

## 3.6 WILDLIFE

The proposed Project crosses six states with a diversity of wildlife, including big game animals, small game animals and furbearers, waterfowl and game birds, and many other nongame animals<sup>1</sup>. Wildlife habitats along the proposed Project ROW include croplands, grasslands/rangelands (short-grass prairie, mixed-grass prairie, tall-grass prairie, and shrublands), upland forests and wetlands. These vegetation communities provide foraging, cover, and breeding habitats for wildlife. This section addresses common big game animals, small game animals and furbearers, waterfowl and game birds, and other nongame animals in the proposed Project area. Threatened and endangered species as well as species that are candidates for listing as threatened and endangered and species that have been identified as conservation concerns are discussed in Section 3.8. These species include black-tailed prairie dogs (*Cynomys ludovicianus*), swift fox (*Vulpes velox*), bald eagle (*Haliaeetus leucocephalus*), greater prairie-chicken (*Tympanuchus cupido*), and greater sage-grouse (*Centrocercus urophasianus*). Aquatic species are discussed in Section 3.7.

### 3.6.1 Wildlife Resources

Wildlife and the habitats they use that are common in the vicinity of the proposed Project are described in Table 3.6.1-1. Some animals such as white-tailed deer and eastern cottontail are present across the entire proposed Project area whereas other animals, such as nutria (coypu) and armadillo, are present only within the southern portion of the proposed Project area. Many common waterbirds and landbirds nest in the northern or central portions of the proposed Project area and winter in the southern portion of the proposed Project area. Many common animals are valued game resources and most hunting for big and small game animals, furbearers, upland game birds, and waterfowl occurs during the fall. Turkeys are hunted both spring and fall, with most harvest occurring during the spring hunts.

#### 3.6.1.1 Big Game Animals

White-tailed deer, mule deer, and pronghorn are the principal big game animals that occur along the proposed Project route. White-tailed deer and mule deer are highly adaptable and inhabit a variety of habitats, including cropland, grasslands, shrublands, and woodlands. White-tailed deer may also be found in close association with humans. In the northern portions of their range, deer may aggregate or “yard” during winter in stream bottoms, on south-facing slopes, or other areas where snow accumulations are reduced. Pronghorns are generally more abundant west of the proposed Project area. Translocation has been used to reestablish elk in Montana and South Dakota and elk have been reestablished in some areas crossed by the proposed Project in Nebraska. American bison (*Bos bison*) are a species of conservation concern in Montana, and once occurred throughout the Great Plains in multitudes. Free-ranging bison no longer occur within the area crossed by the proposed Project.

#### 3.6.1.2 Small Game Animals and Furbearers

The small game animals and furbearers most often hunted or trapped in the proposed Project area include cottontails, coyotes, opossums, raccoons, red fox, and tree squirrels. Tree squirrels depend on forested habitats, usually deciduous or mixed hardwood forests with abundant supplies of acorns and hickory nuts. Cottontails, coyotes, opossums, and raccoons use a wide variety of habitats, including croplands, forests, shelterbelts, living snowfences and rangelands. Many furbearers, such as American beavers, American mink, raccoon, and weasels, are associated with riparian and wetland areas.

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<sup>1</sup> Common names of animals are used in this section. Scientific names following nomenclature in the NatureServe Explorer database (NatureServe 2009) for most animals discussed in this section are listed in Table 3.6.1-1. Where animals discussed in this section are not included in Table 3.6.1-1, common names are followed by the scientific name.

TABLE 3.6.1-1 Terrestrial Wildlife Resources That May Occur along the Proposed Project Route <sup>a</sup>							
Sporting Status and Species	Occurrence by State						Habitat Association
	MT	SD	NE	KS	OK	TX	
<b>Big Game Animals</b>							
Elk ( <i>Cervus canadensis</i> )	√	√	√				Found over a range of habitats. Uses open areas, such as alpine pastures, marshy meadows, river flats, and aspen parkland, as well as coniferous forests, brushy clear cuts or forest edges, and semi-desert areas. Not common, generally present west of the proposed Project area, present in the Niobrara River area in Nebraska.
Mule deer ( <i>Odocoileus hemionus</i> )	√	√	√	√	√	√	Found in coniferous forests, desert shrub, chaparral, grasslands with shrubs, and badlands. Often associated with successional vegetation, especially near agricultural lands. Generally more common west of the proposed Project area.
Pronghorn [antelope] ( <i>Antilocapra americana</i> )	√	√	√				Found in grasslands, sagebrush plains, deserts, and foothills. Need for free water varies with succulence of vegetation in the diet. More common west of the proposed Project area.
White-tailed deer ( <i>Odocoileus virginianus</i> )	√	√	√	√	√	√	Found in various habitats—from forest to fields—with adjacent cover. In northern regions, usually require stands of conifers for winter shelter. In the north and in mountain regions, limited ecologically by the depth, duration, and quality of snow cover; summer ranges are traditional, but winter range may vary with snow conditions.
<b>Small and Medium Game Animals</b>							
Eastern cottontail [rabbit] ( <i>Sylvilagus floridanus</i> )	√	√	√	√	√	√	Found in brushy areas, open woodlands, swampy areas, stream valleys, grasslands, and suburbs. Very adaptable species. Nests usually are in shallow depressions, in thick vegetation or in underground burrows.
Eastern fox squirrel ( <i>Sciurus niger</i> )	√	√	√	√	√	√	Found in open mixed hardwood forests or mixed pine-hardwood associations; species also has adapted well to disturbed areas, hedgerows, and city parks. Prefers savanna or open woodlands to dense forests. Western range extensions are associated with riparian corridors of cottonwoods ( <i>Populus</i> spp.) and fencerows of osage-orange ( <i>Maclura pomifera</i> ). Dens are in tree hollows or leaf nests.
Eastern gray squirrel ( <i>Sciurus carolinensis</i> )		√	√	√	√	√	Prefers mature deciduous and mixed forests with abundant supplies of acorns and hickory nuts. Diversity of nut trees needed to support high densities. Uses city parks and floodplain forests. Seldom far from permanent open water. Nests in tree cavities or in leaf nests, usually 25 feet or more above ground.

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Sporting Status and Species	Occurrence by State						Habitat Association
	MT	SD	NE	KS	OK	TX	
North American porcupine ( <i>Erethizon dorsatum</i> )	√	√					Prefers coniferous and mixed forests, also uses riparian zones, grasslands, shrublands, and deserts in some parts of range. Winter dens in rock outcrops, hollow trees, hollow logs or outbuildings, may shelter in dense conifers in winter. Range is generally west of proposed Project area in Nebraska, Kansas, Oklahoma and Texas.
<b>Furbearers</b>							
American badger ( <i>Taxidea taxus</i> )	√	√	√	√	√	√	Prefers open grasslands and fields, and may also frequent shrublands with little groundcover. When inactive, occupies underground burrows.
American beaver ( <i>Castor canadensis</i> )	√	√	√	√	√	√	Inhabits permanent sources of water of almost any type in its range, which extends from arctic North America to Gulf of Mexico and arid Southwest, and from sea level to over 6,800 feet in mountains. Prefers low-gradient streams, which it modifies, ponds, and small mud-bottomed lakes with outlets that can be dammed. Associated with deciduous tree and shrub communities.
Bobcat ( <i>Lynx rufus</i> )	√	√	√	√	√	√	Found in various habitats, including mixed woodlands and forest edge, hardwood forests, swamps, forested river bottomlands, shrublands, and other areas with thick undergrowth. Dens in hollow logs, under fallen trees, in rock shelter; rests in similar habitats changing locations daily.
Coyote ( <i>Canis latrans</i> )	√	√	√	√	√	√	Wide ranging and found in virtually all habitats from open prairies in west to heavily forested regions in northeast. Den in burrow or at base of tree under branches, in hollow log or rock crevice, reuses den site. Often considered a pest, especially by the livestock industry. Control programs have been largely ineffective.
Red fox ( <i>Vulpes vulpes</i> )	√	√	√	√	√	√	Found in open and semi-open habitats. Usually avoids dense forest, although open woodlands are frequently used. Sometimes occurs in suburban areas or cities. Maternity dens are in burrows dug by fox or abandoned by other mammals, often in open fields or wooded areas; sometimes under rural buildings, in hollow logs, or under stumps.
Gray fox ( <i>Urocyon cinereoargenteus</i> )			√	√	√	√	Found in woodland and shrubland in rough, broken country, usually avoids open areas. Dens in cleft, small cave, hollow in tree or log or debris pile, or less frequently in abandoned burrows.

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	MT	SD	NE	KS	OK	TX	
White-tailed jackrabbit ( <i>Lepus townsendii</i> )	√	√	√				Found in sage-grasslands, open areas, woodlots and riparian areas. Nests in depression in ground or burrows abandoned by other animals. During day usually in shallow depressions at base of bush or in or near cavity in snow.
American mink ( <i>Neovison vision</i> )	√	√	√	√	√	√	Prefers forested, permanent or semipermanent wetlands with abundant cover, marshes, and riparian zones. Dens in muskrat burrow, abandoned beaver den, hollow log, hole under tree roots or in stream bank burrows.
Common muskrat ( <i>Ondatra zibethicus</i> )	√	√	√	√	√	√	Prefers fresh or brackish marshes, lakes, ponds, swamps, and other bodies of slow-moving water, most abundant in areas with cattail. Dens in bank burrow or in vegetation mound in shallow water, sometimes in uplands.
Nutria [Coypu] ( <i>Myocastor coypus</i> )			√		√	√	Introduced from South America for weed control, prefers freshwater marshes, brackish marshes. Nests in burrows, abandoned muskrat houses or in dense vegetation. May displace native muskrat populations.
Virginia opossum ( <i>Didelphis virginiana</i> )		√	√	√	√	√	Found in a variety of habitats, prefers wooded riparian habitats, also found in suburban areas. Very adaptable; may be found in most habitats. Generally uses abandoned burrows, buildings, hollow logs, and tree cavities for den sites.
Raccoon ( <i>Procyon lotor</i> )	√	√	√	√	√	√	Found in variety of habitats usually with moisture, often along streams and shorelines; prefers riparian and edges of wetlands, ponds, streams, and lakes. Dens under logs or rocks, in tree hole, ground burrow, or in bank den.
Striped skunk ( <i>Mephitis mephitis</i> )	√	√	√	√	√	√	Prefers semi-open country with woodland and meadows interspersed with brushy areas, and bottomland woods. Frequently found in suburban areas. Dens often under rocks, logs, or buildings. May excavate burrow or use burrow abandoned by other mammals.
Least weasel ( <i>Mustela nivalis</i> )	√	√	√	√			Uses variety of habitats as available including open forests, farmlands, grassy fields and meadows, riparian woodlands, hedgerows, prairies and sometimes residential areas. Young born in abandoned burrows, rests in nests in abandoned vole burrows, or holes in walls, or under out buildings.
Long-tailed weasel ( <i>Mustela frenata</i> )	√	√	√	√	√	√	Found in a variety of habitats, usually near water. Preferred habitats are shrubland and open woodlands, field edges, riparian grasslands, swamps and marshes. Dens in abandoned burrows, rock crevice, brush pile, stump hollow or among tree roots.

**TABLE 3.6.1-1  
Terrestrial Wildlife Resources That May Occur along the Proposed Project Route<sup>a</sup>**

Sporting Status and Species	Occurrence by State						Habitat Association
	MT	SD	NE	KS	OK	TX	
<b>Waterfowl</b>							
<b>Dark Geese</b>							
Canada goose ( <i>Branta canadensis</i> ) White-fronted goose ( <i>Anser albifrons</i> )	√	√	√	√	√	√	Found in various habitats near water, from temperate regions to tundra. Usually breeds and feeds in areas near lakes, ponds, large streams, and inland and coastal marshes. Forages in pastures, cultivated lands, grasslands, and flooded fields. Canada geese may be year-round residents in proposed Project area, seasonal migrants or overwintering populations. White-fronted geese are seasonal migrants or overwintering populations. Widely hunted, with estimated Central Flyway mid-winter population of 1.67 million during 2008.
<b>Light Geese</b>							
Snow goose ( <i>Chen caerulescens</i> ) Ross's goose ( <i>Chen rossii</i> )	√	√	√	√	√		Found in various habitats near water, from temperate regions to tundra. Winters in both freshwater and coastal wetlands, wet prairies, and extensive sandbars; forages in pastures, cultivated lands, and flooded fields. Migrate and winter in the proposed Project area. Widely hunted, with estimated Central Flyway mid-winter population of 816,000 during 2008.
<b>Swans</b>							
Tundra swan ( <i>Cygnus columbianus</i> )	√	√	√	√	√	√	Generally found in lakes, sloughs, rivers, and sometimes fields during migration. Open marshy lakes and ponds, and sluggish streams in summer. Generally west of proposed Project area during spring and fall migration; hunted in Montana and South Dakota.

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Sporting Status and Species	Occurrence by State						Habitat Association
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<b>Dabbling Ducks</b>							
Mallard ( <i>Anas platyrhynchos</i> )	√	√	√	√	√	√	Primarily found in shallow waters, such as ponds, lakes, marshes, and flooded fields; in migration and in winter, mostly found in fresh water and cultivated fields, less commonly in brackish situations. Widely hunted, with estimated Central Flyway mid-winter population of 5.66 million during 2008.
Gadwall ( <i>Anas strepera</i> )							
Green-winged teal ( <i>Anas crecca</i> )							
Blue-winged teal ( <i>Anas discors</i> )							
American wigeon ( <i>Anas americana</i> )							
Northern shoveler ( <i>Anas clypeata</i> )							
Northern pintail ( <i>Anas acuta</i> )							
Cinnamon teal ( <i>Anas cyanoptera</i> )							
<b>Diving Ducks</b>							
Redhead ( <i>Aythya americana</i> )	√	√	√	√	√	√	Commonly found on marshes, ponds, lakes, rivers, and bays. Widely hunted, with estimated Central Flyway mid-winter population of 600,000 during 2008.
Ring-necked duck ( <i>Aythya collaris</i> )							
Lesser scaup ( <i>Aythya affinis</i> )							
Greater scaup ( <i>Aythya marila</i> )							
Canvasback ( <i>Aythya valisineria</i> )							
<b>Waterbirds</b>							
American coot ( <i>Fulica americana</i> )	√	√	√	√	√	√	Commonly found on marshes, ponds, lakes, rivers, and bays. Widely hunted, with estimated Central Flyway mid-winter population of 730,000 during 2008.

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Sporting Status and Species	Occurrence by State						Habitat Association
	MT	SD	NE	KS	OK	TX	
Sandhill crane ( <i>Grus canadensis</i> )	√	√	√	√	√	√	During migration, roosts at night along river channels, on alluvial islands of braided rivers, or natural basin wetlands. Communal roost site consisting of an open expanse of shallow water is key feature of wintering habitat. Occurs throughout proposed Project area during spring and fall migrations. Winters along Texas coastline in proposed Project area. Hunted in all states except Nebraska. Estimated mid-continent spring abundance of 470,000 during 2008.
<b>Game Birds</b>							
Northern bobwhite ( <i>Colinus virginianus</i> )		√	√	√	√	√	Inhabits a wide variety of vegetation types, particularly early-succession stages. Occurs in croplands, grasslands, pastures, fallow fields, grass-shrub rangelands, open pinelands, open mixed pine-hardwood forests, and habitat mosaics. Nests on the ground, in a scrape lined with grasses or dead vegetation.
Mourning dove ( <i>Zenaidura macroura</i> )	√	√	√	√	√	√	Found in open woodlands, forest edge, cultivated lands with scattered trees and bushes, parks and suburban areas, and arid and desert country. Usually nests in tree or shrub, may also use stumps, rocks, buildings, or ground. Breeding resident at in Montana and South Dakota, year-round resident within remainder of proposed Project area. Widely hunted—7.0 million harvested in states crossed by the proposed Project during 2007, primarily in Texas.
Sharp-tailed grouse ( <i>Tympanuchus phasianellus</i> )	√	√	√				Requires a mosaic of dense grass and shrubs with rich forb and insect foods during nesting, relies on riparian areas during winter, also uses cultivated grains and hedgerows.
Gray partridge [hun] ( <i>Perdix perdix</i> )	√	√	√				Non-native game bird; found in cultivated lands with marginal cover of bushes, undergrowth or hedgerows. Nests in grasslands, hayfields, or grain fields in scratched-out hollow lined with grasses and leaves.
Ring-necked pheasant ( <i>Phasianus colchicus</i> )	√	√	√	√			Non-native game bird; found in open country (especially cultivated areas, scrubby wastes, open woodland, and edges of woods), grassy steppe, desert oases, riverside thickets, swamps, and open mountain forest. Winter shelter includes bushes and trees along streams, shelterbelts, and fencerows. Usually nests in fields, brushy edges, or pastures; also along road rights-of-way. Nest is shallow depression.

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	MT	SD	NE	KS	OK	TX	
Wilson's snipe ( <i>Gallinago delicata</i> )	√	√	√	√	√	√	Nests in wet grassy or marshy areas, non-breeding in wet meadows, flooded fields, bogs, swamps, marshy banks of rivers and lakes. Breeds Montana, South Dakota; migrant and nonbreeding resident Nebraska, Kansas, Oklahoma, and Texas. Widely hunted with Central Flyway harvest estimate of 12,000 in 2008.
Wild turkey ( <i>Meleagris gallopavo</i> )	√	√	√	√	√	√	Found in forests and open woodland, scrub oak, deciduous or mixed deciduous-coniferous forests, also agricultural areas. Roosts in trees at night and nests on ground, usually in open areas at the edge of woods. Not native to Montana. Widely hunted.
American Woodcock ( <i>Scolopax minor</i> )			√	√	√	√	Found associated with young, second-growth hardwoods and early succession habitats resulting from forest disturbance, prefers young forests and abandoned farmland mixed with forests, prefers edge habitats. Woodcock are harvested in Nebraska, Kansas, Oklahoma and Texas—6,700 during 2008.
<b>Representative Non-Game Animals</b>							
<b>Mammals</b>							
Little brown myotis [bat] ( <i>Myotis lucifugus</i> )	√	√	√	√	√		Found using human-made structures for resting and maternity roosts, also uses caves and hollow trees. Forages in woodlands near water, requires caves, tunnels, abandoned mines in winter.
Nine-banded armadillo ( <i>Dasypus novemcinctus</i> )			√	√	√	√	Prefers brushy areas with loose soil, also common in pinelands and hardwood uplands. Individuals make several burrows, often at side of creek.
Cinereus [Masked] shrew ( <i>Sorex cinereus</i> )	√	√	√				Found in most terrestrial habitats, except areas with little or no vegetation, thick leaf litter in damp forests may be favored habitat. Nests in shallow burrows or in logs and stumps.
White-footed mouse ( <i>Peromyscus leucopus</i> )	√	√	√	√	√	√	Prefers woodland edges, brushy fields, riparian zones. Nests underground, under debris, in buildings, in logs or stumps, tree cavities, old squirrel or bird nests.
<b>Birds</b>							
American Crow ( <i>Corvus brachyrhynchos</i> )	√	√	√	√	√	√	Found in open and partly open country, agricultural lands, suburban areas. Nests in open forests and woodlands
Great blue heron ( <i>Ardea herodias</i> )	√	√	√	√	√	√	Found in freshwater and brackish marshes, along lakes, rivers, fields, meadows. Nests in high trees in swamps and forested areas, often with other herons close to foraging habitat.



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Sporting Status and Species	Occurrence by State						Habitat Association
	MT	SD	NE	KS	OK	TX	
Prairie falcon ( <i>Falco mexicanus</i> )	√	√					Found primarily in open habitats, mountainous areas, steppe, plains or prairies. Nests in hole or sheltered ledge on rocky cliff or steep earth embankments. During winter use large areas with low vegetation structure for foraging. Resident or migratory within proposed Project area.
Red-tailed hawk ( <i>Buteo jamaicensis</i> )	√	√	√	√	√	√	Found in wide variety of open woodland and open country with scattered trees, nests in forests, elevated perches are important habitat component. Often reuses nest trees.
Red-shouldered hawk ( <i>Buteo lineatus</i> )				√	√	√	Found in bottomland hardwoods to upland deciduous or mixed forests. Nests usually forested area near water. Year-round resident eastern Kansas, Oklahoma and Texas.
Roseate spoonbill ( <i>Platalea ajaja</i> )						√	Brackish waters and coastal bays in Texas, shallow, open, still or slow-flowing water. Nests in mangroves ( <i>Avicennia germinans</i> ), low bushes along coastal islands.
Turkey vulture ( <i>Cathartes aura</i> )	√	√	√	√	√	√	Found in forested and open areas, may roost in large flocks. Nests on cliffs, hollow logs, trees, tree-cavities, or on ground in dense shrubs. Feeds primarily on carrion.
Eastern screech-owl ( <i>Megascops asio</i> )	√	√	√	√	√	√	Open woodland, deciduous forest, woodland/forest edge, swamps, parklands, residential areas, scrub and riparian woodland in drier regions. Nests in natural tree cavity, old woodpecker hole, nest boxes.
Great horned owl ( <i>Bubo virginianus</i> )	√	√	√	√	√	√	Found in various forested habitats, moist or arid, deciduous or evergreen lowland forests to open woodlands, swamps, riverine forests. Nests in trees, tree cavities, stumps, rocky ledges, barns. Year-round resident throughout proposed Project area.
Long-eared owl ( <i>Asio otus</i> )	√	√	√	√	√	√	Found in forests, riparian woodlands, woodlots next to open areas for hunting. Nests in trees, usually in old nest of other large birds or squirrels, sometimes in tree cavities. Year-round resident in Montana and South Dakota, non-breeding resident in Nebraska, Kansas, Oklahoma and Texas.
Western meadowlark ( <i>Sturnella neglecta</i> )	√	√	√	√	√	√	Grasslands, open fields, pastures, cultivated lands, sometimes marshes. Nests on ground in vegetation. Primarily feed on insects, grains seeds. Migratory in northern portions of range, breeding resident in Montana and South Dakota, year-round resident in Nebraska and Kansas, overwinters in Oklahoma and Texas in the proposed Project area.

TABLE 3.6.1-1 Terrestrial Wildlife Resources That May Occur along the Proposed Project Route <sup>a</sup>							
Sporting Status and Species	Occurrence by State						Habitat Association
	MT	SD	NE	KS	OK	TX	
<b>Amphibians</b>							
Bufonid toads ( <i>Bufo</i> spp.)	√	√	√	√	√	√	Found in variety of lowland habitats, deserts, prairie grasslands, pastures, woodlands. Reproduction dependent on rain pools, flooded areas, ponds in shallow water. Adults feed primarily on invertebrates. Hibernates during winter months and during summer dry spells, burrows underground when inactive.
Ranid Frogs ( <i>Rana</i> spp.)	√	√	√	√	√	√	Found in variety of aquatic and wetland habitats. Adults feed primarily on invertebrates. Hibernates during winter months, burrows in benthic sediments, generally underwater.
<b>Reptiles</b>							
Gartersnakes ( <i>Thamnophis</i> spp.)	√	√	√	√	√	√	Found in a wide range of aquatic, wetland, and upland habitats, preference appears regional. When inactive occurs underground or in other secluded site, hibernates in northern portions of range, remains active year-round in southern locations.
Rattlesnakes ( <i>Crotalus</i> spp.)	√	√	√	√	√	√	Found in a wide variety of habitats; forests, prairies, riparian habitats often associated with rocky outcroppings. Feeds on small mammals, lizards, birds, bird eggs. Seasonally migrate between hibernacula typically located in rocky areas with underground crevices, and summer habitat, communal hibernation.
Six-lined racerunner [lizard] ( <i>Aspidoscelis sexlineata</i> )		√	√	√	√	√	Found in sunny areas with open ground; grassland, sandhills, sandy or gravelly banks and floodplains of streams, sparsely vegetated rocky areas, woodland edges and open woods. Shelters underground or under rocks on ground. Eggs laid in nest in soft soil or under logs. Insectivore, hibernates.
Western box turtle ( <i>Terrapene ornata</i> )		√	√	√	√	√	Found in prairie grasslands, pastures, fields, sandhills, open woodland, sometime in slow, shallow streams and creek pools. Burrows into soil or enters burrows made by other animals. Eggs laid in nests in soft well-drained soil in open area. Insectivore, hibernates.

**TABLE 3.6.1-1  
Terrestrial Wildlife Resources That May Occur along the Proposed Project Route<sup>a</sup>**

Sporting Status and Species	Occurrence by State						Habitat Association
	MT	SD	NE	KS	OK	TX	
<b>Insects</b>							
Cicada [locust] (Family <i>Cicadidae</i> )	√	√	√	√	√	√	Large flying insect, juveniles feed on plant roots. Varying life cycles with periods of 2 to 8 and up to 17 year periods for emergence from nymphs from the ground.
Monarch [butterfly] ( <i>Danaus plexippus</i> )	√	√	√	√	√	√	Breeds and larvae feed on milkweed ( <i>Asclepias</i> spp.) in North America, migrate to overwintering areas in Mexico and coastal California. Adults feed on nectar.

Notes:

√ = Indicates that the species occurs in the state. Square brackets present alternative common names.

<sup>a</sup> Protected animals including federal and state listed endangered, threatened or candidate species and species identified as conservation concerns or priority are discussed in Section 3.8. Aquatic animals are discussed in Section 3.7.

Sources: NatureServe 2009, Kruse 2008, Raftovich et al. 2009.

### 3.6.1.3 Waterfowl and Game Birds

The proposed Project is within the Central Flyway; all ducks, geese, swans, waterbirds, shorebirds and sandhill cranes present within the proposed Project area are considered migratory. Most of the region's waterfowl and waterbirds either nest within the proposed Project area or to the north, migrate through the proposed Project area during spring and fall, and winter in areas near the southern end of the proposed Project in Oklahoma and Texas. All migratory birds (identified in 50 CFR § 10.13) are protected by the Migratory Bird Treaty Act (MBTA) (16 USC 703–712; 40 Stat. 755 as amended) which prohibits the take of any migratory bird without authorization from USFWS. The MBTA states that “unless and except as permitted by regulations. . . it shall be unlawful at any time, by any means or in any manner, to . . . take, capture, kill, possess. . . any migratory bird, any part, nest, or eggs of any such bird...” Non-migratory birds such as upland game birds and non-native birds such as European starling (*Sturnus vulgaris*), rock pigeon (*Columba livia*), and house sparrow (*Passer domesticus*) are not protected by the MBTA; although harvest of upland game birds is regulated under state wildlife laws and regulations. Hunting seasons for migratory birds are set and regulated by USFWS and state wildlife management agencies. Waterfowl are harvested primarily in fall; however, spring light goose seasons (snow and Ross's geese) are open in some areas in response to expanding populations of these birds that nest in arctic Canada. Many waterfowl breed in habitats that would be crossed by the pipeline, and additional migrants pass through the proposed Project area to and from northern breeding grounds during spring and fall. Sandhill cranes are hunted in Montana, South Dakota, Kansas, Oklahoma, and Texas. Nebraska is closed to hunting for sandhill cranes (Sharp et al. 2006).

Wild turkeys, grouse, and northern bobwhite are resident game birds and as such are not protected by the MBTA. Some native game birds are considered conservation concerns and are discussed in Section 3.8. Seasons and bag limits for native and introduced game birds, such as ring-necked pheasants and gray partridge, are set by state wildlife management agencies. Turkeys are hunted primarily during spring (bearded birds, males only), when most harvest occurs; but they also may be taken during fall hunts, which are usually open for any turkey. Most other resident game birds are hunted during fall. Mourning doves, Wilson's snipe, and American woodcock are migratory game birds that are protected by the MBTA. Hunting seasons and limits are set and regulated by USFWS and state wildlife management agencies.

### 3.6.1.4 Non-game Animals

The proposed Project crosses many different habitats that are home to a wide variety of animals. A small sample of wide-ranging representative common non-game animals is described in Table 3.6.1-1. Small mammals such as northern pocket gophers (*Thomomys talpoides*), woodchucks (*Marmota monax*), mice (Muridae), shrews (generally *Sorex* spp.), ground squirrels (*Spermophilus* spp.), and voles (*Microtus* spp.) provide important prey for badgers, coyotes, foxes, weasels, raptors and snakes. Common amphibians and reptiles include many types of frogs, toads, turtles, lizards, and snakes. Many different types of invertebrates occur across the proposed Project area including bees, beetles, butterflies, cicadas, earthworms, grasshoppers, hornets, moths, and spiders which provide food for birds, amphibians, reptiles, and small mammals.

The proposed Project is primarily within the Prairie Avifaunal Biome (Rich et al. 2004). Breeding landbirds in grassland habitats in the Prairie Avifaunal Biome are primarily short-distance migrants, with several species wintering in the southern portions of the proposed Project area, and others overwintering in the southeast and southwest (Rich et al. 2004). Many migratory birds use habitats crossed by the proposed Project for nesting, migration, and overwintering, with the largest number of species nesting in the northern portion of the proposed Project in Montana, South Dakota and Nebraska and the largest

number of wintering species in the southern portion of the proposed Project in Texas. Bald and golden eagles (*Aquila chrysaetos*) and their nests are further protected by the Bald and Golden Eagle Protection Act (16 USC 688–688d [a and b]). Bald and golden eagles are discussed in Section 3.8, as are other migratory birds that have been identified as conservation concerns. Destruction or disturbance of a migratory bird nest that results in the loss of eggs or young is a violation of the MBTA.

The proposed Project would cross through the North Valley Grasslands Important Bird Area (IBA); which is considered a globally important site because it supports 15 species of grassland birds, 5 of which are considered globally threatened (Montana Audubon 2008). The site contains one of the largest blocks of intact grasslands in Montana including rare mixed-grass prairie with porcupinegrass (*Hesperostipa spartea*) – and thickspike wheatgrass (*Elymus lanceolatus*). This site supports 73 species of birds including 7 endemic breeding birds: ferruginous hawk (*Buteo regalis*), long-billed curlew (*Numenius americanus*), Sprague’s pipit (*Anthus spragueii*), lark bunting (*Calamospiza melanocorys*), Baird’s sparrow (*Ammodramus bairdii*), McCown’s longspur (*Rhynchophanes mccownii*), and chestnut-collared longspur (*Calcarius ornatus*). Long-billed curlews, Sprague’s pipits, and chestnut-collared longspurs occur in numbers that exceed the threshold for global significance and McCown’s longspurs and Baird’s sparrow numbers exceed the threshold for continental significance (Montana Audubon 2008). Horned larks (*Eremophila alpestris*) and western meadowlarks are especially abundant (Montana Audubon 2008).

Aerial stick nest surveys were conducted along the entire proposed Project ROW during spring 2008, 2009, and 2010 to identify large stick nest sites of raptors and herons in deciduous trees within from 0.25 to 1 mile from the proposed Project centerline. A total of 320 nests, 12 great blue heron rookeries, and 1 roseate spoonbill rookery were documented; 209 nests and 3 great blue heron rookeries along the Steele City Segment, and 111 nests and 10 rookeries along the Gulf Coast Segment and Houston Lateral. Of the active nests where the birds could be identified for species, there were 105 red-tailed hawk nests, 2 red-shouldered hawk nests, 50 great horned owl nests, 18 ferruginous hawk nests, 12 great blue heron rookeries, 3 long-eared owl nests, 1 roseate spoonbill rookery, and 3 raptor nests occupied by Canada geese. An additional unoccupied rookery on the Gulf Coast Segment was determined to be a great blue heron rookery. Locations of all nests including both occupied and unoccupied nests that could potentially be removed prior to construction (and the nesting season) to avoid direct impacts to nesting birds were documented. Raptor nest substrates used along the Steele City Segment included trees, rock outcrops, and clay banks. All raptor nests along the Gulf Coast and Houston Lateral segments were in trees.

### 3.6.2 Potential Impacts

The proposed Project would affect wildlife resources through:

- Habitat loss, alteration, and fragmentation;
- Direct mortality during construction and operation;
- Indirect mortality because of stress or avoidance of feeding due to exposure to construction and operations noise, low-level helicopter or airplane monitoring overflights, and from increased human activity;
- Reduced breeding success from exposure to construction and operations noise, and from increased human activity; and
- Reduced survival or reproduction due to decreased abundance of forage species or reduced cover.

The proposed Project would cross habitats used by wildlife described in Table 3.6.1-1. Construction of the proposed Project would result in loss and alteration of about 19,272 acres, including 10,855 acres of grasslands and rangelands, 2,565 acres of forested habitat, and 476 acres of wetland habitats (including

263 acres of forested wetlands) (Table 3.5.5-2). The proposed Project would parallel other pipelines or utility ROWs along about 34 percent of its 1,384-mile route, primarily in Oklahoma and Texas. The Steele City Segment would cross primarily rangeland and croplands. The Gulf Coast Segment would cross primarily rangeland and forestland and would parallel other ROWs along much of the route. The Houston Lateral would cross primarily forestlands and rangelands. Some, but not all, important wildlife habitats identified along the proposed Project route are listed in Table 3.6.2-1. In addition, about 400 temporary access roads (about 252 miles) and about 50 permanent access roads (about 34 miles) would be used; most (over 90 percent) would be modifications of existing roads. Four construction camps (80 acres each) would be established within remote areas crossed by the proposed Project in Montana and South Dakota. Areas altered by construction of temporary access roads and construction camps would be restored and revegetated. Communication towers, generally 33 feet in height, would be erected at each of the 30 pump stations.

Fragmentation is the splitting of a large continuous expanse of habitat into numerous smaller patches of habitat with a smaller total habitat area, and isolation within a matrix of habitats that are unlike the original (Wilcove et al. 1986). Habitat fragmentation has two components; (1) reduction in total habitat area and (2) reorganization of areas into isolated patches (Fahrig 2003). Habitat loss generally has large negative effects on biodiversity, while fragmentation generally has a much weaker effect that may be either positive or negative (Fahrig 2003). The effects of habitat fragmentation are dependent on many variables including original habitat structure, landscape context, predator communities, and susceptibility to nest parasitism (Tewksbury et al. 1998). Habitat fragmentation effects may be most pronounced in forested and shrubland habitats and would generally be reduced for pipeline corridors compared to road corridors because their widths are usually narrower, some vegetation cover is reestablished, and there is usually less associated human disturbance during operation (Hinkle et al. 2002). During construction, however, pipelines can be significant barriers to wildlife movements (Hinkle et al. 2002). After construction, pipeline corridors may be used as travel corridors by coyotes, deer, raccoons, and many other animals. Wildlife habitat fragmentation issues relevant for pipeline construction and operation include:

- Reduction in patch size of remaining available habitats;
- Creation of edge effects;
- Barriers to movement;
- Intrusion of invasive plants, animals, and nest parasites;
- Facilitation of predator movements;
- Habitat disturbance; and
- Intrusion of humans (Hinkle et al. 2002).

Pipeline construction removes vegetation including native grasses, sagebrush, and trees, creating an unvegetated strip over the pipeline trench and the adjacent construction areas. Subsequent revegetation may not provide habitat features comparable to pre-project habitats, and restoration of wetlands in arid regions is not always successful (FERC 2004). Typically, seed mixes used for post construction reclamation include many non-native plants that quickly establish vegetative cover to prevent soil erosion, but these plants often outcompete and do not allow subsequent reestablishment of native flora and vegetation structure. Sagebrush is particularly difficult to establish on disturbed sites; especially when these sites are seeded with non-native grasses and other plants that germinate and establish more rapidly. Removal of vegetation increases the potential for the establishment and spread of noxious weeds and other invasive plants that have little use or value for wildlife and that displace native plants resulting in degraded wildlife habitat values. Freshly seeded grasses can attract domestic livestock and wildlife and

are often preferentially grazed. Grazing of the ROW prior to the development of a self-sustaining vegetative cover can inhibit revegetation and extend the time to reestablish habitat linkages across the ROW. The pipeline ROW would be maintained free of trees and shrubs, with the exception of sagebrush unless over 4 or 5 feet high, resulting in long-term alteration of wildlife habitat structure and value.

During construction, pipelines can present a significant temporary physical barrier to wildlife movement. The open trench and welded pipeline sections stored along the construction ROW prior to burial can block movements of both large and small animals across the construction ROW. Small animals may also become trapped in open trench sections. Operation of heavy equipment can also create behavioral barriers to wildlife movements by displacing animals by disturbance.

After construction, the pipeline ROW, unblocked temporary access roads, and permanent access roads may alter human activity especially within remote sections of the proposed Project which could lead to increased wildlife disturbance and potentially to increased direct wildlife mortality from vehicle-animal collisions, and legal and illegal killing of wildlife; and indirect mortality and reduced reproduction due to displacement, increased stress, and increased predation (Madson 2006, MBOGC 1989, WYGF 2004). All-terrain vehicle users could travel on portions of the ROW, either legally or illegally. The construction of new roads, upgrades to existing roads, and the subsequent use of those roads generally would result in negative impacts to a wide range of wildlife including: elk and deer (Canfield et al. 1999); carnivores (Claar et al. 1999), small mammals (Hickman et al. 1999), birds (Hamann et al. 1999); and amphibians and reptiles (Maxell and Hokit, 1999).

Impacts associated with the release of petroleum products, hazardous materials, or crude oil during construction and operation of the proposed Project are addressed in Section 3.13.

**TABLE 3.6.2-1  
Important Wildlife Habitats within or near the Proposed Project ROW**

Milepost	Name	Ownership and Description	Miles
<b>Steele City Segment</b>			
<b>Montana</b>			
4.3 to 5.1	USFWS Wetland Easement	Private	0.8
25.5 to 69.7	North Valley Grasslands Important Bird Area (IBA)	Private 45%, Bureau of Land Management 43%, State 11%, Tribal 1%	44.2
49.4 to 70.9	Cornwell Ranch Conservation Easement (proposed – overlaps IBA)	Montana Fish, Wildlife and Parks	21.5
82.9	Milk River Valley	Montana Department of Natural Resources	~0.2
89.2	Missouri River Valley	Montana Department of Natural Resources	~1.0
196.4	Yellowstone River Valley	Montana Department of Natural Resources & Private	~0.5
Various	Conservation Reserve Program	Private	9.2
<b>South Dakota</b>			
426	Cheyenne River Valley		~0.7
537.1	White River Valley		~0.2
Various	State Wildlife Areas	South Dakota Game, Fish and Parks	20.7
Various	Conservation Reserve Program	Private	7.6

**TABLE 3.6.2-1  
Important Wildlife Habitats within or near the Proposed Project ROW**

<b>Milepost</b>	<b>Name</b>	<b>Ownership and Description</b>	<b>Miles</b>
<b>Nebraska</b>			
599.9	Keya Paha River Valley		~0.4
615.5	Niobrara River Valley		~0.5
617.1 – 663.9	Sand Hills	Various	46.8
697.3	Cedar River Valley		~0.1
740.7	Loup River Valley		~0.4
756.3	Platte River Valley		~0.5
758.0 – 847.4	Rainwater Basin	Various	50
Various	Conservation Reserve Program	Private	5.2
<b>Gulf Coast Segment</b>			
<b>Oklahoma</b>			
22.1 – 23.3	Deep Fork Wildlife Management Area	Oklahoma Department of Wildlife Conservation	0.9
38.6	North Canadian River Valley		~0.2
74.2	South Canadian River Valley		~1.0
155.7	Red River Valley		~0.2
<b>Texas</b>			
155.7	Red River Valley		~0.3
~162	Wetland Reserve Program	Private	0.7
190.2	North Sulphur River Valley		~0.5
367.3	Neches River Valley		~2.0
417.8 – 418.3	Big Thicket National Preserve (Menard Creek Unit)	Private, Crosses Menard Creek next to road and utility ROW	~0.5
<b>Houston Lateral</b>			
<b>Texas</b>			
18.9 – 22.4	Trinity River National Wildlife Refuge (Champion Lake Unit)	U.S. Fish and Wildlife Service	~3.5
43.3	San Jacinto River Valley		~1.0

Note: No important wildlife habitats were reported for the pump station locations in Kansas.

Some rangeland habitats crossed by the Steele City Segment have not been extensively fragmented by road and transmission line networks, and exist as expanses of open mosaics of grasslands, shrublands and croplands interrupted by forested draws. Fragmentation may be of more consequence in shrublands than grasslands, as species dependent on sagebrush cover would become more exposed when crossing the pipeline corridor. Fragmentation of native grasslands would generally be considered short-term, until sufficient herbaceous cover has reestablished to allow small mammals, amphibians and reptiles to cross without exposure. Many forestlands crossed by the Gulf Coast Segment have been previously fragmented by road and transmission line networks and some areas are actively managed for timber production.



Fragmentation related issues applicable to wildlife habitat types crossed by the proposed Project are summarized in Table 3.6.2-2.

<b>TABLE 3.6.2-2 Habitat Types and Related Fragmentation-Issues</b>						
<b>Habitat Type</b>	<b>Breaking Large Habitat Into Smaller Areas</b>	<b>Hindered Movements</b>	<b>Nest Parasitism</b>	<b>Facilitated Predator Movements</b>	<b>Habitat Disturbance - Construction Maintenance</b>	<b>Human Intrusion</b>
Upland Forests	√	√	√	√	√	√
Wetland Forests	√	√	√	√	√	√
Scrub-Shrub Wetlands	√	√	√	√		√
Wetlands/Swamps	√	√				√
Aquatic/Riverine	√	√	√		√	√
Grassland/Prairie	√	√	√		√	√
Sagebrush Steppe	√	√	√	√		√
Wildlife Type Affected	Birds, small mammals	Mammals, amphibians, reptiles	Birds	Birds, small mammals	Birds, mammals, amphibians, reptiles, invertebrates	Birds, mammals, amphibians, reptiles

Sources: Hinkle et al. 2002, Inglefinger, 2001, Miller et al. 1998, Vander Haegen, 2007.

Review of state land cover mapping produced for Gap analyses (USGS 2009) indicates that the pipeline could potentially contribute to increased fragmentation of several apparently contiguous areas ( $\geq 0.2$  miles) of native grassland, shrubland or forestland that would be crossed by the pipeline ROW within the wildlife habitats identified in Table 3.6.2-1. A summary of locations within wildlife habitats that may be susceptible to fragmentation based on this Gap data (USGS 2009) is presented in Table 3.6.2-3.

<b>TABLE 3.6.2-3 Wildlife Habitats and Potential Fragmentation Locations along the Proposed Project Route</b>					
Milepost	Name	Habitat Type <sup>a</sup>	Total Miles	Number of Locations	Proposed Impact Reduction Procedures <sup>b</sup>
<b>Steele City Segment</b>					
<b>Montana</b>					
4.3 to 5.1	USFWS Wetland Easement	Grasslands – moderate to high cover	0.2	1	Parallel, CMR Plan
25.5 to 69.7	North Valley Grasslands Important Bird Area (IBA)	Grasslands – low to high cover	15.2	18	Parallel, CMR Plan
		Riparian – graminoid/shrub mixed	0.6	1	CMR Plan
		Sagebrush	0.4	1	See greater sage-grouse (Section 3.8.1.2)
		Shrubs mesic/xeric mixed	0.3	1	CMR Plan
		Grasslands – very low to high cover	10.8	14	CMR Plan
49.4 to 70.9	Cornwell Ranch Conservation Easement (proposed – overlaps IBA)	Sagebrush	0.2	1	See greater sage-grouse (Section 3.8.1.2)
		Salt Desert Shrub/Salt Flats	2.5	5	CMR Plan
82.9	Milk River Valley	Riparian – graminoid	0.2	1	HDD, CMR Plan
89.2	Missouri River Valley	Riparian – shrub	0.2	1	CMR Plan
196.4	Yellowstone River Valley	Grasslands – low to moderate cover	1.5	1	CMR Plan
<b>Nebraska</b>					
615.5	Niobrara River Valley	Little Bluestem/Gamma Prairie	0.2	1	HDD, CMR Plan
617.1 – 663.9	Sand Hills	Little Bluestem/Gamma Prairie	0.4	2	Sand Hills Unit Plan
		Lowland Tallgrass Prairie	10.8	29	Sand Hills Unit Plan
		Sandhills Upland Prairie	5.0	12	Sand Hills Unit Plan
758.0 – 847.4	Rainwater Basin	Little Bluestem/Gamma Prairie	2.9	10	CMR Plan
<b>Gulf Coast Segment</b>					
<b>Oklahoma</b>					
22.1 – 23.3	Deep Fork Wildlife Management Area	Central Bottomland Forest	0.8	1	HDD, Parallel, CMR Plan
		Tallgrass Oak Savanna	0.2	1	Parallel, CMR Plan
38.6	North Canadian River Valley	Oak-Cedar Forest	0.5	1	HDD, Parallel, CMR Plan
74.2	South Canadian River Valley	Oak-Cedar Forest	0.7	2	HDD, CMR Plan

<b>TABLE 3.6.2-3 Wildlife Habitats and Potential Fragmentation Locations along the Proposed Project Route</b>					
Milepost	Name	Habitat Type <sup>a</sup>	Total Miles	Number of Locations	Proposed Impact Reduction Procedures <sup>b</sup>
<b>Texas</b>					
155.7	Red River Valley	Mixed Forest	2.6	1	HDD, Parallel, CMR Plan
~162	Wetland Reserve Program	Mixed Forest	2.4	1	HDD, CMR Plan
190.2	North Sulphur River Valley	Cold Deciduous Forest	1.1	1	Parallel, CMR Plan
367.3	Neches River Valley	Mixed Forest	1.7	1	Parallel, CMR Plan
		Needleleaf Forest	1.1	1	Parallel, CMR Plan
417.8 – 418.3	Big Thicket National Preserve (Menard Creek Unit)	Needleleaf Forest	2.5	1	Avoided, Parallel, CMR Plan
<b>Houston Lateral</b>					
<b>Texas</b>					
18.9 – 22.4	Trinity River National Wildlife Refuge (Champion Lake Unit)	Needleleaf Forest	2.8	1	Parallel, CMR Plan

<sup>a</sup> Habitat types as listed in state Gap data (USGS 2009).

<sup>b</sup> HDD = horizontal directional drilling; Parallel = route parallels (runs next to) an existing ROW; CMR Plan (Appendix B); Sand Hills Unit Plan (Appendix H).

Fragmentation may result in altered wildlife communities as animals adapted to exploiting edge habitats increase, and animals requiring large contiguous habitats are displaced. The severity of fragmentation-induced effects on wildlife communities depends on factors such as sensitivity of the animal, seasonal habitat use, type and timing of construction activities, and physical habitat parameters such as topography, cover, forage, and climate. Generalist animals have been found to be more abundant near trails, while specialist animals are generally less common within grassland and forest ecosystems (Miller et al. 1998).

Loss of shrublands and wooded habitats would be long-term (from 5 to 20 years or more) within reclaimed areas of the construction ROW. Due to the linear nature of the ROW, these long-term habitat losses represent a small total area of locally available habitat and therefore are expected to have few long-term impacts on wildlife populations (see Tables 3.6.2-1, 3.6.2-2).

Total habitat loss due to pipeline construction would likely be small in the context of available habitat both because of the linear nature of the proposed Project and because restoration would follow pipeline construction. During restoration, area would be reseeded as directed by the landowner, such that areas of native vegetation could be converted to non-native species. Such conversion could reduce the value of the habitat for wildlife. If disturbance involved important remnant habitat types, habitat loss could be locally significant. Normal operation of the pipeline would result in negligible effects on wildlife. Direct impacts from maintenance activities, such as physical pipeline inspections or pipeline repair that would require digging up the pipeline, would be the same as those for construction. Appropriate federal and state wildlife management agencies would be consulted with prior to initiation of maintenance activities beyond standard inspection procedures.

### **3.6.2.1 Big Game Animals**

Proposed Project construction would affect large game animals, primarily white-tailed and mule deer, by loss of potential foraging and cover habitats; and would result in increased habitat fragmentation, especially in areas with continuous forest cover within the Gulf Coast Segment. Noise and increased human activity during construction would lead to short-term displacement and may act as a temporary barrier to movements for some animals. Construction during spring fawning would potentially lead to loss of reproduction. Construction during winter within critical winter habitat, or blocking access to critical winter range during fall movements could reduce overwinter survival and reproduction of big game animals such as white-tailed deer, mule deer, and pronghorn. Mule deer are more vulnerable to habitat changes and disturbance than white-tailed deer. After construction, the maintained ROW may be used as movement corridors by some big game animals, predators, and humans. Increased predator movement could adversely affect big game survival and productivity. Human access may be facilitated by vegetation clearing and the perception that the ROW is no longer private property. Increased human use could lead to increased disturbances and hunting pressure (Hinkle et al. 2002).

### **3.6.2.2 Small Game Animals and Furbearers**

Potential impacts on small game animals and furbearers include nest or burrow destruction, or abandonment and loss of young, foraging habitat, and cover habitat. Displacement or attraction of small game animals and furbearers from disturbance areas would be short-term, as animals would be expected to return following completion of construction and reclamation activities. Small mammals can fall into and become trapped in the open trench during pipeline construction and die as a result. Burrowing animals would be expected to return and re-colonize the ROW after construction, although compacted areas such as temporary workspaces may become less suitable habitat (Lauzon et al. 2002). Disturbed areas through native prairie habitats also were found to be used less often by ground squirrels following construction of a gas pipeline, suggesting that these habitats may not be equivalent at least for several

years after construction (Lauzon et al. 2002). Some badger, ground squirrel, and rodent burrows would likely be destroyed during construction if they occur within the construction ROW. Badgers, ground squirrels, and burrowing rodents may be attracted by the warmth generated by the pipeline, especially during fall, winter, or spring months. The heat generated by the pipeline would warm the soils within the proximity of the pipeline out to as much as 11 feet from the pipeline center (see Appendix L). Differences from surrounding soil temperature at the surface would be largest during spring. The pipeline would increase soil temperatures at the burial depth near the pipeline by as much as 40 °F and at a depth of 6 inches by as much as 10 to 15 °F, with soil temperatures at the surface increased by 4 to 8 °F during the spring (see Appendix L).

For animals that use tree and shrub habitats for cover, forage, and nesting, losses of these habitat types would be long-term because the permanent ROW would be maintained free of trees and large shrubs. An estimated 2,538 acres of forested habitats (see Table 3.5.5-2) would be affected by construction of the proposed Project, of which an estimated 1,067 acres would be maintained as herbaceous vegetation. Those areas crossed as part of the construction ROW would be cleared of trees and brush to provide access for construction equipment. Trees and shrubs would not be allowed to reestablish on the permanent ROW. Differences in vegetation cover between the ROW and the surrounding landscape can act as a barrier for some animals, such as snakes, lizards, mice and tree squirrels, while acting as a movement corridor for others, such as coyotes and raccoons.

### **3.6.2.3 Waterfowl and Game Birds**

Most waterfowl and game birds nest on the ground, although a few notable species such as wood ducks (*Aix sponsa*), mergansers (*Mergus* spp.), and mourning doves nest in trees. Habitat loss, alteration, and fragmentation would occur until vegetation is reestablished; then the habitat may be degraded due to the spread of noxious and invasive species. For species that use tree and shrub habitats for cover, forage, and nesting, losses of these habitats would be long-term because trees and shrubs would require from 5 to 20 years or more to reestablish and the permanent ROW would be maintained free of trees and large shrubs. Migratory waterfowl may be attracted to the pipeline corridor during early spring if it becomes snow free earlier than surrounding habitats. This would be most likely to occur in Montana, South Dakota, and Nebraska. Communication towers at pump stations (~33 feet tall) could be a collision hazard to waterfowl and game birds especially if supported by guy wires or if located near foraging and nesting habitats. Towers may provide vantage perches and artificial nesting habitat depending on their configurations for raptors and common ravens (*Corvus corax*) or crows which may prey on ground nesting upland game birds.

Sharp-tailed grouse inhabit native prairies and nest in grasslands. These species have disappeared from large portions of their historical ranges, due primarily to habitat loss or degradation resulting from agricultural practices, livestock overgrazing, and habitat succession. Breeding habitats are vulnerable to disturbance as these birds gather to breed where males display in leks, and nesting may be concentrated within several miles of active leks. Sharp-tailed grouse are also vulnerable to displacement by the creation of roads and power lines and reductions in habitat suitability due to fragmentation.

### **3.6.2.4 Non-game Animals**

Removal of trees from the construction ROW and extra workspaces in woodlots, riparian areas, and shelterbelts could lead to the destruction of bat roosting habitats, raptor and owl nests, migrant bird nests, and great blue heron habitat. About 323 large stick nests, 12 great blue heron rookeries and 1 roseate spoonbill rookery were found inside the survey area, which covered the area within about 0.25 to 1 mile of the proposed Project centerline. Migratory birds and their active nests are protected under the MBTA. Direct impacts to nesting migratory birds can be avoided by limiting construction to non-nesting periods

during late summer through winter. If any of these nests or rookeries are actually located within the construction ROW, and if any nests were occupied when trees were cut, the nests, eggs, or young would be lost. Because most raptors reuse nest structures, loss of nest structures would require pairs to find new nest trees. If suitable new nest trees are not available within their established territory, new territories would need to be established within unoccupied territories. These processes would lead to increased energy demands during nesting and could lead to reduced or lost reproduction in subsequent years. Losses of tree and shrub habitats used by migratory birds for cover, forage, and nesting would be long-term because it would require from 5 to 20 years or more to reestablish trees and shrubs, and the permanent ROW would be maintained free of trees and large shrubs.

Habitat fragmentation caused by changes in vegetation cover within the pipeline ROW through large blocks of forest, shrub steppe, and grassland habitats would generally have the greatest effect on raptors and migrant songbirds (Hinkle et al. 2002, Vander Haegen 2007, Miller et al. 1998). The severity of fragmentation-induced effects on migratory birds depends on factors such as sensitivity of the animal, seasonal habitat use, type and timing of construction activities, and physical habitat parameters such as topography, cover, forage, and climate. Forest-nesting songbird abundance, diversity, and reproduction rates all become depressed as a result of fragmentation associated with linear developments (Jalkotzy et al. 1997). Habitat fragmentation leads to the creation of more edge habitats that in turn increase the susceptibility of nesting birds and other animals to predation, because many predators concentrate their search efforts within habitat edges (MDNRC 1979). Predators such as coyotes, badgers, foxes, crows, jays, ravens and others may use the cleared ROW for foraging leading to reduced reproduction and survival for many small mammals and birds in proximity to the ROW. Nest parasitism by brown-headed cowbirds resulting in fewer young birds fledging successfully has been documented to increase when shrub-steppe habitat is fragmented (Vander Haegen 2007).

Habitats crossed by access roads and above-ground facilities could contribute to both temporary and long-term fragmentation. Bird community composition and productivity can change next to recreational trails in grassland and forest ecosystems. Birds are less likely to nest near trails in grasslands, and nest predation is greater near trails in both grassland and forests (Miller et al. 1998). Densities of sagebrush-obligate songbirds have been shown to decline within 100 meters of natural gas pipeline access roads, even under light traffic volumes (less than 12 vehicles per day), while horned lark (*Eremophila alpestris*) abundance has been shown to increase within 100 meters of roads (Inglefinger 2001).

Small mammals, reptiles, amphibians, and non-flying insects would be blocked from moving across the open pipeline trench during construction. If timing of the open trench coincides with migration of snakes to hibernacula, large numbers of snakes could become trapped within the open trench. Trapped animals, especially small animals that would not normally be noticed by construction crews would likely perish if they became trapped. Erosion control blankets, especially those supported by fine non-biodegradable monofilament meshes, can entangle and entrap snakes, small mammals and birds. Changes in vegetation cover and structure over the maintained ROW could inhibit movements of amphibians, reptiles, small mammals and some birds. Reduction in riparian shrubs and trees could reduce riparian habitat function as a movement corridor for small mammals, furbearers, amphibians and reptiles. Communication towers at pump stations could be a collision hazard to migrant birds and may provide vantage perches and artificial nesting habitat for raptors, ravens or crows which may prey on grassland and shrubland nesting birds and small mammals.

Ripping for construction through rock outcrops which may provide hibernacula for snakes or nesting, perching or foraging habitats for birds could destroy all or portions of these habitats. Areas potentially requiring ripping that coincide with observed raptor nests on rock outcrops or clay ridges occur at:

- MP 255.4 to 255.6 – 1 active ferruginous hawk nest, Fallon County, Montana;
- MP 264.7 to 264.8 – 1 inactive ferruginous hawk nest, Fallon County, Montana;
- MP 270.5 to 270.6 – 1 inactive ferruginous hawk nest, Fallon County, Montana; and
- MP 311.4 to 312.0 – 1 inactive ferruginous hawk nest, Harding County, South Dakota.

If ripping occurs when hibernating animals are present, these animals would likely perish. If ripping occurs during nesting, raptors nesting nearby may be disturbed.

### **3.6.3 Impact Reduction Procedures**

To reduce potential construction- and operations-related effects, procedures outlined in the proposed Project CMR plan (Appendix B) would be implemented. Measures to minimize adverse effects to wildlife habitats including shelterbelts, windbreaks, and living snow fences are identified in the CMR plan (Appendix B). Pipeline construction would be conducted in accordance with required permits.

The following measures to minimize impacts to wildlife, as identified in the proposed Project CMR plan, would be implemented:

- Remove shavings produced during pipe bevel operation immediately to ensure that livestock and wildlife do not ingest this material;
- Collect and remove litter and garbage that could attract wildlife from the construction site at the end of the day's activities;
- Prohibit feeding or harassment of livestock or wildlife;
- Prohibit construction personnel from having firearms or pets on the construction ROW;
- Ensure all food and wastes are stored and secured in vehicles or appropriate facilities;
- Reseed disturbed native range with native seed mixes after topsoil replacement; and
- Control unauthorized off road vehicle access to the construction ROW through the use of signs; fences with locking gates; slash and timber barriers, pipe barriers, or boulders lined across the construction ROW; or plant conifers or other appropriate trees or shrubs in accordance with landowner or manager request.

The following measures would also be employed to minimize impacts to wildlife resources:

- Develop a Migratory Bird Conservation Plan in consultation with USFWS to comply with the Migratory Bird Treaty Act and implement provisions of Executive Order 13186 by providing benefits to migratory birds and their habitats within the states where the TransCanada Keystone XL Pipeline Project will be constructed, operated, and maintained;
- Develop construction timing restrictions and buffer zones, such as those described in Table 3.6.3-1, through consultation with regulatory agencies for the Steele City Segment;
- Prohibit cutting of active raptor nest trees during the nesting season;

- If construction would occur during the April 15 to July 15 grassland ground-nesting bird season, nest-drag surveys would be completed to determine the presence or absence of nests on BLM Lands in Phillips County, Montana (USFWS); and
- If construction would occur during the raptor nesting season during January to August, pre-construction surveys would be completed to locate active nest sites to allow for appropriate construction scheduling.

<b>TABLE 3.6.3-1 Seasonal Timing Restrictions<sup>a</sup> and Buffer Distances for Big Game Animals, Game Birds, and Raptors</b>			
<b>Animal and Habitat Type</b>	<b>State</b>	<b>Buffer Distance</b>	<b>Seasonal Timing Restrictions</b>
White-tailed deer – Winter range	Montana	NA	December 1 to March 31 (MFWP) & December 1 to May 15 (BLM)
Mule deer – Winter range	Montana	NA	December 1 to March 31 (MFWP) & December 1 to May 15 (BLM)
Antelope – Winter range	Montana	NA	December 1 to March 31 (MFWP) & December 1 to May 15 (BLM)
Snakes – Hibernacula	Montana	Rocky outcroppings with hibernacula	October 1 to May 1 (MFWP)
Sharp-tailed Grouse – Active lek and nesting habitat	Montana South Dakota	0.25 miles (MFWP & BLM)	March 1 to June 15
Rookeries – Great Blue Herons or Double Crested Cormorants	Montana	0.31 miles (MFWP)	May 1 to July 31 (MFWP)
Raptors and Herons – active nests and rookeries	Entire ROW	0.5 miles (MFWP) 0.25 miles no surface occupancy (MFWP & BLM) 0.5 miles timing limitations (BLM)	March 1 to August 1 (MFWP) March 1 to July 31 (BLM) February 1 through August 15 (USFWS)
Rookeries	Gulf Coast	1,000 feet (FWS)	February 15 through September 1 (USFWS)

<sup>a</sup> Timing restrictions and avoidance distances for protected animals including federal and state listed endangered, threatened or candidate species and species identified as conservation concerns or priority are discussed in Section 3.8. Timing restrictions for aquatic animals are discussed in Section 3.7. Required and recommended restrictions and buffers that apply to Montana are presented in Appendix I.

### 3.6.4 Potential Additional Mitigation Measures

In Montana, consistency with wildlife mitigation measures included in Appendix A to the Environmental Specifications developed for the proposed Project by MDEQ (see Appendix I), would be required. On federal lands in Montana and South Dakota, consistency with wildlife mitigation measures attached to the federal grant of ROW would be required. In South Dakota, consistency with conditions that were developed by the South Dakota Public Utility Commission (SDPUC) and attached to its Amended Final Decision and Order; Notice of Entry HP09-001, would also be required. Wildlife mitigation measures may include:

- Conduct surveys of sharp-tailed grouse leks prior to construction using approved methods to detect lek locations that can be seen from the construction ROW in Montana (MDEQ and MFWP);



- Construction and routine maintenance activities within 0.25 miles of an active sharp-tailed grouse lek that can be seen from the construction ROW would be prohibited from March 1 to June 15 (MDEQ, MFWP, and BLM);
- Avoid construction and reclamation activities within 0.62 miles of active raptor nests between March 15 and July 15 (MDEQ and MFWP);
- Avoid great blue heron rookeries by 500 feet (MDEQ and MFWP);
- Minimize tree clearing through a narrowing of the construction ROW and final centerline location near certain stream crossings to minimize impacts to bats and other wildlife associated with riparian habitats (MDEQ and MFWP);
- Within winter ranges for pronghorn and mule deer in Montana, develop construction timing restrictions after November 15 in consultation with MFWP biologists based on the severity of winter conditions (MDEQ and MFWP); and
- To protect small animals from entanglement, do not use erosion materials that incorporate plastic netting with openings less than 2 inches across (MDEQ and MFWP).

### **3.6.5 Connected Actions**

#### **3.6.5.1 Power Distribution Lines and Substations**

Power distribution line construction and operation requires clearing of trees and shrubs, and maintaining vegetation under the power lines in an herbaceous state. Power distribution lines and substations constructed to provide power for the proposed Project pump stations could affect wildlife resources through:

- Habitat loss, alteration, and fragmentation;
- Direct mortality during construction;
- Direct mortality due to collision with or electrocution by power distribution lines;
- Stress or avoidance of feeding due to exposure to construction and operations noise, and from increased human activity;
- Loss of breeding success from exposure to construction and operations noise, and from increased human activity; and
- Reduced survival and reproduction for ground nesting birds due to the creation of perches for raptors in grassland and shrubland habitats.

Preliminary siting information indicates that approximately 430 miles of new electric distribution lines would be necessary to power pump stations along the pipeline ROW for the proposed Project (see Section 2.1.4.1). Wildlife habitats potentially affected by construction and operation of distribution lines include 264 miles of grassland/rangeland, 112 miles of cropland, 9 miles of upland forest, 10 miles of wetland and water, and 35 miles of developed land (see Table 3.5.5-6).

The power distribution lines to Pump Stations 9 and 10 would cross the Milk River and associated oxbows and wetlands in Phillips County, Montana and are expected to present a collision hazard for waterfowl. The power distribution line to Pump Station 9 would cross 14.3 miles of the Glaciated Prairie Sage-steppe IBA. This IBA encompasses an expanse of largely unbroken sage brush shrub-steppe and prairie grassland supporting the greater sage-grouse, a species of global concern (Montana Audubon 2008). The power distribution line to Pump Station 10 would cross 18.6 miles of the North Valley

Grasslands IBA and may impact survival and reproduction for ground nesting grassland birds; and 2.1 miles of the Charles M. Russell National Wildlife Refuge, an IBA that supports 15 birds of global conservation concern (Montana Audubon 2008). The power distribution line to Pump Station 24 would cross the Platte River and associated riparian habitats in Nebraska. Other power distribution line routes would also cross smaller rivers and streams that are likely to attract raptors and migratory birds. Power distribution lines across riparian and wetland habitats provide perches that facilitate eagle, hawk and falcon predation on waterfowl and shorebirds. Newly constructed power distribution lines across grasslands, shrublands, croplands and pastures that are used by grassland nesting songbirds, and grouse would be used as vantage perches by raptors, facilitating predation on these ground-nesting birds. Location of poles across grassland and shrubland habitats reduces habitat suitability for ground-nesting birds potentially resulting in functional habitat loss and population declines through site avoidance. New electric power distribution line segments would increase the collision potential for migrating and foraging birds. Factors influencing collision risk are related to the avian species, the environment, and the configuration and location of lines. Species-related factors include habitat use, body size, flight behavior, age, sex, and flocking behavior. Heavy-bodied, less agile birds—or birds within large flocks, as is typical of migrating sandhill cranes—may lack the ability to quickly negotiate obstacles, making them more likely to collide with overhead lines. Environmental factors influencing collision risk include weather, time of day, lighting and line visibility, land use practices that may attract birds (such as grain fields), and human activities that may flush birds (such as nearby roadways). Power distribution line-related factors that influence collision risk include the configuration and location of the line, conductor, ground wire, and guy wire diameter, and line placement with respect to other structures or topography (APLIC and USFWS 2005).

Birds are electrocuted by power distribution lines because of two factors: (1) environmental factors such as topography, vegetation, available prey, and other behavioral or biological factors that influence avian use of power poles; and (2) inadequate separation between energized conductors or energized conductors and grounded hardware that provide two points of contact (APLIC and USFWS 2005). Raptors are opportunistic and may use power poles for nesting sites, vantages for territorial defense, or vantages for hunting. Power poles and lines may provide perches for hunting that offer a wide field of view above the surrounding terrain (APLIC and USFWS 2005).

Raptor nest surveys of power line routes for Pump Stations 9 to 26 identified 41 active raptor nests within 1 mile of proposed power line routes. Fourteen of these nests occurred within 0.5 mile of the proposed power line routes. Most nests (66 percent) belonged to red-tailed hawks and great horned owls.

Collision and electrocution impacts on birds resulting from construction of distribution lines would be reduced by mitigation requirements imposed by state and federal regulatory agencies, including:

- Incorporate Avian Protection Plan Guidelines (APLIC and USFWS 2005), into the routing, design, and operation of the electrical distribution lines to prevent collision and electrocution mortality of migratory birds which may include:
  - routing to avoid construction of new lines in high-use bird areas to avoid areas with grouse leks, brood-rearing habitat, and habitats that support wintering raptors;
  - reduce risk of collisions by burying new power lines over short segments where they cross known flight paths of birds, especially next to wetland areas and near grouse leks; and
  - reduce risk of collisions by using marking techniques to increase visibility of overhead wires to birds.

- Incorporate standard, avian-safe designs, as outlined in Suggested Practice for Avian Protection on Power Lines (APLIC 2006, APLIC and USFWS 2005), into the design of electrical distribution lines in areas of identified avian concern to prevent electrocution, including:
  - use a minimum 60-inch separation between energized conductors / hardware and grounded conductors / hardware to protect eagles;
  - increase separation where necessary to achieve adequate separation for types of birds involved;
  - cover energized parts and/or cover grounded parts to provide incidental contact protection for birds; and
  - apply perch management techniques where appropriate.

### **3.6.5.2 Big Bend to Witten 230-kV Transmission Line**

Upgrades to the power grid in South Dakota to support power requirements for pump stations in South Dakota would include construction of a new 230-kV transmission line and a new substation. Construction and operation impacts on wildlife would be the same as for the distribution lines discussed above, however, it is likely that the poles would be larger and that the area disturbed around the installation site would likely be larger.

Under alternative corridor A, wildlife habitats potentially affected by construction and operation of the five transmission line route options include 30.3 to 41.3 miles of grassland/rangeland 25.7 to 33.1 miles of cropland, 0.1 miles of upland forest, 0.2 to 0.3 miles of wetland and water, and 1.8 to 5.0 miles of developed land (see Table 3.5.5-7). The transmission line route options would cross between one and four perennial streams/ivers and between 26 and 36 intermittent streams.

Under alternative corridor B, wildlife habitats potentially affected by construction and operation of the four transmission line route options include 40.4 to 47.0 miles of grassland/rangeland, 22.9 to 28.6 miles of cropland, less than 0.2 miles of upland forest, 0.2 to 0.4 miles of wetland and water, and 4.0 to 7.1 miles of developed land (see Table 3.5.5-8). The transmission line route options would cross the Missouri River, the White River, and between 20 and 31 intermittent streams. Transmission line crossings of the large river crossings would likely increase collision hazard for migrant and breeding waterfowl at these locations as discussed above. Collision and electrocution impacts on birds resulting from construction of the 230-kV transmission line would be reduced by the agencies with regulatory authority requiring that the electric power line providers implement the mitigation measures discussed above for power distribution lines to pump stations.

### **3.6.5.3 Bakken Marketlink and Cushing Marketlink Projects**

Construction and operation of the Bakken Marketlink Project would include metering systems, three new storage tanks near Baker, Montana, and two new storage tanks within the boundaries of the proposed Cushing tank farm. Keystone reported that the property proposed for the Bakken Marketlink facilities near Pump Station 14 is currently used as pastureland and hayfields and that a survey of the property indicated that there were no listed species or listed species habitat, raptors, waterbodies, or wetlands on the property. DOS reviewed aerial photographs of the area and confirmed the current use of the land and that there are no waterbodies associated with the site. A site inspection by the DOS third-party contractor confirmed these findings. As a result, the potential impacts associated with expansion of the pump station site to include the Bakken Marketlink facilities would likely be similar to those described above for the proposed Project pump station and pipeline ROW in that area.

The Cushing Marketlink project would be located within the boundaries of the proposed Cushing tank farm of the Keystone XL Project and would include metering systems and two storage tanks. As a result, the impacts of construction and operation of the Cushing Marketlink Project on wildlife would be the same as potential impacts associated with construction and operation of the proposed Cushing tank farm described in this section.

Currently there is insufficient information to complete an environmental review of the Marketlink projects. The permit applications for these projects would be reviewed and acted on by other agencies. Those agencies would conduct more detailed environmental reviews of the Marketlink projects. Potential impacts to wildlife would be evaluated during the environmental reviews for these projects and potential wildlife impacts would be evaluated and minimized or mitigated to the extent practicable in accordance with direction from federal and state resource management agencies.

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