threats to species have not been identified.	Marks, J., P. Hendricks and D. Casey. 2016. Birds of Montana. Buteo Books, Arlington VA. 659pp. MNHP and MFWP. 2016. Black rosy-finch — Leucosticte atrata. Montana Field Guide. Available at http://fieldguide.mt.gov/displayClasses.aspx?Kingdom=Animalia MNHP observation records USDA Forest Service. 2017. Final assessment report of ecological, social and economic conditions on the Custer Gallatin National Forest. Accessed from https://www.fs.usda.gov/detail/custergallatin/landmanagement/planning/?cid=fseprd532957

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6	Black Swift (Cypseloides niger)	S1B-MT, RFSS-R1	No. Only one obs, in 1962. No records through IMBCR bird monitoring data (RMADC 2017).	N/A	N/A	N/A	N/A
7	Black-backed Woodpecker (Picoides arcticus)	RFSS	Yes	Well distributed, low density species. 58 NHP observation records across 4 GAs.	Increased, due primarily to increased burned habitat in the Ashland GA. Over 45% of NHP observation records (which largely originate from the IMBCR bird monitoring program) have occurred in the Ashland GA since 2011.	Conifer forests containing wood boring beetles or bark beetles, major food items. Woodpecker density and reproductive output are highest in recently (3-5 yrs) burned forests colonized by woodboring beetles, followed by forests that host high (epidemic) levels of bark beetles. Live mature or dense forests having normal (endemic) levels of beetles may be particularly important to sustain species during periods when fire and insect activity are relatively low (e.g., wet periods). (Mohren et al. 2014)	Wildland fire acreage in the plan area has been increasing and this trend is expected to continue (see USDA Forest Service 2017).
8	Blue-gray Gnatcatcher (Polioptila caerulea)	S2B-MT, S1B-SD	Yes	Six NHP observation records, all in Pryor and Sioux GAs, all since 2002. Fairly common breeding resident in canyons along the southwestern edge of the Pryor Mtns (Marks et al. 2016).	Likely increasing; this species is likely becoming established in Montana and western South Dakota. Expansion has been noted in other states as well (Marks et al. 2016).	Across range, occurs in various woodland and shrubby areas. In Montana, occurs in open stands of Utah juniper and limber pine intermixed with big sagebrush (MNHP and MFWP 2017).	Likely increasing with fire suppression and warming climate.

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6	N/A	N/A	N/A	No	Species is not known to occur in the plan area; species is not established or becoming established in plan area.	NHP observation records RMADC 2017. Web-based data application accessed May 13, 2016 from http://rmbo.org/v3/avian/ExploretheData.aspx
7	This species (particularly males) is known to mobilize large distances (up to 62 mi) to exploit new burns and areas with high bark beetle populations. Species abundance and reproductive output increase with ephemeral prey pulses (Murphy and Lehnhausen 1998, Yunick 1985, Dixon and Saab 2000). Juveniles delay dispersal from natal site to exploit these conditions. Black-backed woodpecker is an excellent ecological example of a highly resilient, boom/bust species that can persist for years at low levels across a landscape, then be highly responsive when ideal conditions emerge.	Timber harvest, fire suppression and salvage logging may affect populations if they are applied over large enough spatial scales.	Yes	No	Secure in plan area. Increasing habitat trend, high dispersal distances, high ability to find and exploit ephemeral resources created by disturbance processes even when source populations are very low (i.e., high resilience).	Dixon, R. and V. Saab. 2000. Black-backed Woodpecker (Picoides arcticus), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from: http://bna.birds.cornell.edu/bna/species/509 Mohren, S. M. Rumble, and S. Anderson. 2014. Density and abundance of black-backed woodpeckers in a ponderosa pine ecosystem. Prairie Naturalist 46:62-68. Murphy, E. and W. Lehnhausen. 1998. Density and foraging ecology of woodpeckers following a stand replacement fire. J. Wildl. Manage. 62:1359-1372. Pierson, J. 2009. Genetic population structure and dispersal of two North American woodpeckers in ephemeral habitats. Ph.D. Dissertation, Univ. Montana, Missoula. 213pp. Samson, F. A conservation assessment of the northern goshawk, black-backed woodpecker, flammulated owl, and pileated woodpecker in the Northern Region. USDA Forest Service, Northern Region. Accessed from: http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5130737.pdf USDA Forest Service. 2017. USDA Forest Service. 2017. Fire assessment report. Accessed from https://www.fs.usda.gov/detail/custergallatin/landmanagement/planning/?cid=fseprd532957 Yunick, R. 1985. A review of recent irruptions of the black-backed woodpecker and three-toed woodpecker in eastern North America. J. Field Ornithology 56:138-152.
8	Migratory in plan area, occuring only during summer.	None identified; this species may continue to benefit from a warming climate. Species has expanded despite brood parasitism by brown-headed cowbirds, a native species in the plan area and other portions of the gnatcatcher's range.	Yes	No	Species is secure in the planning area. This newly established species will likely continue benefitting from a warming climate.	Marks, J, P. Hendricks, D. Casey. 2016. Birds of Montana. Buteo Books, Arlington, VA. 659pp.

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9	Boreal Owl (Aegolius funereus)	RFSS - R2 Shoshone	Yes	Sixty one observations of species recorded in MNHP database. Montane ecosystem portion of plan area within species' year-round range. Pine Savannah portion of plan area outside species' range (MNHP and MFWP 2017).	Unknown. Recent surveys in Montana have better defined the species' geographic range within the state but still little data exists to discern population trends (Marks et al. 2016).	Nests primarily in spruce/fir forests above 5,200' elevation, but also in aspen and lodgepole stands (Marks et al 2016). Habitat naturally patchy. Prefers mature forests having multiple canopy layers, and having proximity to a mosaic of openings or meadows (MFWP and MNHP 2017).	The spruce/fir cover type has likely increased in extent and age with fire exclusion. Lodgepole has remained about the same, while aspen has likely decreased. (See Assessment).
10	Brewer's Sparrow (Spizella breweri)	S2B-SD, BCC	Yes	Widespread in plan area, and common in appropriate habitats, with over 300 NHP observations across all 6 GAs.	Occupancy and density estimates obtained through IMBCR bird monitoring program between 2010 and 2016 reveal no clear trend (RMADC 2017). There has been much inter-annual variation.	Shrubsteppe habitats dominated by sagebrush; densities are correlated with some aspect of total shrub cover (MNHP and MFWP 2017). In the plan area, this is found in the xeric shrubland/woodland broad potential vegetation type.	Sagebrush cover has likely increased in plan area since pre-European settlement due to fire suppression, although some loss from fire has occurred (see USDA Forest Service 2017).
11	Brown Creeper (Certhia americana)	S2B-SD LC-SDGFP	Yes	Widespread in plan area, with over 180 NHP observations across all 6 GAs. However, most abundant in montane GAs.	Occupancy and density estimates obtained through IMBCR bird monitoring program between 2010 and 2016 reveal no clear trend. There has been much inter-annual variation in part due to the number of transects sampled; density estimates have ranged from 1.2 birds/km2 (2014) to 18.2 (2015) (RMADC 2017).	Rangewide, breeds in a variety of coniferous and mixed coniferous-deciduous forests. In plan area, more common in spruce-fir and mixed conifer stands of montane GAs; less so in pine forests further east. Prefers mature and old growth stands having high canopy cover (Marks et al., 2016). Nearly 450,000 acres of the montane GAs are estimated to be in old growth condition (USDA Forest Service 2017).	Likely relatively stable in montane GAs, and decreased in the less preferred pine savannah GAs where fire has reduced forested acres (particularly in Ashland GA) over the past 30 years (USDA Forest Service 2017).

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9	Young boreal owls may disperse long distances from natal sites (e.g., >60 miles in Finland studies; Hayward and Verner 1994). This system of long distance dispersal results in high genetic connectivity and minimal genetic structuring of North American Boreal Owl populations, regardless of the habitat matrix they are associated with (Koopman et al. 2007).	None identified. Extensive clearcuts could be an issue but this has not been practiced for several decades. Large scale, intense fire could also reduce habitat.	Yes	No	Secure in plan area. Species is widely distributed in Montane ecosystem portion of plan area and has good dispersal capabilities. No evidence of population or habitat declines, and no compelling threats, other than stochastic fire.	Hayward, G.D. and P.H. Hayward. 1993. Boreal Owl (Aegolius funereus). The Birds of North America Online (A. Poole, Ed.). Cornell Laboratory of Ornithology, Ithaca. Accessed from https://birdsna.org/Species-Account/bna/species/borowl Koopman, M. E., G. D. Hayward, and D. B. McDonald. 2007. High connectivity and minimal genetic structure among North American Boreal Owl (Aegolius funereus) populations, regardless of habitat matrix. Auk 124:690-704 Marks, J., P. Hendricks and D. Casey. 2016. Birds of Montana. Buteo Books, Arlington VA. 659pp. MFWP and MNHP 2017. Boreal Owl — Aegolius funereus. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on December 12, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=ABNSB15010
10	Migratory in plan area, occuring only during summer.	Primary threat is fragmentation and loss of sagebrush habitats (MNHP and MFWP 2017), which in the plan area, would most likely occur from wildfire. Mountain big sagebrush, located in the montane GAs, has relatively short setbacks from fire (10-35 years), whereas Wyoming big sagebrush in the Sioux and Ashland GAs may take much longer (>100 yrs) (see USDA Forest Service 2017). Livestock grazing is not a threat to this species (Marks et al. 2016).	Yes	No	Species is secure in planning area, as evidenced by widespread distribution, common occurrence in appropriate habitats, and lack of population-level threats.	MNHP and MFWP. 2017. Brewer's Sparrow — Spizella breweri. Montana Field Guide. Available at http://fieldguide.mt.gov/displayClasses.aspx?Kingdom=Animalia RMADC 2017. Web-based data application accessed May 13, 2016 from http://rmbo.org/v3/avian/ExploretheData.aspx USDA Forest Service. 2017. Nonforested terrestrial ecosystems assessment report. Accessed from https://www.fs.usda.gov/detail/custergallatin/landmanagement/planning/?cid=fseprd532957
11	Nests behind loose bark on tree trunks, preferring large dead or dying trees in densely forested stands (Marks et al. 2016).	Loss of mature and old growth timber through harvest or fire may affect populations if applied over large enough spatial scales. Harvest activities have occurred on about 156,000 acres of the plan area since the 1940's (about 7% of the non-wilderness land base; USDA Forest Service 2017), which is unlikely to have had more than localized impacts to brown creepers.	Yes	No	Species is secure in planning area, as evidenced by widespread distribution, fairly high densities in some portions of the plan area, and lack of population-level threats.	RMADC 2017. Web-based data application accessed May 13, 2016 from http://rmbo.org/v3/avian/ExploretheData.aspx Marks, J., P. Hendricks and D. Casey. 2016. Birds of Montana. Buteo Books, Arlington VA. 659pp. USDA Forest Service. 2017. Forested Terrestrial Vegetation assessment report. Accessed from https://www.fs.usda.gov/detail/custergallatin/landmanagement/planning/?cid=fseprd532957

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12	Bufflehead (Bucephala albeola)	S1B-SD, S2N-SD	Yes	Needs more than this, from WL Spec Rept: May be found year-round in montane GAs, but only migrate through the pine savannah GAs.	Unknown in plan area. However, they are thought have increased markedly in North America since the mid-1950's (Marks et al. 2016)	Most common in wetlands surrounded by boreal forest. In Montana, they favor permanent ponds and small lakes during nesting season and shift to larger lakes and rivers during migration and in winter (Marks et al. 2016).	Boreal wetlands are likely stable.
13	Burrowing Owl (Athene cunicularia)	RFSS-R1, RFSS-R2 Shoshone, BCC	Yes	Eight NHP observation records in the Ashland and Sioux GAs. This is a low density species that has not specifically been surveyed in the plan area.	Unknown.	Flat to gently sloping grasslands and shrublands characterized by low vegetation and very few trees. Requires burrows to nest in, which in Montana, are typically created and abandoned by black-tailed prairie dogs, Richardson's ground squirrels, and American badger (Marks et al. 2016, MNHP and MFWP 2017). There are 70 verified black-tailed prairie dog colonies totaling about 3500 acres in the plan area (MNHP prairie dog colony data).	Unknown.
14	California Gull (Larus californicus)	S2B-SD	Yes	19 records in plan area, primarily in the Madison/Gallatin/Henrys GAs (e.g., Hegben Lake, West Yellowstone, Gallatin River). These occurred mainly in the summer but are likely of non-breeding individuals. There is no direct or indirect evidence of breeding in the plan area (MNHP and MFWP 2017).	Unknown	Prefers larger lakes, but also occurs on ponds and rivers, especially in spring and fall.	Large lakes are stable.
15	Cassin's Kingbird (Tyrannus vociferans)	S2B-SD	Yes	Fairly common and well distributed in the Ashland GA, with 77 NHP observation records there since 1993 One additional NHP observation record in the Sioux GA.	No clear trends. However, occupancy estimates obtained through IMBCR bird monitoring program between 2010 and 2016 have been fairly stable, with the proportion of occupied grid cells hovering near 0.1. Density estimates have been more variable, ranging from a low of 0.5 birds/km2 (2015) to a high of 3.1 (2014) (RMADC 2017).	Rangewide, breeds in a variety of open forest habitats. In the plan area and the rest of Montana, occurs almost exclusively in open ponderosa pine forest, or less frequently, cottonwood gallery forest adjacent to pine forests (Marks et al. 2016). Frequent wildfire is needed to maintain the open pine savannah conditions preferred by this species.	Decline. Fire has significantly reduced pine savanna acres on Ashland GA over the past 30 years (USDA Forest Service 2017). There are still over 130,000 acres of forested pine savanna in this GA, which explains why the kingbird is still fairly common there (over (20% of the 77 Ashland GA observations have been recorded since the last large wildfire in 2012).

	H	I	J	K	L	M
12	Obligate cavity nester that usually selects holes excavated by northern flickers or pileated woodpeckers (Marks et al. 2016).	None known.	Yes	No	Species is secure in planning area	Marks, J., P. Hendricks and D. Casey. 2016. Birds of Montana. Buteo Books, Arlington VA. 659pp.
13	Migratory in plan area, occuring only during summer. Opportunistic hunters, preying on a variety of insects, small mammals and birds, amphibians, and reptiles (MNHP and MFWP 2016).	None known in plan area. Conversion of large areas of native prairie and shrubland to agriculture, and widespread eradication of burrowing mammals are though to be the most important threats rangewide (Marks et al. 2016). Neither crop conversions nor widespread eradication of burrowing mammals occur on NFS lands.	Yes	No	Species is secure in planning area. This is a low density species without relevant population-level threats in the plan area.	Marks, J., P. Hendricks and D. Casey. 2016. Birds of Montana. Buteo Books, Arlington VA. 659pp. MNHP and MFWP. 2016. Burrowing Owl — Athene cunicularia. Montana Field Guide. Available at http://fieldguide.mt.gov/displayClasses.aspx?Kingdom=Animalia
14	Generalist forager, consuming a variety of invertebrates, small vertebrates and plants (MNHP and MFWP 2017).	None known in plan area. South Dakota rating of S2B is associated with breeding habitat, and the plan area portion of South Dakota is migratory range for this species. In Montana, this species is ranked S5B.	Yes	No	Species is secure in plan area. The plan area appears to be used by non-breeding individuals only. Large lake habitat is likely stable, population trends are unknown, and there are no known population-level threats in the plan area.	MNHP and MFWP. 2016. California Gull — Larus californicus. Montana Field Guide. Available at http://fieldguide.mt.gov/displayClasses.aspx?Kingdom=Animalia
15	Migratory in plan area, occuring only during summer. Consumes a variety of insects. This species was evaluated due to the state ranking in South Dakota; however, the South Dakota portion of the plan area is outside of the known breeding range of this species.	Fire exclusion could preclude the open forest conditions needed by this species. Widespread, high severity fire could replace pine savanna forests with grasslands or shrublands. Occupancy and density estimates obtained through the IMBCR bird monitoring program suggests this species is still fairly common in the Ashland GA despite loss of habitat from fire.	Yes	No	Species is secure in plan area, as evidenced by fairly common and well distributed detections in the Ashland GA.	RMADC 2017. Web-based data application accessed May 13, 2016 from http://rmbo.org/v3/avian/ExploretheData.aspx USDA Forest Service. 2017. Forested Terrestrial Vegetation assessment report. Accessed from https://www.fs.usda.gov/detail/custergallatin/landmanagement/planning/?cid=fseprd532957

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16	Chestnut-collared Longspur (Calcarius ornatus)	S2B-MT, BCC	No. There are only two highly imprecise locations, neither of which occurred during breeding season.	N/A	N/A	N/A	N/A
17	Clark's Nutcracker (Nucifraga columbiana)	S2B-SD	Yes	Species is common and widespread in plan area, evidenced by over 900 NHP observations in all 6 GAs.	No clear trend, but density estimates obtained through the IMBCR bird monitoring program in 2010-2016 have generally ranged from about 2-4 birds/km2; however, in 2013 it spiked to almost 14 (RMADC 2017).	Closely tied to cone-producing stands of large-seeded pines, which in the plan area are whitebark, limber and ponderosa pine in the monatane GAs, and ponderosa pine in the savanna GAs. Collectively these three species span a wide geographic and elevational distribution. The seeds of these pines are energy rich, and are cached by Clark's nutcracker for retrieval when food resources are scarce, namely during the bird's late winter / early spring breeding season (Tomback 1998). Douglas fir seeds may also be utilized.	Declining but still abundant and widely distributed. Whitebark and limber pine are confined to the montane GAs, where they are currently present on about 19% and 7% of the landscape, respectively. Ponderosa pine occurs is present on approximately 44% of the savanna GA acres, but is also present in montane GAs at lower amounts. (USDA Forest Service 2017).
18	Common Loon (Gavia immer)	S1B-SD S2N-SD	No. This is an infrequent transient species with 7 NHP observations since 1984. Does not breed, overwinter, or regularly migrate through plan area.	N/A	N/A	N/A	N/A
19	Common Merganser (Mergus merganser)	S2B-SD	Yes	Relatively common and widely distributed in appropriate habitat of the montane GAs, with 89 NHP observations in all but the Pryor GA. Additionally, one NHP observation in the Ashland GA.	Unknown	Breeding season habitats are rivers and lakes bordered by trees large enough to provide nesting cavities. In winter, requires larger lakes and rivers that are ice free and contain large numbers of fish for prey (Marks et al. 2016).	Likely stable.
20	Common Poorwill (Phalaenoptilus nuttallii)	LC-SDGFP	Yes	About 120 NHP observations, across both states and all 6 GAs, but most common in Ashland and Sioux GAs. Density estimates are not available through the IMBCR bird monitoring program, but at least one poorwill has been detected through those surveys in 5 out of 8 years (RMADC 2017).	Unknown, but all but 5 of the NHP observations have been since 2000. Seventeen of the 22 (77%) observations in South Dakota have occurred since 2012.	Semi-arid grasslands, shrublands, and open woodlands of ponderosa pine or juniper (Marks et al. 2017). Landforms used includes rolling prairies, rocky foothills, and flats (MNHP and MFWP 2017).	Relatively stable, although since the late 1980's, wildfire has reduced the amount of forested cover on the Ashland GA, and correspondingly increased it with grassland and shrubland.

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16	N/A	N/A	N/A	No	Species is not known to occur in the plan area; with just one known observation, species is not established or becoming established in plan area.	NHP observation records
17	The morphology, behavior, and annual cycle of Clark's nutcracker is closely tied to large-seeded pines. Other foods may be eaten but may not sustain reproduction (D. Tomback, Univ. Colo, pers. comm. with C. Staab, USFS). Adults may attempt to breed only in years they have sufficiently large stores of seeds (Tomback 1998, Shaming 2015). Nutcracker young typically fledge in April and May. Shortly afterward, snow begins melting in subalpine areas, especially on the south-facing slopes, where adults have placed caches the previous fall.	Fire suppression, severe wildfire, climate change and mountain pine beetle can affect all three pines of interest. Whitebark and limber pine are also affected by white pine blister rust.	Yes	No	Habitat is abundant and is geographically and elevationally widespread. Therefore, despite downward trends in habitat, food resources are expected to remain sufficiently abundant and well-distributed to ensure long-term persistence of the species.	RMADC 2017. Web-based data application accessed May 13, 2016 from http://rmbo.org/v3/avian/ExploretheData.aspx Schaming, T. 2015. Population-wide failure to breed in the Clark's Nutcracker (Nucifraga columbiana). PLoS ONE 10(5): e0123917. Tomback, D. 1998. Clark's Nutcracker (Nucifraga columbiana), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology. Accessed from http://bna.birds.cornell.edu/bna/species/331 Tomback, D. Personal communication with C. Staab on 8/19/2015 and 2/22/2016. USDA Forest Service. 2017. Forested Terrestrial Vegetation assessment report. Accessed from https://www.fs.usda.gov/detail/custergallatin/landmanagement/planning/?cid=fseprd532957
18	N/A	N/A	N/A	No	Species is not known to occur in the plan area; species is transient in the plan area, and is not established or becoming established.	NHP observation records
19	Requires cavities for nesting.	None identified. This species was evaluated due to the South Dakota state rank for breeding populations; however, the South Dakota portion of the plan area is migratory range and does not contain breeding habitat.	Yes	No	Species is secure in plan area, as evidenced by recent numerous and well distributed detections in appropriate habitats of the plan area.	Marks, J., P. Hendricks and D. Casey. 2016. Birds of Montana. Buteo Books, Arlington VA. 659pp.
20	Migratory in plan area, occurring only in summer.	None known.	Yes	No	Species is secure in plan area, as evidenced by recent numerous and well distributed detections in appropriate habitats of the plan area.	Marks, J., P. Hendricks and D. Casey. 2016. Birds of Montana. Buteo Books, Arlington VA. 659pp. MNHP and MFWP. 2017. Common Poorwill. Montana Field Guide. Available at http://fieldguide.mt.gov/displayClasses.aspx?Kingdom=Animalia RMADC 2017. Web-based data application accessed May 13, 2016 from http://rmbo.org/v3/avian/ExploretheData.aspx

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21	Cooper's Hawk (Accipiter cooperii)	LC-SDGFP	Yes	Relatively common and widely distributed in appropriate habitats, with 81 NHP observations occurring across both states and all GAs.	Unknown, but 89% (72) of the 81 observations have occurred since 2000.	Nests in deciduous woodlands, favoring aspens, riparian cottonwoods, and woody draws with green ash and box elder. Also nests in mixed coniferous-deciduous woodlands, pure stands of ponderosa pine and Douglas fir, and residential woodlots (Marks et al. 2016).	Recent declines in pine forests due to fire. Riparian habitats and green ash draws were heavily impacted in previous decades (particularly 1880-1930's), and while recovering in many areas, may still be impaired and/or facing contemporary threats in some area. (USDA Forest Service 2017a).
22	Evening Grosbeak Coccothraustes vespertinus	LC	Yes	71 MNHP observation records, in four GAs, mostly in montane portions of plan area. The IMBCR bird monitoring program estimated a population of nearly 17,000 birds on the Gallatin portion of the plan area in 2019.	The IMBCR bird monitoring program shows significantly positive trends from 2010-2019 at several scales: the Gallatin (montane) portion of plan area (90% CI), BCR 10 in Montana (95% CI), and statewide in Montana (95% CI). Only one IMBCR detection on the Custer portion of plan area, insufficient for reliable trend detection. Both MNHP (2020) and Marks et al. (2016) had reported downward trends based on older data from other (likely less rigorous) data sources.	Breeds in mixed conifer forests and winters in a variety of treed habitats. In Montana, has been found in all forest types but often ponderosa pine and Douglas-fir.	Likely relatively stable overall, with increases in Douglas fir and decreases in ponderosa. Preferred habitats are common within Montane ecosystem of plan area.

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21	Species may occur in the plan area year-round.	Uncharacteristic wildfire threatens pine habitats. Fire suppression may lead to aspen decline. Wood cutting, grazing/browsing by livestock and wildlife, invasive species, and a warming climate may impact green ash and riparian woodlands.	Yes	No	Species is secure in plan area despite threats to habitat in some portions of plan area. Species is relatively abundant and widespread and is likely to persist in the plan area for the long term.	Marks, J., P. Hendricks and D. Casey. 2016. Birds of Montana. Buteo Books, Arlington VA. 659pp. MNHP and MFWP. 2017. Cooper's Hawk. Montana Field Guide. Available at http://fieldguide.mt.gov/displayClasses.aspx?Kingdom=Animalia USDA Forest Service. 2017. Forested Terrestrial Vegetation assessment report. Accessed from https://www.fs.usda.gov/detail/custergallatin/landmanagement/planning/?cid=fseprd532957
22	Consumes a variety of tree seeds, fruits, buds, flowers and insects. Conifer cones and spruce budworm larvae may be especially important (Marks et al. 2016).	Previous reports of declining populations were not well understood (Marks et al. 2016, MNHP and MFWP 2020), but could have been due to fluctuating cone crops or insect population cycles.	Yes	No	Species is secure in the plan area, based on increasing populations at multiple scales and abundant preferred habitats.	Marks, J., P. Hendricks and D. Casey. 2016. Birds of Montana. Buteo Books, Arlington VA. 659pp. MNHP and MFWP. 2020. Evening grosbeak. Montana Field Guide. Available at http://fieldguide.mt.gov/displayClasses.aspx?Kingdom=Animalia RMADC 2020. Web-based data application accessed 3/11/20 from http://rmbo.org/v3/avian/ExploretheData.aspx

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23	Ferruginous Hawk (Buteo regalis)	**RFSS-R2 Shoshone, LC-SDGFP**	Yes	Low density but widespread raptor. 13 NHP observation records across both states and all 6 GAs.	Unknown, but 77% (10) of the NHP records were observed since 2001.	Flat to rolling grasslands, mixed-grass prairies, shrublands and deserts (Marks et al. 2016). In southeastern Montana, big sagebrush, black greasewood, juniper, cottonwood, willow and ponderosa pine may be present (MNHP and MFWP 2017). Avoids heavily forested habitats, intense agricultural areas, and high elevations (Marks et al. 2016).	Unknown. Habitat may increase over time in the Ashland GA due to recent fires. This would most likely be after burned trees break down, in areas where ponderosa pine does not reestablish, as is predicted in many areas (USDA Forest Service 2017 a, b).
24	Flammulated Owl (Otus flammeolus)	S1-SD, RFSS-R1, RFSS-R4 Caribou-Targhee	No. Three historic records from 1992-1994, not all of which were verified. Subsequent surveys did not detect species in those or other potentially suitable portions of the plan area. (Cilimburg 2006, Maxell 2016).	N/A.	N/A	N/A	N/A
25	Golden Eagle (Aquila chrysaetos)	LC-SDGFP	Yes	Over 400 MNHP observation records, well distributed across all GAs. Some of those records represent nests.	Variable, possibly due to annual fluctuations in prey abundance. Datta (2016) observed fewer occupied nests in northwestern SD during 2013-2015 compared to a 2005 study, but also a high (76%) nest survival consistent with stable populations elsewhere. Craighead Beringia South (2015) confirmed an increase in breeding eagles between 1960 and 2010-2015 in south central Montana. Both studies included portions of the plan area.	Nest and forage in relatively open areas, inlcuding grasslands, sagebrush steppe, juniper woodlands and riparian areas (Marks et al. 2016). Nest on cliffs, rocky outcrops, mud buttes, creek banks, and in trees (Datta 2016).	Likely stable in plan area, though urban and agricultural development may reduce habitat on adjacent private lands.

	H	I	J	K	L	M
23	Migratory in plan area, occurring only in summer. Primarily preys upon small mammals such as rabbits and ground squirrels.	None known. Conversion of wildlands to agricultural use does not occur on NFS lands.	Yes	No	Species is secure in plan area. While this is a low density species, it has widespread distribution in the plan area and no relevant population-level theats are present. One study in southeastern Montana found predation and sibling fratricide as the major causes of nestling mortality (MNHP and MFWP 2017).	Bechard, M. and J. Schmutz. 1995. Ferruginous Hawk (Buteo regalis), version 2.0. In The Birds of North America (P. G. Rodewald, editor). Cornell Lab of Ornithology, Ithaca,NY. Obtained from https://doi.org/10.2173/bna.172 Marks, J., P. Hendricks and D. Casey. 2016. Birds of Montana. Buteo Books, Arlington VA. 659pp. MNHP and MFWP. 2017. Ferruginous Hawk. Montana Field Guide. Available at http://fieldguide.mt.gov/displayClasses.aspx?Kingdom=Animalia USDA Forest Service. 2017a. Forested Terrestrial Vegetation assessment report. Accessed from https://www.fs.usda.gov/detail/custergallatin/landmanagement/planning/?cid=fseprd532957 USDA Forest Service. 2017b. Nonforested terrestrial ecosystems assessment report. Accessed from https://www.fs.usda.gov/detail/custergallatin/landmanagement/planning/?cid=fseprd532957
24	N/A	N/A	N/A	No	Species is not known to occur in the plan area. Small number of historic observations, with no detections during more recent structured surveys.	Cilimburg, A. 2006. Northern region landbird monitoring program: 2005 flammulated owl surveys final report. Avian Science Center, U. Montana, Missoula. NHP observation records Maxell, B. 2016. Flammulated owl surveys on the Big Timber, Bozeman, Gardiner, and Livingston Ranger Districts of the Custer Gallatin National Forest: 2013. MNHP. 40pp. RMADC 2017. Web-based data application accessed May 13, 2016 from http://rmbo.org/v3/avian/ExploretheData.aspx
25	Long lived species; Montana record is 28 years. High territory fidelity, and reuses a set of nests (Kochert et al. 2002). Subadults delayed age to first reproduction (4-6 years). Annual reproductive attempts and success may vary with prey abundance (Kochert et al. 2002). Territorial behavior may	Datta (2016) found in northwestern SD that development did not affect nest success but was negatively associated with nest site selection. Fire may have short-term negative effects to nest success but positive effects after vegetation and prey species recover (Kochert et al. 1999). In some areas, significant mortality has resulted from wind turbine strikes, but this has not been demonstrated to affect individuals using the plan area.	Yes	No	Species is secure in plan area, as evidenced by widespread distribution, high number of observations, and lack of significant population-level effects relevant to populations using the plan area.	Craighead Beringia South. 2015. Golden eagle nesting ecology in south central Montana. Craighead Beringia South, Kelly, WY. Datta, S. 2016. Raptors in temerate grasslands: Ecology of ferruginous hawk, golden eagle, and northern harrier in the northern Great Plains. PhD dissertation, South Dakota State Univ., Brookings. Kochert, M, K. Steenhof, L. Carpenter and others. 1999. Effects of fire on golden eagle territory occupancy and reproductive success. J. Wildl. Manage. 63:773-780. Kochert, M., K. Steenhof, C. McIntyre and others. 2002. Golden eagle (Aquila chrysaetos), v. 2.0 In the Birds of North America Online (A. Poole and F. Gill, Eds.). Cornell Laboratory of Ornithology, Ithaca. Accessed from https://doi.org/10.2173/bna.684 Marks, J., P. Hendricks and D. Casey. 2016. Birds of Montana. Buteo Books, Arlington VA. 659pp.

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26	Grasshopper Sparrow (Ammodramus savannarum)	RFSS-R2 Shoshone, BCC	Yes	104 NHP observation records across both states, primarily obtained through formal bird monitoring programs (e.g., IMBCR, ASC). Most are in the pine savanna GAs, but a few were in montane GAs. All but 4 of the NHP observations have been since 2002.	Much variability in occupancy and density estimates obtained through IMBCR bird monitoring program (RMADC 2017), partly due to fluctuating number of transects sampled. Highest number of individuals detected since 2009 through that program were in 2011, 2015, and 2017.	Relatively dry native grasslands and tame pastures with intermediate grass height and patches of bare ground. Scattered sagebrush may provide singing perches, but high shrub densities are avoided (Marks et al. 2016). While only 15% of the pine savanna GAs have the potential vegetation classified in grassland habitat type groups, the current amount of area actually expressed in the grass cover type is much higher (45-65%), due to extensive, recent high severity fires (USDA Forest Service 2017).	May increase over time in the Ashland GA due to recent fires. This will be most likely after burned trees break down and in areas where ponderosa pine does not reestablish, as is predicted in many areas (USDA Forest Service 2017).
27	Gray-crowned Rosy Finch (Leucosticte tephrocotis)	S2B-MT	Migrant or overwintering, not breeding	20 NHP observations, primarily in montane GAs (1 in Sioux GA). All observations were during the non-breeding season.	Unknown.	In migration and winter they occur in brushy areas, open fields, cultivated lands, and other areas of human habitation.	Unknown.
28	Great Gray Owl (Strix nebulosa)	RFSS-R4 Caribou-Targhee	Yes	54 NHP observation records in plan area, all in montane GAs.	Unknown. 44% (24) of NHP observations recorded since 2000.	Mesic coniferous and mixed coniferous-deciduous forests with meadows, forest openings, and other edges (Marks et al. 2016, MNHP and MFWP 2017).	Unknown.
29	Greater Prairie	LC	No; there are no NHP observations in the plan area.	N/A	N/A	N/A	N/A
30	Greater Sage-grouse (Centrocercus urophasianus)	S2-MT, S2-SD, RFSS-R1	Yes	29 NHP observation records in Montana portion of plan area, primarily in Ashland GA but also a handul in the Pryors GA and one in the Madison, Gallatin and Henrys GA.	A decline has been noted in the plan area. Historically, three leks were at least partially located in Montana portions of the plan area, but none have had confirmed sage-grouse activity since the 1980s. No leks have been noted in the South Dakota portion of the plan area, though there are several nearby (USDA Forest Service 2017a).	Associated with sagebrush habitats year-round, which in the plan area is typically communities of Wyoming big sagebrush in the pine savanna GAs or mountain big sagebrush in the montane GAs. Also use forb-rich grasslands, meadows, and agricultural fields near sagebrush from spring through fall (Marks et al. 2016). In the plan area, much of the habitat occurs near the edges of the administrative boundary, adjacent to non-NFS lands.	Historical declines in some portions of the plan area. Recovery is slow but likely occuring in some of these areas (USDA Forest Service 2017b).

	H	I	J	K	L	M
26	High potential for double brooding, with short incubation (11-12 days) and and fledgling (9+ days) periods (MNHP and MFWP 2017).	Chronic overgrazing by livestock could be a threat if severe enough, but given this species preference for areas with bare ground, this is unlikely to occur.	Yes	No	Species is secure in plan area, as evidenced by relatively abundance, widespread distribution and lack of population-level effects relevant to populations using the plan area.	Marks, J., P. Hendricks and D. Casey. 2016. Birds of Montana. Buteo Books, Arlington VA. 659pp.
27	Migratory in plan area, occurring only in non-breeding season.	None known. This species has affinity for human-influenced areas during the non-breeding season. This species is ranked as S2B-MT for breeding season concerns.	Yes	No	Species is secure in plan area. Utlilizes the plan area only during the non-breeding season, which is not a time of concern for this species.	MNHP and MFWP. 2017. Gray-crowned Rosy-Finch — Leucosticte tephrocotis. Montana Field Guide. Available at http://fieldguide.mt.gov/displayClasses.aspx?Kingdom=Animalia
28	Occurs in low densities year-round in plan area. Nests in broken-topped snag, old stick nests made by other large birds and artificial platforms (Marks et al. 2016). Preys upon a variety of small mammals, especially rodents (MNHP and MFWP 2017).	Harvest of large diameter trees and snags can reduce the number of potentially suitable nest sites if extensive enough (Bull and Duncan 1993). However, these are just one type of potentially suitable nest structure, and home ranges are large (>25 sq mi in Oregon; Bull and Duncan 1993).	Yes	No	Species is secure in plan area, evidenced by a wide distribution across montane portions of the plan area, and a lack of relevant threats to populations using the plan.	Bull, E. and J. Duncan. 1993. Great Gray Owl (Strix nebulosa), version 2.0. In The Birds of North America (P. G. Rodewald, editor). Cornell Lab of Ornithology, Ithaca, NY. Accessed at https://doi.org/10.2173/bna.41 Marks, J., P. Hendricks and D. Casey. 2016. Birds of Montana. Buteo Books, Arlington VA. 659pp. MNHP and MFWP. 2017. Great Gray Owl — Strix nebulosa. Montana Field Guide. Available at http://fieldguide.mt.gov/displayClasses.aspx?Kingdom=Animalia
29	N/A	N/A	N/A	No	Species is not known to occur in the plan area.	NHP observation records
30	A small portion of the plan area contains core (priority) or general sage-grouse habitat, all in the Ashland, Sioux and Pryor GAs (see USDA Forest Service 2017).	Fire is probably the greatest threat to sage-grouse habitat in the plan area. Introduction of invasive plant species can also be a problem but currently occurs on less than 3,500 acres of core and general sage-grouse habitat in the plan area (USDA Forest Service 2017). Grazing by livestock can be beneficial, neutral or negative depending on intensity. Conversion of sagebrush for agricultural development is a problem in other areas but this is not likely to occur in the plan area.	Yes	Yes	There is substantial concern for long-term persistence of this species in the plan area primarily due to small population size, a reduction (to zero) in known, active breeding leks, an inherently small amount of habitat in the plan area, and the presence of relevant threats (primarily fire).	USDA Forest Service. 2017a. Terrestrial wildlife assessment report. Accessed from https://www.fs.usda.gov/detail/custergallatin/landmanagement/planning/?cid=fseprd532957 USDA Forest Service. 2017b. Nonforested terrestrial ecosystems assessment report. Accessed from https://www.fs.usda.gov/detail/custergallatin/landmanagement/planning/?cid=fseprd532957 Marks, J., P. Hendricks and D. Casey. 2016. Birds of Montana. Buteo Books, Arlington VA. 659pp.

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31	Harlequin Duck (Histrionicus histrionicus)	S2B-MT, RFSS-R1, RFSS-R2 (Shoshone), RFSS-R4 (Caribou-Targee)	Yes	170 MNHP observation records, mostly in Madison/Gallatin/Henrys Lake and Absaroka Beartooth GAs, which are at the eastern limit of this species' distribution. Broods have been observed in two areas during the appropriate times of year. Both of these areas are in the Absaroka Beartooth GA, and in or near the Beartooth Wilderness Area.	Unknown in plan area. However, both areas with evidence of breeding had reproduction confirmed in 2014.	Clear, fast flowing mountain streams with abundant aquatic insects. A variety of nest sites have been documented, including cliffs, down logs in burned areas, instream logjams, and streambanks with thick shrub or tree cover (Cassirer and Groves 1994, L. Bate, NPS, pers. comm. with R. Kuennen, USFS 2014). Key habitat characteristics are high water quality and complex stream structure (L. Bate pers. comm. with R. Kuennen 2015). Calm back waters along rivers or beaver ponds may be important for brood rearing (Kuchel 1977).	Likely stable given the location of breeding areas in or near designated Wilderness Area. Also, PacFish/InFish Biological Opinion data indicate stream / riparian zone habitat in plan area is stable or improving in Montane ecosystems (Archer and Ojala 2016).
32	Hooded Merganser (Lophodytes cucullatus)	S2B-SD	Yes	8 NHP observation records, in two GAs (Madison/Gallatin/Henrys and Ashland). Most are winter records and there is no evidence of breeding in the plan area. South Dakota portion of plan area is migratory range only and the species is not known to breed there.	Unknown in plan area. May be increasing at statewide scale of Montana, evidenced by increased breeding records in eastern half of state (Marks et al. 2016).	In winter, uses lakes, reservoirs and rivers that are large enough to remain ice-free. During migration, uses a wider variety of wetlands such as prairie potholes, stock ponds and reservoirs far from trees. In breeding season, uses wooded lakes and tree-lined rivers. (Marks et al. 2016).	Unknown, but in general large lakes, reservoirs and rivers are relatively stable.
33	Horned Grebe (Podiceps auritus)	S2B-SD, BCC	No. There are no NHP or NRM observation records in the plan area that are more precise than a latilong, which in Montana, averages 3200 sq mi.	N/A	N/A	N/A	N/A

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31	Harlequin ducks are relatively long-lived, with low annual reproductive output, delayed reproduction, and high fidelity to breeding sites and mates. Some of these traits may limit the extent to which populations can rebound from declines. The survival of adult females is likely the most critical factor in maintaining local populations (Wiggins 2005). Annual productivity may be influenced by the timing and intensity of spring water flows (i.e., flooding and drought; (Hansen 2014, Kuchel 1977). Harlequins that breed in the US Rocky Mountains appear to winter primarily in coastal waters of Oregon, Washington and southern British Columbia (Hendricks 2000).	Threats are not well understood. Predation on coastal wintering areas by a growing bald eagle population is suspected to influence rates of mortality and return of breeding females to Montana (B. Maxell, MNHP, pers comm with C. Staab, USFS). Kuchel (1977), relying on very small sample sizes, found young harlequins may be sensitive to some types of human presence during their first 4 weeks of life. However, females nesting in high quality habitat may tolerate or habituate to high levels of human activity, particularly where vegetation is dense (Hansen 2014, Wallen and Grove 1989). Competition with some species of fish, climate change, and hunting in wintering areas may also affect the species.	Yes	No	Species appears secure in the plan area. Breeding population is small but broods have been observed in both known areas as recently as 2014. Available data suggest that potential stressors are not of sufficient magnitude or extent to conclude substantial concern for long term persistence.	Archer, E. and J. V. Ojala. 2016. Stream habitat condition for sites in the Custer Gallatin (west) National Forest. PacFish/InFish Biological Opinion (PIBO) Monitoring Program. USDA Forest Service, Logan, UT. Pp. 22. Cassirer, E. and C. Groves. 1994. Ecology of Harlequin Ducks in northern Idaho. Idaho Dept. Fish Game, Boise. Hansen, W. 2014. Causes of annual reproductive variation and anthropogenic disturbance in harlequin ducks breeding in Glacier National Park, Montana. M.S. Thesis, Univ. Montana, Missoula. 90pp. Hendricks, P. and J. Reichel. 1998. Harlequin Duck research and monitoring in Montana: 1997. Montana Natural Heritage Program, Helena. 28 pp Hendricks, P. and J. Reichel. 2000. Harlequin Duck research and monitoring in Montana: 1999. Montana Natural Heritage Program, Helena. 28 pp Kuchel, C. 1977. Some aspects of the behavior and ecology of harlequin ducks breeding in Glacier National Park. M.S. Thesis, Univ. Montana, Missoula. 163pp. Wiggins, D. 2005. Harlequin Duck (Histrionicus histrionicus): a technical conservation assessment. USDA Forest Service, Rocky Mountain Region. Available at http://www.fs.fed.us/r2/projects/scp/assessments/harlequinduck.pdf
32	Obligate cavity nester, usually where limbs or tops of trees have broken, or in artificial nest boxes. Feeds on aquatic organisms such as small fish and large invertebrates (Marks et al. 2016).	None known.	Yes	No	Species is secure in the plan area. Lack of threats to large water bodies used as winter habitats. Concerns in South Dakota relate to breeding habitat, but breeding habitat does not occur in South Dakota portions of the plan area.	Marks, J., P. Hendricks and D. Casey. 2016. Birds of Montana. Buteo Books, Arlington VA. 659pp.
33	N/A	N/A	N/A	No	Species is not known to occur in the plan area. There are no records more precise that a latilong in the plan area.	NHP observation records

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34	Lewis's Woodpecker (Melanerpes lewis)	S2B-MT, BCC	Yes	Thirty observations of species recorded in MNHP database. Species distributed across low elevation areas of entire plan area in MT. Plan area is within summer range of species. Preferred habitat more common in Pine Savannah ecosystem of plan area.	Unknown. Breeding bird survey data indicate a 2.5% decline per year survey-wide from 1966 to 2010. Data sample sizes are too small to discern reliable trends (Marks et al. 2016).	Lewis's Woodpeckers are known to occur in river bottom woods and forest edge habitats (Skarr 1969). Habitat information from other Lewis's Woodpecker sources state that the breeding habitat is open forest and woodland, often logged or burned, including oak and coniferous forest; primarily ponderosa pine (*Pinus ponderosa*), riparian woodland and orchards, and less commonly in pinyon-juniper *Pinus* spp.-*Juniperus* spp.). Lewis's Woodpecker distribution is closely associated with open ponderosa pine forest in western North America, and is strongly associated with fire-maintained old-growth ponderosa pine (Saab and Dudley 1998, MNHP and MFWP 2017).	Stable. Recent fires in the Sioux GA within MT have resulted in suitable habitat being widely available in the Pine Savannah ecosystem of the plan area.
35	Loggerhead Shrike (Lanius ludovicianus)	RFSS-R1 & R2 Shoshone, BCC	Yes	Sixteen observations of species recorded in MNHP database spanning entire plan area. Entire plan area is within summer range of species (MNHP and MFWP 2017). Most observations in Pine Savannah ecosystem and at lower elevations of Montane ecosystem within plan area.	Unknown, may be declining. Breeding bird surveys indicate a 3.2% decline survey-wide from 1966 to 2010 and a 0.5% decline in Montana during that same period.	Open landscapes with short vegetation, including pastures with fence rows, mowed roadsides, agricultural fields, riparian areas, and open woodlands (MNHP and MFWP 2017). Flat to gently rolling grasslands, shurblands, and open forests (Marks et al. 2016).	Stable, habitat widely available throughout plan area.
36	Long-billed Curlew (Numenius americanus)	RFSS-R2 Shoshone BCC	Yes	19 NHP observations in the plan area, all but one in South Dakota. Has been detected near Hebgen Lake, as well as on the Ashland and Sioux Districts during breeding season, but breeding has never been observed in the plan area.	Unknown. Species is not monitored well by IMBCR bird monitoring program or the Breeding Bird Survey (Fellows and Jones 2009).	Nests in sparsely vegetated shortgrass prairie, including both native grasslands and overgrazed rangelands dominated by exotic species such as cheatgrass, provided the grasses are not too tall (Marks et al. 2016). Habitat limited in the plan area; more common at lower elevations outside of plan area.	Unknown, but in general grasslands are relatively stable in plan area as permanent conversion to agricultural or residential use has not occurred.

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34	Little information exists regarding Lewis's Woodpecker reproduction in Montana. Near Fortine, eggs were incubated during June. Dates for young in the nest range from June 22 to August 4. However, information from other areas where Lewis's Woodpeckers occur indicates that they form a life-long pair bond. The clutch size is five to nine (usually six to seven). Incubation, by both sexes, lasts 13 to 14 days. Young can fly 28 to 34 days after hatching (MNHP and MFWP 2017).	Loss of older / mature cottonwoods and/or ponderosa pines. Loss of snag habitat. Fire suppression that results in increased tree density reduces habitat suitability (Marks et al. 2017).	Yes	No	Breeding documented on Sioux GA in MT. Preferred habitat is widely available in Pine Savannah portion of plan area of Montana, especially following recent wildfires. Most suitable habitat in Montane ecosystem is found outside plan area.	Marks, J.S., P. Hendricks, D. Casey. 2016. Birds of Montana. Buteo Books, Arrington, VA. Pp. 659. MNHP and MFWP. 2017. Lewis's Woodpecker — Melanerpes lewis. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on December 12, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=ABNYF04010 Saab, V. A. and J. G. Dudley. 1998. Responses of cavity-nesting birds to stand-replacement fore and salvage logging in ponderosa pine/Douglas-fir forests of southwestern Idaho. USDA Forest Service Rocky Mountains Research Station Research Paper RMRS-RP-11, Ogden, ID. Skaar, P.D. 1969. Birds of the Bozeman latilong: a compilation of data concerning the birds which occur between 45 and 46 N. latitude and 111 and 112 W. longitude, with current lists for Idaho, Montana, Wyoming, impinging Montana counties and Yellowstone National Park. Bozeman, MT. 132 p.
35	Nests in brushy draws, shelterbelts, scattered trees and shrubs in grasslands and farmlands. Nest is a bulky cup of twigs, bark and other palnt material placed in a tree. Isolated trees and large shrubs, especially thorny species, are preferred for nesting (Marks et al. 2016).	Greatly impacted during the DDT pesticide era of the 1940's to 1970's. Loss of grasslands and sagebrush stands with large plants may be of specific concern in Montana (Marks et al. 2016).	Yes	No	Species distributed across and indirect evidence of breeding within plan area. Habitat widely available. No immenent threats within plan area.	Marks, J.S., P. Hendricks, D. Casey. 2016. Birds of Montana. Buteo Books, Arrington, VA. Pp. 659. MNHP and MFWP. 2017. Loggerhead Shrike — Lanius ludovicianus. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on December 11, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=ABPBR01030
36	During breeding season, forages in agricultural fields, particularly where flood irrigation is used (Fellows and Jones 2009). Probes holes for for a variety of invertebrates such as earthworms and spiders, but opportunistically eats small vertebrates as well (e.g., bird eggs and nestlings; Fellows and Jones 2009).	Primary threat is permanent conversion of native habitat for agriculture or human development, which does not occur on National Forest System lands. Livestock grazing, particularly early season grazing to reduce grass height, typically benefits nesting, although year-round grazing can be detrimental (Dugger and Dugger 2002).	No	No	Lack of evidence to suggest the species uses the plan area for nesting or other critical periods. Use appears to be sporadic.	Fellows, S. and S. Jones. 2009. Status assessment and conservation action plan for the long-billed curlew (Numenius americanus). Biological Technical Publication BTP-R6012-2009. USFWS

	A	B	C	D	E	F	G
37	Long-eared owl (Asio otus)	LC-SDGFP	Yes	Sixteen observations of species recorded in MNHP database spanning entire plan area. Entire plan area is within year-round range of species (MNHP and MFWP 2017).	Unknown. Breeding bird surveys are unsuitable to determine trends as the species is nocturnal. Tend to be nomadic in response to fluctuating prey numbers, thus can be difficult to discern population trends tied specifically to habitat conditions (Marks et al. 2016).	Long-eared Owls are most often observed in hedgerows, woody draws, and juniper thickets, although they do occur within the forest edge. They are predominantly open-country hunters; however, they are seldom seen because of their nocturnal habits (MNHP and MFWP 2017).	Stable, habitat widely available throughout plan area.
38	Merlin (Falco columbarius)	LC-SDGFP	Yes	Two hundred nineteen observations of species recorded in MNHP database. Observations reported throughout all GAs of plan area. Entire plan area is within year-round range of species (MNHP and MFWP 2017).	Unknown, assumed stable to increasing in Montana. Christmas bird count data and counts at migration watch sites suggest an increase in numbers. Breeding bird survey data support this trend (Marks et al. 2016). Data in Harding County, SD suggest populations have declined in that portion of the plan area (SDGFP 2017).	Breeding pairs in eastern Montana usually use sparse conifer stands adjacent to prairie habitats, but sometimes use shelterbelts and river bottom forests. In western Montana, they use open stands of conifers and river bottom forests. Merlins sometimes nest in urban areas (MNHP and MFWP 2017).	Stable, habitat is widely available especially throughout Pine Savannah ecosystem of plan area.
39	Mountain Plover (*Charadrius montanus*)	G3, S2B-MT, BCC	No. Only one documented occurrence (in 2010) of a transient (migrating) individual within the plan area. This observation was at the edge of the plan area in the Pryors GA, with an estimated accuracy of 1,000 meters.	N/A	N/A	N/A	N/A
40	Northern Goshawk (Accipiter gentilis)	S2N-SD	Yes	Widely distributed throughout planning area (all GAs). Three hundred eight MNHP observation records. This is consistent with Kowalski (2005) findings that the species is fairly common and widely distributed at the Regional (USFS R1) scale.	Unknown, but species has maintained a very wide distribution and is more common than once thought.	Nests in a variety of forest types, including spruce/fir, Douglas-fir, western larch, ponderosa pine, and lodgepole. Prefer mature forests with large trees, a dense canopy and relatively open understory (MFWP and MNHP 2017).	Unknown, but species has maintained a very wide distribution and is more common than once thought.

	H	I	J	K	L	M
37	Begins nesting in March or April; nests in a stick nest built by other raptors, magpies, crows, or ravens. Clutch size three to six. Incubation about 26 days. Young fledge at 30 to 40 days. Nests from late April into June. Young just out of nest as late as July (MNHP and MFWP 2017).	Loss of woody draws, riparian areas and grasslands (Marks et al. 2016).	Yes	No	Species distributed across plan area. Insufficient data to determine population trend. Habitat is available and stable.	Marks, J.S., P. Hendricks, D. Casey. 2016. Birds of Montana. Buteo Books, Arrington, VA. Pp. 659. MNHP and MFWP. 2017 Long-eared Owl — Asio otus. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on December 11, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=ABNSB13010
38	Male Merlins arrive at nesting areas in late March and early April, and females arrive slightly later. They use nests previously constructed by Black-billed Magpies or American Crows; Merlins, like other falcons, do not build their own nests. Used old corvid nests in MT. Clutches of three to five eggs are laid from mid April to early June, and are incubated for about 30 days. The young fly when about 40 days old, but they remain near their nests (MNHP and MFWP 2017).	Historically, pesticide use contri buted heavily to population declines. Merlins may still be exposed to pesticides if feeding on Neotropical migrants (Marks et al. 2016). No threats listed specific to plan area.	Yes	No	Widespread throughout plan area. Populations stable within Montana. No known immenent threats within plan area.	Marks, J.S., P. Hendricks, D. Casey. 2016. Birds of Montana. Buteo Books, Arrington, VA. Pp. 659. MNHP and MFWP. 2017. Merlin — Falco columbarius. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on December 11, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=ABNKD06030 South Dakota Game Fish and Parks website: http://arcgis.sd.gov/server/gfp/wap/species.
39	N/A	N/A	N/A	No	Species is not known to occur in the plan area; species is not established or becoming established in plan area.	NHP observation records
40	Eggs are laid from early April to late May, young fledge from late June to mid-August and are independent of parental care by early September. Only one brood is raised per year (MNHP and MFWP 2017).	Some types of timber harvest; insect and disease reducing mature (Marks et al 2016).	Yes	No	Wide distribution throughout plan area, forest habitat generalist.	Kowalski, S. Frequency of northern goshawk presence in the Northern Region. USFS Northern Region, Missoula. 12pp. Marks, J.S., P. Hendricks, D. Casey. 2016. Birds of Montana. Buteo Books, Arrington, VA. Pp. 659. MNHP and MFWP. 2017. Northern Goshawk — Accipiter gentilis. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on December 11, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=ABNKC12060

	A	B	C	D	E	F	G
41	Northern Harrier (Circus cyaneus)	LC-SDGFP	Yes	One hundred nineteen observations of species recorded in MNHP database. Observations cover all Gas in plan area. Entire plan area is within species' year-round range (MNHP and MFWP 2017).	Unknown, assumed stable. Breeding bird survey data indicate stable numbers in Montana from 1966 to 2010 but show a 0.8% decline per year survey-wide (Marks et al. 2016).	Northern Harriers nest on the ground in dense grass, snowberry-rose patches, and hay fields. They hunt in grasslands, especially near wetlands and agricultural areas. Species occurs widely in valleys in open areas, generally not far from water. In late summer, some birds move upward into high mountain meadows (Skaar 1969, Davis 1961).	Stable, preferred habitat is widely available in plan area.
42	Northern Saw-whet Owl (Aegolius acadicus)	LC-SDGFP	Yes	Twenty nine observations of species in MNHP database. Species distributed across entire plan area in both states. Montane ecosystem portion of plan area year round range, Pine Savannah ecosystem portion of plan area primarily breeding range (MNHP and MFWP 2017).	Unknown, assumed stable. One of the most numerous owls in North America (Marks et al. 2016).	Most common in coniferous forests; however, they can be found in deciduous trees along watercourses (MNHP and MFWP 2017). Nest in a wide variety of forest types and readily use nesting boxes (Marks et al. 2016).	Stable. Species uses a variety of habitat which is widely available in plan area.
43	Olive-sided Flycatcher (Contopus cooperi)	RFSS-R2 Shoshone	Yes	One hundred sixty three species observations recorded in MNHP database. All observations within plan area are in the Montane ecosystem. Species breeding range covers Gallatin, Madison, Henrys, Bridger, Bangtail, Crazies GA and Pryor Mountains (MNHP and MFWP 2017).	Unknown. Breeding bird survey data indicate a 3.5% per year decline survey-wide for the species from 1966 to 2010. Montana data are derived from inadequate sample sizes and suggest a slight increase of 0.5% per year during the same period (Marks et al. 2016).	Inhabits forest openings, forest edges, and open to semi-open coniferous forest stands with low canopy closure. More common in early post-fire habitats than in any other major cover type. Will use harvest live stands with structure that mimics post-fire habitat, particular those with high snag densities (Marks et al. 2016).	Stable. Preferred habitat is common within Montane ecosystem of plan area.

	H	I	J	K	L	M
41	Northern Harriers arrive on their breeding areas in March and April. From three to nine eggs are laid in May. The eggs hatch in June and the young can fly at 30 to 35 days. Nesting starts in early May and continues into July (Davis 1961).	Loss of grasslands and marshlands, will avoid areas heavily grazed by livestock (Marks et al. 2016).	Yes	No	Well distributed across entire plan area, habitat widely available. Secure heritage rankings in both MT and SD.	Davis, C.V. 1961. A distributional study of the birds of Montana. Ph.D. dissertation. Oregon State University, Corvallis. 462 pp. Marks, J.S., P. Hendricks, D. Casey. 2016. Birds of Montana. Buteo Books, Arrington, VA. Pp. 659. MNHP and MFWP. 2017. Northern Harrier — Circus hudsonius. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on December 11, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=ABNKC11010 Skaar, P.D. 1969. Birds of the Bozeman latilong: a compilation of data concerning the birds which occur between 45 and 46 N. latitude and 111 and 112 W. longitude, with current lists for Idaho, Montana, Wyoming, impinging Montana counties and Yellowstone National Park. Bozeman, MT. 132 p.
42	Begins nesting in April. Nests in woodpecker holes and possibly natural cavities. Clutch size four to six. Incubation approximately 30 days. Young just out of nest reported on May 29 and July 12 (MNHP and MFWP 2017)..	Removal of snags that reduces nest site availability (Marks et al. 2016).	Yes	No	Species is widely distributed and uses a variety of habitats that is widely available in plan area.	Marks, J.S., P. Hendricks, D. Casey. 2016. Birds of Montana. Buteo Books, Arrington, VA. Pp. 659. MNHP and MFWP. 2017. Northern Saw-whet Owl — Aegolius acadicus. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on December 11, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=ABNSB15020
43	Records indicate direct evidence of breeding in Montana in July and August, with breeding behavior starting in May shortly after spring arrival (Montana Bird Distribution Committee 2012). Egg dates are probably similar to those for Colorado: June 16 to July 20. Johnsgard (1986) notes that fledged young have been reported in Jasper National Park as early as July 1, suggesting earlier nesting dates are possible in Montana than have definitively been recorded. The usual clutch size of three is confirmed in the state (Montana Bird Distribution Committee 2012).	Habitat loss in Neotropical portion of species' winter range is primary threat. Research in Montana indicates that the species uses managed forest types that have similar structural conditions to post-fire habitats but may function as population sinks (Marks et al. 2016).	Yes	No	Widely distributed across Montane ecosystem of plan area where suitable habitat exists. Insufficient data to determine population trends.	Johnsgard, P.A. 1986. Birds of the Rocky Mountains: with particular reference to national parks in the northern Rocky Mountain region. Colorado Associated University Press, Boulder, CO. Marks, J.S., P. Hendricks, D. Casey. 2016. Birds of Montana. Buteo Books, Arrington, VA. Pp. 659. Montana Bird Distribution Committee. 2012. P.D. Skaar's Montana bird distribution. 7th Edition. Montana Audubon, Helena, Montana. 208 pp. + foldout map. MNHP and MFWP. 2017. Olive-sided Flycatcher — Contopus cooperi. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on December 11, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=ABPAE32010

	A	B	C	D	E	F	G
44	Osprey (Pandion haliaetus)	S1B-SD, ST-SD	Yes	One hundred twenty eight species observations in plan area recorded in MNHP database. Plan area in Montana is within year-round range, plan area in South Dakota is within migratory range (MNHP and MFWP 2017).	Unknown, assumed stable to increasing. Plan area specific data lacking to determine trend. However, breeding bird survey data in Montana showed a 6.1% per year increase from 1966-2010 (Marks et al. 2016).	Ospreys nest mainly near large lakes, reservoirs, and rivers in Montana. On upper Missouri, nest tree height variable but always as tall or taller than other trees. Presence of a flat, stable surface for nesting more important than tree species (Grover 1983). Readily use artificial nesting platforms (Marks et al. 2016).	Stable. Nesting areas near waterbodies are excluded from vegetation treatments for resource protection as per Forest Plan standards and state streamside management zone regulations.
45	Peregrine Falcon (Falco peregrinus)	RFSS-R1 & R2 Shoshone	Yes	One hundred sixty species observations in plan area recorded in MNHP database. Year round range covers entire plan area (MNHP and MFWP 2016).	Stable to increasing. Rangewide the population is increased and stabilized from the 1970s as a result of pesticide bans and recovery efforts. Reintroduction efforts in 1980s–1990s resulted in a six-fold increase in the number of breeding pairs in Montana from 1994–2009.2 The number of observations and nest sites has increased in the plan area since the early 1990s (Marks et al. 2016).	Nests typically are situated on ledges of vertical cliffs, often with a sheltering overhang. Ideal locations include undisturbed areas with a wide view, near water, and close to plentiful prey. Substitute man-made sites can include tall buildings, bridges, rock quarries, and raised platforms (MNHP and MFWP 2017).	Stable. Geologic features that provide nesting habitat are stable.
46	Prairie Falcon (Falco mexicanus)	LC-SDGFP	Yes	Three hundred forty one observations of species in plan area recorded in MNHP database. Species distributed year round in all GAs of plan area (MNHP and MFWP 2017).	Unknown, but assumed stable. Population data insufficient to determine trend in plan area. Migration watch site counts from the late 1970's to late 1990's suggest that the population is relatively stable (Marks et al. 2016).	Prairie Falcons use cliffs for nesting, and grassland and prairie habitats for hunting. 83% nesting territories located between 4000 and 6000 ft. Most nests are on cliffs averaging 125 ft in height. Mean height above base of cliff was 80 ft. 72% of eyries faced south or east. Almost all nests overlooked at least some grassland (MNHP and MFWP 2017).	Stable. Geologic features that provide nesting habitat are stable. Grassland habitat used for hunting readily available in plan area.

	H	I	J	K	L	M
44	Ospreys arrive in Montana in March and April, and lay one to four eggs in April or May. The young leave the nest in July and August, when about two months old. Nearly all of their diet consists of fish, primarily rough fish such as suckers (MNHP and MFWP 2017).	Primary threats to species occur on Neotropical wintering grounds. In eastern Montana, entanglement of young with bailing twine and fishing line brought back as nesting material by adults has been documented (Marks et al. 2016).	Yes	No	Species is secure and widespread in plan area in Montana. Species listed as S1B in South Dakota, however, plan area in South Dakota only occurs in species' migratory range.	Grover, K. E. 1983. Ecology of the osprey on the upper Missouri River, Montana. M.S. thesis. Montana State Univ., Bozeman. Pp. 79. Marks, J.S., P. Hendricks, D. Casey. 2016. Birds of Montana. Buteo Books, Arrington, VA. Pp. 659. MNHP and MFWP. 2017. Osprey — Pandion haliaetus. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on December 11, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=ABNKC01010
45	Clutch size averages 4 at mid-latitudes, and 3 in the far north. Incubation lasts 32 to 35 days, and is done mainly by female (the male brings food). Young birds fledge at 39 to 49 days, and gradually become independent. Brood losses are apparently caused mainly by bad weather, and lost clutches are usually replaced at alternate site. Peregrine falcons first breed typically at 2 to 3 years of age, and occasionally as yearlings. They usually form a lifelong pair bond (MNHP and MFWP 2017).	Pesticide effect on eggshell thickness led to federal listing of this species, but contaminant levels were reduced sufficiently to allow recovery and expansion of the species (USFWS 2003). No significant relevant threats in plan area currently.	Yes	No	Stable to increasing numbers within plan area and rangewide. Habitat is stable, species will use man-made structures for nesting as well.	Marks, J.S., P. Hendricks, D. Casey. 2016. Birds of Montana. Buteo Books, Arrington, VA. Pp. 659. MNHP and MFWP. 2017. Peregrine Falcon — Falco peregrinus. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on December 8, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=ABNKD06070
46	Nests sites are on cliffs, usually in a large hole or sheltered ledge, or sometimes in stick nests built by Golden Eagles or hawks. Adults establish nesting territories in late March or early April, and noisy aerial courtship displays are common. Clutches of three to five eggs are usually laid in late April, and incubated for about one month. Young leave the nest when about 40 days old, but may stay nearby for up to four weeks afterward (MNHP and MFWP 2017).	Degradation, such as overgrazing, grass fires, and conversoin for agriculture and energy development, that reduces suitable habitat for ground squirrels (primary prey in summer) (Marks et al. 2016).	Yes	No	Species is widespread throughout Pine Savannah ecosystem within plan area. Habitat is stable and occupied where available.	Marks, J.S., P. Hendricks, D. Casey. 2016. Birds of Montana. Buteo Books, Arrington, VA. Pp. 659. MNHP and MFWP. 2017. Prairie Falcon — Falco mexicanus. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on December 8, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=ABNKD06090

	A	B	C	D	E	F	G
47	Pygmy Nuthatch *(Sitta pygmaea)*	S2S3-SD	Yes	27 NHP records, across 5 GAs, all in Montana. However, most records were in the Ashland GA. No records of occurence in SD portion of plan area.	Unknown. Range-wide, breeding bird surveys suggest numbers have been fairly stable from 1966 to 2010 (Marks et al. 2016).	Lives in long-needled pine forests, primarily ponderosa pine (MNHP and MFWP 2017). May occasionally use cottonwoods, aspens, and mixed-forests (Marks et al. 2016).	Possibly declining in the Ashland GA due to recent large fires in ponderosa pine stands. However, habitat is still widely available within the GA.
48	Sage Thrasher (*Oreoscoptes montanus*)	S2B-SD	Yes	Nine observations recorded in MNHP database for plan area. Transient (migratory) observations recorded for the Gallatin, Madison, Absaroka and Beartooth and Bridger, Bangtail, Crazies Gas. Species is common and breeding on Sioux GA in MT and SD (MNHP and MFWP 2017).	Unknown. Breeding bird surveys from 1966 to 2010 suggest numbers have declined slightly in Montana. Species was found in low numbers in South Dakota in 1980s and 1990s but not found in plan area in 2009 - 2012 (Marks et al. 2016).	In Montana, the Sage Thrasher breeds in habitats dominated by Big Sagebrush. Sage Thrasher abundance is positively correlated with sagebrush cover and negatively correlated with grass cover. Also occurs in shrublands dominated by greasewood and bitterbrush, especially after breeding season (Marks et al. 2016). The Sage Thrasher uses sagebrush habitats, grasslands, and other semi-arid habitats during spring and fall migration and tends to avoid areas of human habitation (MNHP and MFWP 2017).	Sagebrush cover has likely increased in plan area since pre-European settlement due to fire suppression, although some loss from fire has occurred (see USDA Forest Service 2017).
49	Sharp-tailed Grouse *(Tympanuchus phasianellus)*	S1S4-MT, RFSS-R4 Caribou-Targhee	Yes	One hundred nine observations within plan area in MT based on MNHP database records (MNHP and MFWP 2017). Entire plan area is within species' year-round range. Breeding confirmed in Sioux GA in MT and SD.	Unknown, assumed stable. Populations tend to vary widely among years due to environmental influences on nesting and overwinter survival. Christmas bird count numbers reflect high variable populations as well (Marks et al. 2016).	The habitat is primarily grasslands interspersed with shrub and brush-filled coulees. They prefer stands of inter-mixed tree and shrub grasslands. With high population, they spread into islands of native grassland, usually along drainages surrounded by grainfields. Sharp-tailed Grouse persist only on native bunchgrass-shrub stands (MNHP and MFWP 2017).	Stable, habitat is widely available on the Sioux GA within the plan area.

	H	I	J	K	L	M
47	A cavity nester, can excavate own cavity, but will use woodpecker holes and natural cavities. Clutch size typically 5 to 9, average 7 eggs (MNHP and MFWP 2017).	Loss of mature ponderosa pine forests through timber harvest and stand-replacing wildfires (Marks et al. 2016).	Yes	No	Species is secure and breeding in suitable habitat within the plan area. Land management actions that maintain mature, open pine forest (e.g. thinning and prescribed fire) help mitigate threats to habitat.	Marks, J.S., P. Hendricks, D. Casey. 2016. Birds of Montana. Buteo Books, Arrington, VA. Pp. 659. MNHP and MFWP. 2017. Pygmy Nuthatch — Sitta pygmaea. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on December 8, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=ABPAZ01030
48	Nesting occurs soon after arrival on the breeding grounds. Nests are most commonly placed deep within or under big sagebrush or three-tip sagebrush. Nest is bulky and constructed of twigs and lined with grasses and animal fur. Clutch size averages 4-5 eggs, and eggs are incubated by both sexes. Incubation period ranges from 11-17 days. Both sexes brood and feed nestlings. Nestling period ranges from 10-14 days. Both parents continue to feed young at least one week after fledging (MNHP and MFWP 2017).	Loss of large sagebrush stands to range improvement projects and wildland fire (Marks et al. 2016).	Yes	No	Insufficient data to determine population trend in plan area. Suitable habitat available on the Sioux GA.	Marks, J.S., P. Hendricks, D. Casey. 2016. Birds of Montana. Buteo Books, Arrington, VA. Pp. 659. MNHP and MFWP. 2017. Sage Thrasher — Oreoscoptes montanus. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on December 8, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=ABPBK04010 USDA Forest Service. 2017. Nonforested terrestrial ecosystems assessment report. Accessed from https://www.fs.usda.gov/detail/custergallatin/landmanagement/planning/?cid=fseprd532957
49	Nesting occurs from mid-May to mid-June. Displays were observed as early as April 3 in the Gallatin Valley (MNHP and MFWP 2017). Males attend leks in all but the winter months with a peak in display activity from mid-March to mid-May. Only one brood raised per year though hens will renest after failures during laying and early incubation (Marks et al. 2016).	Livestock overgrazing is primary threat to Sharp-tailed Grouse in eastern Montana as birds tend to avoid these areas. Habitat loss and fragmentation due to development is primary reason for species' decline west of Continental Divide (Marks et al. 2016). Species is managed as an upland game bird by Montana FWP and South Dakota GFP.	Yes	No	Species is stable and widely distributed within suitable habitat of plan area. MNHP rank of S1 applies to populations west of Continental Divide, populations east of Divide are S4.	Marks, J.S., P. Hendricks, D. Casey. 2016. Birds of Montana. Buteo Books, Arrington, VA. Pp. 659. MNHP and MFWP. 2017. Sharp-tailed Grouse — Tympanuchus phasianellus. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on December 8, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=ABNLC13030

	A	B	C	D	E	F	G
50	Short-eared Owl *(Asio flammeus)*	RFSS-R4 Caribou-Targhee; LC-SDGFP	Yes	Thirteen observations recorded in the MNHP database. Entire plan area falls within species' range in Montana and South Dakota (MNHP and MFWP 2017).	Unknown. Insufficient data in plan area to determine trend. Breeding bird survey data indicates a population decline from 1966 to 2010. Christmas bird count surveys suggest a similar trend. Prey availability makes year to year trends difficult to determine (Marks et al. 2016).	Open grasslands, plains, and agricultural areas with suitable vegetation and food (MNHP and MFWP 2017).	Stable. Grassland habitat, primarily on the Sioux GA of the plan area, has not changed in recent years.
51	Sprague's Pipit (Anthus spragueii)	S2-SD, RFSS-R1	No. Only two observations in plan area, only one day apart, during the non-breeding season, in the same general area of the Ashland GA.	N/A	N/A	N/A	N/A
52	Three-toed Woodpecker *(Picoides dorsalis)*	S2-SD	Yes	One hundred fifteen observations of species within plan area based on MNHP database records. Species' distribution includes all Montane portions of plan area (Gallatin, Madison, Henrys, Bridger, Bangtail, Crazies, Absaroka Beartooth GAs) (MNHP and MFWP 2017). Sioux GA is outside species range in MT and SD.	Unknown. Breeding bird surveys are inadequate to monitor population trends as survey routes typically do not overlap with preferred habitat (Marks et al. 2016).	In Montana, most common in post-fire habitats with standing dead trees and in live spruce-fir forests and also use live stands of lodgepole pine, Douglas fir, mixed conifers, and aspens (Marks et al. 2016).	Stable to increasing. Broad-scale wildland fires and insect infestations in recent years have provided suitable habitat throughout the species' range within the plan area.

	H	I	J	K	L	M
50	Begins nesting in late February to March. Nests on the ground in a small depression, often with grasses placed around the depression; nest resembles a small bowl. Clutch size four to ten. Incubation approximately 26 days. Young fledge at 30 to 40 days. Egg records are from April 3 to June 13. A vole or field mouse specialist; almost the entire diet made up of these small rodents (MNHP and MFWP 2017). Communal roosts used in fall and winter and on rare occasion may communally roost in trees (Marks et al. 2016).	Overgrazing large tracts of native grassland and shrubland that reduces habitat suitability for nesting and roosting. Less specific to NFS administered lands would be loss of native grasslands to agriculture and development (Marks et al. 2016).	Yes	No	Insufficient data to determine population trend in plan area. Suitable habitat available on the Sioux GA. Threats mitigated through current grazing management. Livestock grazing and permitted use compared to levels authorized in the 1986 Forest Plan continue to decline (Barndt et al. 2017).	Barndt, S., K. Reid, and J. Chaffin. 2017. Assessment Forest Plan Revision: Final Aquatic and Riparian Ecosystem Report. Custer-Gallatin National Forest, Bozeman, MT. Pp. 42. Marks, J.S., P. Hendricks, D. Casey. 2016. Birds of Montana. Buteo Books, Arrington, VA. Pp. 659. MNHP and MFWP. 2017. Short-eared Owl — Asio flammeus. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on December 8, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=ABNSB13040
51	N/A	N/A	N/A	No	Species is not known to occur in the plan area; species is not established or becoming established in plan area.	NHP observation records
52	Nest building was observed in June, with young out of the nest by early August (MNHP 2017).	Primary threat is post-fire logging (Marks et al. 2016).	Yes	No	Species is widespread throughout Montane ecosystems in plan area and western Montana. Suitable habitat is readily available within plan area. Threat not occurring on sufficient scale in plan area to be of immenent concern.	Marks, J.S., P. Hendricks, D. Casey. 2016. Birds of Montana. Buteo Books, Arrington, VA. Pp. 659. MNHP and MFWP. 2017. American Three-toed Woodpecker — Picoides dorsalis. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on December 7, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=ABNYF07110

	A	B	C	D	E	F	G
53	Trumpeter Swan *(Cygnus buccinator)*	RFSS-R1, RFSS-R2 Shoshone, RFSS-R4 Caribou-Targhee	Yes	Eighty two observations of species within plan area based on MNHP database records (MNHP and MFWP 2017). Species distribution within plan area primarily occurs along the Madison River, near Hebgen Lake and around Red Rock Lakes National Wildlife Refuge in the Madison and Henries GAs but observations have also been made on larger waters along the periphery of the Absaroka Beartooth, Bridger, and Gallatin GAs.	Stable to increasing. Trumpeter Swans found within the plan area are part of the Tristate sub-population that occurs year-round in the Montana / Wyoming / Idaho intersection area. This sub-population is joined by swans that migrate from Canada to overwinter near the plan area. U.S. Fish and Wildlife Service surveys documented a steady increase in breeding adults between 2004 and 2007. The wintering Rocky Mountain population has increased steadily from 1973 to 2002 (Marks et al. 2016, MNHP and MFWP 2017).	The breeding habitat for Trumpeter Swans in the Red Rock Lakes/Centennial Valley of Montana includes lakes and ponds and adjacent marshes containing sufficient vegetation and nesting locations. Habitat requirements for breeding include room to take off (~100 m), shallow, unpolluted water with sufficient emergent vegetation and invertebrates, appropriate nest sites (i.e. muskrat lodges), and areas with little human disturbance. Their nonbreeding habitat in Montana is the many large and small lakes and ponds in extreme southern Montana. During winter appropriate habitat is areas where water does not freeze and food is plentiful and accessible (MNHP and MFWP 2017).	Stable. Habitat within the plan area used by Trumpeter Swans is primarily Hebgen Lake and the Madison River (Marks et al. 2016).
54	Veery *(Catharus fuscescens)*	S2B-SD	Yes	Eighty seven observation records in the MNHP database within the plan area. Observations cover low elevation areas of the Gallatin, Madison, Bridger, Absaroka Beartooth, and Sioux Gas (MNHP and MFWP 2017). Species has not been documented in plan area within South Dakota.	Unknown, assumed declining. Breeding bird survey data from 1966-2010 indicated numbers have declined by 3.9% per year in Montana (among the steepest declines in the species' range) (Marks et al. 2016).	In Montana, Veerys prefer riparian forests and wooded wetlands dominated by deciduous species, such as willows, cottonwoods, alders and aspens. It also occupies riparian cottonwood stands along the lower Missouri River. Along Beaver Creek in the Bears Paw Mountains, Veerys were present in a variety of plant community types (box elder, alder, aspen, cottonwood, and lodgepole pine) so long as willow was a significant component (Marks et al. 2016, MNHP and MFWP 2017).	Habitat in plan area is likley stable. PacFish/InFish Biological Opinion data indicate stream / riparian zone habitat is stable or improving in Montane ecosystems (Archer and Ojala 2016).
55	Yellow-billed Cuckoo *(Coccyzus americanus)*	RFSS-R4 Caribou-Targhee	No. Only one MNHP observation record, in Ashland GA during 2014 (MNHP and MFWP 2017).	N/A	N/A	N/A	N/A

	H	I	J	K	L	M
53	Nesting begins in late April or early May in the intermountain western U.S. Clutch size is 2 to 9, usually about 5). In Yellowstone National Park and environs, clutch size is about 4. Incubation, mainly conducted by the female, lasts 33 to 37 days. Hatching occurs in June in the intermountain western U.S. The average brood size at hatching is 3.3 and 2.0 at fledging. Fledging occurs at 100 to 120 days. Young remain with parents through winter; siblings may stay together for a few years and may rejoin parents after the nesting period. Trumpeter Swans first nest at 4 to 5 years (may form pair bonds earlier) and form a life-long pair bond. Rarely does more than one pair nest on a single body of water (MNHP and MFWP 2017).	The primary threat in the plan area is human disturbance at wintering areas that cause energetic stress. Bison hazing with helicopters near Hebgen Lake was reported to disturb hundreds of wintering trumpeter swans (Marks et al. 2016).	Yes	No	Year-round and wintering population is stable to increasing in plan area. Suitable wintering habitat is available and occupied.	Marks, J.S., P. Hendricks, D. Casey. 2016. Birds of Montana. Buteo Books, Arrington, VA. Pp. 659. MNHP and MFWP. 2017. Trumpeter Swan — Cygnus buccinator. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on December 7, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=ABNJB02030
54	Nests are typically on or near the ground, often near the base of a bush or small tree in streamside thickets or swamps. Clutch size is 1 to 5 blue/green subelliptical to short subelliptical eggs. Nests in Montana have been reported with eggs 8 to 29 June, adults tending nestlings 29 June and 1 July (MNHP and MFWP 2017).	Threats include cowbird parasitism where livestock influence riparian habitat; e.g., reduction of understory vegetation density (MNHP and MFWP 2017).	Yes	No	Population declines documented across Montana, however, species is still widely distributed across state and within plan area. Most observations within plan area date since 1995. Preferred habitat is widely available around lower elevations of plan area.	Marks, J.S., P. Hendricks, D. Casey. 2016. Birds of Montana. Buteo Books, Arrington, VA. Pp. 659. MNHP and MFWP. 2017. Veery — Catharus fuscescens. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on December 6, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=ABPBJ18080
55	N/A	N/A	N/A	No	Species is not known to occur in the plan area; species is not established or becoming established in plan area.	NHP observation records

Mammals Evaluated for Species of Conservation Concern - For the Custer Gallatin National Forest Revised Forest Plan and Final EIS	Conservation Categories	Is the species known to occur in the plan area?	Distribution and Abundance in the Plan Area	Population Trend in the Plan Area	Habitat Description	Habitat Trend in the Plan Area	Relevant Life History & Other Information	Relevant Threats to Populations using the Plan Area	Is there sufficient scientific information available to conclude whether there is substantial concern for long-term persistence in the plan area?	Is this species identified as an SCC for the Draft EIS?	Rationale for SCC Determination	Citations for Best Available Scientific Information
American marten (Martes americana)	RFSS (R2 Shoshone)	Yes	Well distributed and relatively common in all montane GAs, as evidenced by dozens of MNHP observation records.	Unknown but remains commonly reported (harvested) by fur trappers (MNHP observation records).	Primarily a boreal animal preferring mature conifer or mixed wood forests (MNHP and MFWP 2017).	Temporary habitat loss due to timber harvest and fire in some areas, and increases in others from fire suppression and forest succession. Overall, suitable forested habitats are still abundant.	Marten eat a variety of animal and plant materials associated with mature forest. Prey species include voles, mice, squirrels, hares, birds, and insects. MFWP classifies marten as a furbearer and regulates their harvest.	Trapping could negatively affect populations, but is not likely to occur when regulated. Timber harvest could negatively affect habitat, but is unlikely to cause concern for population response when regulated. Effects of climate change are highly uncertain.	Yes	No	Species is secure in the plan area; it is well distributed and relatively common in all montane GAs; no major threats to populations or habitats; no other life history or other factors that lead to substantial concern.	MNHP and MFWP. 2017. Marten — Martes americana. Montana Field Guide. Retrieved 11/01/2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=AMAIF01010
Bighorn Sheep (Ovis canadensis)	RFSS-R1, RFSS-4 (Caribou-Targhee)	Yes	Sixteen separate herds occur within the Montane Ecosystem of the plan area. Bighorn sheep are present in the Madison, Henrys, Gallatin and Absaroka and Beartooth Mountains, and may occasionally occur on NFS land in the Pryor Mountains (USDA Forest Service 2017). Herds vary in both population size and in connectivity to other herds. Some herds are small and isolated. The Upper Yellowstone complex, which is comprised of 9 subherds, is well-connected, collectively robust, and occurs in an area where nearly all available habitat is on public lands of the plan area and Yellowstone NP. In this complex, trend survey data from 2016 included a count of 170 sheep in the Montana portion of the Upper Yellowstone, and 150 in Yellowstone National Park (Loveless 2016). It is difficult to determine the actual population size of bighorn sheep due to sampling difficulties, but trend surveys can still provide a minimum population count and information about change over time (MFWP 2010).	Historically, there were significant declines of bighorns across its range, which likely included the plan area (Montana Fish, Wildlife & Parks 2010). Today, existing herds in the plan area show a complex array of increases, decreases and stability (see USDA Forest Service 2017 for details on individual herds). For example, 2016 count data for the Yellowstone complex of herds (320 sheep) was about 10 percent lower than the previous 10 year average and 21 percent higher than the previous 21 year average (Loveless 2016).	Steep rocky areas with open to semi-open vegetation conditions. Includes cliffs, mountain slopes, and rolling foothills (MNHP and MFWP 2017). Escape terrain, areas with high visibility, and areas with low amounts of snow in winter are all considered essential habitat features. Lick sites where sheep acquire trace minerals may also be an important habitat feature (Garrott et al. 2021).	Risk of disease transmission is the primary factor affecting habitat (MFWP 2010), and this has likely improved since the elimination of domestic sheep grazing in the plan area. Across all of Montana, bighorn sheep habitat and distribution has improved since the early 20th century because of improved range management, reduced competition from livestock and other native herbivores, reductions in the presence of domestic sheep and goats, regulated hunting, and implementation of a bighorn sheep transplanting program (Montana Fish Wildlife and Parks 2010).	The Montana Bighorn Sheep Conservation Strategy defines management direction here (MFWP 2010). All but one of the bighorn herds in the plan area currently can be legally hunted, which provides a means for reducing risk of density-dependent issues such as disease transmission and habitat overuse (Loveless 2016).	Disease (transmitted primarily by domestic sheep) poses the greatest threat to bighorn. All-age epizootics are usually associated with significant population declines, but mortality rates and subsequent recruitment rates vary widely; factors influencing disease severity are not well understood (Cassier et al. 2018, Garrott et al. 2015). Recent research has shown that some herds continue to have good recruitment rates dispite infection (Garrott et al. 2021). There are no domestic sheep allotments in the plan area, but potential risk may exist from reservoir bighorn, hobby sheep and goats, and mountain goats (see USDA Forest Service 2017). MFWP (2010) does not list hobby sheep as a threat for any of the bighorn populations that use the Custer Gallatin, but proximity to domestic sheep (off NFS land) is a potential threat for three of the herds. The robust Upper Yellowstone Complex is not in close proximity to any domestic sheep or goat grazing. Some plan area herds are relatively small and isolated, making them susceptable to genetic issues such as inbreeding and random increase in deleterious alleles. This can be can be ameliorated by the common practice of transferring individuals among populations (MFWP 2010), and a recent genetic analysis found that inbreeding depression was not affecting population growth in any of the 19 study populations (Garrott et al. 2021). While connectivity between herds can result in higher genetic mixing, it can also increase the spread of disease (MFWP 2010). Overall, a mix of connectivity conditions may be desireable for this species. Weather and climate can also affect bighorn, particularly with respect to harsh winters and drought. However recent data shows that baseline productivity of bighorn populations in Montana is not correlated with ecoregions, precipitation patterns or any index of habitat quality, and is instead linked to population size (Garrott et al. 2015).	Yes	No	Species is secure in the plan area and is likely to persist in the long-term. Species is well distributed in montane GAs of the plan area, occurring in 16 distinct herds. This includes the well connected and robust Upper Yellowstone complex, which has little interface with private lands or private domestic sheep herds. A number of other bighorn sheep herds are less connected, providing an array of conditions to protect against widespread disease epidemics. Recent research shows no evidence of inbreeding depression even in smaller herds that have recovered from a previous epizootic.	Cassirer, E., K. Manlove, E. Almberg and others. 2018. Pneumonia in bighorn sheep: risk and resilience. J. Wildl. Mgmt 82:32-45. Garrott, R., J. Rotella, K. Proffitt and others. 2015. The role of disease, habitat, individual condition, and herd attributes on bighorn sheep recruitment and population dynamics in Montana. Fed. Aid in Wildl. Restor. Grant W-159-R Annual Report. Garrott, R., K. Proffitt, J. Rotella, E. Flesch, E. Lula, C. Butler, B. Lowrey, J. T. Paterson, J. DeVoe, and E. Grusing. 2021. Bighorn Sheep Ecology: An Integrated Science Project to Support Restoration and Conservation. Final Report for Federal Aid in Wildlife Restoration Grant #W-159-R. Montana Fish, Wildlife and Parks, Helena, Montana Loveless, Karen, Montana Department of Fish, Wildlife and Parks. Unpublished survey data, Livingston, MT. MFWP. 2010. Montana bighorn sheep conservation strategy. MFWP Wildlife Div., Helena. 322pp. MNHP and MFWP. 2017. Bighorn Sheep — Ovis canadensis. Montana Field Guide. Retrieved 11/01/2017 from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=AMALE04010 USDA Forest Service. 2017. Terrestrial wildlife assessment report. Accessed from https://www.fs.usda.gov/detail/custergallatin/landmanagement/planning/?cid=fseprd532957
Bison (Bison bison)	S2-MT, TC	Yes; winter migrant in plan area	During most winters, some bison from each of the two Greater Yellowstone Area's (GYA) herds migrate from Yellowstone NP (YNP) into the Gardner and Hebgen basins, which include portions of the plan area. GYA bison are adaptively managed through the Interagency Bison Management Plan (IBMP; IBMP 2016). The IBMP, following a decision made by the Montana Governor (State of Montana 2015) established management zones outside of YNP where bison would be toletated. While large bison herds migrated historically and then ceased for many years, the smaller modern-day GYA herds resumed migrating in the 1980's. The timing and numbers of bison migrating into the plan depends on several variables, including snow conditions inside YNP and total herd size (see Geremia et al. 2014 and USDA Forest Service 2017).	The GYA bison population was revived from less than 25 animals in the early 1900's. An objective of 3,000 animals was set in the 2000 IBMP, and has been exceeded in nearly all years since then despite active culling and hunting to control populations. In August 2018, the GYA population was estimated at 4,527, with approximately 74% of those belonging to the Northern herd and the remainder to the Central herd. **There had been previous reports of large population declines in the Central herd, but the 2018 count of 1,190 bison was near the average count of 1,338 since 2008. This suggests the Central herd was undercounted in 2017.** There is annual variability in the population size, but the average growth during 2000-2018 was 1.14, which indicates the population increased 14% per year after adjusting for management removals. See Geremia et al. 2018.	Bison select for mesic grassland habitats where they graze on grasses, forbs, and sedges. Currently, within the Madison, Gallatin, and Beartooth landscapes, there are 293,151 acres (12.5 percent) of potentially suitable habitat for bison on the Custer Gallatin National Forest. Of that amount, 224,143 acres are grass and shrub lifeforms.	Early results from an ongoing habitat study in Gardiner basin show most sites having higher bare ground and lower species richness than expected (see USDA Forest Service 2017). However, trend may actually be improving due to the dramatic decline in the Northern Range elk herd and corresponding decrease in grazing pressure. The management zones for bison outside of Yellowstone NP (within and beyond plan area) have recently been expanded, resulting in an additional 225,000 acres where bison are specifically tolerated.	The IBMP is adaptively administered by 2 state agencies , 3 tribal entities and 3 federal agencies. The 3,000 animal population objective set in the IBMP meets or exceeds the estimated number of animals needed to preserve bison genetic variation over centuries (multiple citations in White et al. 2015).In 2016, the plan expanded the management zones outside of YNP (IBMP 2016) to about 200,000 acres in the Hebgen Basin and about 105,000 acres in Gardiner Basin. Previously, the zones were much smaller at about 12,500 acres and 70,000 acres, respectively. Bison conservation is of high importance to tribes and many members of the public.	The primary limit to the GYA population stems from human intolerance. Bison may be intentionally removed through hazing, culling and hunting regulations to keep the population near tolerable levels recognized in the IBMP. Intolerance primarily relates to the potential spread of brucellosis to cattle, human safety, and property damage. Regardless, migrations into the plan area have been regular since development of the IBMP, and there is no indication this will change. Brucellosis generally decreases fecundity of females during their first pregnancy following infection, but does not significantly affect bison survival (White et al. 2015). There is some concern about the genetic integrity of GYE bison given the small founder sizes of both herds, but testing shows significant genetic variability as measured by heterozygosity and allelic diversity, and a lack of inbreeding effects (White et al. 2015). There is also no evidence of genetic mixing with cattle (Halbert et al. 2012, White et al. 2015). Further, reproductive connectivity between the two GYE herds appears to have increased during recent years. The Central herd's smaller size, unique genetic signature and dominance on the Hebgen Basin winter range suggest it could be sensitive to overculling if managers are not mindful of this. Despite potential threats, birth and survival rates are high in the GYA, resulting in population growth between 2000 and 2018 while the IBMP was in effect. **Other factors related to climate change and weather, such as snow pack and drought, may influence bison movements and energetics. However, these factors have minimal influence on population dynamics compared to the culling program (White et al. 2015).**	Yes	No	The species is secure and characteristic seasonal migrations are expected to continue in the plan area over the long-term. The GYA bison population has increased in recent years, reproduction and survival have been high, genetic diversity is significant, genetic connectivity appears to be increasing, and habitat is readily available and could support additional numbers and distribution of bison. Redundant security is provided by the the watchful, diverse eyes that administer the adaptive interagency bison management plan.	Geremia, C., R. Wallen and P. White. 2018. Status report on the Yellowstone bison population, Sept 2018. Obtained from http://www.ibmp.info/Library/OpsPlans/2018_StatusYellowstoneBisonPopulation_Sep2018_Final.pdf Geremia, C., P. White, R. Wallen and others. 2014. Predicting bison migration out of Yellowstone National Park using bayesian models. PLoS ONE accessed from https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0016848 Halbert, N., P. Gogan, P. Hedrick, J. Wahl, and J. Derr. 2012. Genetic population substructure in bison at Yellowstone National Park. Journal of Heredity 103:360-370. IBMP. 2016. 2016 IBMP Adaptive Management Plan. Accessed from http://www.ibmp.info/Library/AdaptiveMgmt/2016_IBMP_Adaptive_Management_Plan_signedFINAL.pdf. State of Montana. 2015. Decision Notice, Year-round habitat for Yellowstone bison environmental assessment. 38pp. USDA Forest Service. 2017. Terrestrial wildlife assessment report. Accessed from https://www.fs.usda.gov/detail/custergallatin/landmanagement/planning/?cid=fseprd532957 White, P., R. Wallen, and D. Hallac. 2015. Yellowstone bison: Conserving an American icon in modern society. Accessed from https://www.nps.gov/yell/learn/nature/upload/Yellowstone_Bison_ForWeb.pdf
Black Bear (Ursus americana)	S1-SD	Yes	Common and well-distributed throughout Montane Ecosystem of the plan area. Multiple MNHP observations (255 records) in all GAs within Montana. No record of the species in South Dakota.	Unknown, however populations are secure globally and within Montana.	Dense forests; riparian areas; open slopes or avalanche chutes during spring green-up. Habitat use tied to seasonal food availability/plant phenology. Dry mountain meadows in early spring; snow slides, stream bottoms, wet meadows in early and mid-summer. May concentrate in berry and whitebark pine areas in fall (MNHP 2017).	Habitat stable in plan area. Temporary displacement by land management activities (e.g. timber harvest) and natural disturbances (e.g. wildland fire) offset by overall abundance of suitable habitats in plan area.	Generalist omnivore consuming a wide variety of plant, vertebrate and invertebrate prey. Diet may vary seasonally depending on food availability (MNHP 2017).	Sympatric with Grizzly Bear but mortality due to interspecific strife does occur. Natural cub and adult mortality low, sub-adult mortality higher (MNHP 2017). Lethal removal due to bear-human conflicts occurs in recreational and wildland urban interface settings. Sport harvest of the species is managed by MFWP (Mace and Chilton-Radandt 2011).	Yes	No	Species is secure in the plan area, is widely distributed and common, and occupies a variety of habitats. No threats readily apparent.	MNHP and MFWP. 2017. Black Bear - Ursus americanus http://fieldguide.mt.gov/speciesDetail.aspx?elcode=AMAJB01010 Mace, R. D. and T. Chilton-Radandt. 2011. Black bear harvest research and management in Montana: Final Report. Montana Department of Fish, Wildlife & Parks, Wildlife Division, Helena, Montana, USA.
Black-tailed Prairie Dog (Cynomys ludovicianus)	RFSS-R1 RFSS-R2 Shoshone RFSS-R4 Caribou-Targhee	Yes	Multiple MNHP observations (319) in Ashland and Sioux GAs (including SD). Madison/Gallatin/Absaroka and Beartooth GAs are outside the species' range. Distribution in the Bridger/Bangtail/Crazy Mountain GA is restricted due to elevation and topography.	Unknown. Species is present in suitable habitat within plan area. State Heritage ranking suggests species potentially at risk because of limited and/or declining numbers, range and/or habitat, even though it may be abundant in some areas (MNHP 2017)	Found on flat, open grasslands and shrub/grasslands with low, relatively sparse vegetation. Colonizes areas of low vegetation stature and will often associate with areas of past human and animal disturbance (MNHP 2017). In Southeast Montana, frequently located in intensively grazed valley bottoms with intermittent or perennial streams (MPDWG 2002).	Habitat is stable and readily abundant within the GAs the species is found.	Under normal conditions, without catastrophic factors operating (e.g., plague or severe predation), rates of mortality vary substantially and colony size can vary significantly from year to year (MNHP 2017). Prairie dogs are dual-designated in Montana as non-game (Montana Fish, Wildlife & Parks) as well as vertebrate pest (Montana Department of Agriculture).	Sylvatic plague has the greatest potential to impact black-tailed prairie dog numbers at the population scale with infected colonies experiencing up to 99% mortality (Cully 1989, MPDWG 2002). Recreational shooting can suppress individual colonies.	Yes	No	Species is secure in plan area and widely distributed in suitable habitat.	MNHP. 2017. Black-tailed Priarie Dog - Cynomys ludovicianus. Montana Field Guide. Retrieved on November 20, 2017, from http://fieldguide.mt.gov/speciesDetail.aspx?elcode=AMAFB06010 MPDWG. 2002. Conservation Plan for Black-tailed and White-tailed Priarie Dogs in Montana. State of Montana, Helena, MT. p 51. Cully, J.F., Jr. 1989. Plague in prairie dog ecosystems: importance for black-footed ferret management. In: T. W. Clark, D. Hinckley and T. Rich, eds. The prairie dog ecosystem: managing for biological diversity. Montana Bureau of Land Management Wildlife Technical Bulletin Number 2:47-55. Billings, MT. BLM-MT-PT-89-004-4352.
Fringe Myotis (Myotis thysanodes)	S2-SD LC-SDGFP	Yes	Multiple MNHP observations in Pryor Mountains, Ashland and Sioux GAs (including SD).	Unknown, however all MNHP observations in the plan area have been recorded since 2003.	Utilizes a wide variety of habitats across its range, including desert, sagebrush, badlands and several forested vegetation types. Habitat use not specifically studied in Montana (MNHP and MFWP 2017)	Uknown	Generalist insectivore, consuming a wide variety of insects across its range such as moths, beetles and spiders.	None readily apparent, although species may be suseptible to disturbance at roost sites (MNHP and MFWP 2017).	Yes	No	Species is secure in plan area; a widely distributed and fairly common species that utilizes a variety of habitats and insect prey. No threats readily apparent.	MNHP and MFWP. 2017. Fringed Myotis — Myotis thysanodes. Montana Field Guide. Retrieved on November 5, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=AMACC01090
Gray Wolf (Canis lupus)	RFSS-R1, DM	Yes	In 2015 and 2016, approximately 15 packs utilized portions of the plan area (Coltrane et al. 2015, Boyd et al. 2016). As expected with this species, the packs are all within the montane ecosystems of the plan area.	Wolves were reintroduced into Yellowstone NP during the mid- 1990's, and with ESA protections, quickly recolonized the plan area. Recovery was swift; in 2011 the species was delisted in MT and ID. Montana populations are relatively stable now with minor adjustments from management control, harvest, and recruitment (Boyd et al. 2017). Populations continue to exceed recovery objectives. Statewide, at least 1,802 wolves and 302 packs in 2014. The Northern Rocky Mountain population has exceeded recovery goals since 2002 and remains secure under State management (USFWS et al. 2015).	The Gray Wolf exhibits no particular habitat preference except for the presence of native ungulates (deer, elk and moose) within its territory on a year-round basis (MNHP and MFWP 2015). They also benefit from areas having relatively low human populations, as this tends to reduce human-wolf conflicts. Some packs or individual wolves may prey on livestock and these animals are often lethally removed.	The plan area provides relatively stable habitat in that it is largely free of human and livestock conflicts. Approximately 47% (1,370,000 acres) of the plan area is in designated Wilderness Areas (USDA Forest Service 2014).	Widely disperses; Up to 500 miles documented. Gray wolf populations in Montana are managed by MFWP in accordance with the Montana Gray Wolf Conservation and Management Plan, which was approved by the FWS. (Boyd et al. 2017). Harvest is regulated in accordance with recovery goals.	No known threats to persistence in the plan area. Direct human-caused mortalities are the largest documented sources of wolf mortality statewide but these do not threaten persistence, as evidenced by continued recovery (Coltrane et al. 2016). For example, in 2015, a year of continued population recovery, about 98% of all 276 documented mortalities in Montana was attributable to humans (e.g., legal harvest, agency control, vehicle collisions, illegal kills, etc.). About 1% was due to natural causes, and the remaining 1% was unknown (Coltrane 2016).	Yes	No	Species is secure in the plan area, as evidenced by well distributed, abundant packs and lack of threats to maintaining a persistent population.	D. Boyd, J. Gude, B. Inman, et al. 2017. Montana Gray Wolf Conservation and Management 2016 Annual Report. Obtained from http://fwp.mt.gov/fishAndWildlife/management/wolf/
Grizzly Bear (Ursus arctos horribilis)	S2S3, DM	Yes	There are 226 MNHP observation records throughout the Madison/Gallatin/Henrys Lake and Absaroka Beartooth GAs, which indicates, that for a large carnivore, it is well distributed and fairly common in those areas.	Stable in the Greater Yellowstone Ecosystem distinct population segment (GYE DPS), of which the plan area is part (USFWS 2017); trends in the plan area are not separately tracked. The GYE DPS has generally sustained or exceeded demographic recovery targets since 1998 (see USDA Forest Service 2017a). Over 30% of the MNHP observations have occurred since 2000.	Habitat generalist that uses a variety of habitats across its circumpolar range, as long as human conflicts are low, diverse forage sources are present, and potential den sites are present. In the plan area, is confined primarily to mountainous forested habitats in the Madison/Gallatin/Henrys Lake and Absaroka Beartooth GAs, where cover and denning sites are more readily available.	The plan area provides relatively stable habitat in that it is largely free of human and livestock conflicts, which can lead to lethal removal of bears. Approximately 45% of the two GAs occupied by grizzly bears are designated wilderness, and an additional 28% are inventoried roadless area, wilderness study area or research natural area (USDA Forest Service 2017b).	This species was de-listed from federal threatened status in 2017 (USFWS 2017). It is generalist species that uses a variety of habitats and food sources. The grizzly bear is an extreme omnivore, displaying great diet plasticity, depending on resource availability (USFWS 2017).	Human conflicts to bear security (i.e., human-caused mortality risk) pose the greatest threat to this generalist species. However, most sources of human conflict have been adequately mitigated in the plan area for many years, sufficient to allow recovery of the GYE DPS, through forest plan amendments, travel management decisions, livestock management plans, campground modifications, and other plans and actions.	Yes	No	Species is secure in plan area; this is a widely distributed and relatively common large carnivore that utilizes a variety of habitats and food sources. Approximately 73% of the two GAs used by this species have designations that minimize human conflicts (i.e., wilderness, wilderness study, inventoried roadless, and research natural areas. Furthermore, No threats readily apparent.	USDA Forest Service. 2017a. Terrestrial wildlife assessment report. Accessed from https://www.fs.usda.gov/detail/custergallatin/landmanagement/planning/?cid=fseprd532957 USDA Forest Service. 2017b. Final assessment report of ecological, social and economic conditions on the Custer Gallatin National Forests. USFWS. 2017. Removing the Greater Yellowstone Ecosystem population of grizzly bears from the federal list of endangered and threatened wildlife. Final Rule. Fed. Reg. 82 (185): 30502-30633.
Hoary Bat (Lasiurus cinereus)	RFSS-R2 Shoshone	Yes	Common and well distributed, with over 180 NHP observation records across all GAs and both states.	Unknown, however 94% all NHP observations in the plan area have been recorded since 2004.	Occupies a variety of forested habitats across a broad range of elevations, but probably most common at lower elevations. Roosts primarily in trees (a variety of species), and infrequently in other strucutures such as bridges, caves and buildlings (MNHP and MFWP 2017).	Fires have reduced the amount of forested areas in the Ashland GA, but the other GAs have been relatively stable (see Forested Vegetation Specialist's Report to Assessment). Forested habitat is abundant across plan area.	Species is migratory and only summers in the plan area. Generally solitary.	None readily apparent. Forested habitats are abundant for this generalist species. Mortality has been noted at wind energy facilities, which do not exist in plan area (MNHP and MFWP 2017). Whitenose syndrome has not been noted to affect this species (USFWS 2017), nor has it been noted to occur in the plan area.	Yes	No	Species is secure in plan area; this is a widely distributed and fairly common species that utilizes a variety of habitats. No threats readily apparent.	MNHP and MFWP. 2017. Hoary Bat — Lasiurus cinereus. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved 11/3/2017 from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=AMACC05030 USFWS. 2017. Bats affected by WNS. Retrieved 11/16/2017 from https://www.whitenosesyndrome.org/about/bats-affected-wns

Little Brown Myotis (Myotis lucifugus)	G3	Yes	Common and well distributed, with over 160 NHP observation records across all GAs and both states.	Unknown, however nearly 90% of all NHP observations in the plan area have been recorded since 2004.	Found in a variety of habitats and roost types across a large elevation gradient. Summer day roosts include attics, barns, bridges, snags, loose bark, and bat houses. Known maternity roosts in Montana are primarily buildings. Hibernacula include caves and mines (MNHP and MFWP 2017). One small hibernacula known in plan area (<10 individuals), and no known maternity roosts.	Unknown; however, given the wide range of habitats used by this species, habitat likely remains abundant.	Eats a variety of insects, including gnats, mosquitoes, crane flies, beetles, wasps, and moths.	None known in plan area. In eastern portion of its range, this species has been greatly affected by whitenose syndrome; however, this has not been demonstrated in the West, and the disease is not known to be present in the plan area. Ill-timed exclusion of bats from buildings can impact maternity colonies, although no maternal colonies have been discovered in the plan area (MNHP and MFWP 2017).	Yes	No	Species is secure in plan area; this is a widely distributed and fairly common species that utilizes a variety of habitats. No threats readily apparent in the plan area.	MNHP and MFWP. 2017. Little Brown Myotis — Myotis lucifugus. Montana Field Guide. Retrieved 11/16/2017 from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=AMACC01010 USFWS. 2017. Bats affected by WNS. Retrieved 11/16/2017 from https://www.whitenosesyndrome.org/about/bats-affected-wns
Long-eared Myotis (Western Long-eared Myotis) (Myotis evotis)	S1-SD, RFSS-R1 LC-SDGFP	Yes	Species is common and well distributed in planning area, with over 190 MNHP observation records across all GAs. Of these, 32 (17%) were in the South Dakota portions of the planning area. Only one hibernating long-eared bat has been recorded in the MNHP observation database; this was in a cave in the Pryor Mountains during early spring 2017. This roost was small, with approximately 11 other bats of mostly unidentified species co-occurring. No maternity roosts have been noted.	Unknown. Difficult to adequately monitor because they are concealed well in roosts and do not typcally aggregate in large concentrations. However, species appears fairly common currently, as over 85% of 191 MNHP observations in planning area occurred between 2004 and 2017.	Wide range of rocky and forested habitats over a broad elevation gradient. Summer roosts include a variety of structures including bridges, buildings, trees with hollow cavities or loose bark, stumps, caves and rock fissures. Little known about wintering habits in Montana or elsewhere, but in other regions, hibernacula include caves, abandoned mines, and lava tubes (MFWP and MNHP 2017, Hayes and Wiles 2013). Twelve caves have been recorded in the plan area, of which only one has had documented use by this species (MNHP observation records).	Key roosting structures like bridges, rock fissures, caves, and abandoned mines are relatively stable over long time periods. Availabilty of snags, stumps and loose bark are dynamic as they continually deteriorate and are created through recurring disturbance and decay processes.	Typically roosts singly or in small groups (MNHP and MFWP 2017, Hayes and Wiles 2013), which reduces likelihood of experiencing population-level effects from stressors in roost sites (e.g., disturbance, white-nose syndrome). Possibly migratory, given the few winter records in Montana (none in the plan area) (MNHP and MFWP 2017). Like many other bats, has low productivity (≤1 pup/yr) but high potential longevity (>20 years; Schmidt 2003). This species is ranked as common and secure globally (G5) and apparently secure in Montana (S4). It occurs on the R1 RFSS list for the portion of plan area in South Dakota only.	It is unknown how the exotic, communicable disease known as white-nose syndrome might affect the long-eared myotis. Related species are vulnerable; however, the long-eared myotis typically hibernates in low numbers, and currently there is little overlap between the range of the species and areas where WNS or its causal fungus have been detected (i.e., western Washington). To date, neither WNS nor its causal fungus have been detected in Montana (USFWS 2017).	Yes	No	Species appears to be secure in plan area. Species is widely distributed and fairly common in the plan area. No indication of population or habitat declines in the plan area, no evidence that populations using the plan area are particularly vulnerable to stressors on or off the plan area, including white-nose syndrome or disturbance at roost sites.	MNHP and MFWP. 2017. Long-eared Myotis — Myotis evotis. Montana Field Guide. Accessed from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=AMACC01070 Hayes, G. and G. J. Wiles. 2013. Washington bat conservation plan. Washington Dept of Fish and Wildlife, Olympia, Washington. 138+viii pp. Access from http://wdfw.wa.gov/publications/01504/wdfw01504.pdf Schmidt, C. 2003. Conservation assessment for long-eared myotis in the Black Hills National Forest South Dakota USFWS. 2017. Occurrence of white-nose syndrome and its causal fungus accessed from https://www.whitenosesyndrome.org/about/where-is-it-now
Moose (Alces alces)	LC	Yes	Occurs in low densities in all GAs of the plan area except the Pryors, Ashland, and Sioux GAs, where they are occassionally seen but are not likely permanent residents. Moose now appear to be colonizing or recolonizing the Pryor Mountains, Ashland, and Sioux geographic areas, and may be expanding their range in eastern Montana (DeCesare et al. 2014, Nadeau et al. 2017).	Unknown in the plan area. Statewide, there is a widespread perception that moose are declining throughout much of Montana. This concern is based primarily on hunting data (DeCesare 2014). However, a more recent and robust analysis of these and other existing statewide data by MFWP provided little statistical support for declining trends, and instead revealed high uncertainty (DeCesare et al. 2016). A study underway in three areas of Montana (all outside of plan area) show stable to increasing moose population trends in all areas (DeCesare and Newby 2019). Survival of adult females has largely driven these trends. Regardless, many long-term studies suggest that moose populations erupt, crash, and then stabilize at various densities depending on a number of conditions, and that some level of sustainable hunter harvest can be devised (DeCesare 2016).	Variable. Summer habitats include mountain meadows, river valleys, swampy areas, and forest clearings (e.g., clearcuts and burned areas). Winter habitats include willow flats and mature conifer forests (MNHP and MFWP 2019). Many studies in the Rocky Mountains have documented the importance of early successional habitats (especially those containing willow, aspen and shrubs), but others in nearby Yellowstone NP have contradicted that tenant (DeCesare et al. 2014).	Montane riparian and other wetland habitats containing willow are likely stable due to longstanding direction to comply with CWA. PacFish/InFish Biological Opinion (PIBO) and fish distribution data demonstrate that Montane aquatic habitat trends are stable or improving (Archer and Ojala 2016). In montane upland forests, there likely has been some decrease in early successional habitats and a concurrent increase in mature forests (see USFS 2017). The increase in mature forests could be a positive habitat trend because in the Greater Yellowstone Area, older lodgepole pine forests with subalpine fir in the understory were found to be heavily used by moose. Subalpine fir is a preferred winter browse species for moose (Tyers 2003; Koltzch et	This species is hunted and is an important subsistence resource for tribal members. Sportsmen harvest is regulated by MFWP. For the 50 years preceding 2014, the average annual number of moose hunting permits in Montana was 652, but in 2008 the annual number dropped to less than 500 for the first time (DeCesare 2014). Large body size makes moose well suited for deep snow and cold weather. Moose appear to be a relative newcomer to Montana, with no fossil evidence anywhere south of the Wisconsin ice age glaciers ≥ 15,000 years ago (DeCesare et al. 2020). Previous distinctions of a unique subspecies (Shiras moose) in the lower 48 states was not supported by recent genetic analysis (DeCesare et al. 2020).	DeCesare et al. (2014) identified potential limiting factors as hunter harvest, predation, vegetation succession, parasites and disease, and climatic conditions. These authors acknowledged that the relative importance of these factors has likely changed over time, but were not able to identify a clear or prominent limitation at the current time. MFWP manages harvest for sustainable hunter opportunity, and in the plan area, focuses on bull-only permits to prevent population decrease (DeCesare et al. 2014). Predation was the most common concern of regional MFWP biologists, in part due to expanding populations of wolves, bears, etc. (DeCesare et al. 2014). MFWP regulates harvest of these species as well. Early successional forests have decreased across the west and in the plan area, due to decreased logging and in some cases, time since very large fires occurred. The potential effect of this in the plan area is unclear given that moose can also use these successional lodgepole pine stands. Currently, early seral forests (seedling/sapling) comprise 10%-16% of GAs in montane portions of the plan area (USFS 2017). Climate change is expected to cause an increase in fire, which could lead to a greater amount of early seral habitat. Ticks, liverflukes and other parasites did not affect pregnancy rates of moose in three study areas of Montana (Newby and DeCesare, in prep; N. DeCesare, pers. comm). Prior pregancies and nutrition had the largest effect. Winter tick loads are much smaller (an order of magnitude) in Montana than other areas where ticks have been problematic (N. DeCesare, pers. comm.). Aarterial worms can affect individual moose, but there is no evidence of population-level effects in Montana (N. DeCsare, pers. comm). Brainworm is not known to be present in Montana (N. DeCesare, pers. comm). There is some concern about potential effects of a warming climate on moose (e.g., due to heat stress and increased parasites), but range-wide evidence is mixed (Courtemanch 2015). Evidence for climate change impacts in Montana is limited and so uncertainty is high.	Yes	No	Species is widely distributed within appropriate habitats, albeit at low densities. Riparian habitats are likely stable and upland forested habitats are abundant. No prominent threats in plan area. Research in other areas of Montana (outside of the plan area) is reversing the widely held perception that moose are declining statewide.	Courtemanch, Alyson, Jackson Moose Herd Unit Population Objective Review, Wyoming Game and Fish Department, 2015. DeCesare, N., T. Smucker, R. Garrot and J. Gude. 2014. Moose status and management in Montana. Alces 50:35-51. DeCesare, N., J. Newby, V. Boccadori and others. 2016. Calibrating minimum counts and catch-per-unit-effort as indices of moose population trend. Wildl. Soc. Bull. 40:537-547. DeCesare, N. and J. Newby. 2019. Vital rates, limiting factors and monitoring methods for moose in Montana. Annual Report. MFWP. 25pp. DeCesare, N., B. Weckworth, K. Pilgrem and others. 2020. Phylogeography of moose in western North America. J. Mamm. 101:10-23. Koltzsch, K., Strasburg, J, Koltzsch, L, and T. Tjepkes. 2014. A non-invasive population study of moose in northern Yellowstone National Park. 2014 Annual Report. Duluth, MN. 22 pp. MNHP and MFWP. 2019. Montana field guide. Accesses 12/26/2019 from http://fieldguide.mt.gov/default.aspx N. DeCesare, MFWP, pers. comm. with C. Staab, USFS. Nadeau, M. S., N. J. DeCesare, D. G. Brimeyer, E. J. Bergman, R. B. Harris, K. R. Hersey, K. K. Huebner, P. E. Matthews, and T. P. Thomas. 2017. Status and trends of moose populations and hunting opportunity in the western United States. Alces 53:99-112. Newby, J. and N. DeCesare. In prep. Multiple nutritional currencies shape pregnancy in a large herbivore. Can. J. Zool. Manuscript ID cjz-2019-0241.R1. USFS. 2017. Forested vegetation report for the Custer Gallatin forest plan revision. https://www.fs.usda.gov/detail/custergallatin/landmanagement/planning/?cid=fseprd532957 Tyers, D. 2003. Winter ecology of moose on the Northern Yellowstone Winter Range. PhD Dissertation. Bozeman, MT. 308 pages.
Mountain Lion (Puma concolor)	S2-SD	Yes	Three hundred one observations based on MNHP records within plan area (MNHP and MFWP 2017). Species is common and widespread through Gallatin, Madison, Henrys, Absaroka Beartooth, and Bridger Bangtail Crazies, and Pryor Mountains GAs within plan area. Species also widespread on Ashland District of the Sioux GA. Species is a transient to the Sioux GA in SD but no known establishment of home range (SDGFP 2013).	Stable. Species is widespread with consistent observations reported by MNHP and MFWP since the 1980s within the plan area in MT. Species' primary range in SD is the Black Hills were populations are stable as well (SDGFP 2013).	Moose frequently use both logged and burned forest habitat in the first 10 to 30 years after harvest or fire (Eastman 1974).	Stable. Habitat is widely availble within Montane ecosystem portion of plan area.	Species can breed any time, but young most commonly born in May. Two to four spotted young born about every 2 years per female. Females keep males away from kittens, which may otherwise eat them. Females first breed at 2 to 4 years of age (MNHP and MFWP 2017).	No natural predators, rare mortality has been documented due to inter-specific competition with wolves (Foreman 2012). Occasional conflicts with humans due to livestock depredation. Sport harvest of the species is managed by MFWP (MFWP 1996, SDGFP 2013).	Yes	No	Species is stable and widespread with MT portion of plan area as well as widely distributed and common throughout much of the state. Populations are stable within primary portion of species' range in SD.	Foresman, K.R. 2012. Mammals of Montana. Montana Press Publishing Compnay, Missoula, MT. Pp. 429. MFWP. 1996. Final EIS: Management of Mountain Lions in Montana. Montana Fish, Wildlife and Parks, Helena, MT. Pp. 149. MNHP and MFWP. 2017. Mountain Lion — Puma concolor. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on December 5, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=AMAJH04010 SDGFP. 2013. South Dakota Mountain Lion Management Plan 2010-2015, Version 13-2. South Dakota Game, Fish and Parks, Pierre, SD. Pp. 77.
Pallid Bat (Antrozous pallidus)	RFSS-R1	Yes	Six records in MNHP observation database, all between 2007 and 2013, all in Pryor and Ashland GAs. Two lactating females were noted in one observation record.	Unknown. Difficult to adequately monitor because they are concealed well in roosts and do not typcally aggregate in large concentrations.	Habitats are poorly studied, however, rock outcrops appear to be important across this species' range (MNHP and MFWP 2017). MNHP observation sites in the plan area include rocky areas with sagebrush and either juniper or ponderosa pine. In other areas, additional vegetation types have also been noted (MNHP and MFWP 2017). No roosts of any type have been recorded in the plan area, but in other areas typically include rock crevices or buildings, and less often, caves, tree hollows, bridges, and abandoned mines (MNHP and MFWP 2017).	Rock outcrops are very stable, and persist on the landscape over very long-periods of time. Important vegetation attributes are not known and therefore trend cannot be estimated.	This is species is very understudied; little is known about its life history or specific habits. However, it is known to be gregarious and roosts in clusters. Little is known about reproduction in Montana other than it is likely occurring, based on captures of lactating females. No winter records are known in Montana (MNHP and MFWP 2017).	According to MNHP and MFWP (2017), potential threats have not been identified for this species. The roosting habitat favored by this bat (rock and cliff crevices) provide protection from many disturbances.	No	No	There is insufficient information to determine substantial concern. Little is known about the specific habitat features selected by this species, other than rock outcrops and cliffs which are inherently stable and not subject to most types of disturbances.	MNHP and MFWP. 2017. Pallid Bat — Antrozous pallidus. Montana Field Guide. Retrieved on 11/07/2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=AMACC10010
Pika (Ochotona princeps)	LC	Yes	Two hundred eighty eight observations within Montane portion of plan area in MNHP database (MNHP and MFWP 2017). Species is widespread in high elevation portions of Absaroka Beartooth, Gallatin, Madison, Henrys, and Crazies GAs.	Unknown. MNHP records date back to 1894 but vast majority of observations within plan area have been reported since 2006 (MNHP and MFWP 2017). Population data lacking to determine trend.	Talus slides, boulder fields, rock rubble (with interstitial spaces adequate for habitation) near meadows. Usually at high elevation but mid-elevation possible if suitable rock cover and food plants present (MNHP and MFWP 2017).	Rocky habitats are harsh but likely stable, subject to slow or infrequent geologic and climatic forces such as weathering, avalanches and other mass movements that would likely maintain habitat for many more years.	High metabolism lends this species to overheating; therefore possibly susceptible to a warming climate. However, the species has demonstrated behavioral plasticity to avoid heat stress by mechanisms such as shifting activity to dawn, dusk, and night periods, and utilizing cooler microhabitats during hot periods (Shinderman 2015, Smith 1974).	Climate change may be a stressor over relatively long time periods in some areas. However, large, complex "mainland" mountain ranges such as the Rocky Mountains of the plan area are more secure and less susceptible to habitat loss than smaller and more isolated mountains such as found in the Great Basin region. See papers by Beever et al 2010, Erb et al. 2014, Hall et al. 2016. Also, pika demonstrate behavioral plasticity to avoid heat stress.	Yes	No	Relatively abundant and stable habitat, lack of threats. Population trends unknown but species is not uncommon and is likely adaptive to a warming climate in the complex, abundant habitats found in the plan area.	Beever, A, C. Ray, P. Mote and J. Wilkening. 2010. Testing alternative models of climate-mediated extirpations. Ecological Applications 20:164-178. Erb, L., C. Ray, and R. Guralnick. 2014. Determinants of pika population density vs. occupancy in the Southern Rocky Mountains. Ecological Applications: 24:429-435. Hall, E., A. Chalfoun, E. Beever, and A. Loosen. 2016. Microrefuges and the occurrence of thermal specialists: implications for persistence amidst changing temperatures. Climate Change Responses 3:8. 12pp. MNHP and MFWP. 2017. Pika — Ochotona princeps. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on December 5, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=AMAEA0102 Shinderman, M. 2015. American pika in a low-elevation lava landscape: expanding the known distribution of a temperature-sensitive species. Smith, A. 1974. The distribution and dispersal of pikas: Influences of behavior and climate. Ecology 55:1368-1376.
River Otter (Lontra canadensis)	S?-SD, S2-SD	Yes	Forty seven observations in MNHP database within plan area (MNHP and MFWP 2017). Observations distributed throughout Gallatin, Madison, Henrys, Absaroka Beartooth, and northwestern corner of Crazies GAs. Species' range in SD is outside plan area.	Unknown, assumed stable based on recency of most MNHP observations within plan area.	High flow volume water, densely vegetated and undercut banks preferable, non-turbid water and presence of sloughs and side channels to serve as brood rearing habitat are also important in winter. Open-water stream channels used (MNHP and MFWP 2017).	Habitat in plan area is stable. Pacfish/InFish Biological Opinion data indicate stream / riparian zone habitat is stable or improving in Montane ecosystems (Archer and Ojala 2016).	Probably breed every 2 to 3 years. Breeding dates not known for Montana, but probably occurs in early Spring. The young are born fur-covered, but blind, they are weaned in approximately 91 days, and they are ready to fend for themselves at eight months of age (MNHP and MFWP 2017).	River otters can be inadvertently caught in traps set for beaver. River otters are managed as furbearers in Montana by MFWP and in South Dakota by SDGFP (SDGFP 2012).	Yes	No	Species is secure within the Montane portion of the plan area where suitable habitat exists. Additionally, species is secure throughout its range in Montana and elsewhere.	Archer, E. and J. V. Ojala. 2016. Stream habitat condition for sites in the Custer Gallatin (west) National Forest. PacFish/InFish Biological Opinion (PIBO) Monitoring Program. USDA Forest Service, Logan, UT. Pp. 22. MNHP and MFWP. 2017. Northern River Otter — Lontra canadensis. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on December 5, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=AMAJF10010. SDGFP. 2012. South Dakota River Otter Management Plan. Wildlife Division Report 2012-07. South Dakota Game, Fish and Parks, Pierre, SD. Pp. 58.
Sagebrush Vole (Lemmiscus curtatus)	S1-SD LC-SDGFP	Yes	Three observations listed for species in MNHP database within plan area. One observation in Absaroka Beartooth GA and two observations in Sioux GA (MNHP and MFWP 2017). No observations reported within plan area in SD.	Unknown. Observations are too few and no population surveys exist to discern trend.	Sagebrush flats (Lampe et al. 1974). Associated with *Artemisia* spp., particularly *Artemisia tridentat* . Also may be found in denser vegetation; constructs poorly defined runways. May use dry cattle chips for temporary shelter (MNHP and MFWP 2017). Found in semi-arid environments, in topography ranging from open prairies to narrow brushy canyons (Foresman 2012).	Stable. Suitable habitat is widespread in Sioux GA of plan area.	Females and males mature at 1 to 2 months age. Litter size may be correlated with precipitation and available vegetation. Young are altricial at birth; weaned at about 18 days of age. Mobile colonies - occupies deep snow cover areas in winter, south-facing slopes in spring, lower elevations in summer (MNHP and MFWP 2017).	Sagebrush voles are prey for numerous predators (MNHP and MFWP 2017). Greatest threat in plan area is potential loss of sagebrush habitat.	Yes	No	Species is secure within Montana with a state rank of S4. Suitable habitat is widely available in Sioux GA of plan area. No immenent threats present.	Foresman, K.R. 2012. Mammals of Montana. Montana Press Publishing Compnay, Missoula, MT. Pp. 429. MNHP and MFWP. 2017. Sagebrush Vole — Lemmiscus curtatus. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on December 5, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=AMAFF13010
Spotted Bat (Euderma maculatum)	S2-SD	Yes	11 MNHP observation records, all in the Pryor Mountains and Ashland GAs. There are no records in the South Dakota portion of the plan area, where this species is ranked S2.	Uknown. This species is understudied and not well understood. However, all but one of the MNHP observations in the plan area were recorded since 2006.	Habitat associations not well understood, but most detections have occurred in arid juniper/sagebrush woodlands, sometimes intermixed with limber pine or Douglas-fir, or in grassy meadows of ponderosa pine savannah (hot/dry and warm/dry vegetation types, respectively). Cliffs, rocky outcrops, and water also appear important in Montana and elsewhere. No roosts documented in Montana, but in other areas, typically occur in rock crevices, and less often, caves (MNHP and MFWP 2017).	Rock outcrops are very stable, and persist on the landscape over very long-periods of time. Important vegetation attributes are not well understood and therefore trend cannot be accurately estimated.	Little information is available on this species. It has not been reported in Montana during winter, but there is no direct evidence of migratory movements (MNHP and MFWP 2017). Species is insectivorous, feeding primarily on moths and sometimes beetles. There is some evidence that individuals maintain exclusive foraging areas from other spotted bats, which would account for low densities.	According to MNHP and MFWP (2017), potential threats have not been identified for this species. The roosting habitat favored by this bat (rock and cliff crevices) provide protection from many disturbances. White-nose syndrome is not known to affect this species, or known to be in Montana at this time (Maxell 2015).	No	No	There is insufficient information to determine substantial concern. Little is known about the specific habitat features selected by this species, other than rock outcrocks and cliffs which are inherently stable and not subject to most types of disturbances. No information on population trends.	Maxell, B. 2015. Montana Bat and White-Nose Syndrome Surveillance Plan and Protocols 2012–2016; Updated 30 October 2015. Montana Natural Heritage Program. Helena, Montana. MNHP and MFWP. 2017. Spotted Bat — Euderma maculatum. Montana Field Guide. Retrieved on 11/07/2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=AMACC10010

Swift Fox (Vulpes velow)	LC	No; No SDNHP or MNHP observation records in plan area.	N/A	N/A	N/A	N/A	N/A	N/A	Yes	No	The species is not known to occur in plan area.	
Townsend's Big-eared Bat (Corynorhinus townsendii)	RFSS-R1 LC-SDGFP	Yes	26 MNHP observations in all GAs except the Bridger/Bangtails/Crazies. Known to hibernate in three of the western GAs; group size was typically 1 to 3 individuals per hibernacula, but in one cave, 13 were counted.	Unknown. No demographic data or estimates of population size are available for any population in Montana (MNHP and MFWP 2017). Monitoring data is sparse, even in known hibernacula. All but one of the five hibernacula have been discovered recently (i.e., since 2011). All 5 are small, with less than 10 bats observed on any given visit (MNHP observations records).	Limiting feature is likely caves for rearing young and hibernating. The plan area contains 12 known caves known to be used by bats, 5 of which are known hibernacula for this species. Few potentially suitable abandoned mines occur in the plan area, and none are known to be used. No known maternity roosts in plan area although a few juveniles have been captured in mist nests. According to MNHP and MFWP (2017), most caves and mines in Montana appear to be too cool in summer for use as maternity roosts. Other summer roosts (day and night) are likely less limiting, and may include snags and old buildings in addition to caves and mines.	Unknown; we do not have insight to what habitat attributes are most important. However, in general, caves are inherently stable geologically and climatologically. Little human use (<100 visitors/year) has been estimated at the 5 known hibernacula (H. Bodenheimer pers comm)	In Montana, Townsend's bat has been found at summer and winter roosts in the presence of other bat species, although it usually found hibernating in the open and alone, rather than in clusters or wedged in cracks. Females become sexually mature their first summer, and typcially breed every year. Maximum longevity is estimated to be 16-17 years (MNHP and MFWP 2017).	In some areas, excessive human activity in or immediately around caves is thought to disturb roosting bats; however, according to MNHP and MFWP (2017), negative response by Townsend's big-eared bats to human activities is largely undocumented in Montana. The maternity colony at Lewis and Clark Caverns State Park (not in plan area) has persisted for over a century, even though it is exposed daily to tour groups. Improper closure of caves, mines or other roost structures can reduce roosting habitat availability and potentially trap bats if timing is not appropriate. This was a bigger issue historically than presently, due to increased awareness of the situation. Species does not appear to be susceptible to white-nosed syndrome, though may potentiall carry the fungus that causes the disease (Maxell 2015).	Yes	No	Species appears to be secure in the plan area. Species is widely distributed in the plan area, and several hibernacula are known to house small numbers of bats. No known threats relevant to the population using the plan area.	Bodenheimer, H. pers. comm. with C. Staab. Maxell, B. Coordinator. 2015. Montana Bat and White-Nose Syndrome Surveillance Plan and Protocols 2012 -2016. MNHP, Helena. 205 p. MNHP and MFWP. 2017. Townsend's Big-eared Bat — Corynorhinus townsendii. Montana Field Guide. Accessed from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=AMACC08010 USDA Forest Service. 2014. Assessment of the Flathead National Forest. Available at http://www.fs.usda.gov/detailfull/flathead/home/?cid=stelprdb5422786&width=full
Tricolored Bat (Perimyotis subflavus)	PP, LC-SDGFP	No; No SDNHP or MNHP observation records in plan area. Closest known records are in E. SD, NE and MN.	N/A	N/A	N/A	N/A	N/A	N/A	Yes	No	The species is not known to occur in plan area.	MNHP observation records. SDNHP observation records.
Water Vole (Microtus richardsoni)	RFSS-R2 Shoshone	Yes	Eleven observations of the species within plan area according to MNHP database (MNHP and MFWP 2017). Species distribution covers the Montane portions of the Gallatin, Madison, Bridger, Crazies, and Beartooth GAs.	Unknown. Population level data unavailable to discern trend. Most recent observation in plan area dates to 1984 (MNHP and MFWP 2017), likely attributed to a lack of survey efforts rather than a population decline.	Semi-aquatic. Near streams and lakes in subalpine and alpine zones. Normally above 5000 ft. in western mountains. Moist grass and sedge areas, streamside hummocks overhung with willows (MNHP and MFWP 2017).	Stable. Archer and Ojala (2016) indicate stream / riparian habitat within Montane portions of plan area is stable to improving based on PIBO monitoring data. Many alpine areas are within designated wilderness where land management practices are compatible with maintaining habitat quality.	In Beartooths breeding begins in early June. Adults average 5.9 young/litter. Some female young breed as subadults. During first year some young males become sexually mature in August (MNHP 2017).	General lack of information on threats to species.	Yes	No	Observations of species in plan area are well-distributed, albeit few in number. Species is secure elsewhere in Montana. Habitat is stable, no immenent threats identified.	Archer, E. and J. V. Ojala. 2016. Stream habitat condition for sites in the Custer Gallatin (west) National Forest. PacFish/InFish Biological Opinion (PIBO) Monitoring Program. USDA Forest Service, Logan, UT. Pp. 22. MNHP and MFWP. 2017. Water Vole — Microtus richardsoni. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on December 6, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=AMAFF11190
White-tailed Prairie Dog (Cynomys leucurus)	S1-MT	Yes	Eight MNHP observations, all at one colony in Beartooth GA. This location represents northern extent of species' range in western hemisphere. Species does not occur in SD.	Presumed relatively stable; colony has persisted from at least 1975 (date of first observation) to 2016 (date of most recent observation) (MNHP and MFWP 2017).	The species inhabits areas dominated by two types of vegetation: areas with Gardener's saltbush with lesser amounts of big sage, and areas with small-flowered marsh-elder and winterfat. They live at higher elevations and in meadows with more diverse grass and herb cover than do black-tailed prairie dogs although their range in Montana is at relatively lower elevations than other areas across their distribution (MNHP and MFWP 2017, Foresman 2012).	Unknown. Portion of colony burned during wildland fire in early 1990s. Colony acreage did not change during three-year translocation project in mid-2000s (MNHP and MFWP 2017).	Species is non-migratory but hibernates during winter. One litter produced annually, averaging around 5 young. Both sexes breed as 1-year-olds (MNHP and MFWP 2017). Prairie dogs create burrows and influence above-ground vegetation patterns through burrowing and herbivory. These conditions are utilized by many other species, making prairie dogs a keystone species. Also, some species rely heavily on prairie dogs as prey.	Sylvatic plague has the greatest potential to impact black-tailed prairie dog numbers at the population scale with infected colonies experiencing up to 99% mortality (Cully 1989, MPDWG 2002).The exotic bacterium that causes sylvatic plague is transmitted to prairie dogs by fleas, which can be carried to prairie dogs by other prairie dogs or other species (e.g., predators, other rodents)(Cully and Williams 2001). Rodenticide application and recreational shooting have less potential to affect populations due to the relatively low density of white-tailed prairie dogs within colonies. In other parts of Montana, conversion of habitat to agricultural lands has probably contributed to prairie dog declines (MPDWG 2002), but crop production is not allowed on NFS lands.	Yes	Yes	Species is restricted to one location within plan area. While the colony has persisted since 1975, the high mortality rates often associated with a sylvatic plague outbreak leave this colony susceptible to extirpation.	Cully, J.F., Jr. 1989. Plague in prairie dog ecosystems: importance for black-footed ferret management. In: T. W. Clark, D. Hinckley and T. Rich, eds. The prairie dog ecosystem: managing for biological diversity. Montana Bureau of Land Management Wildlife Technical Bulletin Number 2:47-55. Billings, MT. BLM-MT-PT-89-004-4352. Cully, J. and E. Williams. 2001. Interspecific comparisons of sylvatic plague in prairie dogs. J. Mammalogy 82:894-905. Foresman, K.R. 2012. Mammals of Montana. Montana Press Publishing Compnay, Missoula, MT. Pp. 429. MPDWG. 2002. Conservation Plan for Black-tailed and White-tailed Priarie Dogs in Montana. State of Montana, Helena, MT. p 51. MNHP and MFWP. 2017. White-tailed Prairie Dog — Cynomys leucurus. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on December 6, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=AMAFB06020
Wolverine (Gulo gulo luscus)	RFSS, LC	Yes	Wolverine are widely distributed across the planning area, but occupancy rates (Inman et al. 2013, Lukas et al. 2020) and densities (Inman et al. 2012) tend to be relatively low in the Greater Yellowstone and parts of the surrounding Central Linkage Region. Wolverines occur in the montane ecosystems of the Custer Gallatin National Forest (Inman et al. 2012), with high quality habitat existing in the Madison, Henrys Lake, and Gallatin Mountains; Absaroka Beartooth Mountains; and Bridger, Bangtail, and Crazy Mountains areas (Inman et al. 2013; Carroll et al. 2020). Wolverine habitat in the Pryor Geographic Area is marginal (Inman et al. 2013, Carroll et al. 2020). Wolverine population estimates from in and around the planning area include51-175 individuals in the Greater Yellowstone Region and 38-172 in the Central Linkage Region (Inman et al. 2013); however no specific population estimates are available for within the planning area.	Population trends are unknown due to naturally low densities and remote habitats (USFWS 2020). Monitoring is ongoing (e.g., Golding et al. 2018) but occupancy within the Greater Yellowstone Region appears lower than in other areas the species occupies (Lukas et al. 2020) and lower than habitat availability may predict (Inman et al. 2013). The causes of the lower occupancy within the Greater Yellowstone Region are unknown but includes the potential that the species range is expanding (Lukas et al. 2020).	Wolverine use a variety of high elevations habitats irrespective of vegetation types (e.g., talus, forested areas, alpine meadows) (USFWS 2018). Often assumed to have an obligate relationship with persistent spring snow for natal denning, the key elements defining this relationship have not been empirically analyzed, and the species is known to den where spring snow isn't present (USFWS 2018). The Custer Gallatin is estimated to contain roughly 2,731 square miles of suitable wolverine habitat (maternal and primary habitat combined; Inman et al. 2013), 57% of which occurs in designated wilderness and another 32% in inventoried roadless areas (IRA) (see CG revised plan FEIS section 3.10.2). About	Likely relatively stable given the wide range of habitats used by the species and the preponderance of modeled habitat occurring in designated wilderness and IRAs where human presence is low (89% of primary habitat and 95% of maternal habitat). Research indicates that a pattern of reduced spring snowpack in wolverine habitat has been in place since at least the 1950s (Halofsky et al. 2018c, McKelvey and Buotte 2018), but there is little information as to whether, or how this pattern has affected wolverine habitat on the Custer Gallatin.	Generalist predator and scavenger that consumes a wide variety of foods. Has large spatial requirements for an animal of its size. Home range sizes for wolverines in the Greater Yellowstone Ecosystem, which includes the Custer Gallatin National Forest, average 117 square miles for independent females (without young), 39 square miles for females with young, and 308 square miles for adult males (Inman et al. 2012). Has extensive dispersal capabilities to cross great distances through otherwise unsuitable habitats; genetic profiles of different wolverines indicate that dispersals of up to 500 kilometers (310 miles) are possible (Inman et al. 2012).	Early extirpations linked to unchecked persecution, but modern harvest regulations allowed recolonization and expansion in and beyond the plan area (USFWS 2020). Climate change appears most significant stressor this century (e.g. loss of snowpack) (USFWS 2018). However, the Greater Yellowstone Ecosystem has been identified as one area in the continental United States that is predicted to experience less snow loss due to climate change than other areas at lower elevations (McKelvey et al. 2011). Also, fine-scale topographic features like slope and aspect may hold snow refugia for denning in areas where deep snow cover is not contiguous (e.g., lower elevations) (Barsugli et al. 2020). Winter recreation activities (and similarly, roads) may affect wolverine movements, but reproduction and multi-year residency have been documented in high winter use areas (Heinemeyer and Squires 2015, Heinemeyer et al. 2019). Wolverine response was more pronounced to motorized activities than non-motorized, since motorized uses generally have a larger footprint and higher intensity. 57% of modeled primary habitat in the plan area occurs in designated wilderness where motorized uses are closed year-round and nonmotorized uses are limited by access, and an additional 32% occurs in IRAs where human development and access is also limited. Demographic risks from other potential stressors such as wildland fire, disease, predation, genetic diversity, and small population effects are likely insignificant. For a thorough review of threats see USFWS (2018, 2020).	Yes	No	The species is secure within the plan area with abundant and well-connected habitat readily available. The plan area has over 1.7 million acres of primary habitat, most of which is in Wilderness or Inventoried Roadless Areas. For example, over 2/3 (67%) of all maternal denning habitat and 57% of primary habitat is in designated wilderness where nearly all uses, including motorized travel, are prohibited. Another 28% and 32%, respectively, are in IRAs which also limits the extent of human activities. These designations provide adequate protection from any potential recreation impacts, especially considering the species is not highly sensitive to human activities. Elevational and topographic refugia from climate change are expected to continue providing den sites through at least mid-century.	Barsuguli, J., A. Ray, B. Livneh and others. 2020. Projections of mountain snowpack loss for wolverine denning elevations in the Rocky Mountains. Earth's Future 8:e2020EF001537. Carroll, K., Hansen, A., Inman, R., Lawrence, R. and A. Hoegh. 2020. Testing landscape resistance layers and modeling connectivity for wolverines in the western United States. Global Ecology and Conservation 23:e01125. Copeland, J. and R. 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Cain, J. A. Fredrick, B. J. Oakleaf, and S. S. Sartorius. 2012. Spatial ecology of wolverines at the southern periphery of distribution. Journal of Wildlife Management 76:778-7925. Inman, R., B. Brock, K. Inman and others. 2013. Developing priorities for metapopulation conservation at the landscape scale: wolverines in the western US. Biol. Conserv. 166:276-286. Lukacs, P, D.Evans Mack, R. Inman and others. 2020. Wolverine occupancy, spatial distribution, and monitoring design. J. Wildl. Manage. 84:841-851. McKelvey, K., K. Aubry, N. Anderson and others. 2014. Recovery of wolverines in the western United States: Recent extirpation and recolonization or range retraction and expansion? J. Wildl. Manage. 78:325-334. USFWS. 2018. Species status assessment report for the North American wolverine (Gulo gulo luscus). Version 1.2. USFWS Mountain-Prairie Region, Lakewood, CO. USFWS. 2018. Withdrawal of the proposed rule for the North American wolverine. Fed Reg. 85: 64618-64648.

Fish Evaluated for Species of Conservation Concern -- For the Custer Gallatin National Forest Draft Revised Forest Plan and Draft EIS	Conservation Categories	Is the species known to occur in the plan area?	Distribution and Abundance in the Plan Area
Westslope Cutthroat Trout (Onchorhynchus clarkii lewisi)	G4T4, S2-MT, RFSS	Yes	Species distributed throughout Gallatin, Madison, Henrys GA, primarily in the Gallatin and Madison River headwaters, as well as several streams in Bridger Mts within plan area. Montana Natural Heritage Program (MNHP) records indicate 112 occurences within plan area (MNHP 2017). Montana Fish, Wildlife and Parks (MFWP) survey records document species in 18 streams within plan area between 2001 and 2011 (USFS 2016).
Yellowstone Cutthroat Trout (Onchorhynchus clarkii bouvieri)	G4T4, S2-MT, RFSS	Yes	Species found in tributaries to the Yellowstone River within the Bridgers, Bangtails, Crazies and the Gallatin portion of the Gallatin, Madison, Henrys GAs as well as multiple headwater tributaries in the Absaroka Beartooth GA within the plan area. Species historically stocked and currently found in multiple mountain lakes within same GAs. 521 occurences within MNHP records within plan area (MNHP 2017). MFWP survey records document species in 57 streams within plan area between 2000 and 2012 (USFS 2016).
Arctic Grayling (Thymallus arcticus)	G5, S1-MT, RFSS	Yes	Species documented in 7 headwater streams and 40 mountain lakes of the Gallatin and Crazies portions of their respective GAs and the Absaroka Beartooth GA (USFS 2016).

Population Trend in Plan Area	Habitat Description
Species of concern within Montana due to rangewide population declines and habitat loss. Westslope Cutthroat Trout currently occupy 9% of their historic range within the plan area (Jake Chaffin, CGNF watershed program manager, personal communication). Remaining populations within plan area are stable, due in part to habitat improvement projects and isolation from downstream non-native trout populations.	Westslope Cutthroat Trout are common in both headwaters lake and stream environments. Spawning and rearing streams tend to be cold and nutrient poor. Westslope Cutthroat Trout seek out gravel substrate in riffles and pool crests for spawning habitat. Cutthroat trout have long been regarded as sensitive to fine sediment (MNHP 2017).
Populations are stable within plan area. Several populations have declined (e.g. Smith Creek in Crazies GA), however, multiple conservation projects in recent years have secured other populations (Endicott et al. 2016). Within plan area, species' current distribution largely overlaps historic distribution (USFS 2016).	Yellowstone Cutthroat Trout share similar habitat requirements to Westslope Cutthroat Trout and inhabit both headwaters lake and stream environments. Spawning and rearing streams tend to be cold and nutrient poor. Cutthroat trout have long been regarded as sensitive to fine sediment (MNHP 2017).
Populations are stable within plan area. While fluvial (river-dwelling) populations have experienced large declines over historic distribution, adfluvial (lake-dwelling) populations still exist in high elevation mountain lakes within plan area. In many of these lake systems, Arctic Grayling were stocked to enhance sportfishing opportunities.	Within the plan area, Arctic Grayling are found primarily in small, cold, clear lakes with tributaries suitable for spawning. Outside the plan area, Arctic Grayling inhabit the Bighole River and associated tributaries (in addition to mountain lakes) (MNHP 2017).

Habitat trend in the Plan Area	Relevant Life History Traits & Other Information
Improving across plan area due to stream habitat projects (unpublished data in project file)	Resident life history form most common within plan area though fluvial and adfluvial forms exist.
Improving across plan area due to a variety of conservation projects such as road decommissioning and aquatic organism passage installations (Endicott et al. 2016).	Resident life history form most common within plan area though fluvial and adfluvial forms exist.
Habitat within plan area is stable. Primary habitat is high elevation mountain lakes located in wilderness areas where land management activities are compatible with maintaining habitat quality.	Populations that inhabit lakes and spawn in lake outlets or along shorelines where suitable habitat exists are most common within the plan area although fluvial and adfluvial forms do exist. In 2014, the U.S. Fish and Wildlife Service indicated that listing of the Upper Missouri River DPS of Arctic Grayling is not warranted. Habitat-related threats previously identified, including habitat fragmentation, dewatering, thermal stress, entrainment, riparian habitat loss, and effects from climate change, for the Upper Missouri River DPS of Arctic Grayling have been sufficiently ameliorated and that 19 of 20 populations of Arctic Grayling are either stable or increasing (Federal Register August 20, 2014).

Relevant Threats to Populations Using the Plan Area	Is there sufficient scientific information available to determine if there is substantial concern for long-term persistence in the plan area?	Is this species identified as an SCC for the Forest Plan and FEIS?
Localized habitat effects from past land use practices and water withdrawals. Hybridization with rainbow trout and competition from non-native trout (e.g. brook trout) (Shepard et al. 1997, Muhlfeld 2009, MNHP 2017). Sportfishing and harvest of species is regulated by Montana Fish, Wildlife and Parks.	Yes	Yes
Localized habitat effects from past land use practices and water withdrawals. Hybridization with rainbow trout and competition from non-native trout (e.g. brook trout) (Shepard et al. 1997, MNHP 2017). Sportfishing and harvest of species is regulated by Montana Fish, Wildlife and Parks.	Yes	No
Fluvial populations are susceptible to habitat loss and competition from non-native trout (MNHP 2017). Adfluvial populations, due to their high elevation distribution, are mostly secure provided fisheries management objectives are compatible with Arctic Grayling ecology. Sportfishing and harvest of species is regulated by Montana Fish, Wildlife and Parks.	Yes	No

Rationale for SCC Determination
This species is very important to the state as recognized by its status as the state fish. This fish has been seriously reduced in its range outside the plan area by two primary factors: hybridization with Rainbow Trout, and habitat loss and degradation. Even though habitat trends are improving within the plan area, some local populations could be susceptible to further hybridization, isolation, and declining numbers from stressors such as localized habitat degradation and climate change. While remaining local populations are being secured through habitat improvement projects and non native removal in some cases, risks for persistence still exist. See attached WCT rationale sheet in this workbook for more on rationale.
The Yellowstone Cutthroat Trout is a species of concern within Montana due in large part to its rangewide population declines and loss of habitat. Specific to the planning area, this species occupies 46% of its historic range (Jake Chaffin, CGNF watershed program manager, *personal communication*). While individual populations within specific streams have been lost or greatly reduced due to competition with non-native trout, hybridization, habitat degradation, and water withdrawals; conservation efforts have secured and stabilized other individual populations. The 2012 Planning Rule Directives (77 FR 21217, April 9, 2012; FSH 1909.12, Section 23.13c) recognize all members of a species within the plan area as one population. Under this direction, the Yellowstone Cutthroat Trout within the plan area is recognized as secure and was not identified as an SCC.
The historic range of fluvial Arctic Grayling included the upper Missouri River system and associated tributaries upstream of Great Falls, MT. This range would have included tributaries of the Gallatin, Madison, Henrys GA within the plan area. Past fisheries management activities have introduced this species to many mountain lake systems in southwestern MT including those areas previously mentioned under "Distribution and Abundance within Plan Area". While fluvial populations within the plan area may be greatly reduced over the species' historic range, adfluvial populations and associated mountain lake habitat remain secure. Thus, this species was not identified as an SCC.

Best Available Scientific Information

Muhlfeld, C.C., S.T. Kalinownski, T.E. McMahon, M.L. Taper, S. Painter, R.F. Leary, and F.W. Allendorf. 2009. Hybridization rapidly reduces fitness of a native trout in the wild. Biology Letters (2009) 5, 328-331. MNHP. 2017. Westslope Cutthroat Trout - Onchorhynchus clarkii lewisi. Montana Field Guide. Retrieved on November 20, 2017, from http://fieldguide.mt.gov/speciesDetail.aspx?elcode=AFCHA02088 Shepard, B., B. Sanborn, L. Ulmer, and D. Lee. 1997. Status and Risk of Extinction for Westslope Cutthroat Trout in the Upper Missouri River Basin, Montana, North American Journal of Fisheries Management. 17:4, 1158-1172. United States Forest Service. 2016. Geospatial data on fish species distribution provided by Montana Fish, Wildlife and Parks. Data located in project files.For addtional citations, see the WCT Rationale sheet in this workbook.

Endicott, C., L. Nelson, S. Opitz, A. Peterson, J. Burckhardt, S. Yekel, D. Garren, T. Koel, and B. Shepard. 2016. Range-wide Status Assessment for Yellowstone Cutthroat Trout (Oncorhynchus clarkii bouvieri): 2012. prepared for Yellowstone Cutthroat Trout Interagency Coordination Group. p. 57. MNHP. 2017. Yellowstone Cutthroat Trout - Onchorhynchus clarkii bouvieri. Montana Field Guide. Retrieved on November 21, 2017, from http://fieldguide.mt.gov/speciesDetail.aspx?elcode=AFCHA02087 United States Forest Service. 2016. Geospatial data on fish species distribution provided by Montana Fish, Wildlife and Parks. Data located in project files.

Federal Register. August 20, 2014. Endangered and Threatened Wildlife and Plants; Revised 12-Month Finding on a Petition To List the Upper Missouri River Distinct Population Segment of Arctic Grayling as an Endangered or Threatened Species; Proposed Rule. Vol. 79 , No. 161 / Wednesday, August 20, 2014 / Proposed Rules.
MNHP. 2017. Arctic Grayling — Thymallus arcticus. Montana Field Guide. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on November 21, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=AFCHA07010 United States Forest Service. 2016. Geospatial data on fish species distribution provided by Montana Fish, Wildlife and Parks. Data located in project files.

Reptiles and Amphibians Evaluated for Species of Conservation Concern - For the Custer Gallatin National Forest Revised Forest Plan and Final EIS	Conservation Categories	Is the species known to occur in the plan area?	Distribution and Abundance in the Plan Area	Population Trend in the Plan Area	Habitat Description	Habitat Trend in the Plan Area
Great Plains Toad (Anaxyrus cognatus)	S2-MT	Yes	Known to occur in the Ashland, Absaroka Beartooth, Pryor, and Sioux GAs. Detected at 34% of passive listening stations surveyed on the Ashland District in 2010 (Maxell 2016). The MNHP database contains 480 observations and 265 occurrences within the plan area (MNHP 2020).	Unknown.	Sagebrush-grassland, rainwater pools in road ruts, stream valleys, small reservoirs and stock ponds, and around rural farms. Breeding documented in small reservoirs, rain pools, flooded area, stock tanks and backwater sites along streams. Uses burrows during inactive periods (e.g., daytime, winter) (MNHP and MFWP 2017).	Unknown overall, but given the diversity of habitats use, including man-made habitats, some are likely to be stable.
Northern Leopard Frog (Lithobates pipiens)	S1-MT (western MT only), RFSS-R1	Yes	Two hundred sixty eight observations within plan area (MNHP 2017). Widespread throughout Sioux GA in MT, some observations within the Bridger and Beartooth GAs of western MT.	Stable. Widespread and common throughout Sioux GA in plan area.	Low elevation and valley bottom ponds, spillway ponds, beaver ponds, stock reservoirs, lakes, creeks, pools in intermittent streams, warm water springs, potholes, and marshes. There is no evidence that this species in Montana has ever occupied high elevation wetlands (MNHP 2017).	Stable. Suitable habitat is common and widespread within plan area.
Plains Hog-nosed Snake (Western Hog-nosed Snake) (Heterodon nasicus)	S2-MT, RFSS-R1	Yes	Limited distribution but common where present in plan area (Ashland District), indicated by 30 recorded observations from 2004-2014, and a statement by MNHP (2017) that populations are robust on southern slopes of the Pryor Mountains.	Unknown.	Mostly unknown in Montana, but does appear to like well drained sandy soils (MNHP 2017, Werner 2004). Reported in sagebrush-grasslands and sandy-soiled grasslands near pine savannah. Also known in arid areas, farmlands, and floodplains, with appropriate soils.	Unknown

Plains Spadefoot (Spea bombifrons)	RFSS-R1	Yes	Sixty nine observations and 31 species occurrences within plan area based on MNHP records (MNHP 2017). Species distribution within the plan area includes the Sioux GA in MT, and the upper Madison River watershed within the Madison/Gallatin/Henry Mountains GA.	Unknown, assumed stable. All but one of the 69 MNHP observations within the plan area have occurred since 2005 with the majority since 2010.	This species is usually found in areas with soft sandy/gravelly soils near permanent or temporary bodies of water. For much of each year it lives largely inactive in burrows of its own construction or occupies rodent burrows, and enters water only to breed. Following heavy rains, adults have been reported in water up to 30 centimeters deep in flooded wagon wheel ruts, temporary rain pools formed in wide flat-bottom coulees, water tanks, and badland seep ponds, and tadpoles and toadlets have been observed in stock ponds and small ephemeral reservoirs, usually in sagebrush-grassland habitats (MNHP 2017).	Unknown, assumed stable. Habitat, including man-made structures (stock tanks and ephemeral reservoirs) are common within plan area.
Sagebrush Lizard (Sceloporus graciosus)	S2-SD	Yes	in 2005 and 2008 revealed this species to occupy about 65% of all surveyed outcrops (Maxell 2016). Observed in all but the Bridger/Bangtail/ Crazy Mountain GA and the SD portions of the plan area, but mostly in the Ashland District where most habitat exists. The species is also common outside the plan area in lower, warm, dry habitats; mainly near the Pryors and Ashland District. Records have not been entered	Unknown, but no longer considered a species of concern by MNHP based on survey results on Ashland District and other parts of eastern Montana. Prior to those surveys the species was considered rare.	Sage-steppe habitats, sometimes in the presence of sedimentary rock outcrops, and in areas with open stands of limber pine and Utah juniper or ponderosa pine. In many places, open bare ground is abundant, grass cover is less than 10%, and height of shrub cover may be as low as 0.25 meters. MNHP 2017	Unknown, but rock outcrops are geologically very stable.

Greater short-horned Lizard (Phrynosoma hernandesi)	S2-SD, RFSS-R1 LC-SDGFP	Yes	Observations have occurred in all but the Bridger/Bangtail/Crazy Mountain GA. Low detection probabilities with standard reptile survey methodology, therefore it was not targeted during 2002-2015 survey efforts (Maxell 2016). However, it is thought to be present in low numbers throughout the plan area except the more mountainous Bridger/Bangtail/Crazy Mountain GA (ibid).	Unknown. M	In Pryor Mountains of plan area, southern exposures among limestone outcrops in canyon bottoms of sandy soil with an open canopy of limber pine-Utah juniper; also flats of relatively pebbly or stony soil with sparse grass and sagebrush cover. Ridge crests between coulees, and in sparse, short grass and sagebrush with sun-baked soil may also be important (MNHP and MFWP 2017).	Unknown.
Western Milksnake (Lampropeltis gentilis)	S2-MT, RFSS	Yes	Observations are limited to the Ashland District, where reptile surveys conducted between 2002-2015 revealed the species to be relatively uncommon but widely distributed. Species has low detection probability (Maxell 2017).	Unknown in plan area. However, statewide, widely scattered recent records indicate that milksnakes continue to occupy a large part of their known range, and some sites near a large urban center have remained occupied for the last 40 to 45 years (MNHP and MFWP 2017).	Little specific information is available. Milksnakes have been reported in areas of open sagebrush-grassland habitat and ponderosa pine savannah with sandy soils, most often in or near areas of rocky outcrops and hillsides or badland scarps, sometimes within city limits (MNHP and MFWP 2017).	Unknown.

Western Toad (Anaxyrus boreas or Bufo boreas)	S2-MT	Yes	304 observation records and 31 occurrences in plan area. More than than 80% of the observations have been recorded since 2000. Well distributed in Bridger/Bangtail/Crazy Mountains GA, Madison/Gallatin/Henry Mountains GA, and to lesser extent, also the Absaroka/Beartooth Mountains GAs. Prairie units are outside of the species' range (MNHP species occurence records).	Probably increased since reductions noted in late 1990's. Surveys in the northern Rocky Mountains in the late 1990's showed toads to be widespread but absent from a large number of historic localities (Maxell et al. 2009). Surveys across UFSF Region 1 in 2000 noted the species to be 'very rare.' However, approximately 290 observations have been made in the plan area since 2000, indicating this species is no longer rare.	Utilizes a wide variety of wetlands, including beaver ponds, reservoirs, streams, marshes, lake shores, potholes, wet meadows, marshes, fens, and tarns. Not sensitive to elevation; ranges from low elevation floodplains to upper treeline. Also occurs in urban settings, sometimes congregating under streetlights at night to feed on insects. (MFWP and MNHP 2015) Known to colonize wetlands in recently burned areas (Hossack and Corn 2008).	Habitat in plan area is stable. Monitoring data indicate stream / riparian zone habitat is stable or improving in montane ecosystems (Archer and Ojala 2016). Within montane primary rangeland, 72% of riparian survey sites were in proper functioning condition (Barndt et al. 2017).

Relevant Life History & Other Information	Relevant Threats to Populations using the Plan Area	Is there sufficient scientific information available to conclude whether there is substantial concern for long-term persistence in the plan area?	Is this species identified as an SCC for the Proposed Action?	Rationale for SCC Determination
May migrate several hundred meters between breeding pools and nonbreeding terrestrial habitats. Eats a variety of invertebrates, including spiders, moths, caterpillars, flies, beetles, termites, and ants. Breed only after rain in clear, shallow, temporary pools of flooded grasslands, probably May to July in Montana. Commonly exhibits communal egg deposition (MNHP and MFWP 2016).	In breeding ponds, threats may include removal of emergent vegetation, trampling by livestock, and presence of predatory fish.	Yes	No	Species appears secure in portions of plan area where it occurs. Utilizes a wide variety of habitats, including man-made water sources. Appears common on at least the Ashland District.
Calling males have been reported in April and May. Females have been collected with relatively undeveloped eggs in mid-June and moderately developed to fully developed eggs in early and late July; recently transformed juveniles also were noted in late July. Eggs and tadpoles have been	In breeding ponds, threats may include removal of emergent vegetation, trampling by livestock, and presence of predatory fish (MNHP 2017).	Yes	No	Species is common and stable within plan area with widely available habitat. MNHP lists populations within the mountains of western Montana as a Species of Concern with a state rank of S1. Populations on the Great Plains have a state rank of S4 and are not a Species of Concern.
For resting, occupies burrows or digs into soil; may also be found under rocks or debris.	Reduction of sagebrush cover to promote grasses for livestock (MNHP and MFWP 2017). This may have been an issue in some areas historically but not likely currently in plan area.	Yes	No	Species appears secure in portion of plan area where it occurs. Threats not known.

Adult choruses have been heard from late May through early August. Tadpoles from legless to 4-legged stages have been reported during late June of the same year in Carbon County, and fully transformed juveniles have been found in the same area during a different year in late August. Recently transformed juveniles have been reported along the Missouri River in late August (MNHP 2017).	In breeding ponds, threats may include removal of emergent vegetation, trampling by livestock, and presence of predatory fish (MNHP 2017).	Yes	No	Species appears secure in portions of plan area where it occurs. Species is widespread east of continental divide in Montana. Utilizes a wide variety of habitats, including man-made water sources.
Preys on invertebrates; nine orders of insects (ants, beetles, and moths the most abundant), spiders, scorpions, ticks, and mites have been reported in the diet. Adults sometimes eat hatchling lizards (MNHP and MFWP 2017).	Reduction of sagebrush cover to promote grasses for livestock (MNHP and MFWP 2017). This may have been an issue in some areas historically but not likely currently in plan area.	Yes	No	Species appears secure in portion of plan area where it occurs and habitat is most abundant. Widely distributed and common in some portions of the plan area. No contemporary threats known in plan area.

Little is known about life history.	Threats to this species in Montana are speculative, due to lack of study and poor survey coverage (MNHP and MFWP 2017). The largest threats likely include conversion of prairie to cropland and clearing of sagebrush for livestock, but these do not occur in plan area. More localized theats could include vehicle collisions and use of insecticides but these are not likely widespread enough in plan area to impact populations.	No	No	Insufficient information to indicate substantial concern. Lack of information hampers understanding of trends, threats, and life history characteristics sufficient to determine status.
Generalist carnivore that eats a variety of small vertebrates such as snakes, lizards, bird and reptile eggs, and rodents (MNHP and MFWP 2017).	Lack of basic information on abundance, food habits, and habitat associations hampers understanding of threats and management effects (MNHP and MFWP 2017).	No	No	Lack of information hampers understanding of trends, threats and potential management effects. Relatively uncommon but widely distributed in the portion of the plan area where it is known to occur.

High potential reproductive rate: up to 20,000 eggs per clutch noted in Montana (Maxell et al. 2002); however mortality of tadpoles and juveniles may also be high, and females may not breed every year (FWS 2012). Adults breed at 4-6 years and known to live at least 12 years (FWS 2012). Reoccupancy has been noted after temporary disruptions indicating resiliency &/or adaptability.	Invasive species: Chytrid fungus is widespread in Montana but either is not present or is not substantially limiting populations in the plan area. Chytrid has been implicated in declines of many amphibian species in many parts of the world (Olson et al. 2013). However, Pilliod et al. (2010) found that in the Rocky Mountains, chytrid may not cause rapid population declines of this toad, but instead may function as a low-level, chronic disease whereby not all individuals are infected, and some infected individuals survive. Trampling by vehicles and concentrated livestock may be an issue for this species (MFWP and MNHP 2016).	Yes	No	Species is secure in plan area. Widely distributed and common in portions of the plan area where habitat is present. Utilizes a wide variety of habitats.

Best Available Scientific Information
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Werner, J., B. Maxell P. Hendricks, and D. Flath. 2004. Amphibians and reptiles of Montana. Mountain Press, Missoula. 262pp.

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MNHP and MFWP. 2017. Greater Short-horned Lizard — Phrynosoma hernandesi. Montana Field Guide. Retrieved from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=ARACF12080

MNHP and MFWP. 2017. Western milksnake -- Lampropeltis gentilis. Retrieved on November 1, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=ARADB1905B

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Maxell, B., P. Hendricks, M. Gates, and S. Lenard. 2009. Montana amphibian and reptile status assessment, literature review, and conservation plan. Montana Natural Heritage Program, Helena, MT and Montana Cooperative Wildlife Research Unit and Wildlife Biology Program, University of Montana, Missoula, MT. 642 p.

MNHP species observation records

MFWP and MNHP. 2017. Western Toad — Anaxyrus boreas. Montana Field Guide. Accessed 6/15/17 at http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=AAABB01030

Olson, D., D. Aanensen, K. Ronnenberg and others. 2013. Mapping the global emergence of Batrachochytrium dendrobatidis, the amphibian chytrid fungus.

Pilliod, D, E. Muths, R. Scherer and others. 2010. Effects of amphibian chytrid fungus on individual survival probability in wild boreal toads. Cons. Biology 24:1259-1267.

USFWS 2012. Endangered and Threatened Wildlife and Plants; 90-day finding on a petition to list the eastern or southern Rocky Mountain population of the boreal toad as an endangered or threatened distinct population segment. Fed. Reg. 77 (71) 21920-21936.

Invertebrates Evaluated for Species of Conservation Concern - For the Custer Gallatin National Forest Forest Plan and Final EIS	Conservation Categories	Is the species known to occur in the plan area?	Distribution and Abundance in the Plan Area	Population Trend in the Plan Area	Habitat Description	Habitat Trend in the Plan Area
Alexander's Rhyacophilan Caddisfly (Rhyacophila alexanderi)	MT - S2, G2	No	Species has not been documented in GAs of plan area. According to Montana Natural Heritage program records, it has been found near the Custer Gallatin National Forest in one drainage in Yellowstone National Park, but it has not been collected on National Forest System lands.	NA	NA	NA
Berry's Mountainsnail *(Oreohelix strigosa berryi)*	G5T2 S1S2-MT	Yes	Three known localities in plan area; two are adjacent to Absaroka-Beartooth Wilderness Area, and the other is in the Pryor GA (MNHP species observation records). However, survey effort has been very limited for this subspecies.	Unknown. Difficult access, detection and identification discourages effective inventory and monitoring.	Little is known about habitat requirements, other than affiliation with limestone soils (which contribute calcium for shell development), and deciduous vegetation (which may provide important food sources; MNHP 2017).	Unknown

Familiar Bluet (Enallagma civile)	MT - S2S4	Yes	One observation of species reported on Sioux GA in plan area according to MNHP database records (MNHP 2017).	Unknown, assumed stable. Generally insufficient population data to determine trend. However, once believed to be relatively uncommon in the state, recent collections have turned up a significant number of occurrence records (Miller and Gustafson 1996).	The Familiar Bluet is common in a wide variety of habitats including vegetated lakes and ponds, marshes, slow sluggish streams and even river margins where emergent vegetation is present. Familiar Bluets are quite tolerant of different environemental conditions. They can be found in saline habitats and are also known to quickly colonize newly created wetlands (MNHP 2017).	Stable. Species has ability to use and adapt to a wide variety of environmental conditions. Suitable habitat widely available in Sioux GA of plan area.
Frigga Fritillary (*Boloria frigga*)	S1S2-MT	Uncertain; just one record of very low precision (6000 m) in the Madison Range, within approximately 2500 m of the plan area in 2006 (MNHP 2017).	Unknown. The record in question is 1 of only 3 in Montana (MNHP 2017). Rangewide, circumpolar distribution; in North America, from northern Alaska and Canada south through Rocky Mountains to Colorado, and in Great Lake states. (NatureServe 2017).	Unknown; however, the species was not reported in Montana prior to 1993. Species is difficult to identify in part due to the limited time in butterfly form (i.e., non-larval stages).	Habitat not described in Montana. Elsewhere, includes bogs of shrub willow, spruce, and true sphagnum, and arctic tundra. Larval food plants include Betula, Dryas, Rubus, and Salix. Adults feed on flower nectar (including Cardamine, Pedicularis, Polygonum, Salix, Sedum, Valeriana) and mud (MNHP 2017).	Unknown.
Gallatin Mountainsnail *(Oreohelix yavapai mariae)*	T1, S1-MT	Yes	Several MNHP observation records recorded between 1915 and 2009 near the mouth of Gallatin Canyon in the Gallatin Range. This is the type locality and the only known location of this subspecies. However, the subspecies is not recognized by ITIS.gov, and NatureServe states there is incomplete distribution data for it.	Unknown, but the subspecies has been confirmed to persist in the only known location from the time the it was first collected and described in early 1900's, to the last survey in 2009 (Hendricks 2009). Difficult detection and identification discourages effective inventory and monitoring.	Sole location was a dry, open, steep south-facing grassy slope around and below limestone outcroppings. Shells found in the open, some live individuals attached to limestone rocks imbedded in loose soil under scattered Rocky Mountain juniper and Douglas-fir, and scattered bunch grasses, on an steep, exposed slope (MNHP 2017; also see O. yavapai account in Hendricks 2012)	Unknown

Gray Comma *(Polygonia progne)*	S2-MT	No. Only one NHP observation record in plan area, from 1996 near Camp Needmore, approx 6 mi SE of Ekalaka, Montana. This record was noted as a range extension at the time of observation. A lack of subsequent sightings and the long timeframe since 1996 precludes us from knowing that the species is currently established in the plan area.	N/A	N/A	N/A	N/A
Horned Clubtail (Arigomphus cornutus)	MT - S2S4	Yes	One observation of species reported on Sioux GA in plan area according to MNHP database records (MNHP 2017).	Unknown. Insufficient population data to determine trend.	The preferred habitat of the Horned Clubtail is permanent slow streams and rivers with vegetated edges as well as ponds and lakes. In Montana, this species has so far only been collected from man-made reservoirs. The Horned Clubtail also uses open meadows and woodlands away from water to forage and roost (Miller and Gustafson 1996, MNHP 2017).	Stable. Habitat is widely available, including man-made water sources, in Sioux GA.
Monarch *(Danaus plexippus)*	PP, LC-SDGFP	No	Three records total, all since 2010. All were in Montana: two on Sioux district and one at Red Lodge ski area. Only 17 total MNHP records, another indication of how little is known about this species in Montana.	Unknown	Open places, native prairie, foothills, open valley bottoms, open weedy fields, roadsides, pastures, marshes, suburban areas, rarely above treeline in alpine terrain during migration (MNHP 2017).	Unknown

Pygmy Mountainsnail *(Oreohelix pygmaea or O. maculata)*	G1 S1	Yes	Two NHP observation records 1/2 mi apart, along the same road but different tributaries to Crooked Creek in the Pryor Mountains (MNHP species occurrence database). Range, abundance, and habitat poorly defined in Montana.	Unknown. Difficult access, detection and identification discourages effective inventory and monitoring.	Limited sites characterized by limestone and sandstone talus, adjacent moist meadows and creek bottoms. Tree canopy species where present include scattered cottonwood, aspen, willow, Douglas-fir, ponderosa pine, juniper and mountain mahogany. Live animals present mostly under rocks and in duff or soil accumulations under rocks; sun-bleached shells may be found on the surface (Hendricks 2012).	Unknown. Talus is a harsh environment but is relatively stable over long time periods (i.e., it remains as talus even after rock slides). Not enough is known about food or other life history requirements to understand the extent or potential implications of habitat changes.
Red-veined Meadowhawk (Sympetrum madidum)	MT - S2S3	Yes	Three observations of species reported on Sioux GA in plan area according to MNHP database records (MNHP 2017).	Unknown, assumed stable. Generally insufficient population data to determine trend. However, once believed to be relatively uncommon in the state, recent collections have turned up a significant number of occurrence records (MNHP 2017).	The Red-veined Meadowhawk prefers shallow, often saline and usually temporary, marshy ponds that often dry up during the summer months, as well as marshy pools in slow streams (MNHP 2017).	Stable. Suitable habitat is common and widespread within plan area.
Suckley Cuckoo Bumble Bee (*Bombus suckleyi)*	G1G3	No. All NHP observation records are prior to 1977, which precludes us from knowing that the species is currently established in the plan area.	N/A	N/A	N/A	N/A

Western Pearlshell Mussel (Margaritifera falcata)	MT - S2, RFSS-R1	Yes	Twelve observations and four species occurrences based on MNHP records (MNHP 2017). Restricted to upper Madison River system upstream of Hebgen Lake in the Gallatin, Madison, Henrys GA within plan area (Stagliano 2015).	Population is declining within plan area, similar to the species' trend statewide (Stagliano 2015).	The species is found in cool and cold running streams that generally have a low to moderate gradient and are wider than 2 m; preferred habitat is stable pebble or gravel substrates (Stagliano 2010). It is found in hard as well as soft water (MNHP 2015).	Habitat within the plan area is stable. While habitat has been degraded in some streams, habitat in other streams has improved in association with Westslope Cutthroat Trout habitat improvement projects. PacFish/InFish Biological Opinion data demonstrate that Montane aquatic habitat trends are stable or improving (Archer and Ojala 2016).

Relevant Life History & Other Information	Relevant Threats to Populations using the Plan Area	Is there sufficient scientific information available to conclude whether there is substantial concern for long-term persistence in the plan area?	Is this species identified as an SCC for the Draft EIS?	Rationale for SCC Determination	Best Available Scientific Information
NA	NA	NA	No	Species is not known to occur in the plan area; species is not established or becoming established in plan area.	NA
Breeding adaptations to local conditions include double brooding under very wet conditions (Frest and Johannes 1993), and delayed birth of hatched young in xeric conditions. Growth to adulthood commonly requires just under one year (Frest 1991).	Threats unclear in Montana (MFWP and MNHP 2016). Frest and Johannes asserted timber harvest and grazing threatened the subspecies on Black Hills NF (Region 2), but Tronstadt and Anderson (2011) did not always confirm this in subsequent monitoring. Timber harvest and fire may be important for stimulating growth of deciduous vegetation. Mining and weed control could have localized effects.	No	No	Insufficient information to indicate substantial concern. Lack of adequated inventories to determine distribution or abundance. Population and habitat trends unknown. Threats to subspecies not well documented or substantiated.	MNHP. 2017. Berry's Mountainsnail — Oreohelix strigosa berryi. Montana Field Guide. Accessed from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=IMGASB5328 MNHP species observation records Frest, T. J. 1991. Survey of Spearfish Canyon and vicinity, Black Hills, South Dakota and Wyoming for Oreohelix strigosa cooperi (Binney, 1858) and associated land snails. Deixis Consultants for USDA Forest Service. 59 pp. Frest, T. J. and E. J. Johannes. 1993. Land snail survey of the Black Hills National Forest, South Dakota and Wyoming. Deixis Consultants, Seattle, WA. 278 pp. L. Tronstad and M. Anderson. 2011. Monitoring rare land snails in the Black Hills National Forest. Report prepared by the Wyoming Natural Diversity Database, Laramie, Wyoming for the Black Hills National Forest Service, Custer, South Dakota.

Male Familiar Bluets make lengthy patrols over open water. Females are not common at breeding sites until they are ready to mate. Copulation and oviposition site selection is quite lengthy with much flying and exploration of potential sites. The tandem pair oviposits on submerged vegetation with the male releasing female as she submerges below waterline. The male waits for the female to complete ovipositing and then reattaches with her; the female often attempts to reject this second tandem (MNHP 2017).	None identified. Loss of emergent vegetation will likely displace adults to locations with suitable conditions.	No	No	Insufficient data to determine population levels or trends. Species adaptable to variety of habitat types. Suitable habitat widely available, including man-made sources, in plan area. No immenent threats identified.	Miller, K.B. and D.L. Gustafson. 1996. Distribution records of the Odonata of Montana. Bulletin of American Odonatology 3(4):75-88. MNHP. 2017. Familiar Bluet — Enallagma civile. Montana Field Guide. Montana Natural Heritage Program. Retrieved on December 7, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=IIODO71130
Limited information. Species is not migratory, and takes only one flight in its life cycle, which appears to last only one week.	Montana ranking of S1S2 is likely due to lack of surveys and information for this species.	No	No	Species may not be established or becoming established in the plan area. Also, there is no information on abundance, distribution, habitat, trends, host plants, or threats in the plan area.	MNHP. 2017. Frigga Fritillary — Boloria frigga. Montana Field Guide. Accessed on 06/13/2017 from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=IILEPJ7050 NatureServe. 2017. Frigga FritillaryNatureServe Explorer: An online encyclopedia of life. Accessed at http://explorer.natureserve.org.
Very little information on this organism, which is not recognized as a valid taxonomic entity by ITIS.gov. Presumably hermaphroditic, but the internal anatomy is not described. Also lacking knowledge of foods, reproductive behavior , life span, age/size at reproductive maturity is unknown and other basic life history traits (MNHP 2017).	Unknown, given the lack of information about the subspecies itself. It has been asserted that logging is a threat, but this is not considered best available science because the only known location was grassy habitat with sparse tree cover. Roads have also been implicated, presumably for direct habitat loss, but this is likely to be theortetical or very localized.	No	No	Insufficient information to indicate substantial concern. No information on abundance, distribution, population trend, habitat trend, threats, or other life history characteristics. May not be a valid taxonomic entity.	MNHP. 2017. Gallatin Mountainsnail — Oreohelix yavapai mariae. Montana Field Guide. Accessed at http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=IMGASB5393

N/A	N/A	N/A	No	Species is not known to occur in plan area. Single NHP observation exceeds our timeframe for knowing that a species currently occurs in the plan area, and does not provide evidence that the species is established or becoming established in th plan area.	MNHP observation records
Male Horned Clubtails perch on the ground, on rocks or on lily pads near the shoreline and patrol along the shore or over the water. When disturbed, they fly into nearby uplands where the females tend to spend most of their time perched on leaves (MNHP 2017).	Loss of emergent vegetation around perimeter of water sources due to livestock trampling.	No	No	Insufficient data to determine population levels or trends. Suitable habitat widely available, including man-made sources, in plan area.	Miller, K.B. and D.L. Gustafson. 1996. Distribution records of the Odonata of Montana. Bulletin of American Odonatology 3(4):75-88. MNHP. 2017. Horned Clubtail — Arigomphus cornutus. Montana Field Guide. Montana Natural Heritage Program. Retrieved on December 7, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=IIODO81040
Migrates north over several life stages, then south in one flight. It is thought that most southward migrants that summer east of the divide may overwinter in central Mexico, but data is limited (MNHP 2017). Larva utilize a variety of food plants (with milkweeds being primary; adults feed on mud and nectar from a long list of plant species (MNHP 2017).	At a rangewide scale, there is concern about habitat changes and climate change, particularly in overwintering areas and some spring migration areas (NatureServe 2017). The wintering areas and migration routes of individuals utilizing the plan are unknown, and thus so are threats.	No	No	Insufficient information to indicate substantial concern. No information on abundance, distribution, population trend, habitat trend, or status of host plants in the plan area. Also no data on what wintering areas or migratory routes are used by monarchs that may use the plan area.	MNHP. 2017. Monarch — Danaus plexippus. Montana Field Guide. Accessed on 6/13/17 from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=IILEPP2010 NatureServe. 2017. Monarch Butterfly. NatureServe Explorer: An online encyclopedia of life. Accessed at http://explorer.natureserve.org.

Although the taxonomic status has been accepted by NatureServe, others have expressed uncertainty. For example Anderson (2010), in her genetic work, and Beetle (in Hendricks 2012), through morphometric comparisons, considered O. pygmaea and Oreohelix strigosa berryi to be the same species.	Unknown, as talus is typically avoided for activities and disturbances such as logging, road building, grazing, weed control, and home development, which have all been listed as potential threats in MNHP (2017). However, these could occur in downslope areas if they were not within riparian protection zones.	No	No	Insufficient information to indicate substantial concern. No information on abundance, distribution, population trend, habitat trend, threats, or other life history characteristics.	Anderson, T. 2010. Oreohelicids (Oreohelix snail species) in the Bighorn National Forest. Report prepared for the Bighorn National Forest.
Male Red-veined Meadowhawks usually perch in suitable habitat with females. Oviposition is often completed in tandem, but single females with guarding males oviposit near plants in the water or into shallow or dry ponds (MNHP 2017).	None identified. Loss of emergent vegetation will likely displace adults to locations with suitable conditions.	No	No	Insufficient data to determine population levels or trends. Suitable habitat widely available, including man-made sources, in plan area. No immenent threats identified.	MNHP. 2017. Red-veined Meadowhawk — Sympetrum madidum. Montana Field Guide. Montana Natural Heritage Program. Retrieved onDecember 7, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=IIODO61080
N/A	N/A	N/A	No	Species is not currently known to occur in plan area; historic observations only.	

In Montana, the native host for Western Pearlshell Mussel is Western Cutthroat Trout although this mussel can use Rainbow, Brown, and Brook Trout as hosts (MNHP 2017). Reproduction typically takes place between mid-May and late June. Adult mussels are sedentary but glochidia (larval mussels) attached to fish host's gills and rely on fish movement to recolonize up and downstream reaches.	Western Pearlshell Mussels are susceptible to a variety of threats that impact their feeding ecology, their habitat as well as their fish hosts. Habitat degradation, such as sedimentation, water withdrawals, and barriers to fish movement are all known threats (Stagliano 2015).	Yes	Yes	Western Pearlshell Mussel populations have declined within the plan area, across Montana, and rangewide (Stagliano 2010, Blevins et al. 2017). The species continues to decline where suitable habitat exists (Stagliano 2015). Some threats have been mitigated within the plan area, other threats still exist. For these reasons, the Western Pearlshell Mussel is identified as a species of conservation concern.	Archer, E. and J. V. Ojala. 2016. Stream habitat condition for sites in the Custer Gallatin (west) National Forest. PacFish/InFish Biological Opinion (PIBO) Monitoring Program. USDA Forest Service, Logan, UT. Pp. 22. Blevins, E., S. Jepsen, J. Brim Box, D. Nez, J. Howard, A. Maine, and C. O'Brien. 2017. Extinction risk of western North American freshwater mussels: *Anodonta nuttalliana* , the *Anondonta oregonensis /kennerlyi* clade, *Gonidea angulata* , and *Margaritifera falcata* . Freshwater Mollusk Biology and Conservation. 20:71-88. MNHP. 2017. Western Pearlshell — Margaritifera falcata. Montana Field Guide. Montana Natural Heritage Program. Retrieved on November 21, 2017, from http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=IMBIV27020 Stagliano, D.M. 2010. Freshwater mussels in Montana: comprehensive results from 3 years of SWG funded surveys. Helena, MT: Montana Natural Heritage Program. Pp. 75. Stagliano, D.M. 2015. Re-evaluation and trend analysis of Western Pearlshell Mussel (SWG Tier 1) populations across watersheds of western Montana. Report of State Wildlife Grant (SWG)

	A	B
1	**Acronym**	**Expansion**
2	BBS	Breeding Bird Survey
3	BCR	Bird Conservation Region
4	CGNF	Custer Gallatin National Forest
5	GA	Geographic Area
6	GIS	Geographic Information System
7	IBMP	Interagency Bison Management Plan
8	IMBCR	Integrated Bird Monitoring in the Bird Conservation Regions
9	LC	Local Concern
10	MBEWG	Montana Bald Eagle Working Group
11	MNHP	Montana Natural Heritage Program
12	MFWP	Montana Fish Wildlife and Parks
13	N/A	Not Applicable
14	NF	National Forest
15	NFS	National Forest System
16	NHP	Natural Heritage Program
17	NRMRA	Northern Rocky Mountain Recovery Area (Wolf)
18	NRV	Natural range of variability
19	PIBO	Pacific fish - Inland fish Biological Opinion
20	PVT	Potential vegetation types; may also be called potential vegetation group. See the 2017 Assessment to the Custer Gallatin forest plan revision for more information.
21	RFSS	Regional Forester Sensitive Species
22	RMADC	Rocky Mountain Avian Data Center
23	SDGFP	South Dakota Dept of Game, Fish and Parks
24	TC	Tribal Concern
25	USFWS	US Fish and Wildlife Service
26	USGS	US Geological Survey
27	DPS	Distinct Population Segment

	A	B
1	**Conservation Category**	**Definition**
2	G1	NatureServe global rank 1: At high risk because of extremely limited and/or rapidly declining population numbers, range and/or habitat, making it highly vulnerable to global extinction.
3	G2	NatureServe global rank 2: At risk because of very limited and/or potentially declining population numbers, range and/or habitat, making it vulnerable to global extinction.
4	G3	NatureServe global rank 3: Potentially at risk because of limited and/or declining numbers, range and/or habitat, even though it may be abundant in some areas.
5	S1	MNHP state rank 1: At high risk because of extremely limited and/or rapidly declining population numbers, range and/or habitat, making it highly vulnerable to extirpation in the state.
6	S2	MNHP State rank 2: At risk because of very limited and/or potentially declining population numbers, range and/or habitat, making it vulnerable to extirpation in the state.
7	T1	Rank of a subspecies or variety. Appended to the global rank of the full species (e.g., G4T3). 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.
8	T2	Rank of a subspecies or variety. Appended to the global rank of the full species (e.g., G4T3). 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.
9	RFSS	Regional Forester Sensitive Species (R1 = Northern Region, R2 = Rocky Mountain Region, R4 = Intermountain Region)
10	DM	Delisted (removed) from the Endangered Species Act list within the last five years, or delisted and still monitored by the regulatory agency
11	TC	Tribal concern
12	LC	Local concern; typically identified by federal or state biologists, environmental organizations, or members of the public.

	A	B
13	FR	Federally recongnized as Endangered, Threatened, Candidate or Proposed
14	ST	State Threatened
15	PP	Positive “90-day finding” made by the US Fish and Wildlife Service in response to federal listing petition

Column1
The westslope cutthroat trout (WCT) is one of two subspecies of native cutthroat found in the state of Montana. Along wi State of Montana ranks this species as an S2. The distribution of this fish has been reduced from its historical range by sev trout, competition with introduced species like brook trout and brown trout, and habitat loss/degradation. The westslope Continental Divide as well as the upper Missouri River drainage east of the divide, as well as some small watersheds that c concluded that while the distribution and abundance of WCT have declined dramatically from historical levels, as a subsp still widely distributed, especially within lands that have stringent habitat protection measures in place, (2) many populati and (3) the active conservation of many populations is occurring.
Shepard et al (2005) estimated that westslope cutthroat trout historically occupied about 56,500 miles of habitat within t of historically occupied habitats (59%) in the U.S. Of that occupied mileage, approximately 24,000 miles have some type c introgressed populations. Of the miles designated as conservation populations in the U.S., 11,900 miles, or 49% are assu genetically tested and proven to be pure.
East of the continental divide on the Custer Gallatin Forest, WCT were historically abundant in the Gallatin and Madison R 949 historically occupied stream miles. Seventy-three of those miles are considered core/conservation habitat that were spanning barriers. At least 60 of those miles occur in the Cherry Creek drainage. The CG defines core/conservation habi invasion resulting from upstream migration is precluded by a barrier.
No resilient source populations remain in the Gallatin River drainage. Only 4 small, disconnected conservation population habitat, followed by Placer Creek at 1.5 miles of habitat. Both of these populations were salvaged from elsewhere and int streams, Wildhorse (0.5 miles) and Leverich Creeks (1 mile), host very small and the only remaining aboriginal populations secured by a permanent barrier and the Leverich population became slightly hybridized before a barrier could be installed
Westslope cutthroat trout populations in the upper Madison River drainage have fared marginally better than those in th Madison remaining on the Custer Gallatin. The largest population was reintroduced to the Cherry Creek drainage, occupy private land. All but one of the remaining isolated populations are very small, and most have some introgression with oth the Cherry Creek population as the only potential exception. While secure from upstream migration, some risk for unauth reasons, biologists do not consider WCT secure in the Madison River drainage on the Custer Gallatin.
After the SCC list was posted for the HLC, commenters including State of Montana biologists commented on the importan Continental Divide in the headwaters of the Missouri are quite different than the rest of the species' habitat. One comme populations at the edge of a species distribution should receive additional protection because they may contain genetic tr further suggested species at the leading edge of a population expansion may have specific traits that could help species to that it may be species at the trailing edge of a species distribution that contain the most important genetic information be (Hampe and Petit, 2005). As the population commenters were addressing on the HLC is the same as on the Custer Gallatir
Regarding WCT found east of the Continental Divide and their relationship to the species across its range, Young et al. (20 their use of molecular tools that identified nine genetically different lineages of WCT. One of those potential conservatio represent the leading edge of the species expansion after the most recent period of glaciation which concluded only seve advanced than tools available in 2003 and clearly identify WCT in the upper Missouri River as a separate clade. It is still u definition of significant as that term relates to qualification for a DPS.
In addition to potential genetic value, local populations on the HLC and CG may not be as protected from stochastic event indicate climate will continue to warm in the Northern Rocky Mountains and stream conditions are expected to have lowe climate in the northern Rockies will reduce soil moisture content and that will lead to shifts in tree and plant species repre Changes will likely result from increasing wildfire and insect outbreaks, which can reduce vegetative cover that keeps stre between increased fire activity and climate, likely influenced in recent decades by land use patterns and fire suppression (warm as much as 2 to 3oC by the 2050's depending on greenhouse gas emissions (Joyce et al. 2018). Holden et al. (2018) season in recent years are likely a primary driver increasing area burned each year.

When considering expected climate and vegetation changes with existing road infrastructure, Luce (2018) found increasin
can cause increased erosion and road failure and less water delivered off forest. Potential for stream degradation that co
affect many local populations in a shorter time frame than previously anticipated. Hessburg et al. (2019) summarize chall
intervention to help move the most important landscapes towards sustainable conditions. Actions include strategic thinn
actions will help restore resistance to unnatural fire and resilience to climate change on the landscape.

Westslope Cutthroat Trout occupancy is greatly reduced across the HLC and CG, especially East of the Continental Divide.
neighboring forests that qualify as conservation populations of the species. Remaining pure populations could have poter
expansion across the continental divide. While previously considered relatively safe from larger disturbances, that view i
increasing intensity, rate of return, and increasing patch size of fires in the Northern Rockies. Additionally, not even barrie
salmonids (Rahel and Smith, 2018). Therefore, the best available scientific information indicates substantial concern abou
plan area and have been identified as an SCC for the HLC and CG.

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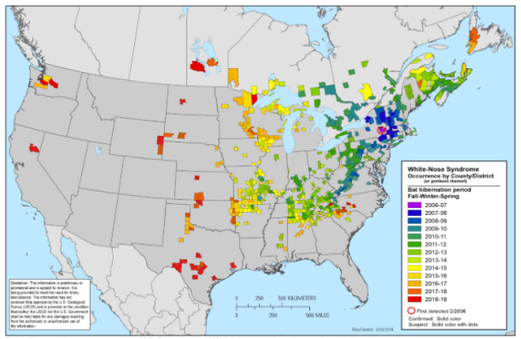
Supplemental Information Used in Identifying Bat Species of Conservation Concern In the Northern Region
This document addresses the potential threats of white-nose syndrome and wind turbine strikes to bat species being evaluated for SCC status in the Northern Region. These threats are put into context with policy found in FSH 1909.12, chapter 10, 12.52.
Summary: There is high uncertainty regarding potential effects of white-nose syndrome (WNS) and the invasive fungus that causes it (known as Pd) to bats that occur in Northern Region plan areas. There are large gaps in the current distribution of Pd, and the fungus is not known to exist in any R1 plan areas. Also, like most pathogens, Pd does not affect all bats equally (Frank et al. 2014, Frick et al. 2017), and there is high uncertainty regarding the susceptibility of bats found in the Northern Region. Further, we have no evidence to suggest that either wind turbine strikes or roost disturbances are influencing population dynamics of species that use our plan areas. These threats typically apply to localized areas, but discussions in literature are often generalized to broad or indistinct areas without clear relevance to other areas.
In Region 1, our approach is to provide plan components that constrain us from unintentionally spreading invasive species that threaten our native species – regardless of SCC status. This includes the Pd fungus. Further, we view bat hibernacula and maternity roosts as key habitat characteristics that are essential to species diversity and ecological integrity as required under the 2012 planning rule, and provide plan components to protect them.
Planning Rule Requirements and Use of Best Available Scientific Information (BASI):
The planning rule prompts us to consider threats and stressors that are both relevant and significant. We believe that to be relevant, a threat must be present at spatial and temporal scales appropriate to the plan area. To be significant, a threat must be of a magnitude that would potentially affect long-term persistence in the plan area. Using the best scientific available information, at this time these threats to bats do not meet these criteria because:
• The Pd fungus has not been detected in any planning unit in the Northern Region. While we believe that Pd will eventually spread into these regions, we do not have the ability to predict the rate, extent, or consequences of that spread, especially at the scale of a planning unit.
○ Presence of Pd in a region does not inform whether it will be found on a planning unit. The fungus occurs widely in the eastern US; however, there are still many counties where neither the fungus, the disease, nor associated mortalities have been recorded since the first discovery in New York 12 years ago (see figure below). The existing pattern of occurrence appears correlated with the density of cave hibernacula (Maher et al. 2012), which are not uniformly distributed across landscapes.
o Of the three western states where Pd has been detected, we are aware of only a handful of mortalities. This is: 4 or 5 deaths in WA[i], 0 in SD and 0 in WY. A similar (small) number of live bats with wing lesions attributable to WNS have been found after emerging from hibernacula in springtime, meaning these bats survived the critical hibernation period when mortalities typically occur.
○ We are aware of only two species in Region 1 that have been documented with significant mortalities in other regions that are attributable to WNS. These species are:
▪ Little brown bat
▪ Northern myotis (federally listed and not eligible for SCC status).
• We cannot predict which species will experience significant mortality events from WNS. Not all bat species (or individuals) exposed to Pd develop WNS, and not all species (or individuals) that develop WNS die from it. Further, some species apparently have not come into contact with Pd yet, so we don't know their susceptibility.

o There are three western species on which the Pd fungus has been detected, but no mortalities or diagnostic signs of WNS have been recorded[ii] (see whitenose.org):
▪ Western small-footed myotis
▪ Silver-haired bat
▪ Townsend's big eared bat
o Three western species have been documented with symptoms of WNS, but with little or no evidence of significant mortalities resulting from the disease:
▪ Big brown bat (see Frank et al. 2014 indicating high resistance and survival)
▪ Long-legged bat (Abernathy 2018 has the only WNS detection, with no mortality)
▪ Yuma bat
o The Hoary bat occurs in the west as well as the east where Pd is widespread. Despite broadly overlapping distributions with Pd in the east, this bat has not been observed with Pd fungus or signs of WNS (see whitenose.org).
o We have no data on the following western species, presumably because they have not yet come in contact with the Pd fungus:
▪ California myotis
▪ Fringed myotis
▪ Long-eared myotis
▪ Pallid bat
▪ Spotted bat
o Myotis species are sometimes discussed in literature as being particularly susceptible to developing WNS. However:
▪ Eastern small footed myotis has not experienced such fate. See Langwig et al. 2016a and the USFWS (2013) decision not to list the Eastern small-footed bat.
▪ Western small-footed myotis expressed no clinical symptoms of WNS in Wyoming despite harboring Pd fungus, which suggests this species may express strong resistance like its eastern analogue species (Abernathy 2018).
▪ Eight European myotis have shown clinical symptoms of WNS[i] but no mortalities have been recorded that we are aware of. An additional 4 European myotis species have been observed harboring the fungus with no clinical signs of WNS[i].
o Some species have shown resistance, tolerance, or behavioral shifts that reduce WNS impacts:
▪ Inherent resistance: Big brown bat, Eastern small footed myotis, gray myotis (Frick et al. 2017; Frank et al. 2014, Langwig et al. 2016a, 2016b). For example, big brown bat increased 43% in the same hibernation site and in the same time period that little brown bats sharply decreased.
▪ Developed resistance or tolerance post-WNS: Little brown bat and Tricolored bat (Frick et al. 2017).
▪ Behavioral shifts post-WNS: Little brown bats and Indiana bats in some areas after mass mortalities have shifted from hibernating almost entirely in groups to roosting singly. This appears to have contributed to little brown bat populations stabilizing within 4 years at those sites, likely due to reduced Pd transmission (Langwig et al. 2012).

▪ Monitoring is revealing recovery of little browns at some sites. For example, one of the original WNS sites in NY went from having 92% mortality of little browns in the first winter of monitoring to 50% in 2015-16. This population regained 41% of its 86,000 pre-WNS population size, up from 8% in the first year post-WNS; Dr. Craig Frank, pers. comm, publ. in prep.).
○ The ecology of some bat species may lower their risk of mortality and extirpation from WNS.
▪ For example, use of non-cave hibernacula, roosting in low densities, lower hibernacula temperature preferences, length of hibernation, body size, and innate immune functions (Frank et al. 2014, Frick et al. 2017, FWS 2013, Langwig et al. 2012, Langwig et al. 2016a,b, Maher eta l. 2012)
▪ Maher et al. 2012 predict that community structure will shift in favor of non-cave hibernating bats. The northern Rocky Mountains may naturally already have that structure due to the limited number of caves in this landscape.
▪ Bats in the western US tend to hibernate in caves far less frequently than caves in the eastern US (Weller et al. 2018).
○ There are many examples of other introduced multi-host diseases that have differentially affected species and populations, where some hosts suffer great losses and others do not. Examples include avian influenza and West Nile virus across many wild bird species, sylvatic plague in many species of rodents, canine distemper in many canids and mustelids.
• Wind Energy Impacts: Among all U.S and Canada bat species, the hoary and silver-haired bats are most affected by wind turbines (batcon.org). Of these, only the hoary is migratory in Montana and Idaho. No wind energy developments currently exist in R1 planning units, and wind energy potential was not highlighted in any R1 assessment.
○ The main concern regarding turbine strikes would be potential for bats to be struck during migration to or from our planning units. However, little is known about migration patterns of bats in the west and it would be difficult to determine if hoary bats that use our planning units are being impacted during migration.
○ Pylant et al. (2016) found that only about 1% of hoary bat mortalities at wind energy facilities in the central Appalachian Mountains derived from non-local sources (i.e., most bats killed resided locally).
• Few western entities have elevated their bat conservation rankings to “high concern”, even for little brown bat, which has suffered large declines in the east.
o State heritage program ranks, i.e., “S” ranks[iii] for little brown bat:
▪ Washington: S3 (this is a “moderate” rank on a scale of 1 to 5)
▪ Idaho: S3 (“potentially at risk”, which is a moderate rank on a scale of 1 to 5)
▪ Montana: S4 (“Apparently secure”, which is a low concern rank on a scale of 1 to 5).
○ Across the range of little brown bat, there are only five S1 (“At high risk” states and 7 S2s (“At risk”). Several eastern states remain at S3 (“potentially at risk”).
○ No bat species in Montana or Idaho is ranked of more concern than a moderate S3, aside from the federally listed northern bat. Similarly, none carry a global (G) rank lower than 3, either.
Figure 1. Counties where white-nose syndrome has been detected or is suspected, as of 03/11/2020. Note this is not limited only to locations of mass mortalities. Source: https://www.whitenosesyndrome.org/static-page/where-is-wns-now



Citation: White-nose syndrome occurrence map - by year (2019). Data Last Updated: 8/30/2019. Available at: https://www.whitenosesyndrome.org/static-page/wns-spread-maps.

Endnotes

[i] https://wdfw.wa.gov/conservation/health/wns/

[ii] Whitenosesyndrome.org

[iii] Global (G) and State (S) rankings as defined through the NatureServe Network.

Global Rank
G1
G2
G3
G4
G5

Column1
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State Rank	Definition
S1	At high risk due to extremely limited and/or rapidly declining population numbers, range and/or habitat, making it highly vulnerable to global extinction or extirpation in the state.
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.
S4	Apparently secure, though it may be quite rare in parts of its range, and/or suspected to be declining.
S5	Common, widespread, and abundant (although it may be rare in parts of its range). Not vulnerable in most of its range.

Topic

Connectivity of migratory habitat
and habitat quality

Genetic diversity

Summary

Bison primarily occupy the planning area during the winter and early spring; therefore, factors affecting connectivity betv
important in determining the ability of the species to persist within the planning area. Most of the migration of bison herc
Movement corridors for bison are often associated with river and stream corridors (Bruggeman et al. 2007). Fences, roads
cases mortality (e.g., vehicular collisions); however, bison are adept at creating viable migration corridors around barriers
influenced by the bison population size, forage availability and snow cover (detailed in White et al. 2015). Given limited n
limited by management interventions.

In the winter, bison prefer lowland meadows dominated by sedges and grasses which are generally rare in most landscapes
access to forage but reduces energy expenditure associated with moving through deep snow (Bruggeman 2006).

'Thus, vegetation quality has little influence on the selection of foraging patches, and factors such as snow pack and comp
Fortin et al. 2003; Bruggeman 2006). Bison tend to select foraging patches in areas with less snow because displacing snov
2001). As an area becomes covered by deeper snow or occupied by numerous animals competing for forage, bison will eve
et al. 2015, page 9)

Based on the ecology of wintering bison (reviewed in White et al. 2015), habitat quality within the planning area as measu
wintering bison, habitat is widely available within the planning area; however, the IBMP explicitly outlines the spatial anc
availability. The year-round habitat available to bison has increased since the initial IBMP in part because social barriers tc
livestock producers to provide conflict-free habitat. This change in habitat availability facilitated by changes in social acce
constraining on bison use of the planning area than the social acceptability of allowing bison access to available habitat. I
ecological (Pejchar et al. 2021).

Small populations are at increased risk from inbreeding depression that may affect demographic parameters and lead to p
important in determining the ability of the species to persist within the planning area if a loss of genetic diversity leads to
the Yellowstone bison population (reviewed in White et al. 2015), as well as bison outside of the Yellowstone population.
2008, Forgacs et al. 2016, Hartway et al. 2020). Without gene flow populations loose genetic diversity and inbreeding dep
2020) there is limited evidence that expected losses of genetic variability within bison populations will lead to demograph
2020). Removal of individuals from the population through culling or other means may have additional consequences for
Hartway et al. 2020). Given that the size of the Yellowstone bison population, even when considered as potentially two su
consequences that may preclude the species from persisting within the planning area would not appear substantial. Indee
northern breeding herds to retain enough genetic diversity to enable bison to adapt to a changing environment through n
~93% of allelic diversity, for loci with five alleles [83% for 20 alleles] will be maintained over 200 years if the population c
IBMP explicitly identifies an objective to 'Manage the Yellowstone bison population to ensure the ecological function and
adaptation.' An objective that is further supported by the Department of Interior proposal to initiate a comprehensive me
and health of bison populations (Hartway et al. 2020).

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Species of interest	Citation
Yellowstone Cutthroat Trout	Rhodes, J., D. A. McCullough, and F. A. Espinosa, Jr. 1994. A course screening process for evaluation of the effects of land management activities on salmon spawning and rearing habitat in ESA consultations. Technical Report 94-4.
Yellowstone Cutthroat Trout	Kershner, J. L., C. M. Bischoff, and D. L. Horan. 1997. Population, habitat, and genetic characteristics of Colorado River cutthroat trout in wilderness and nonwilderness stream sections in the Uinta Mountains of Utah and Wyoming. North American Journal of Fisheries Management 17:1134-1143.
Yellowstone Cutthroat Trout	Isaak, D. J., M. K. Young, D. E. Nagel, D. L. Horan, and M. C. Groce. 2015. The cold-water climate shield: delineating refugia for preserving salmonid fishes through the 21st century. Global Change Biology 21:2540-2553.
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Moose	DeCesare, N. J., and J. Newby. 2013. Vital rates, limiting factors and monitoring methods for moose in Montana [Research Update July 1, 2013].
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Bison	Freese, C. H., K. E. Aune, D. P. Boyd, J. N. Derr, S. C. Forrest, C. C. Gates, P. J. P. Gogan, S. M. Grassel, N. D. Halbert, K. Kunkel, and K. H. Redford. 2007. Second chance for the plains bison. Biological Conservation 136:175-184.
Bison	Traill et al. 2010. Pragmatic population viability targets in a rapidly changing world. Biological Conservation 143: 28–34.
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Bison

Bison Schullery, P., and L. H. Whittlesey. 2006. Greater Yellowstor

Bison Nie, Martin and Barns, Christopher and Haber, Jonathan and

Notes

Research is outdated, and while it may be relevant when considering historic impacts of land designations, it is no longer
evaluation. At the time these two papers were published, many broad changes in substantive Agency policy had yet to occ
1995; Roadless Rule, 2001). Regarding the Gallatin NF in the 1990s, they did have unusual increased riparian protection
agreement with Trout Unlimited (USDA, 1990). These two papers were addressing past management that had damaged aq
American west. All three of the Forest Service policies/rule-makings just mentioned greatly improved habitat protections
and protecting vegetation next to streams. Using PACFISH/INFISH Biological Opinion Monitoring data almost two decades
protections were instituted, Roper et al. (2019) found that habitat in managed landscapes outside of wilderness and roadl
The Gallatin National Forest is included in that PIBO analysis as the Northern Region of the Forest Service extended PIBO m
Improving habitat next to roadless and wilderness designated lands increases the area of contiguous secure habitat, there
populations that depend on those patches (Haak and Williams, 2012).
Even though physical conditons are improving, climate change can still affect fish use. This paper notes that depending on
landscapes, climate change is an issue for cold water species like trout (Isaak et al., 2015). While increasing stream temper
negatively, streams at higher and colder elevations will still provide refugia. On the Custer Gallatin National Forest, some
refugia patches is predicted by the climate shield model under the more extreme scenarios in future decades
(https://usfs.maps.arcgis.com/apps/webappviewer/index.html?id=a64ca6b777f44633bb036b5bfeb9ad7d).

Yet for Yellowstone cutthroat trout, some habitats patches can become more favorable habitat for cutthroat in 2040 prec
than char in some temperature ranges (Isaak et al., 2015, p. 10). As an example, a patch in the Boulder River (Patch_id 11
trout probability of presence) contains 114 stream KM, with an August mean temperature of 7.440C and a 6% probability
2040 scenario with 50% brook trout presence, the patch size (now identified as Patch_id 1258) decreases to 77 KM and te
Although the patch size decreases, the change in temperature offers a competitive advantage to Yellowstone cutthroat as
Modelled probability of Yellowstone cutthroat presence increases to 78% in 2040. Based on current modelling, some pat
higher elevations will shrink in area, but increase in their ability to sustain Yellowstone cutthroat. The probability increas
persistence where brook trout are present because of the competitive advantage predicted to occur from climate change.

This paper is not cited in the rationale for Yellowstone Cutthroat Trout because climate change is not considered a major t

Older annual research report. The rationale cites the 2019 update to this study that includes more current information.

Paper supports existing rationale; states that while climate change may affect some moose populations, evidence is mixed
speculative. Citation added to rationale.

This article is cited within and the information discussed within the White et al. 2015, which is a broad ranging review of
an important scientific reference.

This manuscript, while not explicitly referenced, is in line with numerous citations within White et al. 2015, which is a br
Bison and was therefore an important scientific reference.
This article is cited within and the information discussed within the White et al. 2015, which is a broad ranging review of
an important scientific reference.

This article is cited within and the information discussed within the White et al. 2015, which is a broad ranging review of '
an important scientific reference.

In considering this article the findings further support the notion that there is not substantial concern regarding the abilit
planning area. 1. 'The analysis of the mitochondrial genome of 25 Yellowstone bison yielded ten unique haplotypes, demc
this population 0.78 (±0.06). These haplotypes had little differentiation between them with the overall mean difference c
historic bottleneck and the subsequent process of increasing diversity due to the population boom and good managemen
associated with greater population health and higher fitness …'
2. The authors contention that 'Before new management standards and policies are defined for the Yellowstone bison pop
population structure and genetic diversity based on both DNA and nuclear genetic diversity assessments need to be condu
management practices as identified within the IBMP, suggesting that the authors intent is to stick with the management a
This article is cited within and the information discussed within the White et al. 2015, which is a broad ranging review of '
an important scientific reference.
This article 'reviews the authority of federal and state governments to manage wildlife on federal lands' and is therefore nc
the ability of the species to persist within the planning area.