

## **Attachment E – DNRC Wildlife Habitat Assessment**

### **State Trust Lands Mount Maurice Parcel, Red Lodge, Montana**

#### **Wildlife Habitat Assessment for Proposed Sale through Land Banking**

**Ross Baty  
Wildlife Biologist  
DNRC Forest Management Bureau**

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Field Review Date: September 7, 2005

Project Area Legal: North ½, Section 16, T8S, R20E (295 acres)

Purpose: The purpose of this assessment is to evaluate wildlife habitat values associated with this parcel and surrounding sections and provide analysis for effects of the proposed action to sell this parcel through the state Land Banking process.

#### Wildlife-Related Comments Raised through the Public Scoping Process:

- The parcel occurs within an environmentally sensitive area.
- The parcel is extremely valuable to wildlife.
- The parcel possesses important winter habitat for elk.
- Approximately 200 elk have spent portions of the past two winters in the vicinity of the parcel.
- Additional human developments on the parcel, should they occur, would impact elk that use the Silver Run Wildlife Management Area – an area managed by Montana Fish, Wildlife and Parks situated immediately adjacent to the northwest.
- Elk use the parcel as a calving area.
- The area supports a relatively large number of wintering white-tailed deer.
- The area supports a lesser number of wintering mule deer.
- Portions of steep slopes above Rock Creek support stands of chokecherry shrubs, which are frequented by black bears and moose.
- Mountain lions have been observed in the area and may periodically use the parcel.
- Wolves have been present in the area recently and a den was located less than a mile from the parcel several years ago.
- The area supports nesting blue grouse and gray partridge.
- Additional human developments on the parcel, should they occur, would reduce habitat values for wildlife considerably and the loss would be difficult to mitigate.
- Coyotes use the parcel.
- The parcel offers people from Red Lodge a place to walk with an opportunity to enjoy wildlife.
- Wild turkeys use the area.
- Sage grouse use the parcel.
- Bald and golden eagles are found in the area.

### Existing Conditions

Analysis Areas: For this analysis, the project area is considered the 295-acre parcel in the north half of section 16, T8S, R20E. The eight sections of land surrounding section 16 were considered as the cumulative effects analysis area (5,120 acres).

General Description: The parcel is 295 acres and forms the majority of the north ½ of section 16, T8S, R20E and is located in Carbon County. It lies approximately 3 miles southwest of Red Lodge, Montana and rests on the foothills north of the Beartooth Mountains just north of Mount Maurice. The parcel is situated along a conifer grassland ecotone where dense forest communities, aspen groves and grasslands occur. The northwest corner of the parcel is situated less than 0.25 miles from a stream named Rock Creek, which contains lush, riparian habitat.

Scenic U.S. Highway 212 is an important recreational route in the area, which runs parallel to Rock Creek. A number of scattered residential homes and human dwellings are situated along Highway 212 between Red Lodge and the USFS National Forest boundary (about 4 miles southwest of Red Lodge). This general area possesses high recreational values and scenic views, which has likely contributed to the sizable number of permanent and seasonally used developments that have been constructed during the last couple of decades. The north ½ of section 16 is completely surrounded by private land on all sides. Due to limited legal access to the parcel, recreational opportunities are generally limited to the surrounding homeowners of the Meeteetse Meadows Subdivision. Some illegal snowmobile use has been detected on the parcel in the past (J. Bollman, DNRC, pers. comm. 9/7/2005). USFS lands and Custer National Forest boundary occur within about 1 mile to the south and about 1 mile to the west. Four, small BLM parcels from 80 to 240 acres lie within one mile of the north ½ of section 16. The Silver Run Wildlife Management Area (640 acres), which is owned and managed by Montana Fish, Wildlife and Parks, abuts national forest land to the west and is situated immediately northwest of section 16 across Highway 212. Livestock grazing, mining, and logging are other historic land uses common in the area. The parcel has a livestock grazing lease with 84 AUMs. Livestock grazing has apparently been limited on the site during the last couple of years (DNRC grazing lease evaluation doc., Aug. 2005).

Habitat Descriptions: The parcel is comprised of both forest and grassland communities on slopes that range from 0 to 60%. Several ravines and draw features occur on the parcel. Forest stands occur only on the east half of the parcel and they are comprised of lodgepole pine, Douglas-fir, and aspen stand types. Some conifer stands are mixed species. Forest stands occur on about 135 acres of the parcel (i.e., about 46%). Of this stand acreage about 68% is lodgepole pine, 38% is Douglas-fir and about 12% is aspen. Tree species encountered include: Lodgepole pine, Douglas-fir, aspen, and whitebark pine/limber pine. From subjective visual observation, most stands appeared to be between 20 to 70 years of age and many are likely the result of conifer encroachment into native rangeland. No trees or snags were observed with diameter breast height (dbh) greater than 12 inches and tree heights of dominant individuals were 30 to 40 feet tall. Stands of lodgepole pine range from “dog hair” 2 inch dbh stands that are about 12-15 feet tall to slightly older, more open stands from 4 to 8 inches dbh with trees about 30 feet tall. Very few snags greater than 4 inches dbh were observed in forest stands. Downed woody

material is generally comprised of small dead trees less than 4 inches in diameter (large end) and ranges from about 1 to 15 tons per acre (average about 3 tons), and occurs primarily on north aspects. Hiding cover properties of forest stands are very good and sight distances in well stocked conifer and aspen stands are low, ranging from about 10 feet to 100 feet. A sizable moist area and aspen stand (~7 acres) occur in the east-central portion of the parcel. Aspen stands observed contained a wide range of age classes of trees, particularly young trees suggesting that browsing pressure by ungulates during the last few years is relatively low. Understory vegetation in lodgepole stands is generally very sparse and occasional small openings (~1/4-acre) are present where grasses and shrubs comprise the understory. Understory species observed in forest stands include: creeping juniper, spiraea, lupine sp., and elk sedge.

Grasslands occur on about 160 acres. Forage production at the time of review was very good. Growth forms of young conifers, aspen trees and shrubs were good, with very few individuals exhibiting evidence of long-term excessive browsing by wild or domestic ungulates. Some light browsing evidence was observed. Plant species observed in grasslands included: bluebunch wheatgrass, western wheatgrass, Idaho fescue, mountain brome, needle and thread grass, timothy, Kentucky blue grass, oatgrass, elk sedge, pussy toes, common yarrow, big sagebrush, fringed sagebrush, shrubby cinquefoil, snowberry, woods rose, and spotted knapweed. Observed weeds such as spotted knapweed could reduce forage availability for domestic and wild ungulates if left uncontrolled over time.

General Discussion and Assessment of Wildlife Habitat Values: *The following section is written to generally describe habitat values associated with the project area and surrounding cumulative effects analysis area. This discussion is primarily based on the September 7, 2005 field review, and comment letters from Montana Fish, Wildlife and Parks, and local residents. This section is followed by an accompanying assessment and synthesis of effects of the no action and proposed action alternatives. The general discussion and analysis is followed by a fine filter assessment in table format that analyzes impacts for individual wildlife species that are federally listed as threatened or endangered, are those considered sensitive in Montana, or were raised in public comments as species of interest regarding this project.*

The project area possesses 3 important vegetation community types including conifer forest, deciduous aspen forest and grasslands. The project area also possesses a number of wildlife habitat attributes and values, presumably due to the geographic location of the parcel, and the presence, distribution, and amounts of these 3 vegetation types. Habitats on the project area provide life requisites for a number of native, terrestrial species. However, it is not apparent that project area contains specific habitats or habitat amounts of exceptionally high importance to any one particular species. The parcel provides habitat for wintering elk, white-tailed deer, and mule deer. Small openings present in conifer forest stands likely offer good feeding sites for wintering elk and deer. Deer were observed during the field review in September suggesting use during other seasons of the year as well. Thick forest stands offer habitat suitable for elk calving, however such habitat is likely not limiting for elk in this geographic area. At least 4 homes were observed near the parcel's property lines (1 near the south ownership boundary, and 3 others north of the parcel). Horses and livestock are present in the area. At the present time the project area and surrounding parcels are likely experiencing moderate levels of human activity and disturbance. It is likely that there may be less and less use of the area by elk with additional

development and increased presence of humans. If the preponderance of homes in the area are summer homes left vacant during winter, use by habituating elk may be more likely to continue. The parcel contributes to habitat important for elk; however, due to the broad spatial requirements of free-ranging wild elk, habitat on the parcel is not likely to solely provide for the needs of the approximately 200 elk that spend winter in this general location. Forest stands that would meet the security cover definition of Hillis et al. (1991), important for reducing vulnerability of bull elk during the general rifle hunting season do not occur on the parcel. The relatively large aspen stand in the east-central portion of the parcel appears suitable as foraging, bedding, and rutting habitat for white-tailed deer and possibly other species. Stands of shrubs along steep slopes adjacent to Rock Creek could provide important foods for species such as black bears and moose, however, only about 1 to 3 acres of this vegetation occurs on the project area.

Elk and deer fecal pellets were observed in low to moderate abundance on the parcel area during the field review further indicating their presence there, and it is reasonable to expect frequent, periodic, and/or occasional use of the area by other native species including (but not limited to): moose, black bears, grizzly bears, mountain lions, gray wolves, coyotes, bald and golden eagles, blue grouse, gray partridge, sage grouse, wild turkeys, and various raptors and song birds. Scale is an important consideration when evaluating habitat values and species requirements because large, mobile terrestrial species, such as wild elk herds, require considerable space (i.e., several thousand acres) and resources to live and reproduce. Whereas, small species such as shrews and microtine rodents may require less than 1 acre to obtain necessary resources.

Mobile wildlife species likely cross Highway 212 and Rock Creek at a number of locations between Red Lodge and the Custer National Forest Boundary, however, DNRC is not aware that this parcel is of any elevated importance as a component of any broad scale corridor or linkage zone in this geographic region. Draw features and forested patches and stringers of trees found on the project area likely do provide smaller scale and more localized movement routes for a variety of species including small mammals, wild ungulates, small carnivores, and large predators that prefer using areas with forested cover for security.

#### General Assessment and Synthesis of Effects (Direct, Indirect and Cumulative Effects):

No Action Alternative: Under the No Action Alternative, the project area would remain in DNRC ownership and the foreseeable predominant land use would be livestock grazing. Timber management could occur over the longer term as forest stands mature and become economically valuable over the next several decades. Recreational use would likely continue, but the lack of legal access to the parcel would limit access for the general public. Habitat-altering land uses could occur under normal DNRC management; however, the parcel would be retained in DNRC ownership at this time. Long-term habitat values on the parcel for species sensitive to human disturbance would be uncertain as surrounding land uses and levels of human activity would greatly influence habitat quality and security over time. How lands will ultimately be managed on surrounding parcels is uncertain, however, it is likely that at least to some degree,

property development will continue along the Highway 212 corridor near Red Lodge for some time. Existing levels of human disturbance and impact would likely continue and gradually increase over time in the cumulative effects area.

Action Alternative: Under the Action Alternative DNRC would relinquish ownership of the project area under the state Land Banking process. It is reasonable to expect that a private party would purchase the property. Beyond this expectation, one must speculate on further outcomes regarding future land uses that would occur outside of DNRC control following purchase by a buyer. Transferring ownership of the parcel to another party will not have any direct or immediate indirect impact on any habitat or wildlife species; however, the action does open a door for greater future risk of future development and erosion of wildlife habitat values that could occur outside of the state's public process. Under existing land development policy, if the parcel were later proposed for subdivision or development with more than one unit, the proposal would have to be reviewed and approved by the Carbon County Board of County Commissioners. If a subdivision included this property and contained 6 or more lots, preparation of an environmental assessment would also be required.

Speculating on a vast number of possible outcomes on such projects is not a requirement under MEPA and is discouraged; however, the action proposed by DNRC does create an element of increased uncertainty regarding how affected lands would be managed in the future. Thus, while hypothesizing on an infinite number of possible outcomes is not required or reasonable, it is responsible to disclose a likely range of possible outcomes and estimated risk levels to potentially affected resources. Considering a logical range of outcomes in such a manner, a purchaser may: 1) conserve existing habitat values by selling or transferring rights for future development, such as a conservation easement, 2) leave the land idle or manage the land for various possible historic land uses such as livestock grazing, or forest management with no legally binding conservation commitments (development likely a strong possibility over the long term if land values continue to increase) and; 3) develop the land relatively soon following purchase (could be one to several additional home sites, and could include some historic uses etc.).

From a conservation perspective, conserving habitat values through a vehicle such as an easement that purchases development rights in perpetuity would go a long way in protecting the parcel from development, but ultimately the quality of habitat for large wide-ranging species would depend upon the human uses and levels of activity on surrounding ownerships. Purchase of development rights in such areas can be poor risks for conservation return, because relatively small island properties surrounded by private lands possess considerable uncertainty. Under an easement scenario such as this, land uses on surrounding private properties can still have considerable influence on habitat quality for many species. Small, less mobile species with lower resource requirements obtainable at smaller spatial scales would be affected less.

Considering scenarios 2) and 3) above, should the parcel be developed at some point in the future, the land disposal would ultimately enable a minor adverse cumulative effect contributing to habitat loss for a number of wildlife species in the future, most of which



are currently relatively common in Montana. Cumulative habitat losses due to the development of human dwellings occur incrementally and the impact attributable to each individual development is often viewed as small, however, over time the accumulation of such developments can have profound effects on wildlife habitat and populations of native species. Also as in scenario 1) above, the quality of habitat for large, wide-ranging species would depend upon the human uses and levels of activity on surrounding private ownerships over time. Under any circumstance considered, this 295-acre parcel alone is likely not going to be able to serve as a highly functional preserve or management area to provide enough space for wide ranging species of wildlife.

Should increased development occur on or near the parcel, some species would likely continue to use the area. For example, some deer would likely habituate and continue to show tolerance for human activity. Moose, mountain lions, coyotes, gray wolves, and black bears would likely continue to use the parcel from time to time. Should additional development continue in the area, the quality of habitat and habitat values currently found on the parcel will likely erode with long lasting effects. Security for wildlife and disturbance-free space would be reduced. Development on the project area could also result in forest clearing for home sites, which could have minor localized effects on animal usage and movements through the parcel by reducing cover for security and by removing portions of preferred forested travel routes. Measurable effects at the population level for most species likely to be present would not be expected. At some increased level of development, however, species such as elk will likely retreat to areas with less disturbance that may have poorer forage and rarely use developing areas.

Wildlife-human conflicts would likely also increase as human presence increases in this area. Common conflicts that might be expected include, but are not limited to: unwanted wild ungulate browsing on trees, shrubs and gardens; habituation of unwanted wildlife (particularly grizzly bears and black bears) due to pet food attractants, garbage, barbeques, and bird feeders; pet loss to large carnivores; small livestock loss to large carnivores; wildlife harassment due to uncontrolled pets etc. Conflicts commonly result in management actions that are required to remove and potentially destroy problem animals. This can be particularly problematic regarding species such as grizzly bears, which have low reproductive rates and mortality rates that are highly influenced by human conflicts.

Under the action alternative considering any of the further future outcomes discussed, there would be relatively low levels of cumulative effects to local wildlife populations, however the extent to which land development occurs across multiple ownerships over several decades could have considerable adverse effects. That is, the process of developing land over time occurs incrementally, however, many small additive land development projects occurring decade after decade can result in sizable acreages of converted habitat, resulting in adverse impacts to wildlife. Such effects would be additive to other cumulative effects that may be associated with historic land uses on nearby properties (e.g. livestock grazing, logging, and mining etc.), and risk factors for wildlife associated with traffic on Highway 212 (e.g., animal-vehicle collisions and disturbance etc.).

Fine Filter Analysis:**FINE FILTER CHECKLIST FOR ENDANGERED, THREATENED, AND SENSITIVE SPECIES, AND OTHERS OF CONCERN**

<b>Endangered and Threatened Species</b>	[Y/N] Potential Impacts and Mitigation Measures N = Not Present or No Impact is Likely to Occur Y = Impacts May Occur (Explain Below)
<b>Bald Eagle (<i>Haliaeetus leucocephalus</i>)</b> <b>Habitat:</b> Forested riparian habitat near lakes, rivers and large streams.	[N] Some use in winter possible while foraging on carrion. Rock Creek is likely too small to provide adequate forage base for a nesting pair of eagles. Conifer forest on the project area is too young and distant from Rock Creek to provide suitable nesting sites. No direct, indirect or cumulative impacts would be expected to result from the proposed alternative.
<b>Grizzly Bear (<i>Ursus arctos horribilis</i>)</b> <b>Habitat:</b> Riparian communities, avalanche chutes, areas with low human disturbance or potential for contact.	[Y] Grizzly bears in the Greater Yellowstone Ecosystem are federally listed as threatened and are currently meeting or exceeding recovery objectives. The project area occurs just within the occupied habitat line depicted by Wittinger (2002). However, no recent occurrences are known in the immediate vicinity. Habitats on the project area and surrounding vicinity are generally dry offering limited preferred foraging sites. The most likely potential foraging sites occur in moist aspen stands and wet areas, which occur in relatively low abundance on the parcel. Existing levels of human activity in the area are moderate. Bears that might frequent this area in the future would be at moderate to high risk of food conditioning and management removal. Future development on the project area or in the project area vicinity would result in a low cumulative increase in risk to grizzly bears.
<b>Gray Wolf (<i>Canis lupus</i>)</b> <b>Habitat:</b> Areas with high ungulate densities.	[Y] Wolves are known to occur in the project area vicinity. Two packs were documented near the project area in the USFWS 2004 wolf recovery annual report

	(USFWS 2005). These included the Phantom Lake Pack (4 individuals) and Red Lodge Pack. The Phantom Lake Pack had activity centers about 15 miles NW of the project area while the Red Lodge Pack was reported about 10 miles SW of the project area. Wolves in this area are part of the Yellowstone experimental non-essential population. Minor adverse cumulative effects would be expected due to the potential for continued livestock use by either DNRC or new land owner. Risk of additional future development and increased human activity could also create greater minor cumulative risk for wolves.
Canada Lynx ( <i>Lynx canadensis</i> ) Habitat: Spruce-fir forests at moderate to high elevations with abundant snowshoe hares.	[N] The MNHP data indicate that lynx habitat is present in the project area. Upon further review, the following was noted: the parcel is poorly suited for lynx. Conifer stands are generally cool and dry with little understory vegetation present, and they occur on the lower foothill fringes. Suitable hare habitat is not present or is of very low quality. Denning habitat potential in conifer stands is poor and downed logs are sparse. The geographic location is not particularly conducive to continuous or periodic use by lynx. No direct, indirect or cumulative impacts would be expected to result from the proposed alternative.
Black-footed Ferret ( <i>Mustela nigripes</i> ) Habitat: Prairie dog complexes.	[N] No prairie dog complexes are known to occur within the project area or cumulative effects analysis area, thus, suitable habitat is not present. No direct, indirect or cumulative impacts would be expected to result from the proposed alternative.
<b>Sensitive Species</b>	{Y/N} Potential Impacts and Mitigation Measures N = Not Present or No Impact is Likely to Occur Y = Impacts May Occur (Explain Below)
Black-Backed Woodpecker ( <i>Picoides arcticus</i> ) Habitat: mature to old burned or beetle-infested forest	[N] Black-backed woodpeckers have not been documented within the ¼ latilong (L40D) that encompasses the project area (Lenard 2003). No fire-killed stands or stands experiencing high insect infestations



	are present in or near the project area. No direct, indirect or cumulative effects to black-backed woodpeckers would be expected to occur as a result of the proposed action.
Harlequin Duck ( <i>Histrionicus histrionicus</i> ) Habitat: white-water streams, boulder and cobble substrates	[N] Breeding harlequin ducks have been documented in latilong L40D (Lenard 2003). However, no high gradient streams suitable for use by harlequins occur within the project area or cumulative effects analysis area. No direct, indirect or cumulative effects to harlequin ducks would be expected to occur as a result of the proposed action.
Peregrine Falcon ( <i>Falco peregrinus</i> ) Habitat: cliff features near open foraging areas and/or wetlands	[N] Breeding peregrine falcons have been documented in latilong L40D (Lenard 2003), however, no cliff features suitable for nesting peregrine falcons were observed on the project area or within one mile of the project area. Thus, no direct, indirect or cumulative effects associated with this project are anticipated.
Mountain Plover ( <i>Charadrius montanus</i> ) Habitat: short-grass prairie, alkaline flats, prairie dog towns	[N] Mountain plovers have not been documented in the latilong L40D that the project area lies within (Lenard 2003). No short-grass prairie or prairie dog towns occur on, or within one mile of the project area. No direct, indirect or cumulative effects to mountain plovers are expected as a result of this project.
Townsend's Big-Eared Bat ( <i>Plecotus townsendii</i> ) Habitat: caves, caverns, old mines	[N] DNRC is unaware of any mines or caves within the project area or close vicinity that would be suitable for use by Townsend's big-eared bats. Thus, no direct, indirect or cumulative effects to Townsend's big-eared bats are anticipated as a result of this project.
Spotted Bat ( <i>Euderma maculatum</i> ) Habitat: Cliffs, steep canyon walls, caves	[N] Spotted bats have been detected in the past in Carbon County (Foresman 2001). It is possible that spotted bats might occasionally forage in the vicinity of the project area. However, DNRC is unaware of any cliff features, steep canyon walls or caves on the project area or within one mile of the project area that would be suitable for use by spotted bats. Thus, no direct,

	indirect or cumulative effects to spotted bats are anticipated as a result of this project.
Black-tailed Prairie Dog ( <i>Cynomys ludovicianus</i> ) Habitat: grasslands, short-grass prairie, sagebrush semi-desert	[N] Black-tailed prairie dogs are known to occur in Carbon County. However, no prairie dog complexes are known to occur within the project area or within 1 mile of the project area. Thus, no direct, indirect or cumulative effects to prairie dogs are expected to occur as a result of this project.
White-tailed Prairie Dog ( <i>Cynomys leucurus</i> ) Habitat: grasslands, short-grass prairie, sagebrush semi-desert	[N] White-tailed prairie dogs are known to occur in Carbon County. However, no prairie dog complexes are known to occur within the project area or within 1 mile of the project area. Thus, no direct, indirect or cumulative effects to prairie dogs are expected to occur as a result of this project.
Sage Grouse ( <i>Centrocercus urophasianus</i> ) Habitat: sagebrush semi-desert	[N] Historical records (Lenard 2003) and MNHP records indicate presence of sage grouse in latilong L40D and Carbon County. Sagebrush, which is very important for this species, is relatively sparse and of small stature within the project area. Sagebrush plants also occur within the cumulative effects analysis area, but it is uncertain if localized places occur in the cumulative effects analysis area where sagebrush is dense enough to provide suitable habitat for sage grouse. No sage grouse breeding leks are known to occur within project area. Under the proposed action, preferred sagebrush habitat would not be altered, nor would important breeding sites be altered. Thus, no direct, indirect or cumulative effects to sage grouse would be anticipated.
Preble's Shrew ( <i>Sorex preblei</i> ) Habitat: Arid and semi-arid grass and sagebrush habitats.	[Y] Preble's shrews are very small shrews that are rare, and they have been found in the past in Carbon County (MNHP 2005). These shrews are associated with semi-arid grass and sagebrush habitats, but have also been found in small openings within subalpine conifer forest, marsh habitats, lodgepole pine-alpine fir, white fir-spruce, and lodgepole-huckleberry types. Only 16 specimens have been collected in Montana

	<p>and this species is poorly understood (Foresman 2001). While it is possible that this species could occur within the project area and/or cumulative effects analysis area, it is not likely that habitat found in these areas would be limiting at scales needed by shrews. Should Preble's shrews be present on the project area, additive minor risk of habitat loss could occur over time if land development continues in the area. No direct effects associated with the proposed action would be expected. However, minor indirect and cumulative effects to potential habitat could occur as a result of this project.</p>
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Other Species of Concern (Direct, Indirect and Cumulative Effects):

Several other species were raised as concerns or were mentioned in public comments. These included: *blue grouse*, *gray partridge*, *wild turkeys*, *moose*, *black bears*, *mountain lions*, *coyotes*, and *golden eagles*. These species vary considerably in habitat preferences, sensitivity to human disturbance, and security needs. With the exception of golden eagles, which are protected under the federal Bald and Golden Eagle Protection Act, these species are relatively common in Montana and do not require high levels of protection or protection of rare habitats. As mentioned in earlier sections of this report, transferring ownership of the parcel to another party under the proposed action will not have any direct or immediate indirect impact on any habitat or wildlife species, however, the action does open a door for greater future risk of future development and erosion of wildlife habitat values that could occur outside of a state-sponsored public process. Should the parcel be developed at some point in the future, the land disposal would ultimately enable a minor adverse cumulative effect contributing to habitat loss for these species in the future, most of which are currently relatively common in Montana.

Should more development occur in the area and/or on the parcel, some species would likely continue to persist. For example, wild turkeys may habituate and show tolerance for human activities. Moose, mountain lions, coyotes, and black bears would likely continue to use the parcel from time to time, however, if human presence increases over time, human tolerance for these species is likely to taper. Wildlife-human conflicts would likely also increase as human presence increases in this area. Should additional development continue in the area, the quality of habitat and habitat values currently found on the parcel will likely erode with long lasting effects. Security for wildlife and disturbance-free space would be reduced. Development on the project area could also result in forest clearing for home sites, which could have minor localized effects on animal usage and movements through the parcel by reducing cover for security and by removing portions of preferred forested travel routes. Measurable effects at the population level for most species likely to be present would not be expected.

Under the action alternative considering any of the further future outcomes discussed, there would be relatively low levels of cumulative effects to local wildlife populations, however, the extent to which land development occurs across multiple ownerships in the area over several decades could have considerable adverse effects. That is, the process of developing land over time occurs incrementally, however, many small additive land development projects occurring decade after decade can result in sizable acreages of converted habitat and resulting adverse impacts to wildlife. Such effects would be additive to other cumulative effects that may be associated with historic land uses on nearby properties (e.g. livestock grazing, logging, and mining etc.), and risk factors for wildlife associated with traffic on Highway 212 (e.g., animal-vehicle collisions and disturbance etc.).

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