3.8 THREATENED AND ENDANGERED SPECIES AND SPECIES OF CONSERVATION CONCERN

This section addresses animals and plants[1] that are federal or state-listed as endangered, threatened, proposed, or candidate species (Sections 3.8.1 and 3.8.2, respectively), BLM sensitive species (Section 3.8.3), and species of conservation concern (Section 3.8.4). Summaries of occurrence, life history, and impact assessments are based on available literature; correspondence and communications with federal and state agencies; agency required site-specific surveys; public and agency websites; and review of state natural heritage data. No federal proposed species were identified within the Project area. Six federal candidate species potentially occur within the Project area and are discussed in Section 3.8.1, although federal candidate species are not federally protected. Montana is the only state crossed by the Project that does not maintain an independent state endangered or threatened species list. Montana endangered or threatened species are considered species of concern. Species of conservation concern include those species that have been identified by BLM, South Dakota, Nebraska, Kansas, Oklahoma or Texas as sensitive or species of conservation concern. Montana species of concern that are not identified as sensitive by BLM or as species of concern by other states crossed by the Project are covered in Appendix I.

Types of impacts to threatened and endangered species and species of conservation concern would be similar to those described for wildlife in Section 3.6 and vegetation in Section 3.5. The proposed Project could affect these species by:

- 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, and from increased human activity;
- Reduced breeding success from exposure to construction and operations noise, and from increased human activity;
- Reduced survival or reproduction due to decreased abundance of forage species or reduced cover;
- Loss of individuals and habitats due to exposure to toxic materials or crude oil releases (addressed in Section 3.13, Risk Assessment and Environmental Consequences); and
- Direct mortality due to collision with or electrocution by power lines.

Habitat loss or alteration from construction of the Project is described in Section 3.6.2. Pipeline construction and associated access roads would increase habitat fragmentation by reducing the size of contiguous patches of habitat and through loss of habitat or changes in habitat structure. The pipeline ROW through native grassland, shrub, and forest communities would remove vegetation including sagebrush and native grasses, creating a temporary unvegetated strip over the pipeline trench and adjacent construction areas. Subsequent revegetation may not provide habitat features comparable to pre-project conditions. Typically, seed mixes for reclamation include non-native species that quickly become established. Sagebrush often does not quickly become established on disturbed sites, especially if these sites are seeded with grasses and other species that more-rapidly germinate and grow. Management

[1] The text of this section primarily refers to animals and plants by their common name. Scientific names are provided for many species in Tables 3.8.1-1, 3.8.2-1, 3.8.3-1, and 3.8.4-1of this section. Where animals or plants are not presented in these tables the initial mention of the common name is immediately followed by presentation of the scientific name (NatureServe 2009; USDA NRCS 2009).

actions on the ROW include removal of trees and shrubs (Keystone 2008, 2009c), likely including sagebrush. Loss of shrublands and wooded habitats would be long term (5 to 20 years) in reclaimed areas of the construction ROW.

In addition to these general impacts, specific impacts and conservation measures that have been identified for threatened and endangered species and species of conservation concern are described in the following sections. Where applicable, specific impacts to threatened and endangered species and species of conservation concern that would result from construction and operation of the connected actions of the Project (electrical transmission and distribution lines) are identified for the particular species of concern.

3.8.1 Federally-Protected and Candidate Species

The U.S. Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS) are responsible for ensuring compliance with the Endangered Species Act (ESA) for species under their jurisdictions. The Department of State (DOS), as the lead federal agency, is responsible for initiating Section 7 consultation pursuant to the ESA with the USFWS and NMFS to determine the likelihood of effects on federally-listed species. The DOS or the applicant as a non-federal party is required to consult with the USFWS and NMFS to determine whether any federally-listed or proposed endangered or threatened species or their designated critical habitat occur in the vicinity of the proposed Project. If, upon review of existing data, the DOS determines that any federally-protected species or habitats may be affected by the proposed Project, the DOS is required to prepare a Biological Assessment (BA) to identify the nature and extent of adverse impacts and to recommend mitigation measures that would avoid the habitat and/or species or that would reduce potential impact to acceptable levels. For the Project, Keystone consulted with the USFWS to identify the potential occurrence of federally-protected species along the pipeline route. Several federally-protected species under the jurisdiction of USFWS were identified which could be potentially affected by the proposed Project. An applicant prepared Draft BA was developed and reviewed by DOS and submitted to USFWS. No NMFS listed species were found to be potentially affected by the proposed Project.

Candidate species are those petitioned species that are actively being considered for listing as endangered or threatened under the ESA, as well as those species for which agencies have initiated an ESA status review that it has announced in the Federal Register. Candidate species are not federally protected but as these species may become protected within the life of the Project they are addressed in Section 3.8.1.

Proposed species are those candidate species that were found to warrant listing as either threatened or endangered and were officially proposed as such in a Federal Register notice after the completion of a status review and consideration of other protective conservation measures. Proposed species are federally protected. No proposed species were identified as occurring within the Project area.

Delisted species are species that were formerly listed as threatened or endangered under the ESA, but have been formally removed from listing. Delisted species are not federally-protected and are considered in assessments as either state-listed species in Section 3.8.2 or as species of conservation concern in Section 3.8.3 or Section 3.8.4.

Keystone received input from USFWS relative to the ESA, the Fish and Wildlife Coordination Act (FWCA), the Migratory Bird Treaty Act (MBTA), Bald and Golden Eagle Protection Act (BGEPA), and National Environmental Protection Act (NEPA). Based on USFWS input, Keystone developed a list of federally-protected species requiring surveys to fill information gaps. USFWS-approved surveys were initiated in the summer and fall of 2008 and spring 2009 (Keystone 2009c). Supplemental filing data

from July 2009 included survey reports for piping plover, interior least tern, American burying beetle, Texas prairie dawn-flower, and western prairie fringed orchid. Potential impacts and mitigation measures that were identified during these surveys and consultations with federal and state resource agencies are presented within the potential effects analyses.

Federally-protected threatened or endangered species and federal candidate species with the potential to occur in the Project area include three mammals, eight birds, one amphibian, six reptiles, four fish, two invertebrates, and five plants (see Table 3.8.1-1). The general and Project area distribution, life histories, habitat requirements, potential impact summary, proposed mitigation and preliminary determinations for these federally-protected and candidate species are described in this section. Level of analysis and preliminary findings are summarized in Table 3.8.1-1.

TABLE 3.8.1-1
Summary of Federally-Protected and Candidate Species Potentially Occurring along the Project Route

Common Name	Scientific Name	Federal Status	Detailed Analysis Included	Preliminary Findings Summary[1]
MAMMALS				
Black-footed ferret	*Mustela nigripes*	Endangered/Proposed – Experimental Populations	Yes	NLAA
Louisiana black bear/ American black bear	*Ursus americanus luteolus/ Ursus americanus*	Threatened/ Threatened – Similarity of Appearance	No/No	No Effect
Red wolf	*Canis rufus*	Endangered	No	No Effect
BIRDS				
Brown pelican	*Pelecanus occidentalis*	Endangered	No	No Effect
Eskimo curlew	*Numenius borealis*	Endangered	No	No Effect
Greater sage-grouse	*Centrocercus urophasianus*	Candidate	Yes	NA
Interior least tern	*Sterna antillarum*	Endangered	Yes	NLAA
Piping plover	*Charadrius melodus*	Threatened	Yes	NLAA
Red-cockaded woodpecker	*Picoides borealis*	Endangered	No	No Effect
Whooping crane	*Grus americana*	Endangered	Yes	NLAA
Yellow-billed cuckoo	*Cocyzus americanus*	Candidate	No	NA
AMPHIBIANS				
Houston toad	*Bufo houstonensis*	Endangered	No	No Effect
REPTILES				
Green sea turtle	*Chelonia mydas*	Threatened	No	No Effect
Hawksbill sea turtle	*Eretmochelys imbricata*	Endangered	No	No Effect
Kemp's ridley sea turtle	*Lepidochelys kempii*	Endangered	No	No Effect
Leatherback sea turtle	*Dermochelys coriacea*	Endangered	No	No Effect
Loggerhead sea turtle	*Caretta caretta*	Threatened	No	No Effect
Louisiana pine snake	*Pituophis ruthveni*	Candidate	Yes	NA

TABLE 3.8.1-1 Summary of Federally-Protected and Candidate Species Potentially Occurring along the Project Route				
Common Name	**Scientific Name**	**Federal Status**	**Detailed Analysis Included**	**Preliminary Findings Summary[1]**
FISH				
Arkansas River shiner/ Designated Critical Habitat	*Notropis girardi*	Threatened	Yes	NLAA
Pallid sturgeon	*Scaphirhynchus albus*	Endangered	Yes	NLAA
Smalleye shiner	*Notropis buccula*	Candidate	No	NA
Topeka shiner	*Notropis topeka*	Endangered	No	No Effect
INVERTEBRATES				
American burying beetle	*Nicrophorus americanus*	Endangered	Yes	NLAA
Ouachita rock pocketbook	*Arkansia wheeleri*	Endangered	No	No Effect
PLANTS				
Neches River rose-mallow	*Hibiscus dasycalyx*	Candidate	Yes	NA
Texas golden gladecress	*Leavenworthia texana [aurea]*	Candidate	Yes	NA
Texas prairie dawn-flower	*Hymenoxys texana*	Endangered	Yes	NLAA
Texas trailing phlox	*Phlox nivalis texensis*	Endangered	No	No Effect
Western prairie [white-] fringed orchid	*Platanthera praeclara*	Threatened	Yes	NLAA

[1] NA – Not Applicable. Brackets present alternative names as listed in USDA Plants database (USDA NRCS 2009).
NLAA – May affect, not likely to adversely affect.
MALAA – May affect, likely to adversely affect.

3.8.1.1 Federally Protected Mammals

Preliminary evaluations identified three federally protected mammals that could potentially occur within the Project area (Table 3.8.1-1).

Black-Footed Ferret

The black-footed ferret was federally listed as endangered in March 1967. In Montana it is a species of special concern and it is listed as endangered in both South Dakota and Nebraska. No critical habitat has been designated for the black-footed ferret. Black-footed ferrets once numbered in the tens of thousands, but widespread destruction of their habitat and exotic diseases in the 1900s brought them to the brink of extinction. Only 18 remained in 1986, and approximately 750 black-footed ferrets occur in the wild today (Defenders of Wildlife 2009). The primary threat to the black-footed ferret is loss of habitat via conversion of grasslands to agricultural uses. Also, widespread prairie dog eradication programs have reduced black-footed ferret habitat to less than 2 percent of what once existed.

Black-footed ferrets are nocturnal and solitary; they feed almost exclusively on prairie dogs and use prairie dog burrows (USFWS 2009b). Black-footed ferrets use the same habitats as prairie dogs; grasslands, steppe, and shrub steppe. It is estimated that about 40 to 60 hectares of prairie dog colony are

needed to support one ferret (NatureServe 2009). The breeding season is generally between March and April. After a gestation period of 31 to 45 days, a litter, typically of three or four young, is born in May to June. By October, the young are independent and disperse to their own territories (Defenders of Wildlife 2009).

Experimental, non-essential populations were reintroduced to several sites in the United States in 1994, including north-central Montana and South Dakota. None of the three reintroduced ferret populations in Montana are well established at this time, and there is ongoing concern about the genetic viability of the captive population (MFWP 2009a, USFWS 2008d). In 2008, ferrets were reintroduced on the Northern Cheyenne Indian Reservation in southeast Montana (USFWS 2008d). In Montana, the recovery goal is to reestablish two viable ferret populations with a minimum of 50 breeding adults in each. Ferrets have been reintroduced to South Dakota where an estimated 200 ferrets inhabit the Conata Basin, a 70,000-acre prairie in the Badlands area. In Nebraska, the black-footed ferret probably occurred historically in the western three-quarters of the state coincident with the range of the prairie dog. The black-footed ferret is a Nebraska state endangered species, although there are no estimated occurrences of the ferret in Nebraska (Schneider et al. 2005) and Nebraska does not identify the ferret as a priority management species (NGPC 2008). The last known museum specimen from Nebraska is an animal killed on a road near Overton in Dawson County in 1949 (NGPC 2009a). Many reports have been received since then, but no specimens or photographs have been positively identified.

Potential Impacts and Conservation Measures

The proposed Project would cross two counties in Montana and four counties in South Dakota with black-tail prairie dog colonies that may contain potential or remnant black-footed ferret habitat. If black-footed ferrets were present in prairie dog colonies along the Project route, direct impacts would include increased habitat loss and fragmentation from the disturbance of prairie dog colonies or complexes. Construction and operation activities from the proposed Project could cause direct mortalities resulting from collisions with construction equipment and vehicles. Other indirect impacts could include increased habitat alteration due to fragmentation, dust deposition, and spread of noxious and invasive plants; and increased disturbance due to noise and human presence. Indirect effects could also include a reduction of prairie dog colonies due to the spread of infectious diseases such as distemper and plague.

In Nebraska and South Dakota, black-footed ferret surveys are no longer recommended in prairie dog colonies. To prevent potential direct or indirect impacts to the black-footed ferret from construction in Montana, Keystone has committed to:

- Provide USFWS with the results of Montana prairie dog colony surveys, and to continue to coordinate with the Montana USFWS to determine the need for black-footed ferret surveys at these colonies, in accordance with the Black-footed Ferret Survey Guidelines (USFWS 1989). The need for black-footed ferret surveys would be based on relative size and density of affected prairie dog colonies, activity status, and colony location relative to disturbance areas.
- If surveys for black-footed ferrets were required by the Montana USFWS, and if the species was documented to be present within the Project area, additional conservation measures would be developed in coordination with the Montana USFWS.
- Workers would not be allowed to keep domestic pets in construction camps and/or worksites;
- Workers would be made aware of how canine distemper and sylvatic plague diseases are spread (domestic pets and fleas);
- Workers will not be allowed to feed wildlife; and,

- Concentrations of dead and/or apparently diseased animals (prairie dogs, ground squirrels, others) would be reported to the appropriate state and federal agencies.

Although USFWS has indicated that the Project area in South Dakota has been block-cleared for black-footed ferret, the South Dakota Department of Game, Fish, and Parks has requested an estimate of the number of prairie dog habitat acres that would be lost to pipeline construction and operation and a survey conducted to determine the presence of black-footed ferrets on these acres before any construction activity occurs.

The proposed Project may affect, but is not likely to adversely affect black-footed ferrets. Prairie dog colonies found in South Dakota and Nebraska do not require conservation measures or additional consultation under the ESA because any black-footed ferrets potentially associated with these prairie dog colonies are reintroduced and designated as non-essential experimental populations. The prairie dog towns in Montana, however, may support black-footed ferrets.

Louisiana Black Bear/American Black Bear

The Louisiana black bear, one of 16 recognized subspecies of the American black bear, was federally listed as endangered in February 1992. In Texas, the Louisiana black bear is listed as a threatened species. The American black bear is also federally-protected where it occurs within the historic range of the Louisiana black bear due to similarity in appearance. Louisiana black bears occur in eastern Texas, Louisiana, and western Mississippi. Within Texas, reliable sightings of the species have occurred in 19 counties, seven of which would be crossed by the proposed Project (Angelina, Fannin, Franklin, Hopkins, Lamar, Nacogdoches, and Polk Counties) (TPWD 2009c). Critical habitat has been designated for the Louisiana black bear within 15 parishes in Louisiana, east and outside of the proposed Project area (50 CFR 17).

Black bear habitat is primarily associated with forested wetlands; however, bears may use a variety of habitat types including marsh, spoil banks, and upland forests. In upland forests, black bears utilize soft and hard forage for food, thick vegetation for escape cover, vegetated corridors for dispersal and movement, large trees for den sites, and isolated areas for refuge from human disturbance. The primary threats to this species are continued loss of bottomland hardwoods and fragmentation of the remaining forested tracts as well as human conflicts where they may be intentionally and illegally shot or killed in automobile collisions (USFWS 2007c). Bears also may become habituated to human food sources, especially garbage, when activities encroach on their habitat (USFWS 2007d). Such habituation can cause nuisance behavior by black bears, which can be very difficult to control and may require removal of the animal or euthanasia, thereby impacting the recovery of this species.

Louisiana black bears den from December through April, preferably in bald cypress (*Taxodium distichum*) and water-tupelo (*Nyssa aquatica*) trees with visible cavities that have a diameter at breast height of 36 inches or greater and are located along rivers, lakes, streams, bayous, sloughs, or other waterbodies. Where suitable den trees are unavailable, black bears would often den in shallow burrows or depressions within areas of dense cover (USFWS 2007c). The USFWS has extended legal protection to "actual" (used by a denning bear during winter and early spring) and "candidate" (having visible cavities, appropriate diameter for entrance, and located along a waterbody) den trees.

Potential Impacts and Conservation Measures

Approximately 39 percent of the land that would be crossed along the Gulf Coast Segment and Houston Lateral would be forested. Should a black bear occur within the proposed Project area, impacts could occur from habitat disruption, removal of den trees, and temporary displacement during construction. If

black bears were denning within trees that would be removed during construction, direct mortality could occur.

Currently, there is not a resident breeding population of the Louisiana black bear in Texas, although dispersing juvenile males have been sighted in Texas (Campbell 2003, TPWD 2009c). There are no known den sites in the Project area in Texas (Campbell 2003) and individuals are expected to migrate quickly through the Project area. Construction and operation of the proposed Project would therefore have no effect on Louisiana black bears.

Red Wolf

The red wolf was federally listed as endangered in 1974. In Texas, it is state-listed as threatened. With an average size of 45 to 80 pounds and an average length of 4 feet, the species is smaller than the gray wolf and larger than the coyote (USFWS 2009a, Davis and Schmidly 1994). The historic range of the red wolf included east Texas; however, the population declined due to land conversion and interbreeding with coyotes, to the point that the red wolf is now considered extinct in Texas (Davis and Schmidly 1994). Currently, the species occurs in Florida, North Carolina, South Carolina, and Tennessee; the populations occupying Tennessee and portions of North Carolina belong to an experimental population (USFWS 2009a) and Species Survival Plan Facilities exist in east-central Texas and central Oklahoma outside of their original distribution. No critical habitat has been designated for the red wolf. The primary threats to red wolves are hybridization with the eastern coyote, illegal mortality, vehicle mortality, and diseases such as mange, hookworm, and heartworm.

Potential Impacts and Conservation Measures

The red wolf is considered extinct in Texas and is known to occur only in states that are not crossed by the proposed Project; therefore, construction and operation of the proposed Project would have no effect on the red wolf.

3.8.1.2 Federally-Protected and Candidate Birds

Preliminary evaluations identified six birds protected by the ESA as endangered or threatened and two candidate birds that could potentially occur within the Project area (Table 3.8.1-1). In addition to federal ESA protections, all of the birds listed in this section are also federally protected under the MBTA, except for the greater sage-grouse. Additional federal protections under the MBTA and the BGEPA are discussed in Section 3.8.2.

Brown Pelican

The brown pelican is federally listed but has been proposed for delisting (73 Federal Register 9407 9433) and no critical habitat rules have been published. The brown pelican is state-listed in Texas as endangered. Brown pelicans inhabit the coastal areas from Texas through Florida and north up the Atlantic coast. Brown pelicans migrate through the Texas coast and nest in colonies along the coast on barrier islands. Many are year-round residents of the Texas coast. They feed on fish by plunge-diving into the water and screening out fish through the pouches on their beaks. Brown pelicans nest in early spring or summer and generally prefer mangroves as nesting sites. However, along the Texas coast, not many areas of mangroves are left. The birds can also nest in similar size vegetation or on the ground (TPWD 2008a, UFWS 1995a).

Historically, the populations of brown pelicans were drastically reduced by low productivity and nest success due to the use of pesticides. These pesticides, including DDT, were banned from use in 1972 and some populations of the birds have been increasing ever since; namely, the Atlantic coast, Florida, and Alabama populations. Current threats to these birds include habitat disturbance; disturbance of nesting colonies; entanglement in monofilament fishing line; erosion, which causes excessive turbidity in water; oil and chemical spills; hurricanes; and unpredictable food availability (USFWS 1995a).

Potential Impacts and Conservation Measures

Brown pelicans are both migratory and year-round residents in the coastal areas of Texas. The proposed Project would cross Jefferson and Chambers counties where brown pelicans are known to occur, however brown pelicans do not venture far inland. Although this species is listed in counties crossed by the Project, the brown pelican nests, winters, and migrates along the coast, outside of the Project area. Therefore the proposed Project would have no effect on the brown pelican.

Eskimo Curlew

The Eskimo curlew is federally listed and state-listed in Texas as endangered. The Eskimo curlew was once abundant; historical accounts indicate flocks of thousands migrated from northern North America to the Argentine pampas, crossing central North America and the Atlantic coast. They bred in northern Canada and migrated through the prairies of the U.S. south to the grasslands in South America, spending most of their time in prairies and grasslands along the way (Audubon 2009a, TPWD 2009a). Currently, the Eskimo curlew is thought to be extinct. The last sighting of an Eskimo curlew was in 1962 on the coast of Texas.

The primary threat to the Eskimo curlew was un-curtailed hunting by market hunters following the population crash of the passenger pigeon (*Ectopistes migratorius*). In addition to hunting, the conversion of prairies in the central U.S. to cropland and suppression of wildfires resulted in large-scale habitat loss. Cropland was not ideal feeding habitat during migration and suppression of wildfires resulted in succession of prairie grasslands to woodlands. Although a few unconfirmed sightings of individuals and flocks have occurred since the early 1900s, the species is thought, but not confirmed, to be extinct.

Potential Impacts and Conservation Measures

No Eskimo curlews have been recorded or spotted in the Project area in decades. Any reported sightings throughout the nation have been unconfirmed. As the Eskimo curlew is thought to be extinct, no individuals or flocks are expected to move through the Project area and no impacts are expected to occur due to construction or operation of the proposed Project.

The Eskimo curlew is considered extirpated with no records in recent years in the Project area; therefore, the proposed Project would have no effect on the Eskimo curlew.

Greater Sage-Grouse

The greater sage-grouse has been petitioned for federal listing under the ESA several times. In April 2004, the USFWS determined that listing the greater sage-grouse under the ESA may be warranted and initiated a status review. The 12-month finding of the status review determined that listing was not warranted (70 FR 2244), however, this determination was ruled arbitrary and capricious by the U.S. District Court of Idaho. USFWS initiated a status review to reevaluate this finding; and on 5 March 2010, USFWS announced that listing the greater sage-grouse (rangewide) was warranted, but precluded by higher priority listing actions (USFWS 2010, 75 FR 13910). The greater sage-grouse is protected as a

sensitive species by BLM and is considered a conservation concern by Montana and South Dakota. Sage-grouse occur in 11 western states including Montana and South Dakota, where they are hunted during a limited season in September. Populations of sage-grouse, which depend on large areas of contiguous sagebrush, have continued to decline during the last century primarily due to habitat loss and alteration and they now occupy about 56 percent of their original range (USFWS 2010). Primary threats to sage-grouse include sage brush habitat loss and fragmentation resulting from wildfire, energy development, urbanization, agricultural conversion, and infrastructure development (USFWS 2010).

Sage-grouse use a lek system for mating with males establishing strutting grounds or leks to attract females which then nest on average between 2.1 to 4.8 miles and up to 12.5 miles from the lek site. Leks are typically located in areas of bare ground or low-density vegetation such as ridge tops; and individuals return to about the same location each spring, although leks may shift in location over time. Nesting typically occurs in areas with a sagebrush canopy cover of between 15 to 30 percent. Although sagebrush habitat is crucial for all seasons and life stages, wet meadows and riparian areas are critical for the brood-rearing. Sage-grouse diet varies by season with nesting and brood-rearing birds using forbs and insects and wintering birds using sagebrush (USFWS 2010). Sage-grouse may migrate between winter, breeding and summer areas with movements of up to 100 miles (USFWS 2010); all sage-grouse gradually move from sagebrush uplands to moister areas such as streambeds or wet meadows during the late brood-rearing period (3 weeks after hatch) as vegetation desiccates during the hot, dry summer months (USFWS 2010).

Steele City Segment

The Steele City Segment crosses through greater sage-grouse Management Zone I (MZ I) in Montana and western South Dakota, which supported an estimated 62,320 sage-grouse in Montana and 1,500 sage-grouse in South Dakota during 2007 (USFWS 2010).

Montana: Aerial lek surveys of the Project route completed by Keystone (2009c) found no undocumented sage-grouse leks within 0.6 mile of the proposed centerline in Montana or within 2 miles of proposed pump station locations; however, surveys were not comprehensive. In spring 2009, MFWP (Regions 6 and 7) conducted a lek survey in areas near a short portion of the proposed route (the survey was conducted along about 10 percent of the route in Montana); data from this survey combined with previously documented lek locations indicate that 36 sage-grouse leks were active within 4 miles of the proposed route, 24 leks were within 3 miles, 11 leks were within 2 miles, and 5 leks were within 1 mile of the proposed route (MFWP 2009b, 2009c). Because comprehensive surveys following recommended protocols were not been completed along the entire proposed route; it is likely that additional sage-grouse leks were present in the vicinity of the proposed Keystone route through Montana.

South Dakota: Aerial lek surveys of the Project route completed by Keystone (2009c) identified one undocumented sage-grouse lek in Harding County, South Dakota; for a total of 3 leks within 4 miles of the proposed route in South Dakota.

Potential Impacts and Conservation Measures

Approximately 190 miles of the proposed route extend through areas with sage-grouse habitat in Montana (MFWP 2001a). Of this distance, 94 miles are classified as moderate to high-quality habitat and 96 miles are classified as marginal habitat for greater sage-grouse. MFWP (2009b) has mapped core sage-grouse habitat in Montana which include habitats associated with (1) Montana's highest densities of sage-grouse (25 percent quartile), based on male counts, and/or (2) sage-grouse lek complexes and associated habitat important to sage-grouse distribution. The proposed route would pass through approximately 20 miles of

core sage-grouse habitat in Montana. One 2.75 mile long permanent access road and one pump station would also occur within core sage-grouse habitat in Montana.

Using a 4-mile buffer around only the known greater sage-grouse leks that occur within 4 miles of the route, the proposed Project route would cross about 166 miles of greater sage-grouse buffer zone in 12 locations (Table 3.8.1-2).

TABLE 3.8.1-2
Greater Sage-Grouse Lek 4-Mile Buffer Zones Crossed by the Project in Montana and South Dakota

Milepost Locations		Buffer Zone Length Crossed (miles)	Buffer Zone Acreage Affected During Construction[1]
Beginning Milepost	**Ending Milepost**		
MONTANA			
17.0	25.3	8.3	111.3
43.2	49.9	6.7	89.8
50.2	61.8	11.6	155.4
67.1	72.1	5.0	66.6
87.7	121.9	34.2	455.4
207.7	220.0	12.3	164.4
229.3	243.6	14.3	191.3
247.1	264.5	17.4	232.1
280.4	282.3	1.9	26.0
Montana Totals	**9 locations**	**111.7**	**1,492.3**
SOUTH DAKOTA			
282.5	290.9	8.4	112.0
294.2	316.4	22.2	296.0
323.9	347.2	23.3	310.7
South Dakota Totals	**3 locations**	**53.9**	**718.7**
Steele City Totals	**12 locations**	**165.6**	**2,211.0**

[1] Based on a nominal ROW of 110 feet.
Source: MFWP 2009b, 2009c; Keystone 2009c.

Studies of the effects of energy development on greater sage-grouse indicate a variety of adverse impacts to sage-grouse from sources of disturbance, such as construction and operation of facilities, road construction and use, and development of transmission lines (Naugle et al. 2009). However, many studies evaluated impacts resulting from different and higher-density types of disturbance and development than the proposed Project (i.e., a single pipeline as compared to oil and gas field developments). Although similar types of impacts would be expected to result from construction of the Project, the magnitude would be expected to be different.

Sage-grouse would be especially vulnerable to pipeline construction activities in spring when birds are concentrated on strutting grounds (leks) and where the pipeline and access roads are constructed through sagebrush communities with leks and nesting sage-grouse. Partial field surveys and public databases indicate that at least 36 known sage-grouse leks are present within 4 miles of the proposed route, and at

least 5 leks are present within 1 mile of the route in Montana (MFWP 2009a, 2009b, and 2009c). Construction near leks could displace breeding birds from leks or disturb nests, resulting in a decrease in local reproduction. Traffic on roads near active leks could cause vehicle collision mortality.

Disruption of courtship and breeding behavior could be minimized by scheduling construction after birds have left the leks (usually by mid May). Mortality to sage-grouse and loss of nests, eggs, and young could be avoided by scheduling construction through occupied sagebrush steppe habitats after young sage-grouse have become mobile and are able to fly (usually by mid-August). Sage-grouse chicks are precocious and capable of leaving the nest immediately after hatching, but they are not sufficiently mobile to avoid construction related impacts until after they can fly.

After construction, reestablishment of sagebrush on the ROW may take 30 or more years. During this period, vegetation on reclaimed areas would likely be dominated by grasses with low densities of native forbs and shrubs. Typically, communities of big sagebrush have proven difficult to reestablish on reclaimed lands (Schuman and Booth 1998, Vicklund et al. 2004), and restoration may not always be possible (USFWS 2010). Growth of big sagebrush on reclaimed land has been shown to benefit from the application of mulch, compacting soil after seeding, and reduced competition with herbaceous species (lower seeding rate of grasses and forbs) (Schuman and Booth 1998). Management of a 30-foot-wide area of the permanent ROW to prevent shrub and tree growth could prevent reestablishment of sagebrush communities for at least the life of the Project. A maintained path over the pipeline that is free of shrubs could facilitate predator movement along the ROW and increase predation risk for grouse nesting or foraging on or near the ROW. Maintenance of the ROW and the three new permanent access roads in Montana and on new permanent access road in South Dakota may also encourage recreational use of the ROW. Recreational use (motorized vehicles, wildlife viewing, etc.) of the area during the breeding season could have an adverse effect on sage-grouse reproduction.

The three new permanent access roads in Montana and one new permanent access road in South Dakota would be constructed within 4 miles of at least 4 greater sage-grouse leks in Montana and South Dakota and one of the access roads would occur within 2 miles of at least 1 greater sage-grouse lek in Montana. The six new pump stations in Montana would be constructed within 1 mile of at least 0 greater sage-grouse leks and within 4 miles of at least 8 greater sage-grouse leks. Two new pump stations and one permanent access road would be constructed within the range of the greater sage-grouse in Harding County, South Dakota. Noise from the pump stations would attenuate to background levels within 0.5 miles from the pump stations and would not be expected to cause disturbance to sage-grouse leks because no leks were identified within 2 miles of the proposed pump station locations in Montana. Communication towers associated with the pump stations could lead to increased collision hazard and increased predation by raptors by providing vantage perches.

If construction and future activities and use were to disturb about 40 or more leks and associated nesting habitat near the ROW during the breeding season, local and regional populations of greater sage-grouse could decline. Limiting construction to periods outside the breeding season would protect nesting grouse and offspring. In addition, several agencies, including MFWP, identified mitigation measures to minimize the impact of the Project on greater sage-grouse. These measures are summarized below and are included in the MDEQ Environmental Specifications for the Project (see Attachment 1 to Appendix I), along with other mitigation measures.

- Conduct surveys of greater sage-grouse leks prior to construction using appropriate methods to detect leks within 4 miles of the edge of the construction ROW;
- Avoid construction within 4 miles of active greater sage-grouse leks from March 1 to June 15;

- Contact BLM, MFWP or SDGFP to determine what mitigation measures are needed for a lek found within the construction ROW;
- Implement reclamation measures (i.e., application of mulch or compaction of soil after broadcast seeding, and reduced seeded rates for non-native grasses and forbs) that favor the establishment of big sagebrush in disturbed areas where compatible with the surrounding land use and habitats;
- Prior to construction, conduct studies along the route to identify areas that support stands of big sagebrush and silver sagebrush and incorporate these data into reclamation activities to prioritize reestablishment of sagebrush communities;
- Monitor establishment of sagebrush on reclaimed areas annually for at least 4 years to ensure that sagebrush plants become established at densities similar to densities in adjacent sagebrush communities and implement additional seeding or plantings of sagebrush if necessary;
- Establish criteria to determine when reclamation of sagebrush communities has been successful based on reference communities that provide suitable habitat for greater sage-grouse with optimum sagebrush densities greater than 4,000 plants per hectare (as recommended in Pyke 2009);
- Use locally adapted sagebrush seed, collected within 100 miles of the areas to be reclaimed;
- Where facilities would permanently remove sagebrush communities, implement compensatory mitigation nearby to restore, enhance and preserve sagebrush communities for greater sage-grouse and other sagebrush-obligate species;
- Monitor densities of native forbs and perennial grasses on reclaimed areas and reseed with native forbs and grasses where densities are not comparable to adjacent communities;
- Restrict or appropriately manage livestock grazing of reclaimed areas until successful reclamation of sagebrush communities has been achieved as described above (i.e., at least 4 years of restrictions); and
- Implement measures to prevent colonization of reclaimed areas by noxious weeds and invasive annual grasses such as cheatgrass.

With incorporation of the Keystone CMR Plan and the mitigation measures described above, construction and operation of the Project would not likely affect greater sage-grouse courtship activities on leks and would likely result in a minor impact on nesting birds. However, construction would likely result in an incremental loss of big sagebrush habitat that is currently used for foraging and nesting by greater sage-grouse for 30 years or longer.

Connected Actions

The construction of electrical distribution lines to pump stations in Montana and South Dakota would incrementally increase the collision and predation hazards for foraging and nesting greater sage-grouse in the Project area. Construction of these distribution lines during the breeding season could also potentially disturb breeding, nesting, and brood-rearing birds. Keystone would not construct or operate these electrical distribution lines, but would inform electrical power providers of the candidate status of the greater sage-grouse and would encourage consultations with Montana and South Dakota regulatory agencies for the electrical infrastructure components constructed for the Project to prevent impacts to greater sage-grouse.

The proposed alternative corridors for the 230 kV transmission line in southern South Dakota are generally outside of the range of breeding greater sage-grouse (USFWS 2010) and construction of a

transmission line would be unlikely to affect the greater sage-grouse. Keystone would inform Basin Electric Power Cooperative (BEPC) and Western Area Power Administration (Western) of the candidate status of the greater sage-grouse and would encourage consultations with Montana and South Dakota regulatory agencies for the electrical infrastructure components constructed for the Project to prevent impacts to greater sage-grouse.

Interior Least Tern

The interior least tern was federally listed as endangered in 1985. Interior least tern is state-listed as endangered in South Dakota, Nebraska, Oklahoma, and Texas, and is a Montana species of concern. They are small seabirds that feed almost exclusively on small fish, crustaceans, and insects that they catch by skimming over the water surface or by hovering and diving from the air (Reel et al. 1989). The interior least tern is a subspecies of the least tern; the east coast subspecies is not threatened or endangered and the west coast subspecies is federally listed as endangered. The interior least tern is migratory; it winters in South America, then journeys north to central North American river systems to breed. It has also been known to winter along the coast of southeast Texas (TPWD 2009b). Nesting season for interior least tern is from April 15 through September 15.

Primary threats to the interior least tern are channelization of river systems and construction of dams that alter the rivers' natural flow regimes. This can cause water levels to remain high during the nesting season, eliminating nesting areas and forcing the birds to choose less ideal nest sites. Flood control has also caused nesting habitat to decline due to vegetation encroachment on river banks. River recreation has increased in recent decades, causing more disturbances to prime nesting habitats by boaters, fishers, campers, and ATVs. Excessive human disturbance has been shown to decrease nesting success and productivity and this remains a threat to the interior least tern population throughout its range (NGPC 1997, TPWD 2009b).

The proposed Project would cross several rivers at which suitable foraging and nesting habitat exists for the interior least tern. These areas include the Yellowstone River and the Missouri River below Fort Peck dam, in Montana; the Platte River, Loup River, and Niobrara River in Nebraska; the Cheyenne River in South Dakota; the Red River, Canadian River, and North Canadian River in Oklahoma; and the Red River in Texas. Results of occurrence and habitat surveys for the interior least tern at large river crossings are summarized in Table 3.8.1-3.

Steele City Segment

Montana. Nesting of these birds has been documented on islands and sand bars in the Missouri River and Yellowstone River. The Missouri River from Fort Peck Dam to Lake Sakakawea lies within the northwestern fringes of the least tern's breeding range. Tern populations on that reach fluctuate with habitat conditions as they do elsewhere in their range. Numbers peaked in 1997 when other habitat along the Missouri River was inundated (USFWS 2000). High flows can scour vegetation from sandbars and can also deposit material to create sandbars, both of which create least tern habitat on the Missouri River. Construction of Fort Peck Dam has altered these conditions by reducing the frequency of flooding downriver and minimizing sediment deposition. According to the USFWS Billings Ecological Services Field Office and the Montana Department of Fish, Wildlife and Parks (MFWP) the Yellowstone River crossing in Dawson County, Montana has historically supported, or currently supports, breeding populations of the interior least tern (Keystone 2008; Keystone 2009a).

South Dakota. During a meeting with Keystone representatives on June 10, 2008, South Dakota Game Fish and Parks (SDGFP) indicated that the Cheyenne River crossing on the border of Meade, Pennington, and Haakon counties has historically supported, or currently supports, breeding populations of the interior

least tern (Keystone 2008). No interior least terns were observed at the Platte, Loup, or Niobrara rivers in Nebraska or the Cheyenne River in South Dakota,

Nebraska. According to the USFWS Grand Island Ecological Services Field Office, the distribution of the interior least tern within the Project area in Nebraska includes the Platte, Loup, and Niobrara Rivers (Keystone 2008). The Project would cross the Platte River at the border between Merrick and Hamilton counties and sandbars and sand/gravel pits associated with this segment of the river are known to still support breeding least terns. The Loup River in Nance County and the Niobrara River on the border of Keya Paha and Rock counties contain sandbars and also continue to support breeding least terns.

Gulf Coast Segment and Houston Lateral

Oklahoma. The interior least tern is known to use reaches of the North Canadian River, South Canadian River, and Red River in Oklahoma (USFWS 2007a). The Project would cross the North Canadian River in Seminole County, the South Canadian River in Hughes County, and the Red River in Bryan County. A review of data from the Oklahoma Natural Heritage Inventory (ONHI) found that the only tracked occurrence of the least tern within 10 miles of the Project area in Oklahoma was along the South Canadian River. The closest recorded occurrence was 0.5 mile to the east of the Project area. No least terns were observed at the North Canadian or South Canadian rivers in Oklahoma; however, foraging interior least terns were observed at the Red River on the Oklahoma and Texas border.

Texas. The interior least tern is known to use reaches of the Red River in Texas and foraging least terns were documented at the Project crossing of the Red River on the Texas and Oklahoma border during July, 2009 (Table 3.8.1-2). The Project would cross the Red River in Fannin County. The interior least tern also occurs in Delta, Hopkins, and Wood counties, which are crossed by the Project; although there are few known occurrences and all of the records are outside of the Project area. In Delta and Hopkins counties, the least tern is known to nest along Cooper Lake, about 7 miles west of the Project. In Wood County, a foraging least tern was sighted at Lake Fork, about 18 miles west of the Project (Keystone 2009b).

TABLE 3.8.1-3
Survey Results for the Interior Least Tern at Potentially Occupied River Crossings along the Project Route

State	County	Survey Location	Survey Corridor	Survey Date	Survey Results	Comments
STEELE CITY SEGMENT						
Montana	Dawson	Yellowstone River	At crossing	2008	Incomplete	Suitable habitat present at crossing location.
South Dakota	Meade/ Pennington/ Haakon	Cheyenne River	0.25 mile each side of centerline	July 23, 2008	No least terns observed.	Good bank and poor island nesting habitat, suitable foraging habitat at crossing location.
Nebraska	Keya Paha/Rock	Niobrara River	0.25 mile each side of centerline	July 22, 2008	No least terns observed.	Good bank and island nesting habitat, suitable foraging habitat at crossing location.
Nebraska	Nance	Loupe River	0.25 mile each side of centerline	July 21, 2008	No least terns observed.	Suitable nesting and foraging habitat at crossing location.
Nebraska	Merrick/ Hamilton	Platte River	0.25 mile each side of centerline	July 22, 2008	No least terns observed.	Good nesting and foraging habitat at crossing location.
GULF COAST SEGMENT						
Oklahoma	Seminole	North Canadian River	0.25 mile each side of centerline	June 24, 2009	No least terns observed.	Suitable nesting and foraging habitat at crossing location.
Oklahoma	Hughes	South Canadian River	0.25 mile each side of centerline	June 23, 2009	No least terns observed.	Suitable nesting and foraging habitat at crossing location.
Oklahoma/Texas	Bryan/Fannin	Red River	0.25 mile each side of centerline	June 25, 2009	Foraging least terns observed.	Suitable nesting and foraging habitat at crossing location.

Sources: ENSR 2008a, AECOM 2009.

Potential Impacts and Conservation Measures

Potential impacts from construction and operation of the Project could include disturbance to interior least tern habitat. The rivers listed above that are associated with interior least tern habitat would all be crossed using the HDD method to reduce disturbance to nesting and foraging habitats. However, Project construction near these rivers could potentially cause temporary impacts to breeding and nesting interior least terns. Nest abandonment or predation could occur if construction is scheduled during the breeding season (April 15 through August 15). The USFWS recommends the use of 300 foot buffers from bank full width on each side of the North Canadian, South Canadian, and Red rivers in Oklahoma and Texas to minimize impacts to nesting birds. Construction is expected to be complete prior to active nesting. Limited clearing of vegetation and limited human access would be required within the riparian areas of these rivers for the True Tracker Wire (3 foot hand cleared path) used during HDD drilling and to access these rivers to withdraw water for hydrostatic testing.

Indirect impacts could also result from the withdrawal of water for hydrostatic testing from the Platte River basin. Forage fish supplies could be reduced and predators may be afforded easier access to nest sites. Impacts to the interior least tern from temporary water reductions during hydrostatic testing in the lower Platte River Basin would be avoided, based on Keystone's plan to withdraw the volume needed at a rate less than 10 percent of the baseline daily flow and to return water to its source within a 30-day period. The one time water use for hydrostatic testing, the low volume of water used (compared to daily flows in the river basin), and the return of water to its source would not impact least tern nesting or foraging habitats.

The following USFWS conservation measures would apply if construction-related activities, including HDD and hydrostatic testing, were to occur during the interior least tern breeding season:

- For the Steele City Segment, if construction occurs after April 15, pre-construction surveys would occur no more than 2 weeks prior to construction within 0.25 mile from suitable breeding habitat at the Platte, Loup, and Niobrara rivers in Nebraska; the Cheyenne River in South Dakota; or the Yellowstone River in Montana.
- For the Gulf Coast Segment, if construction occurs after April 15, -construction surveys would occur no more than 2 weeks prior to construction within 0.25 mile from suitable breeding habitat at the North Canadian River and South Canadian River in Oklahoma and the Red River at the Oklahoma/Texas border.
- Construction would not be permitted within 0.25 mile from an occupied nest site during the breeding season (April 15 though August 15) or until the fledglings have left the nesting area.

The Project may affect, but is not likely to adversely affect interior least terns based on Keystone's plan to HDD the Missouri River, Yellowstone River, Cheyenne River, Niobrara River, Platte River, Loup River, North Canadian River, South Canadian River, and Red River crossings, and Keystone's commitment to follow recommended conservation measures identified by the USFWS.

Connected Actions

The construction of electrical distribution lines across the Missouri River and the Yellowstone River in Montana, and the Platte River in Nebraska would incrementally increase the collision and predation hazards for foraging and nesting interior least terns in the Project area. Construction of these distribution lines during the breeding season could also potentially disturb nesting and brood-rearing birds. Keystone would not construct or operate these electrical distribution lines, but would inform electrical power

providers of the requirements for ESA consultations with the USFWS for the electrical infrastructure components constructed for the Project to prevent impacts to foraging least terns.

Construction of the proposed 230-kV transmission line in southern South Dakota during the breeding season could also potentially disturb nesting and brood-rearing birds. Operation of the line would increase the collision and predation hazards for foraging and nesting interior least terns in the Project area. Keystone would inform Basin Electric Power Cooperative (BEPC) and Western Area Power Administration (Western) of the requirements for ESA consultations with the USFWS for the electrical infrastructure components constructed for the Project to prevent impacts to foraging least terns.

Piping Plover

The piping plover is federally listed as threatened and is listed as a state-threatened species in South Dakota, Nebraska, and Kansas. Piping plover is a species of concern in Montana. The final rule designating critical habitat for the Northern Great Plains breeding population of the piping plover (67 FR 57638) in Minnesota, Montana, Nebraska, North Dakota, and South Dakota has been vacated by the USFWS resulting in no currently designated critical habitat in areas crossed by the Project in Montana, South Dakota or Nebraska. Critical habitat for wintering piping plovers has been designated on the barrier islands outside of Galveston Bay, Texas (74 FR 23475), which is outside of the Project area.

The piping plover is a small shorebird that occupies sand and gravel bars and beaches along major rivers and around lakes, reservoirs, ponds, and alkali wetlands, and forages on invertebrates (Reel et al. 1989). The piping plover forages for invertebrates on exposed beach substrates and nests on unvegetated or sparsely vegetated sandbars in river channels and wetlands. Females nest in small depressions scraped in sand and gravel during March and April. Nesting season for the piping plover is from April 15 through September 15. Nests are constructed on the higher parts of sandy shores away from the water line and vegetation. There are an estimated 2,953 piping plovers in the Great Plains region (Morrison et al. 2006). The primary threats to the piping plover are habitat modification and destruction, and human disturbance to nesting adults and flightless chicks. Damming and channelization of rivers have also eliminated sandbar nesting habitat.

Nesting surveys for piping plovers were conducted in July 2008 at the Cheyenne, Niobrara, Loup, and Platte rivers (Table 3.8.1-4). In addition, the Yellowstone River also appears to contain suitable nesting habitat but access to the crossing was not possible at the time of surveys due to high water levels.

Montana. Piping plovers are known to breed at Fort Peck Reservoir (Valley County) outside of the Project area. Additional consultation with the USFWS Billings Ecological Services Field Office (Keystone 2009c) indicates that historical surveys have failed to identify nesting piping plovers within the Project area and additional surveys were not recommended in Montana.

South Dakota. Breeding piping plovers have not been identified within the Project area in South Dakota. Surveys for the least tern along the Cheyenne River in South Dakota indicate that suitable nesting habitat for the piping plover occurs on an island in the Cheyenne River at the proposed crossing location. No nesting piping plovers were observed at this location (Keystone 2009c).

Nebraska. Birds breeding in Nebraska are found on sandbars and at commercial sand pits along the Niobrara, Loup, and Platte rivers. The Project crossing locations for these three rivers had been identified as critical habitat for the piping plover; however this designation was later vacated and there is currently no designated critical habitat for the piping plover in Nebraska (Keystone 2008, 2009c). No nesting piping plover were identified at the proposed crossings of the Platte and Loup rivers in Nebraska. One

foraging piping plover was identified at the Niobrara River crossing location, but this individual did not exhibit any breeding behaviors (Keystone 2009c).

Oklahoma. Piping plovers may be present throughout the Project area in Oklahoma during migrations to and from northern breeding grounds. Migration periods for the piping plover in Oklahoma during spring migration are late February through mid-May and during fall migration are mid-July through September (USFWS 2001b). The USFWS Tulsa Ecological Services Field Office recommended the identification of suitable migration stopover habitats for piping plovers that would potentially be crossed by the Project. Suitable migration stopover habitats include sandy shorelines of lakes and rivers (Campbell 2003). Review of the Gulf Coast Segment in Oklahoma identified suitable migration habitats at crossings of the North Canadian River and the South Canadian River in Oklahoma; and the Red River at the Oklahoma and Texas border.

Texas. Piping plovers may be present throughout the Project area in Texas during migrations to and from northern breeding grounds during spring migrations in late February through mid-May and during fall migrations in mid-July through September (USFWS 2001b). Review of the Gulf Coast Segment in Texas identified suitable migration stopover habitats at crossings of the Red River at the Texas and Oklahoma border; Bois D'Arc Creek, North Sulphur River and Neches River. Review of the Houston Lateral in Texas identified suitable migration stopover habitats at crossings of the Trinity River and San Jacinto River. Critical winter habitat for the piping plover has been designated in Texas; however, no critical habitat would be crossed by the Project in Texas.

TABLE 3.8.1-4
Survey Results for the Piping Plover at Potentially Occupied River Crossings along the Project Route

State	County	Survey Location	Survey Results	Survey Date	Survey Location	Comments
STEELE CITY SEGMENT						
South Dakota	Meade/ Pennington	Cheyenne River	No piping plovers observed	July 23, 2008	North Bank	Poor habitat; vegetation to bank edge
					Island	Good habitat; sand, gravel, rocks, sparse vegetation
Nebraska	Keya Paha/ Rock	Niobrara River	Foraging piping plover observed	July 22, 2008	South Bank	Good habitat; sandy shoreline with patches of sparse vegetation
					Island	Excellent habitat; sandbar with sparse vegetation
					North Bank	Poor habitat; vegetation to bank edge
Nebraska	Nance	Loupe River	No piping plovers observed	July 21, 2008	North Bank	Poor habitat; vegetation to bank edge
					Island	Excellent habitat; mudflats with sparse vegetation
Nebraska	Merrick/ Hamilton	Platte River	No piping plovers observed	July 22, 2008	North Bank	Good habitat; sandy beach with sparse vegetation
					Island	Poor habitat; dense vegetation
					South Bank	Poor habitat; vegetation to bank edge

Source: ENSR 2008a

Potential Impacts and Conservation Measures

No direct impacts to piping plover breeding habitats would occur in Montana, South Dakota and Nebraska at the Yellowstone, Cheyenne, Niobrara, Loup, or Platte rivers because pipeline construction across these rivers would be completed using the HDD method. Construction is expected to be complete prior to the time of year when nests would potentially be active. Limited clearing of vegetation and limited human access would be required within the riparian areas of these rivers for the True Tracker Wire (3 foot hand cleared path) used during HDD drilling and to access these rivers to withdraw water for hydrostatic testing.

Indirect impacts at breeding habitats could result from increased noise and human presence at work site locations if breeding piping plovers are located within 0.25 mile of the Project construction site. If construction-related activities were to occur during the breeding season, including HDD and hydrostatic testing that would occur within 0.25 mile from potential breeding habitat, Keystone would conduct presence/absence surveys up to 2 weeks prior to construction-related activities to identify active nest sites, in coordination with the USFWS. If occupied breeding territories and/or active nest sites are identified, the USFWS would be notified and appropriate protection measures would be implemented on a site-specific basis in coordination with the USFWS.

Indirect impacts to piping plovers from temporary water reductions during hydrostatic testing in the lower Platte River Basin would be negligible, based on Keystone's plan to return water to its source within a 30-day period and to withdraw water at a rate less than 10 percent of the baseline daily flow.

Keystone has developed conservation measures in consultation with the USFWS that would apply if construction-related activities, including HDD and hydrostatic testing, were to occur during the piping plover breeding season on the Steele City Segment. The following conservation measures would apply if construction-related activities, including HDD and hydrostatic testing, were to occur during the piping plover breeding season within suitable habitat:

- If construction were to occur during the plover breeding season (April 15 through August 15), Keystone would conduct pre-construction surveys within 0.25 mile from suitable breeding habitat at the Niobrara, Loup, and Platte rivers in Nebraska, no more than 2 weeks prior to construction.
- If occupied piping plover nests are found, then construction within 0.25 mile of the nest would be suspended until the fledglings have left the nest area.

No direct impacts to migrating piping plovers are anticipated from the construction and operation of the Project in Oklahoma and Texas. Impacts to potentially suitable resting and foraging habitat that occurs within the Project area in Oklahoma and Texas would be avoided by using the HDD method to cross the Red River; Bois D'Arc Creek, North Sulphur River, Neches River, Trinity River and San Jacinto River. Indirect impacts could result from migrating individuals being flushed from the Project area during construction-related activities. Since piping plovers are highly mobile, it is anticipated that individuals would move to other suitable resting and foraging habitats within the Project region. Based on the linear nature of the Project and the mobility of migrating individuals, potential impacts from encountering and flushing a migrating piping plover from the Project area would be negligible. Habitat loss from construction would be negligible since the major river crossings would be crossed using the HDD method.

Keystone has developed conservation measures in consultation with the USFWS that would apply if construction-related activities, including HDD and hydrostatic testing, were to occur during the piping plover breeding season on the Gulf Coast Segment and Houston Lateral. The following conservation

measures, based on agency consultation would apply if construction-related activities, including HDD and hydrostatic tests, were to occur during the migration periods of the piping plover:

- The USFWS has recommended that if this species lands in close proximity to the construction ROW during construction, its presence would be documented.

The Project may affect, but is not likely to adversely affect the piping plover. This determination is based on Keystone's construction plan to use the HDD method to cross rivers with suitable breeding habitat, consultation with the USFWS, and Keystone's commitment to follow conservation measures recommended by the USFWS.

Connected Actions

The construction of electrical distribution lines across the Yellowstone River in Montana and the Platte River in Nebraska would incrementally increase the collision and predation hazards for foraging and nesting piping plovers in the Project area. Construction of these distribution lines during the breeding season could also potentially disturb nesting and brood-rearing birds. Keystone would not construct or operate these electrical distribution lines, but would inform electrical power providers of the requirements for ESA consultations with the USFWS for the electrical infrastructure components constructed for the Project to prevent impacts to nesting and foraging piping plovers.

Red-cockaded Woodpecker

The red-cockaded woodpecker is federally listed as endangered and is state-listed as endangered in Texas. Red-cockaded woodpeckers prefer old-growth (60 to 70+ years) forest/savanna habitat with loblolly, shortleaf, slash, or longleaf pines. Longleaf pine savannas are most suitable because of their resistance to fire; because the trees generally are not killed by fire, shorter fire regimes create a more open forest which is highly preferred by this species (USFWS 2002a). Nesting and roosting cavities are excavated only in living mature pine trees, usually in trees over 80 years old. Red-cockaded woodpeckers nest and roost in clusters of trees containing and surrounding excavated cavity trees, ideally with a grassy or herbaceous understory with little mid-story (Campbell 2003). Ideal cluster sites are located in stands of pines with little or no understory growth as a result of sporadic fires. Longleaf pines are the preferred nesting trees, as they produce more resin when wounded than other pine species. Excavation of the nest cavity produces resin that the red-cockaded woodpecker uses to protect the nest cavity from predators (such as tree-climbing snakes). The red-cockaded woodpecker accomplishes this protection by drilling small holes around the nest cavity so that resin flows down the trunk of the tree (USFWS 2002a). Red-cockaded woodpeckers are primarily insectivores, feeding on the eggs, larvae, and adult forms of many insects found on pine trees, although they also eat fruits and berries (USFWS 2002a).

Primary threats to red-cockaded woodpeckers include habitat loss and fragmentation. Timber harvesting of pine forests for various industries has resulted in a loss of mature pine forest habitat required by the birds for food, shelter, and breeding. Commercial forestry in Texas has focused on fiber production, and commercial forests are managed on a short rotation such that trees are too small for nest cavity excavation (TPWD 2006). Fire suppression over the past decades has allowed forests to replace open savanna with dense tree canopies and dense herbaceous ground cover that is not preferred for nesting or foraging (USFWS 2002a).

In 2002, there were 342 known active red-cockaded woodpecker clusters distributed within 15 counties of the Pineywoods Region of eastern Texas (Campbell 2003). The USFWS reviewed maps of the Project route in eastern Texas and confirmed that there are no known red-cockaded woodpecker clusters or

potential suitable habitat within the proposed Project area. Aerial surveys conducted in 2008 and 2009 identified no areas of suitable red-cockaded woodpecker habitat along the Project corridor.

Potential Impacts and Conservation Measures

The Project would have no effect on the red-cockaded woodpecker. This determination is based on USFWS confirmation that no known active red-cockaded woodpecker clusters occur near the Project, and USFWS and aerial confirmation that no suitable habitat for this species would be crossed by the Project.

Whooping Crane

The whooping crane was federally listed as endangered in 1970, is state listed as endangered by South Dakota, Nebraska, Kansas, Oklahoma, and Texas, and is state listed as a species of concern by Montana. Critical habitat was designated in 1978 (43 FR 20938-942) and includes wintering grounds in the Aransas National Wildlife Refuge in Texas and migration routes through Nebraska, Kansas, and Oklahoma. An International Recovery Plan exists for North America (USFWS 2007b). The Rainwater Basin in south Central Nebraska provides migration habitat. The whooping crane breeds, migrates, winters, and forages in a variety of habitats, including coastal marshes and estuaries, inland marshes, lakes, ponds, wet meadows and rivers, and agricultural fields. Whooping cranes use numerous habitats such as cropland and pastures; wet meadows; shallow marshes; shallow portions of rivers, lakes, reservoirs, and stock ponds; and both freshwater and alkaline basins for feeding and resting during their spring and fall migration. Overnight roosting sites frequently require shallow water in which they stand and rest. Shallow, sparsely vegetated streams and wetlands are required for feeding and roosting during migration. Primary threats to the whooping crane are habitat loss and alteration. Habitat alteration through water diversion is a major threat along the Platte River and other large riverine migration stopover habitats.

The north-south migration corridor through South Dakota, Nebraska, Kansas, and Oklahoma, would be crossed by the Project. The Project in Montana is west of the whooping crane primary migration pathway. The spring migration from about March 23 through May 10 and fall migration from about September 16 through November 16 are usually completed within about 2 to 4 weeks. However, migration timing throughout the states crossed by the Project varies with latitude during the general migration period. Migrating whooping cranes could roost or feed within the Project area.

The majority of the Project route in South Dakota and Nebraska is located within the central Great Plains migration pathway (CWS and USFWS 2007). The Project in Oklahoma and Texas is generally east of the central Great Plains migration pathway (CWS and USFWS 2007). However, individual birds can be found outside the primary movement corridor and could possibly occur within the Project area during spring and fall migration. Habitats potentially used by whooping cranes during migration would include major rivers and their associated wetlands crossed by the Project.

Potential Impacts and Conservation Measures

Temporary displacement of migrating whooping cranes from construction noise could occur if construction occurred near migratory stopover habitats. The use of the HDD method at major river crossings would prevent potential roosting and foraging habitat loss. In other areas along the corridor, revegetation, particularly within riparian zones, would reduce habitat impacts..

Temporary water withdrawals to support hydrostatic testing are not expected to result in impacts to the whooping crane based on Keystone's plan to return water to its source within a 30-day period and to withdraw the volume needed at a rate less than 10 percent of the baseline daily flow.

The USFWS has recommended that if a whooping crane lands in close proximity to the ROW during construction, its presence should be documented and appropriate mitigation measures implemented to prevent direct impacts.

The Project may affect, but is not likely to adversely affect whooping cranes. This determination is based on the rarity of the species, its status as a migrant through the Project area, and Keystone's commitment to follow recommended USFWS conservation measures.

Connected Actions

Electrical distribution lines associated with the Project are collision hazards to migrant whooping cranes. The construction of new electrical distribution lines, especially those across riverine roosting habitats (Yellowstone River in Montana, the Missouri River in South Dakota, and Platte River in Nebraska) or between roosting habitat and nearby foraging habitat (including wetlands and grain fields), would incrementally increase the collision hazard for migrating whooping cranes because a portion the Project area is located within the primary migration corridor for this species. The Platte River electrical distribution line crossing is within the primary migration corridor for whooping cranes, and the Yellowstone and Missouri River electrical distribution line crossings are on the western edge. An analysis of suitable migration stop-over habitat (e.g., large waterbodies, wetlands, and associated agricultural fields) during migration in relation to preliminary electrical distribution line routes identified 74 locations within the primary migration corridor for 19 pump stations where electrical distribution lines could potentially increase collision hazards for migrating whooping cranes. There is no indication, however, that any of these locations have been used by whooping cranes. Keystone would inform electrical power providers of the requirements for ESA consultations with the USFWS for the electrical infrastructure components constructed for the Project to prevent impacts to the whooping crane.

Operation of the proposed 230-kV transmission line in southern South Dakota may increase the collision hazards for migrating whooping cranes in the Project area. Keystone would inform BEPC and Western of the requirements for ESA consultations with the USFWS for the electrical infrastructure components constructed for the Project to prevent impacts to whooping cranes.

Yellow-billed Cuckoo

The yellow-billed cuckoo western U.S. Distinct Population Segment (DPS) is a candidate for federal listing and the yellow-billed cuckoo is a BLM Sensitive species. The western DPS occurs west of the crest of the Rocky Mountains in Montana, Wyoming, and northern and central Colorado; and west of the Pecos River drainage in Texas and does not occur within the Project area. Yellow-billed cuckoos that occur within the Project area are considered to belong to the eastern DPS which is not a candidate for federal listing. Further discussions of the yellow-billed cuckoo are presented in Section 3.8.2 and 3.8.4.

3.8.1.3 Federally-Protected Amphibian

Preliminary evaluations identified one federally protected amphibian that could potentially occur within the Project area (Table 3.8.1-1).

Houston Toad

The Houston toad is federally listed and state-listed in Texas as endangered. It occurs primarily in Bastrop County, Texas and in limited numbers in eight other Texas counties; Austin, Burleson, Colorado, Lavaca, Lee, Leon, Milam, and Robertson. The primary threats to the Houston toad are habitat loss and

degradation, especially conversion of ephemeral wetlands to uplands or perennial waterbodies. Ephemeral wetland conversion to uplands eliminates water needed for breeding; while conversion to perennial waterbodies increases predation on eggs, tadpoles and toadlets and competition with invasive aquatic animals. Drought, habitat fragmentation due to infrastructure, fire suppression, and the invasion of the red imported fire ant (*Solenopsis invicta*) are also threats to the Houston toad (TPWD 2008b).

Houston toads are primarily terrestrial and inhabit areas with deep sandy soils. They are poor burrowers and require loose soils for burrowing and protection against cold conditions in winter and hot, dry conditions in summer. Slow-flowing waterbodies persisting for 30 days or more are required for breeding and development of tadpoles. Suitable breeding habitats may include ephemeral ponds, flooded fields, wet areas associated with springs or seeps, or shallow permanent ponds (TPWD 2008b). The Houston toad generally breeds in February and March, but males can be heard calling from December through June. The toads can only breed when temperature and moisture conditions are suitable. Eggs are laid in the water and hatch within seven days; tadpoles metamorphose in 15 to 100 days; and toadlets leave the water and become terrestrial to feed and winter. First-year toadlets and juvenile Houston toads are generally active year round. Adult toads can also be active year round if the temperature and moisture conditions are favorable (TPWD 2008b).

The distribution of the Houston toad is outside of the Project area; none of the counties where the toad has been recorded would be crossed by the proposed Project. The county closest to the proposed Project is Austin County, but the county line is about 10 miles from the proposed Project area.

Potential Impacts and Conservation Measures

The Houston toad is not known or expected to occur near the Project area; therefore, the proposed Project would have no effect on the Houston toad.

3.8.1.4 Federally-Protected and Candidate Reptiles

Preliminary evaluations identified six federally protected and candidate reptiles that could potentially occur within the Project area (Table 3.8.1-1).

Green Sea Turtle

The green sea turtle is federally listed and state-listed in Texas as threatened. This species nests in tropical and subtropical waters worldwide and inhabits shallow waters inside reefs, bays, and inlets, except during migration. Within the southeastern U.S., green turtles generally nest between June and September. Hatchlings eat a variety of plants and animals and forage in areas such as coral reefs, emergent rocky bottoms, Sargassum mats, lagoons, and bays. The adults feed on marine algae and sea grasses including: *Cymodocea* spp., *Thalassia* spp., and *Zostera* spp. Feeding grounds in the Gulf of Mexico include inshore south Texas waters, the upper west coast of Florida, and the northwestern coast of the Yucatan Peninsula in Mexico. Green sea turtles prefer to nest on high energy beaches with deep sand and little organic content. Primary threats to the green turtle include incidental capture in fishing gear and, in some areas of the world, harvesting of eggs and adults for human consumption (USFWS 2002b).

Green sea turtles are primarily pelagic but may rarely venture into brackish waters, such as Sabine Lake which is east of the end of the Gulf Coast Segment.

Potential Impacts and Conservation Measures

Marine and estuarine habitats are not crossed by the Project; therefore the Project would have no effect on green sea turtles.

Hawksbill Sea Turtle

The hawksbill sea turtle is federally listed and state-listed in Texas as endangered. It occurs primarily in coastal waters and seldom ventures to waters deeper than 65 feet. It inhabits rocky areas, coral reefs, lagoons, oceanic islands, shallow coastal areas, and narrow creeks and passes and is found in tropical and subtropical waters in the Atlantic, Pacific, and Indian Oceans. Nesting generally occurs between April and November on undisturbed deep-sand beaches. Nesting beaches are normally low-energy with woody vegetation near the waterline (USFWS 2002c).

Hawksbill sea turtles are the least common sea turtle in the Gulf of Mexico (MMS 2002), although they have been recorded in waters all along the coast of the Gulf of Mexico (USFWS 2002c). Adults usually forage around coral reefs and other hard bottom habitats and primarily eat sponges. They also forage on jellyfish, crustaceans, sea urchins, and mollusks (TPWD 2009d). This diet and their dependence on hard bottom communities make the species especially vulnerable to deteriorating conditions on coral reefs.

The hawksbill sea turtle is primarily pelagic and seldom ventures into brackish waters, such as Sabine Lake, east of the Gulf Coast Segment.

Potential Impacts and Conservation Measures

Marine and estuarine habitats are not crossed by the Project; therefore the Project would have no effect on hawksbill sea turtles.

Kemp's Ridley Sea Turtle

The Kemp's ridley sea turtle is federally listed and state-listed in Texas as endangered. It is the smallest of all the marine sea turtles and the most endangered. It occurs mainly in the coastal areas of the Gulf of Mexico and northwestern Atlantic Ocean. Nesting occurs mainly in Mexico from May to July, but Kemp's ridley sea turtles also nest in small numbers along the Gulf Coast. Juveniles and sub-adults occupy shallow coastal regions and are commonly associated with crab-laden, sandy or muddy water bottoms. Young turtles often float on mats of Sargassum. Kemp's ridley sea turtles feed mostly on swimming crabs, but their diet also includes fish, jellyfish, and mollusks. Between the eastern Gulf Coast of Texas and the Mississippi River delta, Kemp's ridley sea turtles can be found in nearshore waters, ocean sides of jetties, small boat passageways through jetties, and dredged and non-dredged channels (NOAA 2009a, TPWD 2009e). They have been observed within Sabine Lake in the past and most likely these sightings were post-pelagic sub-adults or juveniles (Metz 2004). Major threats to this species include over-exploitation of their nesting beaches, collection of eggs, drowning in fishing nets, and pollution that results in ingestion of floating trash (NOAA 2009a, TPWD 2009e).

The Kemp's ridley sea turtle is primarily pelagic and does not occur within the Project area. Sub-adults and juveniles would use nearshore waters as a nursery, especially where Sargassum mats are found. Individuals have been uncommonly observed in Sabine Lake.

Potential Impacts and Conservation Measures

Marine and estuarine habitats are not crossed by the Project, therefore the Project would have no effect on Kemp's ridley sea turtles.

Leatherback Sea Turtle

The leatherback sea turtle is federally listed and state-listed in Texas as endangered. It is primarily a pelagic species, although it occasionally forages in coastal waters, and is distributed in temperate and tropical waters worldwide. It is the largest, deepest-diving, and widest-ranging sea turtle. Leatherbacks undergo extensive migrations from feeding grounds to nesting beaches. Although southeast Florida only supports minor nesting colonies, the area represents the most significant nesting group within the continental United States, with the nesting period extending through the fall and winter. Rarely are leatherbacks seen along the Gulf Coast of Texas. Leatherback sea turtles feed primarily on jellyfish and other soft-bodied pelagic prey, but also feed on sea urchins, squid, crustaceans, tunicates, fish, blue-green algae, and floating seaweed. Significant threats to the species include disturbance of their nesting grounds, incidental capture in fishing gear, pollution that results in ingestion of floating trash, and harvest of adults and eggs (NOAA 2009b, TPWD 2009f).

The leatherback sea turtle is primarily pelagic and seldom ventures into brackish waters, such as Sabine Lake, east of the Gulf Coast Segment.

Potential Impacts and Conservation Measures

Marine and estuarine habitats are not crossed by the Project; therefore the Project would have no effect on leatherback sea turtles.

Loggerhead Sea Turtle

The loggerhead sea turtle is federally listed and state-listed in Texas as threatened. It is the most abundant sea turtle in the Gulf of Mexico and inhabits temperate and tropical waters in the estuaries and continental shelves of both hemispheres. In the southeastern U.S., females nest from late April through early September. Nesting occurs primarily on barrier islands adjacent to mainlands in warm-temperate and sub-tropical waters. Nest sites are typically located on open, sandy beaches above the mean high tide line and seaward of well-developed dunes. Adults occupy a variety of habitats, ranging from turbid bays to clear reef waters, whereas sub-adults occur mainly in nearshore and estuarine waters. Hatchlings move directly to sea after hatching and often float in mats of Sargassum. Loggerheads can be found throughout the Gulf of Mexico, but only occasionally venture to the Texas Gulf Coast near the Project area. The loggerhead diet consists of a wide variety of benthic and pelagic food items, including conches, shellfish, horseshoe crabs, prawns and other crustaceans, squid, sponges, jellyfish, basket stars, fish, and hatchling loggerheads. The most significant threats to the loggerhead populations are commercial harvesting, incidental capture in fishing and shrimping nets, coastal development, and pollution that results in ingestion of floating trash (NOAA 2009c, TPWD 2009g).

The loggerhead sea turtle is primarily pelagic, but also frequents nearshore waters. Loggerhead turtles are the most common sea turtle in the Gulf of Mexico, but do not often venture to the Texas Gulf Coast.

Potential Impacts and Conservation Measures

Marine and estuarine habitats are not crossed by the Project, therefore the Project would have no effect on loggerhead sea turtles.

Louisiana Pine Snake

The Louisiana pine snake is a federal candidate for listing and is state-listed in Texas as threatened. Recent studies on the status of the Louisiana pine snake in Texas indicate that populations are extremely small and isolated, occurring mostly in Angelina, Newton, Jasper, and Sabine counties, with single specimens being recorded in Montgomery and Tyler Counties in the 1990s. Louisiana pine snakes are terrestrial reptiles that inhabit fire-maintained pine-oak sandhills interspersed with moist bottomlands (Werler and Dixon 2000). They are accomplished burrowers, which aids in capturing their preferred prey, pocket gophers (*Geomys* spp.). They also use the pocket gopher burrow systems for hibernacula and subsurface retreats from threats such as predators and fire. Breeding habits of the Louisiana pine snake are not well known, and no field observations of natural breeding activities have been recorded. The primary threats to the Louisiana pine snake are habitat loss and degradation and suppression of the natural fire regime. Louisiana pine snakes are closely associated with a well-developed herbaceous ground cover, and with pocket gophers that are dependent on herbaceous vegetation (Rudolph et al. 2002). The absence of fire allows a thick layer of duff to form, which suppresses herbaceous ground cover and affects pocket gopher populations. Silvicultural practices, pesticide use, and vehicular traffic are other existing threats to the Louisiana pine snake (Werler and Dixon 2000).

The proposed Project route would cross Angelina County, where Louisiana pine snakes have been recorded, although all records are clustered within the eastern part of the county outside of the Project area.

Potential Impacts and Conservation Measures

Indirect effects on the Louisiana pine snake could include decreases in pocket gopher populations through habitat fragmentation or through construction-related direct mortality. However, restoration and seeding practices would be implemented to restore the ROW to pre-construction conditions as far as possible. Therefore, much of the pocket gopher habitat could recover within 1 to 3 years which could potentially support the Louisiana pine snake.

3.8.1.5 Federally-Protected and Candidate Fish

Preliminary evaluations identified four federally protected and candidate fish that could potentially occur within the Project area (Table 3.8.1-1).

Arkansas River Shiner

The Arkansas River shiner was federally listed as endangered in 1998 (USFWS 1998a; Federal Register 63 FR 64771 64799) and critical habitat was designated in 2001 (USFWS 2001a; 66 FR 18001 18034). In early 2009, the USFWS included the Arkansas River shiner in a 5-year status review (Federal Register 74 FR 6917 6919). Arkansas River shiners are present in Oklahoma in the Canadian River and potentially in North Canadian River (Pigg 1991). The species is known to occur in 7 of the 8 counties through Oklahoma. Historically, the Arkansas River shiner was found throughout the western portion of the Arkansas River basin in Kansas, New Mexico, Oklahoma, and Texas. Losing over 80 percent of its historical habitat, it is currently found in the Canadian River in Oklahoma, Texas, and New Mexico and potentially is present in the Cimarron River in Oklahoma. With current abundance and distributions, the species is considered stable (Warren et al. 2000). Preferred habitats are turbid waters of broad, shallow, unshaded channels of creeks and small to large rivers, over mostly silt and shifting sand bottoms (Gilbert 1980a). These fish tend to congregate on the downstream side of large transverse sand ridges. Juvenile Arkansas River shiners associate most strongly with current, conductivity (total dissolved solids), and

backwater and island habitat types (Polivka 1999). Diet consists mainly of plankton and organisms that are exposed by moving sand or by drifting downstream (Moore 1944). Spawning occurs from June to July in main stream channels but spawning may also occur into August.

The Project would cross the North and South Canadian rivers. The Arkansas River shiner is known to occur in the South Canadian River and potentially occurs in the North Canadian River. The Project also crosses designated critical habitat in the South Canadian River. Surveys for the Arkansas River shiner were not recommended in Oklahoma within the South Canadian and North Canadian rivers since the presence of this species at these crossings is assumed.

Potential Impacts and Conservation Measures

Both the North and South Canadian rivers would be crossed using the HDD method. As recommended by the USFWS, a buffer of 300 feet from bank full width would be maintained on each side of these rivers unless USFWS and Keystone agree to adjust buffer width based on habitat conditions. The HDD entry and exit locations would be outside the 300-foot buffer.

The crossings of these rivers would be in compliance with the HDD Plan and Hydrostatic Test Plan. No direct habitat impacts are likely to occur from construction. HDD poses a small risk of frac-out, or spills of drilling fluids. Drilling fluid spills are rare and are contained by the best management practices that are described within the HDD Contingency Plans required for drilling crossings. Most leaks of HDD drilling mud occur near the entry and exit locations for the drill and are quickly contained and cleaned up. Some clearing of vegetation and limited human access would be required within the 300-foot buffer zone for the True Tracker Wire used during HDD drilling and to access these rivers to withdraw water for hydrostatic testing.

Water withdrawals for HDD and for hydrostatic testing would also occur. A water pump and intake hose would be placed in the waterbody to provide water to the HDD operation and for hydrostatic testing of the pipeline. Intake ends would be screened during water withdrawal using an appropriate mesh size to prevent entrainment or entrapment of adult, juvenile and larval fish or other aquatic organisms. Although intake ends would be screened, any drifting pelagic eggs could be entrained and destroyed if water withdrawal for HDD occurs during the Arkansas River shiner's spawning period. The withdrawal rates for the pumps would be controlled, thus reducing the potential for entrainment or entrapment of aquatic species. The combination of effective screening and controlled water withdrawal rates would prevent most direct impacts to the Arkansas River shiner. Currently, water withdrawals for the HDD of the North and South Canadian rivers and the hydrostatic test of this section of pipeline are scheduled to occur between November 1, 2010 and April 13, 2011, which is prior to the Arkansas River shiner's spawning period (June 1 to August 15). Therefore, it is not expected that eggs or newly emerged Arkansas River shiner larvae would be present in the rivers during water withdrawal activities.

The North and South Canadian rivers have been identified as hydrostatic test water sources. Water withdrawal for hydrostatic testing would require much larger volumes. During this testing process, a pump would be placed in or next to the river for the duration of the water intake and filling period. The intake end of the pump would be screened to prevent entrainment of larval fish or debris. Once the pipeline is filled with water and pressure tested, the water would be returned to the drainage. Care would be taken during the discharge to prevent erosion or scouring of the waterbody bed and banks. The water would be tested prior to discharge to ensure compliance with the NPDES discharge permit requirements, treated if necessary, and discharged.

Keystone would implement the following conservation measures to minimize impacts to the Arkansas River shiner at the North Canadian and South Canadian river crossings:

- Construction activities would be prohibited during the spawning period (June 1 through August 15) at the North Canadian and South Canadian river crossings unless a plan is developed in consultation with the USFWS that would minimize impacts to this species.
- Only a limited amount of clearing of vegetation would occur within the critical habitat area along the South Canadian River and the habitat along the North Canadian River.
- If the HDD crossing on this steam is unsuccessful and a different crossing method is required, the USFWS will be consulted to determine the measures that would be implemented to avoid and minimize adverse impacts to this species. These measures could include salvage and relocation efforts in consultation with the USFWS.
- Erosion control measures would be implemented as described in the CMR Plan (Appendix B). Erosion and sediment controls would be monitored daily during construction to ensure effectiveness, particularly after storm events, and only the most effective techniques would be used.

The Project may affect, but is not likely to adversely affect the Arkansas River shiner. This determination is based on Keystone's plan to use HDD to cross the South Canadian and North Canadian rivers, Keystone's commitment to remove minimal amounts of vegetation at these rivers, and Keystone's commitment to follow recommended conservation measures provided by the USFWS. The Project may affect, but is not likely to adversely affect designated critical habitat for the Arkansas River shiner at the South Canadian River crossing.

Pallid Sturgeon

The pallid sturgeon was federally listed as endangered in 1990 (55 FR 36641). The USFWS (1993) produced a recovery plan for the pallid sturgeon. No critical habitat rules have been published for the species. Current distribution of the pallid sturgeon includes the upper and lower Missouri River drainage, the lower Yellowstone River drainage, the upper and lower Mississippi River drainages, and the lower Ohio River drainage (NatureServe 2009). The pallid sturgeon is one of the rarest fish of the Missouri and Mississippi rivers. This sturgeon is adapted to habitat conditions that existed in these large rivers prior to their wide-scale modification by dams, diversions, and flood control structures. Habitats required by pallid sturgeon are formed by floodplains, backwaters, chutes, sloughs, islands, sandbars, and main channel waters within large river ecosystems. Prior to dam development along the Missouri and Mississippi rivers, these features were in a constant state of change. With the introduction of dams and bank stabilization, areas of former river habitat have been covered by lakes, water velocity has increased in remaining river sections making deep stretches of clear water, and water temperatures have significantly decreased. All of these factors are believed to have contributed to the decline in pallid sturgeon populations (USFWS 1993).

Pallid sturgeons live in large, free-flowing, warmwater stream systems with a diverse assemblage of physical habitats. They are adapted for a variety of habitats (USFWS 2007e, Dryer and Sandvol 1993) living close to the bottom of large, shallow, silty rivers with sand and gravel bars. Pallid sturgeons have historically occupied turbid rivers and have been found in habitats maintaining 31 to 137 Nephelometric turbidity units (NTU) (EPA, 2007). Limited empirical evidence is available to describe spawning habitat. Pallid sturgeons are presumed to spawn in swift water over gravel, cobble or other hard surfaces (USFWS 1993, Laustrop et al. 2007). Spawning habitat characterization in controlled rivers has indicated that pallid sturgeon spawn in spring and early summer (from April into July) releasing their eggs at intervals. Spawning is triggered by increased spring season flow from runoff; which also initiates spawning in paddlefish and shovelnose sturgeon. Adhesive eggs are released during spawning in deep channels or gravelly riffles and are left unattended. Newly hatched pallid sturgeon are buoyant and active

immediately after hatching, and drift downstream with the current for up to 13 days, traveling distances of 40 to 400 miles. Pallid sturgeon can live over 50 years and can grow quite large as indicated by the report of an 86 pound specimen from the Missouri River. Pallid sturgeon feeding and nursery habitats include floodplains and backwaters where adults and juveniles feed primarily on fish, and smaller juveniles feed primarily on the larvae of aquatic insects.

Within the Project area, the pallid sturgeon potentially occurs at the crossing of the Missouri River below Ft. Peck Dam, the crossing of the Milk River, and the crossing of the Yellowstone River downstream of Fallon, Montana. In larger Mississippi tributaries crossed by the Project such as the Platte, Kansas, Arkansas and Red rivers, pallid sturgeon occur only near the rivers' confluences with the Mississippi River. Since the 1980s the most frequent occurrences are from the Missouri River, between the Marias River and Fort Peck Reservoir in Montana, and within the lower 70 miles of the Yellowstone River to downstream of Fallon, Montana. Larval pallid sturgeons have rarely been collected within their range likely due to low reproductive success or ineffective sampling gear.

It is estimated that 50 to 100 pallid sturgeons remain in the Missouri River above Fort Peck Dam, and 200 to 300 pallid sturgeons remain in the Missouri and lower Yellowstone rivers between Fort Peck Dam and Garrison Dam in North Dakota (Krentz 1997, Gardner 1994). Populations of pallid sturgeon in Montana are declining, with no evidence of reproduction. Pallid sturgeon between Fort Peck Dam and Lake Sakakawea are an important portion of the total population (Tews 1994). Adult fish in this reach are nearing the end of their life expectancy and may attempt reproduction only several more times (USFWS 2000). Pallid sturgeon move downstream from the Fort Peck Dam to below the confluence of the Yellowstone and Missouri rivers in summer, and generally return to the Fort Peck tailrace during winter. Most pallid sturgeons have been documented in the Missouri River downstream from its confluence with the Yellowstone River (Liebelt 1998). While no specific pallid sturgeon spawning locations have been identified in the Missouri River, there are likely suitable sites in the Missouri and possibly in the Milk River. Regulated flows from Fort Peck Dam coupled with lower water temperatures during spring and early summer have failed to provide adequate spawning cues for pallid sturgeon in the Project area. The U.S. Army Corps of Engineers proposes to modify operations of Fort Peck Dam to provide additional water from the surface of Fort Peck Reservoir to stimulate spawning and optimize spawning habitat for pallid sturgeon and other native fish.

Potential Impacts and Conservation Measures

Potential impacts to pallid sturgeon are reduced as a result of Keystone's commitment to using the HDD crossing technique at the Milk, Missouri, and Yellowstone and Platte rivers. The HDD method avoids any direct disturbance to the river, channel bed, or banks. While the HDD method poses a small risk of frac-out (an unexpected release of bentonite-based drilling fluids), such events are relatively infrequent. Should a drilling fluid release occur, Keystone has committed to containing and cleaning up the release using best management practices as described within the contingency plans required for HDD crossings. Most leaks of HDD drilling fluids occur near the entry and exit locations for the drill and are quickly contained and cleaned up. Frac-outs occurring in aquatic environments are difficult to contain primarily because bentonite, readily disperses in flowing water and quickly settles in standing water. Bentonite is non-toxic, but in sufficient concentration may physically inhibit respiration of adult fish and eggs.

Larval life stages could be entrained through water withdrawals for both HDD and hydrostatic testing and would not likely survive. Newly emerged pallid sturgeon larvae drift with currents for many days and over large distances (Braaten 2008) before they achieve any volitional movements. At streams and rivers crossed by the HDD method, the water pump intake hose would be screened using an appropriate mesh size to prevent entrainment of larval fish or other aquatic organisms. The withdrawal rates for the pumps would be controlled, also reducing the potential for entrainment or entrapment of aquatic species.

The Missouri, Yellowstone, Milk, and Platte rivers have been identified as water sources for hydrostatic testing. The water pump intake would be screened to prevent entrainment of larval fish or debris. All water pump intake screens would be periodically checked for entrainment of fish during water withdrawals and care would be taken to prevent erosion or scouring of the waterbody bed and banks during discharge.

Platte River basin water depletions in Nebraska may affect pallid sturgeon habitats by reducing the amount of water available for this species in the lower Platte River. Impacts to the pallid sturgeon from temporary water reductions during hydrostatic testing in the lower Platte River Basin would be avoided based on Keystone's plan to withdraw the volume needed at a rate of less than 10 percent of the baseline daily flow and to return water to its source within a 30-day period.

The Project may affect, but is not likely to adversely affect the pallid sturgeon. This determination is based on Keystone's plan to use the HDD crossing method at the Missouri, Yellowstone, Milk and Platte rivers and Keystone's commitment to follow USFWS recommended conservation measures.

Smalleye Shiner

The smalleye shiner is a candidate for federal listing and is listed as threatened in the state of Texas. It is endemic to the Brazos River drainage and presumed to have been introduced to the Colorado River (Hubbs et al. 1991). Historically the smalleye shiner was found in the lower Brazos River as far south as Hempstead, Texas. Smalleye shiners inhabit turbid waters within broad, sandy main stream channels with shifting sand bottoms (Gilbert 1980, Page and Burr 1991). These minnows are batch spawners, and may produce multiple cohorts within a spawning season. Populations usually are asynchronous egg producers, but may also synchronize egg production during pulse flows (Durham 2007). Spawning habitat is likely open water. Smalleye shiners are opportunistic feeders that consume aquatic insects (primarily dipterans), terrestrial insects, detritus, and plant material (Moss and Mayes 1993, Marks et al. 2001).

Potential Impacts and Conservation Measures

Smalleye shiners have been reported from Angelina County in Texas. However, the known distribution of the smalleye shiner in Texas is west of the Project and the Project would not cross any drainages currently or historically occupied by this species.

Topeka Shiner

The Topeka shiner was federally listed as endangered in 1999 (Shearer 2003). It is state listed as a species of concern in South Dakota and threatened in Kansas. Critical habitat was designated in July, 2004, and includes 6 miles of the Elkhorn River in Madison County, Nebraska. The Topeka shiner is susceptible to water quality changes in its habitat and has disappeared from several sites because of increased sedimentation resulting from accelerated soil runoff. Stream modifications, sediment deposition, pollution, overgrazing, and predation by introduced fish are thought to have led to the decline of the Topeka shiner across its Midwestern range.

The fish inhabits spring-fed, sandy-bottomed streams with good water quality and lives in pools and slack water areas between riffle sequences along stream courses. Topeka shiners inhabit less than 10 percent of their original geographic range (USFWS 1998b) and are opportunistic omnivore predators. Their prey includes insects, algae, fish larvae, and worms. The maximum life span of the Topeka shiner is three years. Most reach maturity in the spring or summer of their second year. They spawn from late-May to mid-July and deposit their eggs in the nests of green and orange-spotted sunfish. Topeka shiners are

known to occupy numerous small streams in eastern South Dakota, and most are concentrated in the Big Sioux, Vermillion, and James River watersheds.

Potential Impacts and Conservation Measures

The Topeka shiner is listed as occurring in Butler County, Kansas (USFWS 2008a). One new 10-acre Project pump station site is proposed for Butler County, Kansas, on the Cushing Extension of the Keystone Pipeline Project. The proposed pump station site is located within an agricultural field and suitable habitat does not exist for the Topeka shiner in or near this location. The Project would therefore have no effect on the Topeka shiner.

3.8.1.6 Federally-Protected Invertebrates

Preliminary evaluations identified two federally protected invertebrates that could potentially occur within the Project area (Table 3.8.1-1).

American Burying Beetle

The American burying beetle was federally listed as endangered in August 1989 (54 FR 29652). Critical habitat has not been designated. The Final Recovery Plan (USFWS 1991) was signed on September 27, 1991. This species was recorded historically from at least 35 states in the eastern and central United States, as well as along the southern portions of the eastern Canadian provinces. Currently, it is known to exist in isolated colonies in at least six states: Arkansas, Kansas, Nebraska, Oklahoma, South Dakota, and Rhode Island (Backlund and Marone 1997, Bedick et al. 1999). American burying beetles have disappeared from over 90 percent of their historic range, even though they are considered feeding habitat generalists. The decline of the American burying beetle has been attributed to habitat loss, alteration, and degradation. American burying beetles have generally been found in level areas with relatively loose, well-drained soils amongst litter layers from previous years.

The American burying beetle is nocturnal, lives for only one year, and typically reproduces only once. American burying beetles are scavengers, dependent on carrion for food and reproduction. This species plays an important role in breaking down decaying matter and recycling it back into the ecosystem. Identified habitat in Nebraska consists of grassland prairie, forest edge, and scrubland. Within remaining range for the American burying beetle in Nebraska, there is a large population (>500 individuals) in the southern loess hills (Bedick et al. 1999). However, large areas within Nebraska remain unexamined for remnant populations. In 2006, sampling in Custer County re-discovered a small population of the species, and the expected distribution in Oklahoma includes most eastern counties.

Suitable habitat was located along the proposed Project in South Dakota, Nebraska, Oklahoma and Texas (Table 3.8.1-5). Presence/absence surveys for American burying beetles along the route in Nebraska completed in June and August 2009 failed to capture any American burying beetles along the Project route. In Oklahoma, American burying beetles may potentially occur within the Project area in Creek, Okfuskee, Seminole, Hughes, Coal, Atoka, and Bryan counties. Of the 138 miles of Project ROW in Oklahoma, 26.5 miles were classified as prime habitat for the American burying beetle, 24.9 miles were classified as good habitat, and 27.8 miles were classified as fair habitat for a total of 79.2 miles of suitable habitat for the species (Bauer and Abbott 2009). Surveys for the American burying beetle occurred n Texas during the summer of 2009 using baited pitfall traps. The surveys failed to trap any American burying beetles (Bauer and Abbott 2009). Trapping that occurred during May to August 2009 in known American burying beetle habitat ranges in Lamar County outside of the Project area also failed to trap any American burying beetles.

TABLE 3.8.1-5 American Burying Beetle Occurrence along the Project			
State	**County**	**Distance (Miles) Crossed by ROW[a]**	**Suitable American Burying Beetle Habitat**
Steele City Segment			
South Dakota	Tripp	59.3	Extensive
Nebraska	Keya Paha	18.6	Extensive
Nebraska	Rock	9.4	Extensive
Nebraska	Holt	44.8	Extensive
Nebraska	Garfield	9.6	Limited
Nebraska	Wheeler	18.7	Limited
Nebraska	Greeley	23.9	Unknown
Nebraska	Boone	3.4	Unknown
Nebraska	Nance	17.1	Unknown
Nebraska	Merrick	15.5	Unknown
Nebraska	Hamilton	6.7	Unknown
Nebraska	York	30.2	Unlikely
Nebraska	Fillmore	14.7	Unlikely
Nebraska	Saline	16.7	Unlikely
Nebraska	Jefferson	25.8	Unlikely
Gulf Coast Segment			
Oklahoma	Creek	5.7	Historic
Oklahoma	Okfuskee	15.5	Confirmed
Oklahoma	Seminole	20.5	Likely
Oklahoma	Hughes	27.6	Confirmed
Oklahoma	Coal	26.2	Confirmed
Oklahoma	Atoka	19.8	Confirmed
Oklahoma	Bryan	22.7	Confirmed
Texas	Lamar	28.5	Confirmed

Source: ENSR 2008b, Bauer and Abbott 2009.
[a] Based on the 021509 Centerline.

Potential Impacts and Conservation Measures

Direct impacts to American burying beetles as a result of Project construction could include habitat loss and degradation, increased habitat fragmentation, and potential mortality of eggs, larvae and adults from excavation and construction vehicle traffic. Construction would take place during the daylight hours and construction areas would not use artificial lighting, therefore, no impacts from artificial lighting during construction would occur.

During operations, lights associated with aboveground facilities may attract local American burying beetles, particularly if the lights emit wave lengths in the UV spectrum. Facilities associated with the pipeline would generally not be lighted, although a single light would be used above pump station doors.

The activity period for the American burying beetle across its range is generally late April through September (USFWS 1991) and is associated with air temperature. Peak activity occurs when temperatures are 60 °F or greater at midnight. The American burying beetle overwinters as an adult by burrowing in soil (Schnell et al. 2008). Schnell et al. (2008) found that in Arkansas, surviving American burying beetles overwintered at an average depth of 6 cm (2.4 inches) with some as deep as 20 cm (6 inches). Heat generated by the pipeline typically increases soil temperature 6 inches below the surface between 5 and 8 °F above background levels, with differences occurring during January to April, particularly in northern latitudes (Keystone 2009c). Early season temperature differences at northern latitudes are between 10 and 15 °F directly over the pipeline compared to background levels (Keystone 2009c). Seasonal differences as a result of pipeline heat are not noticeable in Oklahoma and Texas (Keystone 2009c). Soil heating associated with Project operation could produce some increase in the activity period for the American burying beetle, although the overall impacts of this increased activity would likely be negligible since species survival is more closely linked to its access to carrion and the availability of whole vertebrate carcasses (USFWS 2008c).

It is likely that all direct impacts to the American burying beetle may not be avoided. Keystone has volunteered to provide monetary compensation to the Nature Conservancy Fund for habitat acquisition as compensatory mitigation. The Nature Conservancy Fund would then purchase and protect lands which are known to contain sustainable populations of the American burying beetle, providing an ecologically sound option for increasing the species within its historic range.

General conservation measures that have been discussed to avoid and minimize potential impacts to the American burying beetle include:

- Bait away and/or trap and relocate adult American burying beetles to remove them from the construction ROW.
- Establish a compensatory mitigation plan for potential impacts to the American burying beetle by contributing to habitat conservation.

State specific conservation measures for the American burying beetle that have been recommended by respective USFWS offices and state resource agencies include:

- The Pierre, South Dakota USFWS Field Office and SDGFP does not recommend trap and relocate procedures in South Dakota. According to the USFWS, recommended conservation measures for American burying beetle impacts include setting up a compensatory mitigation plan for potential impacts to the American burying beetle in Tripp County (AECOM 2008).
- If surveys on route changes indicate the presence of the American burying beetle along the Project ROW in Nebraska, Keystone would implement trap and relocate measures in those areas prior to construction activities.
- The USFWS Field Office in Tulsa, Oklahoma does not recommend trap and relocate procedures in Oklahoma. According to the USFWS, recommended conservation measures for American burying beetle impacts include setting up a compensatory mitigation plan for potential impacts to the American burying beetle in Oklahoma.
- If the route changes and future surveys indicate the presence of the American burying beetle in Lamar County, Texas, bait away or trap and relocate efforts would be undertaken prior to construction activities.

In addition to the conservation measures outlined above, the Pierre, South Dakota USFWS Field Office has recommended the following additional measures to protect the American burying beetle:

- The construction camp near Winner, South Dakota, should be built on cropland very close to Winner, and/or north of Highway 18 in Tripp County.
- The two pipe stockpile sites planned for Tripp County should be placed on cropland, or north of Highway 18.
- The Gregory County, South Dakota contractor yard should be built on cropland, or north of Highway 18.
- Because the American burying beetle is attracted to light at night, working at night with lights in southern Tripp County should be avoided. If working at night cannot be avoided, lighting should only be used between September 1 and June 1.

The Project may affect, but is not likely to adversely affect the American burying beetle. This determination is based on the location of the Project within the known range and habitat of the American burying beetle, the results from surveys along the Steele City Segment of the Project, and Keystone's commitment to comply with recommended conservation measures for the American burying beetle.

Ouachita Rock Pocketbook

The Ouachita rock pocketbook is federally listed as endangered and is state-listed in Texas as threatened. It is a freshwater mussel that inhabits slow-moving backwaters of rivers and large creeks. It generally resides near sand, gravel, or cobble bars, as it requires a stable substrate to thrive. Most often, it is found in mussel beds containing a large diversity of species. This mussel is very rare and only a few Natural Heritage records exist (NatureServe 2009, USFWS 2002d). Little is known about the life history or reproductive characteristics of the Ouachita rock pocketbook as it occurs in only a few counties in Oklahoma, Texas, and Arkansas. The primary threats to Ouachita rock pocketbook beds are from construction and operation of dams which alter stream structure and function, and from declines in water quality.

The Ouachita rock pocketbook may potentially exist in the Red River system in large mussel beds containing a diversity of species. These beds are generally found within medium-size rivers with stable substrates of mud, sand, and gravel, and backwater or slackwater areas adjacent to the main channel. The Texas Parks and Wildlife Department lists the Ouachita rock pocketbook as potentially occurring in Lamar County, Texas. The mussel was reported to occur in Sanders Creek and Pine Creek, Lamar County, Texas in the early 1990s (USFWS 2004). However, the USFWS does not currently list the species as occurring in any of the counties crossed by the Project in Oklahoma or Texas (USFWS 2009d). The Project would cross Sanders Creek upstream from Pat Mayse Lake in Lamar County over 30 miles upstream from reported occurrences (USFWS 2004). The Project would not cross the Pine Creek drainage in Lamar County, and is located over 40 miles from the reported occurrence of the Ouachita rock pocketbook in this stream in Lamar County, Texas.

Potential Impacts and Conservation Measures

Although the Oauchita rock pocketbook has been reported in Lamar County in Texas, its areas of known occurrence in Texas would not be crossed by the Project and are at least 30 miles distant from the Project corridor. Therefore, the Project would have no effect on the Ouachita rock pocketbook.

3.8.1.7 Federally-Protected and Candidate Plants

Information on federally protected and candidate plants potentially found along the Project route was obtained from the USFWS, the various state Natural Heritage Programs (NHPs), state wildlife agencies,

and field surveys. The NHPs provided information on the status of plant populations within individual states and in some cases, surveys were completed along the Project route. Potential occurrence within the ROW was evaluated for each plant based on its known distribution and habitat requirements. Preliminary evaluations identified three federally-protected and two candidate plants that could occur within the Project area. Four of these plants occur only in Texas.

Texas Prairie Dawn-Flower

The Texas prairie dawn-flower is a federally listed endangered plant and state-listed in Texas as endangered. The Texas prairie dawn-flower is an annual plant that grows in a specific range of soil and site conditions in the open grasslands in Harris and Fort Bend Counties in Texas. Habitat where this plant is found includes sparsely vegetated areas at the base of mima mounds (low, domelike natural prairie mounds) or other barren areas on saline soils (Katy Prairie Conservancy 2008). The species can also be found where mima mounds have been leveled in the past. It flowers in March and early April; the flowers are less than half an inch in diameter and bright yellow (Center for Plant Conservation 2008a). The primary threats to the Texas prairie dawn-flower are urban development and road construction, heavy grazing by cattle, and competition with woody plants (Center for Plant Conservation 2008a).

The Houston Lateral would cross Harris County. Field surveys for the Texas prairie dawn-flower were conducted within 40 percent of the suitable soil types identified along the Houston Lateral in Harris County, Texas on April 15, 2009. No Texas prairie dawn-flowers were observed.

Potential Impacts and Conservation Measures

Project construction could result in loss of habitat, altered habitat suitability, and introduction or spread of competing exotic invasive plants. The Texas prairie dawn-flower is a pioneering species which may be displaced by invasive plants.

Conservation measures for identified populations could include:

- Reducing the width of the construction ROW in areas where populations have been identified, to the extent possible.
- Salvaging and segregating topsoil appropriately where populations have been identified to preserve native seed sources in the soil for use in re-vegetation efforts in the ROW.
- Restoring habitat by using an approved seed mix provided by the NRCS or appropriate state agency.
- Collecting seed to repopulate the ROW or an appropriate offsite location, or for creation of a nursery population until viable natural populations have established themselves.

Presence/absence surveys are anticipated to be completed during late March to mid-April in 2010 depending on landowner permission. Survey results would be submitted to the USFWS for review. If surveys identify the Texas prairie dawn-flower within the ROW, final conservation measures would be based on the quantity and quality of the population and would be refined based on further consultation with the USFWS.

The Project may affect, but is not likely to adversely affect the Texas prairie dawn-flower. This determination is based on preliminary survey data that indicate that the plant is not present within the Project area and Keystone's commitment to follow recommended conservation measures that would be provided by the USFWS if occurrences are identified.

Texas Trailing Phlox

Texas trailing phlox is a federally endangered species and state listed in Texas as endangered. This perennial plant was thought to be extinct, but was rediscovered in 1991 and a number of specimens have been discovered since. Reintroduction measures have also had some success. Texas trailing phlox inhabits the Pineywoods of southeast Texas where soils are deep and sandy. The plant grows in forests with open to moderately dense canopies in mixed forests of pines and hardwoods, but is most commonly found in open pine savannas. It is adapted to fire and can endure short-cycle fire regimes, but does not thrive in areas with heavy groundcover. Texas trailing phlox habitats are generally the same as habitats preferred by the red-cockaded woodpecker. Texas trailing phlox flowers from March until May and the flowers are usually bright pink. If prescribed burns are conducted in April, the species can flower again in May (Center for Plant Conservation 2008b). Primary threats to Texas trailing phlox are habitat loss and fragmentation due to urban expansion, conversion to pine plantations or pasture, disturbance of soil and vegetation by human activities, and dense understory resulting from fire suppression (Center for Plant Conservation 2008b, USFWS 2008b).

Three populations of Texas trailing phlox are known from Hardin, Polk, and Tyler counties in Texas. The largest population is located in Hardin County on the Roy E. Larsen Sandylands Sanctuary managed by The Nature Conservancy. The Sanctuary is located in the eastern portion of Hardin County, Texas (USFWS 2008b). The Project crosses the southwestern portion of this county, would be about 30 miles from the known Hardin County population, and would not cross the Roy E. Larsen Sandylands Sanctuary. The two smaller populations are located on land owned by International Paper in Tyler County, and in the Big Thicket National Preserve in Polk County. The Project would not cross Tyler County. The population in Big Thicket National Preserve is in the Big Sandy Creek Unit (NPS 2009; USFWS 2008b). The proposed Project route avoids crossing the Big Thicket National Preserve.

Potential Impacts and Conservation Measures

The Project would have no effect on the Texas trailing phlox based on avoidance of the three known populations in Hardin, Polk and Tyler counties in Texas.

Western Prairie Fringed Orchid

The western prairie fringed orchid is federally listed as threatened, state listed as threatened in Nebraska, and is a species of conservation concern in South Dakota. No critical habitat has been designated for the western prairie fringed orchid. The western prairie fringed orchid is presently known to occur in 6 states in the U.S. (Iowa, Kansas, Minnesota, Missouri, Nebraska, and North Dakota) and in one province (Manitoba) in Canada, and appears to be extirpated from South Dakota and Oklahoma (USGS 2006c, USFWS 1996). Most remaining populations are found in North Dakota and Minnesota, with about three percent of the populations found in the southern portion of its historic range (USFWS 1996). The spread of invasive plants into prairie swales has had a negative effect on western prairie fringed orchid populations (Sieg 1997, USFWS 2007f). Invasive plants which may displace the western prairie fringed orchid through competition include: leafy spurge (*Euphorbia esula*), Kentucky bluegrass (*Poa pratensis*), and Canada thistle (*Cirsium arvense*) (Sieg 1997, USFWS 2007f). Other threats to the long-term survival of western prairie fringed orchid include the use of herbicides, heavy livestock grazing, early haying, habitat fragmentation, river channelization, river siltation, and road and bridge construction (USGS 2006c).

This perennial orchid is found in tall-grass calcareous silt loam or sub-irrigated sand prairies and may occur along ditches or roadsides. Flooding may be an important agent of seed dispersal (Hof et al. 1999),

although seeds develop into flowering plants only under appropriate hydrologic and other conditions. The western prairie fringed orchid flowers from May to August.

The known distribution of the western prairie fringed orchid includes the Project area in Nebraska and south of Highway 18 in Tripp County in South Dakota (NGPC 2009b). The Project is near known populations in Holt, Greeley, and Wheeler counties in Nebraska (USFWS 2007f). Populations in South Dakota are possibly extirpated (NatureServe 2009), but factors that indicate this orchid may still be present include: 1) incomplete surveys in areas of suitable habitat crossed by the Project route on private lands, and 2) erratic flowering patterns with long dormancies that make detection difficult (Phillips 2003). Surveys to assess habitat suitability and occurrence of the western prairie fringed orchid were completed during June 2009. A total of 74 sites over 95 miles of habitat were selected for surveys in Tripp County, South Dakota and throughout Nebraska based on input from federal and state agencies. Of these 74 sites, 60 were evaluated and 18 sites were determined to have high quality habitat with one population of western prairie fringed orchid documented along the ROW at MP 662 in Holt County, Nebraska. Surveys will be completed within the Project area in South Dakota and Nebraska during 2010, depending on landowner permission.

Potential Impacts and Conservation Measures

Consultation with the USFWS regarding the identified population of western prairie fringed orchid is ongoing.

Conservation measures for identified populations could include:

- Reducing the width of the construction ROW in areas where populations have been identified, to the extent possible.
- Salvaging and segregating topsoil appropriately where populations have been identified to preserve native seed sources in the soil for use in re-vegetation efforts in the ROW.
- Restoring habitat by using an approved seed mix provided by the NRCS or appropriate state agency.
- Collecting seed to repopulate the ROW or an appropriate offsite location, or for creation of a nursery population until viable natural populations have established themselves.

If surveys identify additional western prairie fringed orchid populations, Keystone would continue to consult with the USFWS to develop site-specific conservation measures for these populations.

The Project may affect, but is not likely to adversely affect the western prairie fringed orchid based on the Project proximity to the extant western prairie fringed orchid range, the presence of an identified population and suitable habitat within the Project area, and Keystone's commitment to follow recommended USFWS conservation measures identified through consultation.

Neches River Rose-Mallow

The Neches River rose-mallow is a candidate for federal listing. This perennial flower, found in prairie wetlands of eastern Texas, grows within floodplains of perennial streams or rivers that flood at least once a year (Center for Plant Conservation 2008c). The plant roots are normally in standing water early in the growing season and this plant grows where soils are moist year round. The Neches River rose-mallow occurs in hydric soils in marshes along the Neches River in Cherokee, Houston, and Trinity counties in Texas, and may also be found in borrow pits along highways (Center for Plant Conservation 2008c). The primary threats to the Neches River rose-mallow are wetland draining, vegetation clearing on stream

banks, herbicide application along transportation ROWs, and timber harvest (Center for Plant Conservation 2008c).

The Neches River rose-mallow has been reported in Cherokee County, Texas. The proposed route runs through the southeastern corner of Cherokee County, while the reported location on Neches River is located at the western boundary of Cherokee County. The Neches River crossing for the Project occurs at the Angelina and Polk County border, southeast of the Cherokee, Houston, and Trinity County populations.

Potential Impacts and Conservation Measures

The known occurrences of Neches River rose-mallow populations in Texas would not be crossed by the Project and occur northwest of the Project crossing of the Neches River.

Texas Golden Gladecress

Texas golden gladecress is a candidate for federal listing. This winter annual mustard grows in shallow calcareous soils on ironstone outcrops of the Weches Formation within the Coastal Plain region of east Texas. The Weches formation consists of alkaline areas surrounded by acid soils common in the Pineywoods. The plants flower and fruit from late February to April or May and seeds generally germinate in the fall. The primary threats to the Texas golden gladecress are open-pit mining of the mineral glauconite for road construction, urban expansion, over-grazing, and fire suppression which allows for greater canopy cover and deeper litter layers (Center for Plant Conservation 2008d).

Four populations are known; three endemic populations are located in San Augustine and Sabine counties and one experimental introduced population is located in Nacogdoches County (Center for Plant Conservation 2008d).

Potential Impacts and Conservation Measures

The Project does not cross San Augustine or Sabine counties and the Texas golden gladecress is not known or expected to occur in the vicinity of the Project in Nacogdoches County.

3.8.2 Bureau of Land Management Sensitive Animals and Plants

BLM has responsibility for the designation and protection of sensitive species on BLM managed lands that require special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA. The Project would cross BLM managed lands in Montana. BLM Montana offices evaluate potential Project impacts on BLM sensitive species which include species that have been determined in coordination with the Montana Natural Heritage Program, Montana Fish, Wildlife and Parks, US Forest Service to be recommended for sensitive designation. BLM also evaluates both federal candidate species and federal delisted species within five years of delisting. Federal candidate species are addressed in Section 3.8.1 and the federal delisted bald eagle and peregrine falcon are discussed in more detail in Section 3.8.3. The Project would cross about 42 miles of BLM land in Montana. All BLM designated sensitive animals and plants are also Montana designated species of concern. Additional Montana species of concern that potentially occur within the Project area that are not designated by BLM as sensitive are discussed in Appendix I. Analyses and discussions of state protected species are presented in Section 3.8.3, some of which are also BLM sensitive species in these states. The BLM sensitive species that have the potential to occur within the Project area include 8 mammals, 28

birds, 5 reptiles, 3 amphibians, 5 fish, and 4 plants. Evaluation of potential impacts and proposed conservation measures for these species are summarized in Table 3.8.2-1.

TABLE 3.8.2-1
Evaluation of BLM Sensitive Species Potentially Occurring along the Project ROW in Montana

Species	Group	Occurrence and Habitat	Threats	Potential Impacts	Proposed Conservation Measures
Black-tailed prairie dog *Cynomys ludovicianus*	Prairie Mammal	Prairie dog town surveys in Montana were conducted. Two active colonies identified MP 46.8 in Valley County and MP 115.6 in McCone County; associated with open grasslands and shrub grasslands in relatively level sites with silty clay loam, sandy clay loam or clay loam soils.	Habitat loss, poisoning, recreational shooting, subdivision development, population fragmentation, dispersal barriers, changes in land ownership, disease.	Habitat loss, colony destruction or fragmentation, direct construction mortality, vehicle collision mortality.	Conservation methods for black-footed ferrets, vegetation restoration, and wildlife mitigation from CMR.
Fringed myotis *Myotis thysanodes*	Mammal – Bat	Occur throughout Montana during mid-June to early September; variety of habitats from low to mid-elevation grassland, woodland, and desert habitats, up to and including spruce-fir forests; roost sites include caves, mines, and buildings.	Disturbance of roost sites, recreational caving and mine exploration, renewed mining at historic sites, building and bridge conversion, toxic material impoundments, pesticides, loss or alteration of riparian habitats that support insect prey.	No known roost sites along Project route; loss or alteration of insect prey availability in riparian foraging habitats.	No proposed mitigation.
Long-eared myotis *Myotis evotis*	Mammal – Bat	Occur throughout Montana active during mid-June to early September, hibernacula located in riverbreaks habitat in northeast Montana; found in wooded and rocky areas; roost sites include hollow trees, caves, mines and buildings.	Habitat disturbance through forest harvesting and mineral extraction, recreational caving and industrial activities.	No known roost sites along Project route; loss or alteration of insect prey availability in riparian foraging habitats.	No proposed mitigation.

TABLE 3.8.2-1
Evaluation of BLM Sensitive Species Potentially Occurring along the Project ROW in Montana

Species	Group	Occurrence and Habitat	Threats	Potential Impacts	Proposed Conservation Measures
Long-legged myotis *Myotis volans*	Mammal – Bat	Occur throughout Montana, active during mid-June to early September, roost in trees (under thick bark), hollow trees, buildings, caves, and abandoned mines, hibernate in caves, montane coniferous forest and riparian habitat.	Roosting and hibernating habitat disturbance, closure of abandoned mines, forest management practices	Loss of maternity roosting habitat, loss or alteration of forested and riparian foraging habitat and insect prey availability.	Conduct a habitat assessment for potential maternity roost tree locations; if maternity tree roosts are found on the ROW, remove the trees outside of the breeding season.
Meadow jumping mouse *Zapus hudsonius*	Mammal – Mice	Occurs in southeastern Montana, dense stands of tall grass and forbs in marshy areas, riparian areas, woody draws, grassy upland slopes, in or near ponderosa pine forests, often favor sites bordered by small streams.	Loss or alteration of mesic grassland, shrub-grassland and meadow habitats, alteration of surface waters for livestock.	Loss of habitat including dens and tunnels, direct mortality during construction	Restore ROW using appropriate plants for soil and range conditions.
Northern myotis *Myotis septentrionalis*	Mammal – Bat	Occurs in northeast corner of Montana, forage for insects along hillsides and ridges, solitary, parturition late June or July, summer roosts under tree bark and buildings, hibernacula moist caves and abandoned mines.	Recreational caving, closure of abandoned mines without surveys, pest control activities in human structures, disturbance and removal of nursery trees.	No known habitat use along Project route.	No proposed mitigation.
Swift fox *Vulpes velox*	Prairie Mammal	Occurs in north central Montana, no reported occurrences within 5 miles of Project, prairie habitats with high density of small mammals (ground squirrels or prairie dogs), burrows in sandy soil on high ground in open prairies, along fencerows.	Habitat loss and alteration, vehicle collision mortality, accidental trapping, predation by coyotes, and inter-specific competition with red fox.	Loss and alteration of foraging and/or den habitat, disturbance due to construction activities and increased human presence resulting in displacement from foraging or den habitat, reduced reproductive success.	Conduct surveys for potential den sites; restrict construction activities within 0.25 mile of active natal dens from April 1 to August 31.

TABLE 3.8.2-1
Evaluation of BLM Sensitive Species Potentially Occurring along the Project ROW in Montana

Species	Group	Occurrence and Habitat	Threats	Potential Impacts	Proposed Conservation Measures
Townsend's big-eared bat *Corynorhinus townsendii*	Mammal – Bat	Occurs throughout much of Montana, roosts and hibernates in caves and mines and forages on flying insects near trees and shrubs.	Loss of habitat due to reclamation of abandoned mines, disturbance or destruction of maternity roost sites and hibernacula.	No known roost sites along Project route; loss or alteration of insect prey availability in forested and riparian habitats.	No proposed mitigation.
Baird's sparrow *Ammodramus bairdii*	Bird – Grassland	Occurs throughout central and eastern Montana, mixed-grass prairies, alfalfa fields, fallow cropland, breeds early June to late July nests on ground feeds on insects and spiders, grass and forb seeds.	Grassland habitat loss or degradation due to conversion to agriculture and heavy grazing, nest parasitism.	Grassland habitat loss, alteration, and fragmentation, loss of eggs or young during construction; facilitated raptor predation from power poles for associated power lines.	Restore ROW using appropriate plants for soil and range conditions; develop Migratory Bird Conservation Plan in consultation with USFWS to avoid or mitigate impacts.
Bald eagle *Haliaeetus leucocephalus*	Bird – Raptor	Occurs throughout Montana, nest and roost in large trees near water with abundant fish and waterfowl prey.	Nesting and roosting habitat loss or alteration, poisons and environmental contaminants; electrocution and collision mortality form power lines, and wind turbines.	Two nest sites identified along ROW; loss or alteration of nest, roost or foraging sites; disturbance to breeding, roosting, foraging areas during construction, electrocution or collision mortality from project associated power lines.	Surveys for nest and communal roost sites prior to construction; restrict activities within 0.5 mile of active bald eagle nests or active winter roost sites; develop Migratory Bird Conservation Plan in consultation with USFWS to avoid or mitigate impacts.
Black-crowned night-heron *Nycticorax nycticorax*	Bird – Water	Nests and migrates throughout Montana, shallow marshes, and other wetlands, nests May to July on islands for protection from predators.	Nesting and foraging habitat loss and degradation, disturbance, pesticides.	No large wetland complexes and associated water that provide nesting habitat are crossed by Project	Avoidance of large wetland complexes; develop oil spill contingency plan; develop Migratory Bird Conservation Plan in consultation with USFWS to avoid or mitigate impacts.

TABLE 3.8.2-1
Evaluation of BLM Sensitive Species Potentially Occurring along the Project ROW in Montana

Species	Group	Occurrence and Habitat	Threats	Potential Impacts	Proposed Conservation Measures
Black tern *Chlidonias niger*	Bird – Water	Occurs in perennial wetlands throughout Montana, nest in marshes on old muskrat houses, floating vegetation or abandoned coot or grebe nests, open water with emergent vegetation 0.5 to 1 meter deep.	Loss and degradation of freshwater marsh habitat, human disturbance of nest sites, pesticide use, migration and winter range habitat loss and alteration.	See Black-crowned night heron.	See Black-crowned night heron.
Bobolink *Dolichonyx oryzivorus*	Bird – Grassland	Nests and migrates throughout Montana, native and agricultural grasslands, wet meadows, fallow fields, nests on ground late April through July, forages on seeds, insects.	Conversion of tall and mixed-grass prairie to agriculture, changes from grass hay to alfalfa, earlier and more frequent harvest.	See Baird's sparrow.	See Baird's sparrow.
Brewer's sparrow *Spizella breweri*	Bird – Sagebrush	Nests and migrates throughout Montana, sagebrush steppe, high shrub cover and large patch size, nests in big sagebrush May through July, forages on insects and seeds.	Widespread loss and degradation of sagebrush habitat, fire suppression, invasion of non-native grasses, nest parasitism, predation, pesticides.	Sagebrush habitat loss, alteration, fragmentation, loss of eggs or young during construction.	Restoration measures that favor establishment of big sagebrush in areas that contained sagebrush, monitor establishment, seed, reseed, with locally adapted seed; develop Migratory Bird Conservation Plan in consultation with USFWS to avoid or mitigate impacts.

TABLE 3.8.2-1
Evaluation of BLM Sensitive Species Potentially Occurring along the Project ROW in Montana

Species	Group	Occurrence and Habitat	Threats	Potential Impacts	Proposed Conservation Measures
Burrowing owl *Athene cunicularia*	Bird – Grassland	Nests and migrates throughout much of Montana, March to October, open grasslands with abandoned prairie dog, ground squirrel, or badger burrows,	Habitat loss through agricultural conversion, habitat degradation through control of prairie dogs and ground squirrels, habitat fragmentation, predation, pesticides.	Loss or alteration of two prairie dog towns, loss of eggs or young during construction.	Construct outside nesting period from March 15 to Oct 31 within prairie dog towns; if construction within nesting period survey for presence; restrict activity within 500 feet of active nests until chicks have fledged; develop Migratory Bird Conservation Plan in consultation with USFWS to avoid or mitigate impacts.
Chestnut-collared Longspur *Calcarius ornatus*	Bird – Grassland	Nests throughout central and eastern Montana, May through July, native mixed-grass prairie, nest May to August on ground in short to medium grasses that have been recently grazed or mowed.	Habitat loss through agricultural conversion and suburban expansion, predation, nest parasitism, pesticides.	See Baird's sparrow.	See Baird's sparrow.
Dickcissel *Spiza americana*	Bird – Grassland	Nests throughout eastern Montana, late May to August, nest in grasses, shrubs or trees in grasslands, meadows, savanna, fields.	Poisoning on winter grounds, nest and young loss when fields are mowed, nest parasitism, habitat loss and alteration.	See Baird's sparrow.	See Baird's sparrow.

TABLE 3.8.2-1
Evaluation of BLM Sensitive Species Potentially Occurring along the Project ROW in Montana

Species	Group	Occurrence and Habitat	Threats	Potential Impacts	Proposed Conservation Measures
Ferruginous hawk *Buteo regalis*	Bird – Raptor	Migrate and nest throughout Montana, February through October, nests on ground, shrubs, rock outcrops, trees during April through August, mixed grass prairie with greasewood and big sagebrush, prey on jackrabbits, ground squirrels.	Habitat loss due to agricultural conversion, forest invasion, invasive plants, fire suppression, prairie dog poisoning.	One nest site identified within 0.5 mile of ROW, Habitat loss, alteration, fragmentation; nest disturbance, loss of eggs or young during construction.	Survey for presence prior to construction; remove nest trees outside of breeding season, prohibit construction activities within 0.5 mile of active nests until young have fledged; develop Migratory Bird Conservation Plan in consultation with USFWS to avoid or mitigate impacts.
Franklin's gull *Leucophaeus pipixcan*	Bird – Water	Primarily migratory April to October through Montana, few known breeding areas in Phillips, Roosevelt, Sheridan counties, nests colonially on large prairie marsh complexes over water in emergent cattails and bulrushes, forages on insects, worms, fish, mice and seeds.	Wetland habitat loss or alteration, hydrologic changes, invasive species.	See Black-crowned night heron.	See Black-crowned night heron.
Golden eagle *Aquila chrysaetos*	Bird – Raptor	Migrate, nest and winter throughout Montana, nest March to August on rock outcrops, cliff ledges, trees; forage in prairie, sagebrush, open woodlands, on jackrabbits, ground squirrels, carrion, ungulate fawns, waterfowl, grouse.	Illegal killing, powerline electrocution, poison intended for coyotes, habitat loss due to conversion to agriculture or suburbs.	Five nest sites identified along ROW, nesting and prey habitat loss or alteration, disturbance to breeding, foraging areas during construction, electrocution or collision mortality from project associated power lines.	See Bald eagle.

TABLE 3.8.2-1
Evaluation of BLM Sensitive Species Potentially Occurring along the Project ROW in Montana

Species	Group	Occurrence and Habitat	Threats	Potential Impacts	Proposed Conservation Measures
Greater sage-grouse *Centrocercus urophasianus*	Bird – Sagebrush	Occur year-round in east, central and southwest Montana; require sagebrush habitat, breed and nest in lek system during March to May; forage on insects, forbs, sagebrush, riparian habitats and wet meadows critical for brood-rearing.	Invasive species, loss, alteration, fragmentation of sagebrush habitats due to energy development, urbanization, agriculture, fires and fire suppression' collisions with cars, trucks, all terrain vehicles.	Leks: 5 within 1 mile, 11 within 2 miles, 24 within 3 miles, 36 within 4 miles; sagebrush habitat loss, alteration, fragmentation; disturbance and disruption of breeding and nesting, loss of nests and young during construction; collision mortality with construction vehicles;; facilitated raptor predation from power poles for associated power lines.	Survey for presence prior to construction during nesting period; restrict construction activities within 4 miles of active leks March 1 to June 15; contact BLM and MFWP if lek found within ROW for further measures; use restoration measure that favor establishment of big sagebrush in areas that contained sagebrush, monitor establishment, seed, reseed, with locally adapted see.
LeConte's sparrow *Ammodramus lecontei*	Bird – Water	Breeds in northeast and northwest corners of Montana May to August, nests and forages in moist meadows, marsh and bog edges in rushes, grass or sedges; forages on insects and seeds.	Wetland habitat loss or alteration, nest parasitism.	See Black-crowned night heron; documented Montana occurrences not within Project area.	See Black-crowned night heron.
Loggerhead shrike *Lanius ludovicianus*	Bird – Grassland	Breeds throughout most of Montana, nests in variety of habitats mid June to mid July, selects areas with large component of shrubs and forbs, forages on large insects, small birds, lizards, frogs, rodents, scavenges.	Pesticides, predation, breeding habitat loss, winter habitat loss, vehicle collision mortality.	See Baird's sparrow.	See Baird's sparrow.
Long-billed curlew *Numenius americanus*	Bird – Grassland	Breeds and migrates throughout Montana, nests on ground May to July, nests and forages in well drained native grasslands, shrublands, and agricultural fields.	Conversion of native grasslands to agriculture, pesticides.	See Baird's sparrow.	See Baird's sparrow.

TABLE 3.8.2-1
Evaluation of BLM Sensitive Species Potentially Occurring along the Project ROW in Montana

Species	Group	Occurrence and Habitat	Threats	Potential Impacts	Proposed Conservation Measures
Marbled godwit *Limosa fedoa*	Bird – Grassland	Breeds east of continental divide north of Yellowstone River in Montana, nests May to Julyin short-grass prairie, pastures, marshes, flooded plains, forages on insects.	Nesting and wintering habitat loss, alteration, fragmentation, fire suppression, land conversion, wetland draining, invasive plants.	See Baird's sparrow.	See Baird's sparrow.
McCown's longspur *Calcarius mccownii*	Bird – Grassland	Breeds throughout Montana east of continental divide May through July, nest and forage in short-grass prairie or heavily grazed mixed-grass prairie.	Habitat loss, alteration, and fragmentation from conversion of native prairie to agriculture, fire suppression.	See Baird's sparrow.	See Baird's sparrow.
Mountain plov*er* *Charadrius montanus*	Bird – Grassland	Breeds throughout central and eastern Montana May through August; use short-grass prairie and prairie dog colonies during nesting; forage on insects	Loss, alteration, and fragmentation of nesting habitat; prairie dog eradication.	Loss or alteration of two prairie dog towns crossed by Project, loss of eggs or young during construction.	Construct outside nesting period from May 1 to June 15 within prairie dog towns; if construction within nesting period survey for presence; delay construction within 0.25 mile of active nests until chicks have 7 days post hatching; develop Migratory Bird Conservation Plan in consultation with USFWS to avoid or mitigate impacts.
Nelson's (sharp-tailed) sparrow *Ammodramus nelsoni*	Bird – Water	Nests in Sheridan County, Montana May through July, nests in freshwater marshes among emergent vegetation, forage on insects and seeds.	Loss, degradation, and fragmentation of freshwater marsh habitat.	See Black-crowned night heron; documented Montana occurrences not within Project area.	See Black-crowned night heron.

TABLE 3.8.2-1
Evaluation of BLM Sensitive Species Potentially Occurring along the Project ROW in Montana

Species	Group	Occurrence and Habitat	Threats	Potential Impacts	Proposed Conservation Measures
Northern goshawk *Accipiter gentilis*	Bird – Raptor	Year-round Montana resident, breeding primarily in western and winter generally in eastern Montana, nests May to September in mature to conifer forest, forage on tree squirrels, ground squirrels, rabbits	Nesting habitat loss, alteration, and fragmentation due to logging, predation, pesticides, and disturbance.	Not likely to nest in Project area, See Bald eagle.	See Bald eagle
Peregrine falcon *Falco peregrinus*	Bird – Raptor	Year-round Montana resident and breeding resident April to September; nests June and July on ledges and cliffs, often near open habitats, preys on birds, small mammals, lizards.	Disturbance of cliff nesting sites; shooting; egg collecting; the taking of young for falconry; pesticides.	No peregrine falcons or suitable nesting habitat identified within 0.5 mile of Project; construction related disturbance to foraging birds; increased collision mortality from associated power lines.	Develop Migratory Bird Conservation Plan in consultation with USFWS to avoid or mitigate impacts.
Red-headed woodpecker *Melanerpes erythrocephalus*	Bird – Forest	Breeds throughout central and eastern Montana Man and June, deciduous riparian forests, savanna, old burns, nest in cavities, forage on insects, fruit, bird eggs and young.	Habitat loss, alteration, and fragmentation due to firewood cutting and forest clearing for agriculture and suburban development, competition for nesting habitat with invasive birds.	Riparian and wooded draw habitat loss and fragmentation, loss of eggs and young during tree clearing for pipeline construction.	Major rivers crossed using HDD which minimizes riparian habitat disturbance; develop Migratory Bird Conservation Plan in consultation with USFWS to avoid or mitigate impacts.
Sage thrasher *Oreoscoptes montanus*	Bird – Sagebrush	Nest throughout central and eastern Montana April through July, nest on ground or in sagebrush, use sagebrush and shrubs during migration, forage on insects and plant materials.	Loss, alteration, and fragmentation of Sagebrush habitats, grazing, invasive grasses, predation, nest parasitism.	See Brewer's sparrow.	See Brewer's sparrow.
Sedge wren *Cistothorus platensis*	Bird – Water	Breeds northeast corner of Montana May through August, nests near ground in wet sedge meadows and sedge marsh edges, forages on insects.	Wetland habitat loss, alteration, fragmentation due to agricultural and suburban development.,	See Black-crowned night heron; documented Montana occurrences not within Project area.	See Black-crowned night heron.

TABLE 3.8.2-1
Evaluation of BLM Sensitive Species Potentially Occurring along the Project ROW in Montana

Species	Group	Occurrence and Habitat	Threats	Potential Impacts	Proposed Conservation Measures
Sprague's pipit *Anthus spragueii*	Bird – Grassland	Breeds throughout central and eastern Montana during May to August, nests on ground in short-grass and mixed-grass prairie, wet meadows, alkaline wetlands, forage on insects and seeds.	Loss, alteration and fragmentation of native prairie habitats due to conversion to agriculture, wetland drainage, overgrazing, invasion of non-native plants.	See Baird's sparrow.	See Baird's sparrow.
Swainson's hawk *Buteo swainsoni*	Bird – Raptor	Summer resident, breeder throughout Montana April to October, nests May to September in river bottoms, woody draws and shelterbelts, forages on small mammals, songbirds and insects.	Habitat and prey loss due to agriculture, poisoning by pesticides and insecticides	One nest site identified within 0.5 mile of ROW, nesting and prey habitat loss or alteration, disturbance to breeding, foraging areas during construction, collision mortality from project associated power lines.	See Bald eagle.
Yellow-billed cuckoo Eastern DPS *Coccyzus americanus*	Bird – Forest	Nests southern half of Montana in June and July, nests in trees in riparian forests and wooded draws, forages on insects, fruits, small lizards, frogs, bird eggs.	Loss, alteration, fragmentation of riparian habitat.	See Red-headed woodpecker.	See Red-headed woodpecker.
Yellow rail *Coturnicops noveboracensis*	Bird – Water	Nests in northeast corner of Montana, breed in marshes, wet meadows during May through July, forage on snails, insects, seeds.	Wetland habitat loss, alteration or fragmentation for agricultural and suburban development, changes in wetland hydrology reduce habitat suitability.	See Black-crowned night heron; documented Montana occurrences not within Project area.	See Black-crowned night heron.

TABLE 3.8.2-1
Evaluation of BLM Sensitive Species Potentially Occurring along the Project ROW in Montana

Species	Group	Occurrence and Habitat	Threats	Potential Impacts	Proposed Conservation Measures
Milksnake *Lampropeltis triangulum*	Reptile – Snake	Occurs throughout central and eastern Montana, active May through October, hibernates November to March, sandstone bluffs, rock outcrops, grasslands, open ponderosa pine savanna, forage on small vertebrates.	Habitat loss through agricultural and suburban development, collection for pet trade.	Habitat loss or alteration, direct mortality during construction, trapping in open trench, soil compaction, direct mortality from construction vehicles, movement barriers.	Appropriate off-site mitigation measures being discussed with BLM.
Snapping turtle *Chelydra serpentina*	Reptile – Turtle	Occurs lower Yellowstone River basin in eastern Montana, and Missouri River, backwaters of large rivers, reservoirs, ponds, streams with permanent water and sandy or muddy bottoms, nest May to June on land up to several km from water, overwinter in cut banks, submerged log jams or mud bottoms.	Habitat loss through urbanization, overharvest, mortality from vehicles during nesting.	Construction-related mortality during nesting, movement barrier.	Large river habitats crossed using HDD, avoids impacts to shoreline and bottom habitats; appropriate off-site mitigation measures being discussed with BLM.
Spiny-softshell *Apalone spinifera*	Reptile – Turtle	Occurs in Yellowstone River basin Montana, large prairie rivers and slow-moving streams, active May through September, nest in open areas in sand, gravel, soft soil near water, feed on crayfish, aquatic insects, fish.	Recreational beach use, boat collisions, water pollution and urban and agricultural development.	See Snapping turtle.	See Snapping turtle.

TABLE 3.8.2-1
Evaluation of BLM Sensitive Species Potentially Occurring along the Project ROW in Montana

Species	Group	Occurrence and Habitat	Threats	Potential Impacts	Proposed Conservation Measures
Western Hog-nosed snake *Heterodon nasicus*	Reptile – Snake	Occur in central and eastern Montana along major river systems and tributaries; active May through October, sagebrush grasslands with sandy soil, forage on frogs, toads, small mammals, reptiles.	Habitat loss due to conversion of prairie habitat to agriculture and drainage of prairie wetlands, vehicle collisions,	See Milksnake.	See Milksnake.
Great Plains toad *Bufo cognatus*	Amphibian – Toad	Occur throughout central and eastern Montana, grasslands near glacial potholes, stock ponds, irrigation ditches, coulees, breed in temporary pools flooded grasslands May to July, active May to September, may use prairie dog burrows during droughts, feed on insects.	Drought, predation, habitat alteration and destruction, hydrological changes, road kills.	Ephemeral wetland habitat loss or alteration, loss of eggs or tadpoles during construction, loss of inactive adults during winter construction, vehicle collisions, movement barrier.	Appropriate off-site mitigation measures being discussed with BLM.
Greater short-horned lizard *Phrynosoma hernandesi*	Reptile – Lizard	Occur throughout central and eastern Montana, active April to October, dry open forests, grasslands and sagebrush with sun-baked soil, ridges between coulees, limestone outcrops, forage on insects.	Habitat loss due to conversion to agriculture, sagebrush clearing, off-road vehicle traffic, road building, pesticides.	Habitat loss and alteration, vehicle collisions, movement barrier.	Appropriate off-site mitigation measures being discussed with BLM.
Northern leopard frog *Rana pipiens*	Amphibian – Frog	Occur throughout central and eastern Montana, active March to November, ponds, pools in intermittent streams, wetlands.	Wetland and aquatic habitat loss and alteration, introduction of non-native aquatic animals, pesticides.	Wetland habitat loss or alteration, loss of eggs or tadpoles during construction, loss of inactive adults during winter construction, vehicle collisions, movement barrier.	See Great Plains toad.

TABLE 3.8.2-1
Evaluation of BLM Sensitive Species Potentially Occurring along the Project ROW in Montana

Species	Group	Occurrence and Habitat	Threats	Potential Impacts	Proposed Conservation Measures
Plains spadefoot *Spea bombifrons*	Amphibian – Toad	Occurs throughout central and eastern Montana, active May to August, sagebrush-grasslands with soft sandy/gravelly soils near permanent or temporary water, burrow up to 1 meter deep, forage on insects	Wetland and aquatic habitat loss and alteration, introduction of non-native aquatic animals, pesticides, vehicle collisions.	See Great Plains toad.	See Great Plains toad.
Northern redbelly and finescale dace hybrid *Phoxinus eos* and *Phoxinus neogaeus*	Fish – Minnow	Upper Missouri River and tributaries north of Milk River in Montana, beaver ponds, bogs and clear streams, hybrid dace are female clones, slow-flowing creeks and ponds, spawn spring and early summer, forage on diatoms, algae, zooplankton, insects.	Stream alteration, dewatering, pollution, pesticides.	No suitable habitat crossed by Project on BLM lands; potential occurrences in Redwater River crossed MP 146.6 McCone County, Montana; stream, pond or bog habitat loss or alteration, stream dewatering hydrostatic test source, erosion, siltation, movement barrier, loss of eggs, larval, juvenile fish during construction.	Open Cut-Dry trench method to be used for Redwater River crossing, screening of water intake, to prevent entrainment; ongoing consultation with agencies regarding spawning periods and construction schedules.
Paddlefish *Polyodon spathula*	Fish – Paddlefish	Missouri and Yellowstone rivers in Montana; quiet waters of large rivers or impoundments, spawn on the gravel bars of large rivers during late spring and early summer high water.	Habitat loss and alteration through dam construction; stream dewatering; overharvest; pollution; pesticides.	No suitable habitat crossed by Project on BLM lands; habitat loss or alteration; stream dewatering during hydrostatic testing; entrainment of eggs or larval fish.	Missouri and Yellowstone rivers crossed using HDD avoid instream impacts; screening of water intake, to prevent entrainment; ongoing consultation with agencies regarding spawning periods and construction schedules.

TABLE 3.8.2-1
Evaluation of BLM Sensitive Species Potentially Occurring along the Project ROW in Montana

Species	Group	Occurrence and Habitat	Threats	Potential Impacts	Proposed Conservation Measures
Pearl dace *Margariscus margarita*	Fish – Minnow	Cool tributaries of the Missouri River including Milk River, Frenchman, Rock, and Willow creeks in Montana; spawn in spring over gravel or sand.	Habitat loss and alteration; stream dewatering; pollution, pesticides.	No suitable habitat crossed by Project on BLM lands; habitat loss or alteration; stream dewatering during hydrostatic testing; entrainment of eggs or larval fish.	Missouri and Milk river crossed using HDD avoid instream impacts; Frenchman, rock and Willow creeks crossed using open cut-dry method; screening of water intake to prevent entrainment; ongoing consultation with agencies regarding spawning periods and construction schedules.
Sauger *Sander canadensis*	Fish – Perch	Occurs in Missouri, Milk, Yellowstone rivers; Frenchman and Boxelder creeks in Montana; found in turbid rivers and muddy shallows of lakes and reservoirs; spawn mainstem, large tributaries with bluff pools rocky substrates, forage on fish, insects.	Spawning and rearing habitat loss and alteration, overharvest, stream dewatering.	No suitable habitat crossed by Project on BLM lands; habitat loss or alteration, stream dewatering hydrostatic test source, erosion, siltation, movement barrier, loss of eggs, larval, juvenile fish during construction.	Missouri, Milk and Yellowstone rivers crossed using HDD method, Frenchman and Boxelder creeks open cut-dry method; screening of water intake to prevent entrainment; ongoing consultation with agencies regarding spawning periods and construction schedules.
Sturgeon chub *Macrhybopsis gelida*	Fish – Minnow	Occurs in Missouri, Milk and Yellowstone rivers; turbid water with moderate to strong current over bottoms ranging from rocks and gravel to coarse sand; spawning June through July.	Habitat alteration by dam operations; irrigation operations and development.	No suitable habitat crossed by Project on BLM lands; habitat loss or alteration, stream dewatering hydrostatic test source, loss of eggs, larval, juvenile fish during water withdrawal .	Missouri, Milk and Yellowstone rivers crossed using HDD method avoids instream impacts; screening of water intake to prevent entrainment; ongoing consultation with agencies regarding spawning periods and construction schedules.

TABLE 3.8.2-1
Evaluation of BLM Sensitive Species Potentially Occurring along the Project ROW in Montana

Species	Group	Occurrence and Habitat	Threats	Potential Impacts	Proposed Conservation Measures
Bractless blazingstar [Bractless mentzelia] *Mentzelia nuda*	Plant – Biennial Forb	Occurs in Dawson and Valley counties in Montana; sandy or gravelly soil of open hills and roadsides, flowers July.	Habitat loss, alteration, or fragmentation; spread of invasive plants.	Potentially occurs on BLM land in Valley County; construction could cause loss of individual plants, reduction in available habitat suitability; spread of invasive plants.	Pre-construction clearance surveys on BLM lands in Valley County; topsoil would be segregated for reestablishment of the seed bank within the ROW; habitat would be restored to pre-construction conditions.
Broadbeard beardtongue [Narrowleaf Penstemon] *Penstemon angustifolius*	Plant – Perennial Forb	Occurs in Dawson and Fallon counties in Montana; grasslands on hills and slopes with sandy soil; often abundant in blowouts or sparsely-vegetated areas; flowers May through June.	Habitat loss, alteration, or fragmentation; spread of invasive plants.	Potentially occurs on BLM land in Fallon County; construction could cause loss of individual plants, reduction in available habitat suitability; spread of invasive plants.	Pre-construction clearance surveys on BLM lands in Fallon County; topsoil would be segregated for reestablishment of the seed bank within the ROW; habitat would be restored to pre-construction conditions.
Persistent-sepal yellow-cress *Rorippa calycina*	Plant – Perennial Forb	Occurs in McCone County, Montana; found on sparsely vegetated, moist sandy to muddy banks of streams, stock ponds and man-made reservoirs near the high water line; flower and fruit May through July.	Habitat loss, alteration, or fragmentation; spread of invasive plants.	Potentially occurs on BLM land in McCone County; construction could cause loss of individual plants, reduction in available habitat suitability; spread of invasive plants.	Pre-construction clearance surveys on BLM lands in McCone County; topsoil would be segregated for reestablishment of the seed bank within the ROW; habitat would be restored to pre-construction conditions.
Prairie phlox [Plains phlox] *Phlox andicola*	Plant – Perennial Forb	Occurs in Dawson County, Montana; sandy soils in grasslands and ponderosa pine woodland, often associated with sparsely vegetated blowouts and loose sand below sandstone outcrops, flowers May and early June.	Habitat loss, alteration, or fragmentation; fire suppression, spread of invasive plants.	No BLM lands in Dawson County crossed by Project; construction could cause loss of individual plants, reduction in available habitat suitability; spread of invasive plants.	Topsoil would be segregated for reestablishment of the seed bank within the ROW; habitat would be restored to pre-construction conditions.

Sources: Adams 2003, AFS 2009, BLM 2009, Ehrlich et al. 1988, Foresman 2001, Green et al. 2002, MSGWG 2005, MTNHP 2009, NatureServe 2009, Schmutz et al. 1990, Suter and Jones 1981, USDA NRCS 2009, USDI BR and MTDNR 2002, USDI GBWG 1996, Werner et al. 2004, White et al. 1979.

3.8.3 State-Protected Animals and Plants

All states crossed by the Project, except Montana, maintain listings of endangered and threatened species, and afford additional protections to these species. Montana maintains a listing of species of conservation concern and those species that are only listed in Montana are discussed in Appendix I. Those species that are listed in Montana and are also state-protected in other states are presented here. The protections afforded animals and plants on these lists are established within the statutes for each state. Table 3.8.3-1 lists state endangered and threatened species that have been identified through consultations with state resource agencies as potentially occurring along the Project ROW. State-protected animals and plants that are also federally protected or are candidates for federal protection are discussed in Section 3.8.1. State-protected species potentially occurring along the Project ROW include 3 mammals, 9 birds, 6 reptiles, 13 fish and 1 plant. Potential Project-related impacts to state-protected animals and plants along with proposed conservation measures would be similar to impacts and mitigation discussed in Section 3.6 for wildlife and Section 3.5 for plants. Summaries of potential project related impacts and conservation measures are presented in Table 3.8.3-2. Additional occurrence information, impact discussions, and conservation measures are presented in the following sections.

3.8.3.1 State-Protected Mammals

Rafinesque's Big-Eared Bat

Rafinesque's big-eared bats occur in bottomland forested habitats and hibernate in caves. Summer roosts are often in hollow trees, but may occasionally be under loose bark or in abandoned structures.

Potential Impacts and Conservation Measures

This bat may occur in eastern Texas, however, there are no known roosting sites within the Project area and this bat is not expected to be affected by the Project (Campbell 2003).

River Otter

River otters are adaptable and use a variety of habitat types, but require aquatic habitats. Although they frequent lakes and ponds, river otters typically live in marshes and along wooded rivers and streams with sloughs and backwater areas. Otters use dens in the ground that were previously built by beavers or other animals. Denning occurs during March to September. Most river otter mortality is related to human activity. In Nebraska, accidental trapping has been the largest known mortality factor for reintroduced animals. Habitat destruction, pesticide use, and pollutants also affect the species (NGPC 2009c). River otters are likely to occur throughout the Project area along large rivers.

Potential Impacts and Conservation Measures

To minimize impacts to river otters, Keystone would implement the following measures:

- Surveys for river otters would occur prior to Project construction along the Bad River, White River, and Cheyenne River in South Dakota; along the Niobrara River, Loup River, North Branch Elkhorn River, South Fork Elkhorn River, Cedar River and Platte River in Nebraska if suitable den habitat occurs near the river crossings and if construction would occur during the denning period;
- Construction activities would be restricted within 0.25 mile of active natal dens; and

- All of the rivers identified as potentially supporting river otters, except the Bad River in South Dakota, and the North Branch and South Fork Elkhorn River in Nebraska would be crossed using the HDD construction method which would avoid impacts to shoreline habitats that could potentially be used by denning river otters.

Swift Fox

Swift foxes were historically widely distributed throughout the central Great Plains. Swift fox use open prairie and arid plain habitats, including areas intermixed with winter wheat fields. Swift fox are thought to have been common on the eastern plains of Montana in the early 1900s but were believed to be exterminated in the state by 1969. Reintroductions of the swift fox on the Blackfeet Indian Reservation, Fort Peck Indian Reservation, and in southern Alberta and Saskatchewan from 1983 to 1991 are likely to be the source of expanding populations in Montana (MTNHP 2009, Foresman 2001). Swift foxes create dens within burrows. A fox may dig a burrow or use a burrow made by other animals, usually in sandy soil on high ground in open prairies, along fencerows, and occasionally in plowed fields. Individuals may use several different dens throughout the year (NatureServe 2009). Reasons for declines in swift fox populations include habitat loss, alteration, and fragmentation due to agriculture and mineral extraction, and collision with automobiles (NatureServe 2009).

The Project occurs within swift fox range in Phillips, Valley, Dawson, and Prairie Counties in Montana (Keystone 2009c, Kahn et al. 1997) and in Haakon and Jones counties in South Dakota between the reintroduction sites of the Bad River Ranches (Turner Endangered Species Fund), Badlands National Park, and the Lower Brule Sioux Tribe Reservation (SDGFD 2009). Additionally, the Project crosses suitable habitat in Fallon and McCone counties in Montana and in Harding, Butte, Perkins, Meade, Pennington counties in South Dakota (Kahn et al. 1997). Montana Natural Heritage Program data indicates that swift fox have not been reported within 5 miles of the Project route. South Dakota National Heritage Program (SDNHP) data indicate three swift fox records in Haakon County along the Project route between MP 452.3 and 468.0. The Project would not cross the known distribution of the swift fox in Nebraska.

Potential Impacts and Conservation Measures

Potential impacts to swift fox occurring along the Project route include a temporary loss of foraging and/or denning habitat. Adult foxes would be disturbed by increased human presence and associated construction activities (noise, dust), however, because they are mobile, displacement would likely be temporary and foxes would likely return to the Project area after construction is completed.

If occupied swift fox dens occur within the Project construction ROW, Project construction could result in a loss of individual animals and young. It is assumed that both adults and young would not avoid construction activities and would remain in or near natal den sites that could be directly removed by trenching activities or collapsed due to vehicle operation. Construction activities prior to March would avoid direct effects to pups, if present. Loss of individual animals would result in an incremental reduction in the local population, however, no significant population effects are anticipated. If construction activity would occur in suitable habitat in the counties mentioned above during the breeding season (spring/summer), where dens are present, restrictions on construction activities would be required.

To minimize impacts to swift foxes, Keystone would implement the following measures:

- Revegetation of the ROW to support small mammal and insect prey;
- Conduct surveys of potential den sites; and

- Restrict construction activities within 0.25 mile of active natal dens between April 1 and August 31.

Connected Actions

The proposed 230 kV transmission line in southern South Dakota would cross the Lower Brule Sioux Reservation. Construction of this transmission line could potentially impact a reintroduction area for the swift fox. Potential impacts to swift fox may include a temporary loss of foraging and/or denning habitat, disturbance by increased human presence and associated construction activities (noise, dust), however, because they are mobile, displacement would likely be temporary and foxes would likely return after construction is completed.

TABLE 3.8.3-1
State-Protected Animals and Plants Potentially Occurring along the Project Route

Species	Federal and BLM Status	State Status and Occurrence						Comments
		MT	SD	NE	KS	OK	TX	
MAMMALS								
Rafinesque's big-eared bat *Corynorhinus rafinesquii*						SC	T	Southeastern US, forest and riparian habitats, roosts in caves, hollow trees, eats insects.
River otter *Lontra canadensis*			T	T		SC		North America, uses aquatic and riparian habitats, burrows along shorelines, eats fish.
Swift fox *Vulpes velox*	BLM-S	SC	T	E		SC		Central Plains, uses habitats with high densities of small mammal prey, uses dens year-round.
BIRDS								
Bachman's sparrow *Aimophila aestivalis*						SC	T	Southeastern US, nest on ground in open pine savanna, resident or short-distance migrant.
Bald eagle *Haliaeetus leucocephalus*	DM BLM-S	SC	T		T		T	North America, breeds and winters in areas near water, eats fish and waterfowl; resident and migrant populations.
Mountain plover *Charadrius montanus*	BLM-S	SC		T		SC		Great Plains, nests in short-grass prairie with prairie dogs, eats insects and seeds, long-distance migrant.
Peregrine falcon *Falco peregrinus*	DM BLM-S	SC	E				T	North America, nests on ledges, cliffs; eats birds, winters coastal Project area, resident and migrant.
Reddish egret *Egretta rufescens*							T	Caribbean, coastal US, mangroves, large rivers colonial nests, eats fish, resident and short-distance migrant.
Swallow-tailed kite *Elanoides forficatus*							T	Southeastern US, nests in Trinity, Neches and Sabine watersheds, colonial, eats insects, long-distance migrant.
White-faced Ibis *Plegadis chihi*	BLM-S	SC					T	North America, marshes, colonial nests floating plants or low trees, eats animals, resident and migrant.
White-tailed hawk *Buteo albicaudatus*							T	Coastal Texas, prairies, savanna, chaparral, nests in trees and shrubs, eats animals, resident.
Wood stork *Mycteria americana*							T	Coastal North America, marshes and lagoons, colonial nests and roosts in trees, eats fish, resident.
REPTILES								
Alligator snapping turtle *Macrochelys temminckii*						SC	T	Central North America, Mississippi; large rivers, lakes; nests sandy soils near water; eats aquatic animals.

TABLE 3.8.3-1
State-Protected Animals and Plants Potentially Occurring along the Project Route

Species	Federal and BLM Status	State Status and Occurrence						Comments
		MT	SD	NE	KS	OK	TX	
Massasauga *Sistrurus catenatus*				T				Central US, Great Lakes region; wet prairies, marshes, uplands; uses burrows, eats animals, short migrations.
Northern scarletsnake *Cemophora coccinea copei*						SC	T	East and Central US; forest and riparian habitats with sandy or loamy soils for digging; eats animals.
Smooth green snake *Liochlorophis vernalis*		SC					T	Central, Northeast, Great Lakes US; short-grass prairies, marshes, forest edge; burrows; eats insects.
Texas horned lizard *Phrynosoma cornutum*						SC	T	Southwest US; deserts, grasslands with sandy to rocky soils; burrows; eats insects.
Timber [canebrake] rattlesnake *Crotalus horridus*							T	Central and East US; forests and woodlands near water; burrows; hibernates in rocky outcrops; eats small animals.
FISH								
Blacknose shiner *Notropis heterolepis*			E	E				Northern US; Keya Paha, Niobrara rivers and tributaries, Spring Creek, SD, NE; weedy lakes streams; eats insects.
Blackside darter *Percina maculata*					T	T	T	Central US; Red, Sulfur, Cypress river drainages, OK, TX; clear gravel or sand bottom streams, eats insects.
Blue sucker *Cycleptus elongatus*		SC				SC	T	Central US; Missouri, Red rivers, MT, OK, TX; large rivers, migrates, spawns on riffles, bottom feeder.
Bluehead shiner *Pteronotropis hubbsi*						SC	T	Central US; Ouachita, Red river drainages, OK, TX; backwaters streams, spawn on roots; omnivorous.
Creek chubsucker *Erimyzon oblongus*							T	Central, East US; Red, Sabine, Neches, Trinity, San Jacinto rivers, OK, TX; streams, rivers; omnivorous.
Finescale dace *Phoxinus neogaeus*			E	T				North US; Keya Paha, Niobrara, SF Elkhorn rivers, Spring Creek, SD, NE; bogs, creeks, rivers, eats invertebrates.
Longnose sucker *Catostomus catostomus*			T					North US; Keya Paha tributaries; cold clear lakes and streams; spawns over gravel; eats invertebrates.
Northern redbelly dace *Phoxinus eos*	BLM-S		T	T				North US; Keya Paha, Niobrara rivers and tributaries, Spring Creek, SD, NE; boggy lakes, streams; herbaceous.
Paddlefish *Polyodon spathula*	BLM-S	SC					T	Central US; Missouri, MT, Red, Neches, Trinity, San Jacinto, TX; slow rivers, spawns on gravel; eats plankton.
Pearl dace *Margariscus margarita*	BLM-S	SC	T					North US; Missouri River, MT, Keya Paha tributaries, SD; bogs, clear streams, spawns on sand-gravel; omnivorous.
Shovelnose sturgeon *Scaphirhynchus platorynchus*						SC	T	Central US; Red River and tributaries, OK, TX; large, deep turbid rivers; bottom feeder.

TABLE 3.8.3-1
State-Protected Animals and Plants Potentially Occurring along the Project Route

Species	Federal and BLM Status	State Status and Occurrence						Comments
		MT	SD	NE	KS	OK	TX	
Sicklefin chub *Macrhybopsis meeki*		SC	E		E			Missouri River, MT, SD, NE, KS; Yellowstone, Milk rivers, MT; large warm rivers with gravel, sand; bottom feeder.
Sturgeon chub *Macrhybopsis gelida*	BLM-S	SC	T	E	T			Missouri River; Yellowstone, Milk rivers, MT; Cheyenne and White rivers SD; large turbid rivers; bottom feeder.
PLANTS								
Small white lady's slipper *Cypripedium candidum*				T				North Central, Northeast US; perennial orchid, mesic to wet native prairie, flowers May to June.

DM = Federally delisted

E = Endangered

T = Threatened

SC = Species of Concern

BLM-S = BLM Sensitive

TABLE 3.8.3-2
Evaluation of State-Protected Animals and Plants Potentially Occurring along the Project Route

Species	Group	Habitat	Threats	Potential Impacts	Proposed Conservation Measures
Rafinesque's big-eared bat *Corynorhinus rafinesquii*	Mammal	Forests and riparian areas; roost in caves, hollow trees, and abandoned buildings.	Loss of roosting trees; disturbance of other roosting sites.	Removal of roosting trees; disturbance of other types of roosts; none expected.	No proposed mitigation; species is unlikely to occur in Project area.
River otter *Lontra canadensis*	Mammal	Lakes, ponds, marshes and along wooded rivers and streams with sloughs and backwater areas	Accidental trapping; habitat fragmentation; the introduction of pesticides and pollutants into the food chain	Riparian habitat loss and fragmentation.	Survey for river otters at river crossings if they contain suitable den habitat and construction would occur during denning season; restrict construction activities within 0.25 mile of active natal dens.
Swift fox *Vulpes velox*	Mammal	Prairie habitats with high density of small mammals (ground squirrels or prairie dogs), its primary prey.	Habitat loss, alteration or fragmentation due to conversion to agriculture and mineral extraction, vehicle mortality, prairie dog poisoning.	Temporary loss of den or foraging habitat, disturbance and increased human presence during construction, vehicle mortality.	Survey for den sites in appropriate locations; restrict construction activities within 0.25 of active natal den sites.
Bachman's sparrow *Aimophila aestivalis*	Bird – Grassland	Open pine savannas with high density groundcover and low density mid and overstory.	Habitat loss, alteration, and fragmentation due conversion of longleaf pine forests to pine plantations, fire suppression, nest parasitism.	Loss, alteration, or fragmentation of native grasslands within native open pine savanna habitat; loss of eggs and young due to vegetation clearing and construction during nesting season.	Develop Migratory Bird Conservation Plan in consultation with USFWS to avoid or mitigate potential Project impacts.
Bald eagle *Haliaeetus leucocephalus*	Bird – Raptor	Nesting and perching trees near water with primary prey species (fish and waterfowl) present	Habitat loss which decreases nesting sites and food supply; disturbance by humans; poisons and contaminants.	Five nests sited along ROW: 2 in MT, 2 in NE, 1 in OK; loss of nest and roost sites; disturbance to breeding or roosting areas during construction; loss or injury through collision or electrocution from power lines.	Consult with USFWS under the BGEPA for protective buffers around nests and roosts; inform power providers of requirement to consult with USFWS under BGEPA.

TABLE 3.8.3-2
Evaluation of State-Protected Animals and Plants Potentially Occurring along the Project Route

Species	Group	Habitat	Threats	Potential Impacts	Proposed Conservation Measures
Mountain plover *Charadrius montanus*	Bird – Grassland	Arid shortgrass prairie, often in association with prairie dog colonies	Native habitat is being losses to agriculture; suitable breeding habitat declining due to declines in populations of grazers which maintain short grass.	Habitat degradation and loss	Construct outside nesting period within prairie dog colonies, survey if within this period, and buffer of 0.25 mile if nests are found.
Peregrine falcon *Falco peregrinus*	Bird – Raptor	Nests on ledges and cliffs, often near water with prevalent prey base (birds)	Disturbance of cliff nesting sites; shooting; egg collecting; the taking of young for falconry; pesticides.	Habitat alteration and loss.	No specific measures; species not known or expected in Project area.
Reddish egret *Egretta rufescens*	Bird – Water	Shallow salt and brackish waters for hunting; mixed species colonial nesting in mangroves.	Habitat loss due to coastal development and harvest of mangroves; human disturbance from recreation in coastal areas, pesticides, predation.	Habitat loss or alteration, disturbance during breeding.	No coastal habitat impacts from Project; develop Migratory Bird Conservation Plan in consultation with USFWS to avoid or mitigate potential Project impacts.
Swallow-tailed kite *Elanoides forficatus*	Bird – Raptor	Temperate, tropical and subtropical habitats with forests and open areas for foraging generally with associated wetlands; breeds in Trinity River, Neches River, and Sabine River watersheds.	Prairie habitat loss due to conversion to agriculture, wetland drainage, logging; predation; pesticides.	Habitat loss or alteration, disturbance during breeding.	No known nest sites in the Project area; develop Migratory Bird Conservation Plan in consultation with USFWS to avoid or mitigate potential Project impacts.
White-faced ibis *Plegadis chihi*	Bird – Water	Freshwater marshes, swamps, wetlands, and rivers; nests in colonies on floating vegetation or in low trees above shallow water.	Wetland habitat loss and altered water level fluctuations; pesticide contamination from wintering areas in Mexico.	Wetland habitat loss, hydrologic alteration or fragmentation, disturbance during breeding.	Not known to nest within the Project area; develop Migratory Bird Conservation Plan in consultation with USFWS to avoid or mitigate potential Project impacts.

TABLE 3.8.3-2
Evaluation of State-Protected Animals and Plants Potentially Occurring along the Project Route

Species	Group	Habitat	Threats	Potential Impacts	Proposed Conservation Measures
White-tailed hawk *Buteo albicaudatus*	Bird – Raptor	Coastal prairies, cordgrass flats, scrub-live oak; further inland on prairies, mesquite and oak savannas, mixed savanna-chaparral.	Habitat loss or alteration; pesticide runoff.	Habitat loss or alteration, disturbance during breeding.	No known nest sites in the Project area; develop Migratory Bird Conservation Plan in consultation with USFWS to avoid or mitigate potential Project impacts.
Wood stork *Mycteria americana*	Bird – Water	Coastal marshes, swamps, lagoons, ponds, flooded fields; brackish wetlands; nests and roosts communally.	Draining and alteration of wetland habitats resulting in inadequate forage, low productivity, nesting habitat loss from logging and development, human disturbance.	Wetland habitat loss, hydrologic alteration or fragmentation, disturbance during breeding.	No known nest sites in Project area; develop Migratory Bird Conservation Plan in consultation with USFWS to avoid or mitigate potential Project impacts.
Alligator snapping turtle *Macrochelys temminckii*	Reptile – Turtle	Large rivers, lakes, canals; swamps and marshes adjacent to rivers.	Habitat alteration and fragmentation, water pollution, illegal harvest, and incidental mortality from commercial fishers	Habitat loss, alteration, or fragmentation due to waterbody crossings or hydrostatic testing water withdrawal; disturbance of nesting sites; construction mortality; mortality from construction vehicles.	Most large rivers crossed using HDD which avoids direct impacts to in-river habitats.
Massasauga *Sistrurus catenatus*	Reptile – Snake	Wet prairies, marshes, and low areas along rivers and lakes, and adjacent uplands during part of the year, uses crayfish burrows.	Habitat loss, alteration, and fragmentation; late season buring; summer mowing; mortality from vehicles.	Habitat loss, alteration, or fragmentation due to vegetation removal, hydrologic changes or soil compaction; construction mortality of hibernating snakes; mortality from construction vehicles.	Site specific surveys in Jefferson County, Nebraska, prior to construction activities to clear the area for snakes; continued consultation with NGFP if species occurs within the construction area.

TABLE 3.8.3-2
Evaluation of State-Protected Animals and Plants Potentially Occurring along the Project Route

Species	Group	Habitat	Threats	Potential Impacts	Proposed Conservation Measures
Northern scarletsnake *Cemophora coccinea copei*	Reptile – Snake	Upland environments in the vicinity of marshes, swamps, or other bodies of water; areas with well-drained soil to facilitate burrowing.	Habitat loss, alteration, and fragmentation; collection for pet trade; vehicle mortality.	Habitat loss, alteration, or fragmentation due to vegetation removal, hydrologic changes, or soil compaction; construction mortality of hibernating snakes; mortality from construction vehicles.	No specific measures; species not known or expected in Project area.
Smooth green snake *Liochlorophis vernalis*	Reptile – Snake	Coastal shortgrass prairies, riparian areas, open woodlands.	Habitat loss and degradation, especially conversion of native shortgrass prairie.	Loss, alteration, or fragmentation of shortgrass prairie habitat; construction mortality of hibernating snakes; mortality from construction vehicles.	No specific measures; species not known or expected in Project area.
Texas horned lizard *Phrynosoma cornutum*	Reptile – Lizard	Arid or semi-arid areas of flat, open terrain with sparse plant cover.	Habitat loss and degradation; pesticide use; over-collection; invasion of the red imported fire ant.	Loss or fragmentation of habitat; further invasion by fire ant due to disturbed soils; direct mortality from vehicles; none expected.	No specific measures; species not known or expected in Project area.
Timber (canebrake) rattlesnake *Crotalus horridus*	Reptile – Snake	Moist lowland forest; hilly woodlands near rivers, streams, and lakes.	Habitat loss and degradation, especially deforestation.	Lowland forest habitat loss, alteration, or fragmentation; construction mortality to hibernating snakes; mortality from construction vehicles.	No specific measures; species not known or expected in Project area.
Blacknose shiner *Notropis heterolepis*	Fish – Minnow	Clean, cool, well-oxygenated streams with abundant aquatic vegetation.	Habitat alteration due to increased turbidity, siltation and disappearance of aquatic vegetation; long disturbance and loss of vegetated backwaters cited as responsible for declines.	Habitat loss or alteration due to increased turbidity, erosion, siltation, altered hyporheic flow; removal of riparian and instream vegetation during construction.	Survey for occurrence within suitable habitats crossed in tributaries of the Niobrara and South Fork Elkhorn rivers; consult with NGPC on conservation measures if blacknose shiners are found within surveyed streams.
Blackside darter *Percina maculata*	Fish – Perch	Pools of creeks and small to medium rivers, usually with moderate current and gravel or sand bottoms	Highly intolerant of organic pollutants.	Habitat loss or alteration due to increased turbidity, erosion; fuel spills during construction.	No specific measures or surveys requested.

TABLE 3.8.3-2
Evaluation of State-Protected Animals and Plants Potentially Occurring along the Project Route

Species	Group	Habitat	Threats	Potential Impacts	Proposed Conservation Measures
Blue sucker *Cycleptus elongatus*	Fish – Sucker	Large rivers, usually in channels and flowing pools with moderate current.	Over fishing, habitat loss due to surface water depletion, impaired water quantity and quality; migration barriers due to dams.	Habitat loss or alteration; reduced water quantity; entrainment of eggs or juveniles.	Missouri, Milk, Yellowstone, and Red rivers would be crossed using HDD method avoid impacts; screening of water intake to prevent entrainment.
Bluehead shiner *Notropis hubbsi*	Fish – Minnow	Quiet backwater areas of small to medium-sized, sluggish streams and oxbow lakes having mud or mud-sand substrate.	Habitat loss, and degradation due to draining, filling, farming or flooding of backwater habitats; dispersal barriers.	Habitat loss or alteration; reduced water quality during construction; disruption of spawning; entrainment of adults, eggs, or larval fish.	No specific measures; species not known or expected in Project area.
Creek chubsucker *Erimyzon oblongus*	Fish – Sucker	Inhabits sand and gravel-bottomed pools of clear headwaters, creeks and small rivers, often near vegetation.	Habitat alteration, pollution.	Habitat loss or alteration; reduced water quality during construction; disruption of spawning; entrainment of adults, eggs, or larval fish.	Red, Sabine, Neches, Trinity, and San Jacinto rivers would be crossed using HDD method avoid impacts; screening of water intake to prevent entrainment.
Finescale dace *Phoxinus neogaeus*	Fish – Minnow	Headwater streams, beaver ponds, and small spring-fed lakes and bogs.	Habitat alteration and introduction of non-native fishes.	Fine sediments from construction activities could displace foraging dace.	No specific measures; species not known or expected in Project area.
Northern redbelly dace *Phoxinus eos*	Fish – Minnow	Sluggish, spring-fed streams with abundant vegetation and woody debris.	Habitat alteration, turbidity, erosion, sedimentation and flow alterations.	Fine sediments from construction activities could displace foraging dace; disrupt spawning; movement barriers.	Survey for occurrence within suitable habitats crossed in tributaries of the Keya Paha River in South Dakota or in tributaries of the Niobrara and South Fork Elkhorn rivers in Nebraska; consult with SDGFP and NGPC on conservation measures if northern redbelly dace are found within surveyed streams.

TABLE 3.8.3-2
Evaluation of State-Protected Animals and Plants Potentially Occurring along the Project Route

Species	Group	Habitat	Threats	Potential Impacts	Proposed Conservation Measures
Paddlefish *Polyodon spathula*	Fish – Paddlefish	Quiet waters of large rivers or impoundments, spawning on the gravel bars of large rivers during late spring and early summer high water.	Habitat loss and alteration through dam construction; stream dewatering; overharvest; pollution; pesticides.	Habitat loss or alteration; stream dewatering during hydrostatic testing; entrainment of eggs or larval fish.	Missouri, Yellowstone, Red rivers would be crossed using HDD method avoid impacts; screening of water intake to prevent entrainment.
Pearl dace *Margariscus margarita*	Fish – Minnow	Cool bogs, ponds, beaver ponds, lakes, creeks and clear streams.	Habitat alteration, turbidity, erosion, sedimentation and flow alterations.	Fine sediments from construction activities could displace foraging dace.	Keya Paha River in South Dakota or in tributaries of the Niobrara and South Fork Elkhorn rivers in Nebraska which would be surveyed for northern redbelly dace.
Shovelnose sturgeon *Scaphirhynchus platorynchus*	Fish – Sturgeon	Lives at or near the bottom of large rivers with a sand substrate.	Habitat loss and alteration; blockage of movements by dams.	Habitat loss or alteration; stream dewatering during hydrostatic testing; entrainment of eggs or larval fish.	Missouri, Milk, Yellowstone rivers in Montana; Niobrara and Platte rivers in Nebraska; Red River in Oklahoma and Texas would be crossed using HDD method avoid impacts; screening of water intake to prevent entrainment.
Sicklefin chub *Macrhybopsis meeki*	Fish – Minnow	Main channels of large, turbid rivers where they live in a strong current over a bottom of sand or fine gravel	Habitat alteration by dam operations; dewatering for irrigation and development.	Habitat loss or alteration; stream dewatering during hydrostatic testing; entrainment of eggs or larval fish.	Missouri, Milk, Yellowstone rivers in Montana; Cheyenne and White rivers in South Dakota; Platte River in Nebraska would be crossed using HDD method avoid impacts; screening of water intake to prevent entrainment.

TABLE 3.8.3-2
Evaluation of State-Protected Animals and Plants Potentially Occurring along the Project Route

Species	Group	Habitat	Threats	Potential Impacts	Proposed Conservation Measures
Sturgeon chub *Macrhybopsis gelida*	Fish – Minnow	Turbid sandy rivers over bottoms of gravel to coarse sand	Habitat alteration by dam operations; irrigation operations and development.	Habitat loss or alteration; stream dewatering during hydrostatic testing; entrainment of eggs or larval fish.	Cheyenne and White rivers in South Dakota; Platte River in Nebraska would be crossed using HDD method avoid impacts; screening of water intake to prevent entrainment.
Small white lady's slipper *Cypripedium candidum*	Plant – Perennial Forb	Mesic black soil prairie, wet black soil prairie, glacial till hill prairie, sedge meadow, calcareous fen, glade; calcareous soils.	Habitat loss due to conversion of wet prairies to cropland and heavy livestock grazing; competition from invasive plants such as smooth brome and reed canary grass; herbicides.	Habitat loss, alteration or fragmentation; loss of plants due to soil and vegetation disturbance.	Suitable habitat identified between Keya Paha County and northern York County, Nebraska and Tripp County, South Dakota; surveys for presence/absence during the May 15 to June 7 flowering period in Nebraska.

Note: All state-protected birds listed are protected under the Migratory Bird Treaty Act.

3.8.3.2 State-Protected Birds

State-protected birds fall into three groups based on ecology and habitat use; raptors, grassland birds, and water birds. Summaries of potential Project-related impacts and proposed conservation measures are presented in Table 3.8.3-2. Additional occurrence information, impact discussions, and conservation measure descriptions are presented in the following section. All of the state-protected birds listed in Tables 3.8.3-1 and 3.8.3-2 are considered migratory and are federally protected under the MBTA. In addition, bald eagles are also federally protected under BGEPA. Keystone would develop a Migratory Bird Conservation Plan in consultation with USFWS to avoid or mitigate potential Project-related impacts to migratory birds.

Raptors

Peregrine Falcon

The peregrine falcon is a non-breeding resident, breeding resident, permanent resident, or migrant throughout the U.S., primarily west of the Project area; although non-breeding residents are found throughout the east and Gulf of Mexico coasts. Two of the three recognized subspecies could occur within the Project area: the American peregrine falcon (*Falco peregrinus anatum*) and the Arctic peregrine falcon (*Falco peregrinus tundrius*). Both subspecies were previously federally protected as endangered under the ESA but have been delisted. The American peregrine falcon nests across interior Alaska and across Canada south to Baja California and northern Mexico. The Arctic peregrine falcon breeds on the North American tundra and winters in Latin America from Cuba and Mexico south through Central and South America and along the Gulf Coast from Florida west to eastern Mexico. Peregrine falcons use open habitats near cliffs and mountains. Nesting habitat occurs on cliffs near an adequate prey base.

Potential Impacts and Conservation Measures

Raptor surveys along the Project route did not identify any nesting peregrine falcon nests, and no breeding records of peregrine falcons exist along the Project route; therefore the Project is not likely to affect nesting peregrine falcons.

Bald Eagle

Bald eagles occur throughout the U.S. and the Project area. The bald eagle was removed from the list of threatened and endangered species on August 8, 2007, but remains state-listed in South Dakota, Kansas, and Texas. The bald eagle is federally protected under both the BGEPA and the MBTA. Bald eagles are associated with riparian or lacustrine areas for foraging and nesting. They generally nest and roost in large trees or snags with open crowns in areas that are relatively free of disturbance. Nesting territories are most often near open water with a prey base of fish and waterfowl. Bald eagles use upland areas to feed on small mammals and carrion, especially during the winter. Nests are typically within 1 mile of permanent water. Roost sites are an important habitat component for bald eagles and include live trees and snags that provide good visibility and that are located near nest sites or foraging areas.

Four active bald eagle nests were documented during raptor nest surveys for the Steele City Segment during April, 2009; two in Montana and two in Nebraska. Twelve bald eagle winter roost sites were identified during surveys of the Steele City Segment during February, 2009. Winter roost sites included: 3 river crossings in Montana (Yellowstone River, Missouri River, and Frenchman Reservoir; 3 river crossings in South Dakota (White River, Cheyenne River, South Fork Moreau River); and 6 river

crossings in Nebraska (Platte River, Loup River, Cedar River, Dry Creek, Niobrara River, Keya Paha River). Six bald eagle sightings were recorded during nesting surveys of the Gulf Coast Segment and Houston Lateral; three in Oklahoma and three in Texas. One of the sightings in Oklahoma was associated with a nest that was outside of the survey area; but the other sightings did not appear to coincide with any nest structures.

Potential Impacts and Conservation Measures

To minimize impacts to bald eagles, Keystone would implement the following measures:

- Conduct additional nest/roost surveys within 1 mile of the ROW prior to construction, if construction occurs during the nesting or roosting period;
- Consult with USFWS under the BGEPA regarding required buffers and construction activities within 660 feet of active bald eagle nests during the nesting season (February 1 through August 15); and
- Consult with USFWS under the BGEPA regarding required buffers and construction activities within 660 feet of active winter roost sites during the winter roosting season (November 1 through April 1) and the ability to conduct construction activities within 660 feet of active winter roosts between 10 a.m. and 3 p.m.

The above measures would be implemented on a site-specific basis in consultation with the USFWS and states that list bald eagles as threatened including: South Dakota, Kansas, and Texas. Keystone would consult with BLM for any bald eagle nest or roost sites that occur within 0.5 mile of the Project on BLM lands in Montana as noted in Table 3.8.2-1.

Connected Actions

The construction of electrical distribution lines to provide power to pump stations and the proposed 230 kV transmission line in southern South Dakota would incrementally increase the collision and electrocution hazards for bald eagles. Construction of power lines during the nesting or roosting periods has the potential to destroy or disturb nests or roosts if they occur within or near the transmission line corridors. Keystone would inform electrical power providers, BEPC, and Western of the requirement to consult with USFWS under the BGEPA relative to impacts to bald eagles.

Swallow-Tailed Kite

The swallow-tailed kite occurs as a breeding resident and vagrant in coastal areas of the southeastern U.S. and formerly was widely distributed throughout the Mississippi River drainage. Past population declines have been attributed to conversion of native prairie habitats to agriculture, wetland drainage, logging of forests, egg collection, and shooting. The swallow-tailed kite currently breeds in tropical and subtropical forests with wetlands. Populations in temperate and subtropical portions of the U.S. are migratory, with spring migrants arriving in early to mid February and fall migrants leaving from late July through early September. Swallow-tailed kites are known to breed in the Trinity River, Neches River, and the Sabine River watersheds of east Texas. Nest building and initiation of egg laying begins in mid to late March, and young fledge in May or June. They nest in loose colonies with groups of two to five nests.

Potential Impacts and Conservation Measures

There are no known nesting locations near the Project ROW. Conservation measures developed for migratory birds would also avoid or minimize potential Project impacts on the swallow-tailed kite.

White-Tailed Hawk

White-tailed hawk habitat preferences include open country, primarily savanna, prairie and arid habitats of mesquite, cacti and bushes (TPWD 2009i). In Texas, white-tailed hawks are found near coasts on prairies, cordgrass flats, and scrub-live oak habitats; farther inland they use prairie, mesquite and oak savanna, and mixed savanna-chaparral habitats. They nest in low trees, large shrubs or the crown of yucca.

Potential Impacts and Conservation Measures

There are no known nesting sites for the white-tailed hawk within the Project area. Although this species is considered to be a local non-migratory resident bird, it is covered under the MBTA and conservation measures developed for migratory birds would also avoid or minimize potential Project impacts on the white-tailed hawk.

Grassland Birds

Bachman's Sparrow

The Bachman's sparrow occurs throughout the southeastern U.S. and inhabits open pine savannas and open coniferous and hardwood woodlands with high density groundcover and low density midstory and overstory. Historically this sparrow was associated with old growth southern pine woodlands that were subject to frequent growing-season fires, breeding wherever fires created suitable conditions. Bachman's sparrows nest on the ground in dense cover, against or under grass tufts or low shrubs.

Potential Impacts and Conservation Measures

The Bachman's sparrow potentially occurs in areas of eastern Oklahoma and Texas crossed by the Project. Vegetation clearing during the nesting season, typically late April through July or August could result in loss of eggs or young. There are Natural Heritage records of the Bachman's sparrow in Atoka and Creek counties in Oklahoma. There are no known nesting sites in the Project area in Texas. Although migrant birds may occur within the Project area, this sparrow is not expected to be nesting in habitats affected by the Project.

Mountain Plover

Mountain plovers breed from northern Montana south to Arizona. Nesting populations are primarily in Montana, Wyoming, and Colorado; and although their breeding has experienced long-term reduction, the population has not declined in recent years. The mountain plover generally arrives at its northern nesting range during mid-March to mid-May. They depart in mid to late July to head back to their winter range. Nesting habitat includes high plains/short-grass prairie and desert tablelands, commonly prairie dog towns in some areas, such as sagebrush (*Artemisia* spp.)/blue grama (*Bouteloua gracilis*) habitats in central Montana. In central and southwestern Montana nesting often occurs in short-grass prairie with a history of heavy grazing or in low shrub semi-deserts. Nests are on the ground in shallow depressions that may be lined with plant material and/or next to dried cattle dung. Threats to the mountain plover include conversion of short-grass prairie to agricultural land, conversion of short-grass prairie to mixed-grass prairie by seeding with taller grasses, destruction of prairie dog towns, changes to crops that require spring tillage that destroys nests, and conversion of winter habitats. A recent review of the threats to the mountain plover, however, concluded that these threats were unlikely to endanger the mountain plover in the foreseeable future.

Potential Impacts and Conservation Measures

Construction through prairie dog towns in Montana could affect nesting mountain plovers if they are present and if construction occurs during the nesting season. Nests, eggs, and young could be lost during construction. Disturbance could lead to nest abandonment resulting in loss of eggs or young. In Montana, Mountain plover surveys are recommended within the two identified prairie dog towns and in the bentonite fields of Valley County during the May 1 to June 15 breeding season. Mountain plover were not identified as occurring within the Project area in Nebraska by the Nebraska Game and Parks Commission.

To minimize impacts to mountain plovers, Keystone would implement the following measures:

- Conduct surveys for mountain plover if construction is scheduled between May 1 and June 15;
- If a nest is identified, construction activities within 0.25 mile of the nest would be delayed for 37 days (typical fledging duration); and
- If a brood of flightless chicks is identified, construction activities would be delayed for at least seven days.

Water Birds

Three state-protected waterbirds potentially occur within the Project area in Texas: the reddish egret, the white-faced ibis, and the wood stork. The reddish egret and wood stork are generally coastal species, while the white-faced ibis nests as far north and inland as Montana. All three species are listed as threatened in Texas. Aerial surveys of the entire Project ROW were completed to identify avian tree nests and rookeries including those used by reddish egrets and wood storks.

Reddish Egret

The reddish egret is a common winter resident along the southeast coast of Texas. The reddish egret population in the United States has been slowly increasing, although it remains vulnerable due to development and environmental degradation of coastal habitats. The reddish egret depends exclusively on coastal habitats.

Potential Impacts and Conservation Measures

No suitable habitat for the reddish egret is found within the Project area and this species is not known or expected to occur in the Project area.

White-Faced Ibis

The White-faced Ibis breeds in marshes and irrigated areas throughout the Great Basin, most commonly in Utah, Nevada, and California, although they may also breed in Montana and Nebraska. The breeding range of white-faced ibis in Montana extends diagonally from northeast to southwest across the state (MTNHP 2009). The white-faced ibis also nests in Nebraska along the Platte River outside of the Project corridor. Breeding habitats include large wetland complexes such as marshes, ponds, and river floodplains where water surrounds emergent vegetation, shrubs, or low trees. In Montana, white-faced ibis often nest in old cattail stems or bulrushes over shallow water (MTNHP 2009). Ibis feed on aquatic invertebrates, insects, earthworms and small vertebrates (Ehrlich et al. 1988). They may also forage in flooded hay meadows and cultivated fields.

Northern breeding populations are also known to winter from the southern US south to northern Central America. Although the species is a permanent resident in coastal Texas, it is not known to nest there within the Project corridor.

Potential Impacts and Conservation Measures

No large wetland complexes that provide nesting habitat for this species would be directly affected by the Project.

Wood Stork

The wood stork lives in colonies in cypress and mangrove swamps in the southeastern United States. It frequently flies in flocks, alternately flapping and gliding, or soaring on thermals to great altitudes. After nesting in South and Central America, and in the Caribbean islands, some migrate into Texas during the summer. Few wood storks use wetland areas in Texas (Audubon 2009c). Threats to the wood stork include draining and alteration of wetland habitat, and while some wood storks may be able to adapt to human-caused environmental changes, they may eventually abandon historic nesting colonies to move to more suitable habitats. Wood storks may use constructed wetlands for feeding and nesting (Audubon 2009c).

Potential Impacts and Conservation Measures

The Project is not expected to produce impacts to wood storks due to lack of suitable habitat along the Project corridor.

3.8.3.3 State-Protected Reptiles

State-protected reptiles with the potential to occur within the Project area include one turtle, one lizard and four snakes (Table 3.8.3-1). Summaries of potential project-related impacts and proposed conservation measures are presented in Table 3.8.3-2. Additional occurrence information, impact discussions, and conservation measure descriptions are presented in the following section. The state-protected Louisiana pine snake is a candidate for federal protection and is discussed in Section 3.8.1.

Alligator Snapping Turtle

The alligator snapping turtle is the largest freshwater turtle in North America, and it is found in eastern Oklahoma and Texas in the Arkansas, Canadian, Red, Sabine, Neches, Trinity, and San Jacinto river systems (Center for Reptile and Amphibian Conservation and Management 2009). They are threatened by habitat alteration and fragmentation, water pollution, illegal harvest, and incidental mortality from commercial fishers. Alligator snapping turtles are found in the slow-moving, deep water of rivers, sloughs, oxbows and canals or lakes associated with big rivers.

Potential Impacts and Conservation Measures

Most large river habitats in Texas crossed by the Project would use the HDD method, which would prevent direct impacts to in-river and riparian habitats potentially used by the alligator snapping turtle. These rivers would also provide water sources for HDD and hydrostatic pipeline testing. The one-time water use would not be expected to reduce or alter habitats for the alligator snapping turtle.

BMPs associated with hydrostatic testing water withdrawal would include:

- Chemical additives would be prohibited;
- Discharges would be designed to prevent erosion;
- Inter-basin water transfers would be prohibited; and
- Procedures would be implemented to prevent the spread of invasive aquatic animals and plants.

Texas Horned Lizard

The Texas horned lizard is a diurnal species that prefers flat, open terrain with little plant cover. In order to maintain an ideal body temperature through thermoregulation, they spend much of their time either basking or burrowing. They are commonly found in loose sand or loamy soils where they burrow underground for nesting and to escape heat and cold. The Texas horned lizard has disappeared from many parts of its former range over the past 30 years due to collection for the pet trade, spread of the red imported fire ant, changes in land use, and environmental contamination (TPWD 2009h). The Texas horned lizard may potentially occur within the Project area in Kansas, Oklahoma and Texas.

Potential Impacts and Conservation Measures

Project impacts could include habitat loss, alteration, or fragmentation, facilitated invasion by fire ants due to soil disturbance, and direct mortality from construction vehicles. Access roads may serve as barriers to movement and increase vehicular mortality (Maxell and Hokit 1999). No Texas horned lizards are expected to be present within the Project area in Texas as the known distribution of this species is west of the Project area.

Massasauga

The massasauga, or pygmy rattlesnake, is state listed as threatened in Nebraska. It lives in wet areas, including wet prairies, marshes, and low areas along rivers and lakes. In many areas, massasaugas also use adjacent uplands—including forest—during part of the year. They often hibernate in crayfish burrows, but they also may be found under logs and tree roots or in small mammal burrows. Unlike other rattlesnakes, massasaugas hibernate alone. Small mammal and crayfish burrows are used for winter hibernation. Females sexually mature in three years and breed every few years thereafter, giving birth in late July through early September. Movement within the home range occurs between suitable winter and summer habitats, sometimes spanning almost 2 miles. Most movement, however, occurs within 650 feet of their burrows. Peak activity occurs from about April or May through October. Massasauga distribution within the Project area includes southeastern Nebraska, Kansas, Oklahoma and Texas. Suitable habitat is known to occur along the Project corridor within Jefferson County, Nebraska along waterbody shorelines (Keystone 2009c).

Potential Impacts and Conservation Measures

To minimize impacts to the massasauga in Nebraska, Keystone would implement the following measures:

- Complete surveys of suitable habitats along the Project ROW in Jefferson County, Nebraska to clear the area for the massasauga; and
- Continue consultations with the Nebraska Game and Parks Commission to avoid adverse impacts to the massasauga.

Northern Scarletsnake, Smooth Green Snake, and Timber Rattlesnake

These Texas state-protected snakes are generally widely distributed (Table 3.8.3-1), although consultations with the Texas Department of Fish and Wildlife indicate that these species are not expected to occur within the Project area in Texas.

Potential Impacts and Conservation Measures

Potential Project-related impacts are listed in Table 3.8.3-2 should these snakes occur within the Project area.

3.8.3.4 State-Protected Fish

There are 12 species of state-protected fish potentially occurring within the Project area. These species are within five fish families: minnows, paddlefish, perch, sturgeon and suckers (Table 3.8.3-1). Summaries of potential project-related impacts and proposed conservation measures are presented in Table 3.8.3-2. Additional occurrence information, impact discussions, and conservation measure descriptions are presented in the following section.

Minnows

Seven state-protected minnows potentially occur in waters crossed by the Project including: two shiners, two chubs, and three dace (Table 3.8.3-1).

Blacknose Shiner

The blacknose shiner requires clean, cool, well oxygenated streams with abundant aquatic vegetation. It is found in areas swept by currents, island heads and sandbars, and is intolerant of turbid water and pollution. Spawning occurs in Nebraska during the last week of June and in general, from spring to midsummer. The blacknose shiner feeds on small aquatic insects, crustaceans and algae. It serves as a host for the cylindrical papershell freshwater mussel (*Anodontoides ferussacianus*, NatureServe 2009). The blacknose shiner is an important indicator of high water quality within pristine streams. This minnow potentially occurs within suitable habitat in waterbodies crossed by the Project in South Dakota and Nebraska (Keystone 2009c). There are five known populations in Nebraska.

Bluehead Shiner

The bluehead shiner is known from two locations in northeastern Texas; Caddo Lake, and Big Cypress Bayou in Harrison County (Ranvestel and Burr 2002). This species inhabits small to mid-size streams and oxbow lakes with mud or mud-sand substrate; water typically tannin-stained, and heavy growth of submerged of semi-emergent vegetation (Ranvestel and Burr 2002). The bluehead shiner has a diverse diet dominated by microcrustaceans (Ranvestel and Burr 2002). The current distribution of the bluehead shiner in northeast Texas would not be crossed by the Project.

Finescale Dace

Populations of the finescale dace in South Dakota, and Nebraska occur as small, isolated demes that have been declining steadily since European settlement of this region over 100 years ago. Finescale dace can be found in headwater streams, beaver ponds, and small spring-fed lakes and bogs (Stasiak and Cunningham 2006). They have an affinity for abundant vegetation, woody debris, and cool groundwater.

They may be associated with undercut banks and areas without predatory fish. Finescale dace spawn in early spring from April to early June. Non-adhesive eggs are broadcast by a group of spawning fish onto substrates such as brush, logs, rocks, or aquatic plants. Embryos hatch in about six days at 20 °C. Newly hatched fish associate with vegetative cover and reduced currents. As they mature, finescale dace move to more open water and seek cooler water with reduced current, complex cover, and lack of predatory fish. They can live between four to six years. Primary threats to finescale dace include habitat alteration and the introduction of non-native fishes. Finescale dace occur in small, confined habitats with permanent spring seeps, usually at the headwaters of small streams. Finescale dace and its suitable habitat are not expected along the Project corridor in South Dakota (USGS 2006a).

Northern Redbelly Dace

The northern redbelly dace prefers sluggish, spring-fed streams with abundant vegetation and woody debris (Stasiak 2006). This minnow requires a constant supply of cool, spring water that maintains sufficient oxygen levels during hot and dry summer conditions. During spawning the northern redbelly dace becomes quite colorful; reaching a maximum size of about three inches. Primary threats to the northern redbelly dace include habitat alteration and the introduction of non-native fishes. In some locations in the northern U.S. and Canada, the northern redbelly dace hybridizes with its close relative, the finescale dace. The resulting hybrids are all females and produce female clones as offspring. The northern redbelly dace potentially occurs in tributaries of the Keya Paha River in South Dakota, and in tributaries of the Niobrara River, and South Fork Elkhorn River in Nebraska (Keystone 2009c).

Pearl Dace

The pearl dace inhabits bog drainage streams, ponds, and small lakes, and is usually found over sand or gravel. Pearl dace spawn in clear water in weak or moderate currents (NatureServe 2009). They potentially occur in suitable habitat within tributaries to the Keya Paha River in South Dakota that would be crossed by the Project (Keystone 2009c).

Sicklefin Chub

The sicklefin chub inhabits the shallows of warm large rivers that are continuously and heavily turbid, with strong currents over stable gravel and sand substrates (NatureServe 2009). The sicklefin chub potentially occurs in the Missouri, Milk and Yellowstone rivers in Montana and in the Cheyenne and White rivers in South Dakota. This species is not expected to be found in South Dakota along the proposed route (USGS 2006b).

Sturgeon Chub

The sturgeon chub prefers large turbid sandy rivers over substrate of small gravel and coarse sand. It is often found in areas swept by currents especially at the head of islands or exposed sandbars. Sturgeon chubs occur in the Cheyenne and White rivers in South Dakota, and the Platte River in Nebraska.

Potential Impacts and Conservation Measures

For the minnows listed above, construction through streams during spawning periods could result in disruption of spawning and loss of eggs and young. Additionally, construction methods that lead to increased siltation and turbidity could temporarily displace these fish. Construction conservation measures to reduce fine sediment would minimize displacement of foraging minnows. Water withdrawals for use in the HDD crossing method or for hydrostatic test purposes could lead to entrainment of these fish. Water withdrawal would be consistent with permit requirements and intake

hoses would be screened to prevent entrainment of fish. Protections for aquatic life during water withdrawal for HDD and hydrostatic testing would be implemented for all proposed water sources. Construction timing considerations and BMPs for maintaining water quality and flow would minimize potential impacts on state-protected minnows.

Conservation measures for these fish may vary from state to state. In South Dakota, the following conservation measures would apply:

- The determination of suitable habitat present along the route would be made by South Dakota Game Fish and Parks (SDGFP);
- If suitable habitat is present, presence / absence surveys would be conducted;
- If surveys results are negative for these minnows, no further conservation measures would be required; and
- If survey results are positive for these minnows, construction activities would be excluded during the spawning period (to be provided by SDGFP) and/or salvage and relocation methods could be applied.

In addition, surveys have been recommended for the blacknose shiner, northern redbelly dace, and pearl dace in tributaries of the Keya Paha River that would be crossed by the Project in South Dakota.

In Nebraska, surveys have been recommended for the blacknose shiner, northern redbelly dace, and finescale dace in tributaries of the Niobrara and South Fork Elkhorn rivers that would be crossed by the Project. Nebraska Game and Parks Commission (NGPC) has requested that Keystone re-consult to identify additional conservation measures if blacknose shiners, northern redbelly dace, or finescale dace are found within any streams surveyed for the Project.

The use of HDD stream crossing technology would reduce impacts to these minnows and their habitats. Most large rivers along the pipeline corridor would be crossed using HDD technology. In Nebraska, NGPC recommends HDD methods for any stream crossings occupied by these minnows, as open-cut crossings typically cause affects from increased turbidity and suspended sediment such as avoidance and gill irritation.

Perch

The blackside darter is state listed as threatened in Kansas, Oklahoma and Texas. It is a member of the Perch family that potentially occurs in creeks and small to medium rivers where it prefers quiet pools and pools with some current over gravel or sand bottoms (Page and Burr 1991). Blackside darter feed on benthic invertebrates and spawn in gravel pools greater than one foot deep; and they may migrate several miles between spawning and non-spawning habitats. The blackside darter inhabits streams within the Project area including the Red, Sulfur and Cypress River basins of southeast Oklahoma and northeast Texas.

Potential Impacts and Conservation Measures

Construction through streams during spawning periods could result in disruption of spawning and loss of eggs and young. Additionally, construction methods that lead to increased siltation and turbidity could cause temporarily displacement, although construction conservation measures to reduce fine sediment would minimize this impact. Water withdrawals for use in the HDD crossing method or for hydrostatic test purposes could lead to entrainment of fish. Water withdrawal would be consistent with permit requirements and intake hoses would be screened to prevent entrainment of fish. Protections for aquatic

life during water withdrawal for HDD and hydrostatic testing would be implemented for all proposed water sources. Construction timing considerations and BMPs for maintaining water quality and flow would minimize potential impacts. No survey recommendations or conservation measures have been requested for the blackside darter.

Paddlefish

Paddlefish could potentially occur in waterbodies crossed by the Project in Montana, Oklahoma, and Texas. Paddlefish occur in the Missouri and Yellowstone rivers in Montana and the Red River and tributaries in Oklahoma and Texas. Historically paddlefish occurred in the Sulphur River, Big Cypress Bayou, Sabine River, Neches River, Angelina River, Trinity River, and San Jacinto River (TPWD 2008c). This fish inhabits slow moving water of large rivers or reservoirs, usually in water deeper than four feet (130 cm). Paddlefish require large volumes of slow flowing water in order to reproduce. Construction of dams and reservoirs along Texas rivers have decreased flow and interrupted spawning movements (TPWD 2008c).

Potential Impacts and Conservation Measures

Construction through streams during spawning periods could result in disruption of spawning and loss of eggs and young. Additionally, construction methods that lead to increased siltation and turbidity could cause temporarily displacement, although construction conservation measures to reduce fine sediment would minimize this impact. Water withdrawals for use in the HDD crossing method or for hydrostatic test purposes could lead to entrainment of fish. Water withdrawal would be consistent with permit requirements and intake hoses would be screened to prevent entrainment of fish. Protections for aquatic life during water withdrawal for HDD and hydrostatic testing would be implemented for all proposed water sources. Construction timing considerations and BMPs for maintaining water quality and flow would minimize potential impacts.

Surveys for paddlefish are not planned in either Montana or Texas because the major rivers crossed by the Project in which paddlefish could occur would be crossed using the HDD method, which would avoid impacts to in river habitats.

Sturgeon

The shovelnose sturgeon is state listed as threatened in Texas and is an Oklahoma species of concern. The shovelnose sturgeon prefers the bottom of deep channel habitats and the embayments of large turbid rivers, often over sand mixed with gravel or mud in areas with strong current. Spawning occurs in open water channels of larger rivers or over rocky or gravelly bottoms. Declines in shovelnose sturgeon abundance are due primarily to dam construction. Hybridization between shovelnose sturgeon and pallid sturgeon is also a concern. Introgression of genes from the more common shovelnose sturgeon is a potential threat to the endangered pallid sturgeon (Keenlyne 1997). Shovelnose sturgeon potentially occur in rivers crossed by the Project including the Missouri, Milk and Yellowstone rivers in Montana; the Niobrara and Platte rivers in Nebraska; and the Red River in Oklahoma and Texas. In Texas, shovelnose sturgeon are found in the Red River below Dennison Dam (Lake Texoma Reservoir) (Hubbs et al. 2008); and the Red River drainage (Bonn and Kemp 1952).

Potential Impacts and Conservation Measures

Construction through streams during spawning periods could result in disruption of spawning and loss of eggs and young. Water withdrawals for use in the HDD crossing method or for hydrostatic test purposes could lead to entrainment of fish. Water withdrawal would be consistent with permit requirements and

intake hoses would be screened to prevent entrainment of fish. Protections for aquatic life during water withdrawal for HDD and hydrostatic testing would be implemented for all proposed water sources. Construction timing considerations and BMPs for maintaining water quality and flow would minimize potential impacts. All of the rivers potentially containing shovelnose sturgeon would be crossed using the HDD method, which would avoid direct impacts to the fish and its habitats.

Suckers

Suckers are most often found in rivers but can be found in any freshwater environment. Their food habits range from detritus and bottom dwelling organisms, to surface insects and small fishes.

Blue Sucker

The blue sucker is state listed as threatened in Texas and is a species of concern in Montana and Oklahoma. It inhabits larger rivers and the lower reaches of major tributaries, and is usually found in channels and flowing pools with moderate current, and in some impoundments. Adults probably winter in deep pools. Young are present in shallower and less swift water than adults. The blue sucker spawn in deep riffles (1-2 meters) with cobble and bedrock substrate (NatureServe 2009). They potentially occur within suitable habitat in rivers crossed by the Project including the Missouri, Milk, and Yellowstone rivers in Montana; and the Red River in Oklahoma and Texas (Keystone 2009c). However, the blue sucker has not been documented in the Red River near the proposed Project crossing.

Creek Chubsucker

The creek chubsucker is state listed as threatened in Texas. It inhabits small rivers and creeks with sand and gravel bottomed pools often near vegetation. Occasionally it is found in lakes. It spawns in river mouths or pools, riffles, lake outlets and upstream creeks (Becker 1983, Goodyear et al. 1982). Young typically occur in headwater rivulets or marshes (Lee et al. 1980). Populations apparently are declining in streams subject to siltation. Creek chubsuckers occur in the Red, Sabine, Neches, Trinity, and San Jacinto rivers and their tributaries in eastern Texas and Oklahoma.

Potential Impacts and Conservation Measures

Construction through streams during spawning periods could result in disruption of spawning and loss of eggs and young. Additionally, construction methods that lead to increased siltation and turbidity could cause temporarily displacement, although construction conservation measures to reduce fine sediment would minimize this impact. Water withdrawals for use in the HDD crossing method or for hydrostatic test purposes could lead to entrainment of fish. Water withdrawal would be consistent with permit requirements and intake hoses would be screened to prevent entrainment of fish. Protections for aquatic life during water withdrawal for HDD and hydrostatic testing would be implemented for all proposed water sources. Construction timing considerations and BMPs for maintaining water quality and flow would minimize potential impacts.

Occurrence surveys are not planned for the blue sucker, or creek chubsucker because the river crossings where these suckers may occur within the Project area would be crossed using the HDD method, which would avoid impacts to suckers and their habitats. Rivers where these suckers may occur would also be used for HDD and hydrostatic test water sources.

3.8.3.5 State-Protected Plants

Small White Lady's Slipper

The small white lady's slipper is a Nebraska state threatened species. It is found in wet prairies, mesic blacksoil prairie, wet blacksoil prairie, glacial till hill prairie, sedge meadow, calcareous fens, and glades, generally with calcareous soils. It is a medium sized perennial orchid that flowers in Nebraska from mid-May through early June. This orchid maintains a symbiotic relationship with mycorrhiza fungi which assist the plant with seed germination and seedling growth though soil moisture and nutrient uptake. The small white lady's slipper could potentially occur within suitable habitat along the Project route in Nebraska.

Potential Impacts and Conservation Measures

Potential impacts to the small white lady's slipper include habitat disturbance, trampling and excavation disturbance. Surveys would be conducted for presence/absence within suitable habitat prior to Project construction between Keya Paha County and northern York County, Nebraska. If this plant is observed within the Project route in Nebraska, appropriate mitigation measures would be developed and implemented in consultation with the NGFP.

3.8.4 Animals and Plants of Conservation Concern

Animals and plants identified during consultations with resource agencies that are of conservation concern that potentially occur along the Project ROW, and that are not fully discussed in Sections 3.8.1, 3.8.2, 3.8.3, or Appendix I are evaluated in Table 3.8.4-1. Some of these animals or plants have been identified as concerns by single states and a few have been identified throughout the Project area. Many of these species are tied to woodland, wetland, or prairie habitats. Many of these habitats have been historically converted to agricultural use throughout the Project area. The species of conservation concern have been identified and designated by federal and state wildlife management agencies after review of abundance, population trends, distribution, number of protected sites, degree of threat to survival, suitable habitat trends, degree of knowledge about the species, and species life history. These designations are intended to assist with conservation planning and maintenance of the natural heritage of each state.

Many resident and migratory birds are identified as species of conservation concern, primarily due to habitat loss, alteration, fragmentation, and declining population trends. Birds associated with native prairie habitats and wetlands that have been extensively altered by agriculture are included, as are birds that rely on forested floodplain habitats (Table 3.8.4-1).

TABLE 3.8.4-1
Animals and Plants of Conservation Concern Potentially Occurring along the Project ROW

Species	Group	Occurrence and Habitat	Threats	Potential Impacts	Proposed Mitigation
Cougar [Mountain Lion] *Puma concolor*	Mammal	Cliff, desert, forest - hardwood and mixed, shrubland/chaparral, woodland - conifier, hardwood, and mixed.	Loss of remote undisturbed habitat, habitat fragmentation; overharvest.	Concern in OK – Atoka County; loss or fragmentation of habitat; disturbance; vehicle collisions	No specific measures; proposed.
Eastern Harvest Mouse *Reithrodontomys humulis*	Mammal	Old fields, marshes, and wet meadows;nests in tangled vegetation under debris or above ground.	Habitat loss due to urban development; dispersal barriers from roads and highways.	Concern in OK – Payne County; loss, alteration, or fragmentation of habitat; blockage of movements; construction-related mortality; vehicle mortality.	No specific measures proposed.
Marsh oryzomys [rice rat] *Oryzomys palustris*	Mammal	Saltwater and freshwater marshes, swamps and moist meadows; semi-aquatic; omnivorous, nocturnal.	Residential and commercial development; habitat loss; spread and or increase in non-native predators and competitors.	Concern in OK – Bryan County; loss, alteration, or fragmentation of habitat; blockage of movements; construction-related mortality; vehicle mortality.	No specific measures proposed.
Southern myotis *Myotis austroriparius*	Mammal	Roosts in caves, mines, bridges, buildings, culverts, tree hollos; prefers oak-hickory to mixed conifer-hardwood bottomland forests; feeds over water.	Cave vandalism, upland roost habitat loss, reduced aquatic insect abundance,	Concern in TX; Pineywoods ecoregion; loss, alteration, or fragmentation of upland roost habitats; water quality degradation; roost disturbance.	No specific measures proposed.
Woodchuck *Marmota monax*	Mammal	Rolling farmland, grassy pastures, small woodlots, brushy fence lines, forest edges and openings.	Their ability to reproduce quickly is sufficient to prevent local extermination due to sport hunting.	Concern in OK; loss, alteration, or fragmentation of habitat; blockage of movements; construction mortality-burrow destruction; vehicle mortality.	No specific measures proposed.

TABLE 3.8.4-1
Animals and Plants of Conservation Concern Potentially Occurring along the Project ROW

Species	Group	Occurrence and Habitat	Threats	Potential Impacts	Proposed Mitigation
Golden eagle *Aquila chrysaetos*	Bird – Raptor	Migrate, nest and winter throughout much of Project area, nest March to August on rock outcrops, cliff ledges, trees; forage in prairie, sagebrush, open woodlands, on jackrabbits, ground squirrels, carrion, ungulate fawns, waterfowl, grouse.	Illegal killing, powerline electrocution, poison intended for coyotes, habitat loss due to conversion to agriculture or suburbs.	Eight nest sites identified along Project: 5 in MT and 3 in SD, nesting and prey habitat loss or alteration, disturbance to breeding, foraging areas during construction, electrocution or collision mortality from project associated power lines.	Pre-construction raptor surveys; develop Migratory Bird Conservation Plan in consultation with USFWS; advise power providers of BGEPA and MBTA consultation requirements.
Great blue heron rookery *Ardea herodias*	Bird – Water	Migrate, nest and winter throughout Project area; nest; forested wetlands, riparian habitats; freshwater and brackish marshes; eats invertebrates and fish.	Nest habitat destruction; human disturbance of rookeries; aquatic habitat degradation.	Eight rookeries identified along Project: 1 in MT, 1 in SD, 1 in NE, 5 in TX; nesting and prey habitat loss or alteration, disturbance to breeding, foraging areas during construction, electrocution or collision mortality from project associated power lines.	Pre-construction surveys; develop Migratory Bird Conservation Plan in consultation with USFWS; advise power providers of MBTA consultation requirements.
Roseate spoonbill rookery *Platalea ajaja*	Bird – Water	Coastal Texas; forested wetlands, marshes, swamps, rivers, lagoons; prefer brackish waters and coastal bays in Texas; eats fish and invertebrates.	Nest habitat destruction; human disturbance of rookeries; aquatic habitat degradation.	One rookery identified along Project in TX; nesting and prey habitat loss or alteration, disturbance to breeding, foraging areas during construction, electrocution or collision mortality from project associated power lines.	Pre-construction surveys; develop Migratory Bird Conservation Plan in consultation with USFWS; advise power providers of MBTA consultation requirements.

TABLE 3.8.4-1
Animals and Plants of Conservation Concern Potentially Occurring along the Project ROW

Species	Group	Occurrence and Habitat	Threats	Potential Impacts	Proposed Mitigation
Raptor nests (except eagles)	Bird – Raptor	Migrate, nest and winter throughout Project area depending on species, nest on rock outcrops, cliff ledges, trees; forage in various habitats and small to medium size prey, and/or carrion.	Nest habitat destruction; human disturbance; prey habitat loss or alteration.	~230 nest structures, 38% active along ROW; nesting and prey habitat loss or alteration, disturbance to breeding and foraging areas during construction; electrocution or collision mortality from project associated power lines.	Pre-construction surveys; develop Migratory Bird Conservation Plan in consultation with USFWS; advise power providers of MBTA consultation requirements.
Mole Salamander *Ambystoma talpoideum*	Amphibian	Forested wetlands, riparian, temporary pools; usually found near breeding ponds; pine flatwoods, floodplains, and bottomland hardwood forests; burrows in soil; eats terrestrial invertebrates, larvae eat aquatic invertebrates; nocturnal.	Clear cutting of forests surrounding breeding ponds, draining or filling of breeding ponds, and the introduction of predatory fishes to breeding ponds.	Concern in OK in southeast portion of state; loss, alteration, fragmentation of habitat; mortality during construction; vehicle collisions.	No specific measures proposed, CMR Plan.
Oklahoma cave amphipod *Allocrangonyx pellucidus*	Invertebrate – Aquatic	Subterranean waters; karst springs.	Excessive groundwater withdrawal, invasive species.	Concern in OK in Clear Boggy watershed crossed downstream from occurrence in Murray County, OK: withdrawal of hydrostatic testing water; alteration of spring/seep flow.	Clear Boggy Creek would be crossed using the HDD method; Clear Boggy Creek not proposed for hydrostatic test water source.
Prairie mole cricket *Gryllotalpa major*	Invertebrate – Terrestrial	Southern tall-grass prairie; burrows in soil; mesic to dry mesic soils; omnivorous, nocturnal.	Habitat loss to urban development, agriculture; habitat fragmentation.	Concern in OK; loss, alteration, or fragmentation of grassland habitat; loss of adults, eggs during construction; blockage of dispersal.	No specific measures; CMR Plan.
Three-flower snakeweed [broomweed] *Thurovia triflora*	Plant – Annual/ Perennial	Black clay soils of remnant grasslands, also tidal flats; flowering July-November.	Habitat loss and fragmentation; fire suppression.	Concern in TX: Gulf Coast Prairies and Marshes region; Loss, alteration, or fragmentation of habitat; loss during vegetation clearing; spread of invasive plants.	No specific measures; CMR Plan, invasive plant control.

TABLE 3.8.4-1
Animals and Plants of Conservation Concern Potentially Occurring along the Project ROW

Species	Group	Occurrence and Habitat	Threats	Potential Impacts	Proposed Mitigation
Texas screwstem *Bartonia texana*	Plant – Annual	Sandy soils in dry to mesic pine or mixed pine-oak forests and forest borders; usually in fire-maintained longleaf pine savannas, but also in more mesic habitats; flowering June.	Habitat loss and fragmentation; fire suppression.	Concern in TX: Pineywoods region; loss, alteration, or fragmentation of habitat; loss during vegetation clearing; spread of invasive plants.	No specific measures; CMR Plan, invasive plant control.

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