

4.7 Wildlife and Habitats

The ROI for potential impacts to wildlife and habitats is the same as defined in Section 4.6 for vegetation (see Figure 4.6-1). The ROI is situated on the high desert terrain of the Colorado Plateau in northwestern New Mexico and northeastern Arizona. This section provides information on wildlife species expected to reside in the ROI or use the ROI as visitors or regular seasonal migrants.

A diverse range of terrain and vegetation communities are used by wildlife seasonally or year-round. It is difficult to identify all wildlife occurring in a particular area, even if regular and frequent wildlife surveys are conducted. This analysis relies on survey data to identify wildlife species in the ROI, but also relies on documentation of habitats in the ROI and vicinity to identify potential species occurrence.

4.7.1 Regulatory Compliance Framework

The proposed Project is subject to the requirements of Federal, state, and tribal regulations established to guide management of wildlife and their critical habitats.

4.7.1.1 *Federal Regulations*

Project activities are subject to the Federal regulations discussed in this section. This section does not specifically address threatened and endangered species and their habitats, which are regulated under the ESA; these species are addressed in Section 4.8, Special Status Species.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) (16 USC 668-668c), enacted in 1940 and amended several times since enactment, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles, including their parts, nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle... [or any golden eagle], alive or dead, or any part, nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment (USFWS 2013a). Eagle breeding activities and nesting locations are afforded legal protection under the act.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA), originally passed in 1918, implements the US commitment to four bilateral treaties [with Canada, Mexico, Japan, and Russia], or conventions, for the protection of a shared migratory bird resource (16 USC 703-712). Each of the treaties protects selected species of birds and provides for closed and open seasons for hunting game birds. The MBTA protects bird species by implementing the four treaties within the US. The list of migratory bird species protected by the MBTA appears in 50 CFR 10.13. The MBTA provides that it is unlawful to pursue, hunt, take, capture, kill, possess, sell, purchase, barter, import, export, or transport any migratory bird, or any part, nest, or egg of any such bird, unless authorized under a permit issued by the Secretary of the Interior. Some regulatory exceptions apply. "Take" is defined in regulations as: "pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt." The MBTA protects over 800 species of birds that occur in the U.S. (USFWS 2013b). Avian species breeding activities and nesting locations are afforded legal protection under MBTA.

Surface Mining Control and Reclamation Act of 1977

Under SMCRA, NTEC is required to provide fish and wildlife resource information for the proposed permit area and adjacent areas. OSMRE determines the scope and level of this information. However, site-specific resource information is required to address wildlife species or habitats with high value for fish and wildlife, such as important streams, wetlands, riparian areas, cliffs, areas offering special shelter or protection, migration routes, or reproduction and wintering areas [30 CFR 784.21(a)]. OSMRE uses an adequate description of the existing pre-mining environmental resources within the mining lease to determine whether the applicant can comply with the performance standards of the regulations for surface coal mining and whether reclamation of these areas is feasible (30 CFR 779.10). NTEC is also required to include a Protection and Enhancement Plan to minimize disturbances and adverse impacts on wildlife to the extent possible and to achieve enhancement of such resources where practicable [30 CFR 784.21(b)].

Under the SMCRA permits proposed for issuance for this Project, wildlife habitat would be a secondary post-mining land use; therefore, NTEC is required to select the plant species to be used on reclaimed areas based on the following criteria: (1) their proven nutritional value for fish and wildlife, (2) their use as cover for fish or wildlife, and (3) their ability to support and enhance fish or wildlife habitat after the release of performance bonds [30 CFR 816.97(g)]. The selected plants should also be grouped and distributed in a manner that optimizes edge effect, cover, and other benefits to fish and wildlife [30 CFR 816.97(g)].

4.7.1.2 Navajo Nation Programs

Those project activities are subject to the tribal requirements discussed in this section. Similar to the Federal ESA, the Navajo Mine is subject to compliance with protection of species on the Navajo Endangered Species List, which is addressed in Section 4.8, Special Status Species. The FCPP is exempt from these programs based on terms of lease agreements.

Navajo Nation Aquatic Resource Protection Program

The Navajo Nation Aquatic Resource Protection Program is designed to provide protection for sensitive aquatic features through application of ecosystem-level management techniques. The program consists of four primary efforts: 1) identification and inventory of existing resources; 2) development of an aquatic resource database; 3) evaluation, classification, and regulation of impacts to aquatic resources; and 4) monitoring, maintenance, and enhancement of ecosystem health and function. The program was developed to preserve and protect aquatic resources while retaining the flexibility to accommodate future human and economic growth (Navajo Natural Heritage Program 1994).

Biological Resource Land Use Clearance Policies and Procedures, RCS-44-08, Approved September 10, 2008

The Resources Committee of the Navajo Nation Council is the legislative oversight of the Division of Natural Resources that includes the Navajo Nation Department of Fish and Wildlife (NNDFW). It has the responsibility and authority to adopt policies, procedures, and regulations that protect the Navajo Nation's biological resources. The Resources Committee, by Resolution Number RCMA-34-03, dated March 13, 2003, approved the Biological Resource Land Clearance Policies and Procedures. The policies and procedures' purpose is to assist the Navajo Nation government and chapters in ensuring compliance with Federal and Navajo laws, which protect wildlife resources and their habitat.

4.7.1.3 State Regulations

The Navajo Mine and FCPP lease areas are located entirely on Navajo Nation trust lands and, therefore, are not subject to state law. Associated transmission lines, however, traverse state lands. The following regulations are applicable only to the operation and maintenance of the transmission lines.

Under New Mexico State Statutes Title 19 – Natural Resources and Wildlife, the State of New Mexico is responsible for management and conservation of New Mexico’s game species and native species by tracking and processing wildlife permits and maintaining New Mexico’s list of threatened and endangered species. As part of these statutes, New Mexico is responsible for enforcing New Mexico State Statutes as they apply to game species, wildlife administration, trapping, wildlife habitats and lands, hunting and fishing, endangered and protected species, and captive wildlife. New Mexico is also charged with maintaining the state’s natural resources through New Mexico Department of Agriculture’s management of plant species and range lands.

Under Arizona Administrative Code Title 12 Chapter 4, Natural Resources, and Title 17, Game and Fish, the State of Arizona is responsible for enforcing and permitting actions related to the taking and handling of wildlife, live wildlife, and managing the state’s wildlife resources and wildlife areas. These regulations are enforced by the Arizona Game and Fish Department. Arizona’s native plants are protected by state law and managed by the Arizona Department of Agriculture. Under Arizona state law, protected plants may not be removed from any lands, whether private or public, without the permission of the landowner and issuance of an Arizona Department of Agriculture permit.

4.7.1.4 Regional Plans

The San Juan River Recovery Implementation Program was established to support recovery of the Colorado pikeminnow and the razorback sucker, while allowing water development and management activities to continue in the San Juan River Basin in compliance with all applicable Federal and state laws. The San Juan River Recovery Implementation Program was formed in recognition that the existing impacts associated with water development may be exacerbated by continued development of the waters of the San Juan River and that a program was needed whereby all entities that have a potential or opportunity to recover or protect the river environment are involved. The Program is intended to identify and implement actions that assist in the recovery of the species and provide compliance with sections 7 and 9 of the ESA for water development and water management activities in the Basin. The specific program goals are:

- To conserve populations of the Colorado pikeminnow and razorback sucker in the Basin consistent with recovery goals established under the ESA, 16 USC 1531 et seq.
- To proceed with water development in the Basin in compliance with Federal and state laws, interstate compacts, Supreme Court decrees, and Federal trust responsibilities to the Southern Utes, Ute Mountain Utes, Jicarillas, and the Navajos.

The program includes representatives from Federal, and state government agencies, Native American tribes, water development interests, and other private groups. This program conducts research and management activities intended to recover the populations of Colorado pikeminnow and razorback sucker in accordance with the recovery plans for these two species developed under the ESA.

4.7.2 Affected Environment Pre-2014

4.7.2.1 Wildlife Habitats

The region surrounding the Navajo Mine, FCPP, and associated transmission lines support a variety of natural vegetation communities and landscape features that offer a diversity of wildlife habitat types. Section 4.6, Vegetation, details the vegetation communities in the ROI identified through implementation of the Gap Analysis Program, and Figure 4.6-2 illustrates their geographic distribution. Wildlife habitat types discussed in this section correspond with the vegetation community types and are further defined by a number of distinct landscape features such as washes and gullies, rock outcrops and hillsides, cliffs and taluses, and cave and mine entrances. All contribute to the diversity of wildlife in the area as they provide microhabitats for wildlife uniquely adapted to or dependent on these features.

Most wildlife species in the region are adapted to xeric conditions, defined by sparse vegetative cover and limited sources of permanent water. Areas providing perennial and intermittent water support higher density of vegetative cover, contributing to increased wildlife diversity. Perennial water sources within the ROI include Morgan Lake, lower Chaco River below Morgan Lake, and the San Juan River. Intermittent sources of water include ponds and impoundments within the Navajo Mine SMCRA Permit and Pinabete SMCRA Permit Areas, agricultural ditches, and seasonally wet arroyos occurring within the transmission line ROWs. Large mammals, small mammals, reptiles, fish, and avian species use these water sources regularly as seasonal or permanent residents.

Upland habitats capable of supporting a number of wildlife species dominate large portions of the ROI, including open desert scrub, open woodland, forest, agricultural, and developed areas. Habitats in the cover classes support breeding, foraging, and seasonal migration activities. Much of the ROI is dominated by the Semi-Desert (64.9 percent) cover class, which includes a number of shrubland vegetative types common to the southwestern desert. Forest and Woodland (18.7 percent) accounts for the second greatest cover class and is primarily located along the APS and PNM transmission ROWs. Tables in Section 4.6 list vegetation cover classes by Project component within the ROI (Navajo Mine, FCPP, and transmission lines).

4.7.2.2 Wildlife Species

The potential for occurrence of wildlife species in the ROI was determined through review of existing databases (USFWS, BISON-M) and biological surveys conducted during the spring and summer of 2012 and 2013 as well as numerous other studies completed on behalf of other permitting actions. These studies include: regular vegetation and wildlife assessments completed for the Navajo Mine dating to 1974 (BNCC 2012f); environmental studies completed on behalf of the FCPP dating from 1975 to more recent habitat modeling efforts and ecological risk assessments (AECOM 2013c, f, h); and numerous published and unpublished wildlife studies and modeling efforts in support of APS and PNM transmission line ROW authorizations dating from 1996 to more recent studies (Marron 2012a, b, 2013, AECOM 2013f, g). Species occurrence within the Deposition Area was based on observation during these surveys and general information on species distribution. Because of the diversity of wildlife species identified and expected to occur within the ROI, wildlife presence and expected presence is presented by species group (e.g., raptors and carnivores) followed by a discussion of use of each of the Project components (Navajo Mine, FCPP, and transmission lines) by the species group.

Raptors

Raptors are expected to occur over every habitat type found in the ROI, as foraging and nesting habitats occur throughout. Foraging habitat for raptors occurs across all cover classes and vegetation communities identified in the region, including developed areas. Raptor nesting habitat generally occurs in the upland forested areas (Forest and Woodland) and along cliffs and canyons (Nonvascular and Sparse Vascular Rock Vegetation). Except for the transmission corridors, raptor nesting habitat represents less than 5 percent of the cover within the ROI's individual components areas. Some species, such as burrowing owl and northern harrier, nest on the ground in scrub and grassland habitat types closely associated with the Semi-Desert, Shrubland, and Grassland cover classes. Ground nesting is occasionally associated with riparian cover classes occurring in the ROI.

Raptor species observed or expected to occur within the ROI include the species identified in Table 4.7-1 (BNCC 2012a; Ecosphere 2008, 2012c; Marron and Associates 2012a, b, 2013; AECOM 2013f; APS 2012c).

Table 4.7-1 Raptor Species Expected to Occur in the ROI

Species	Expected to Occur
American kestrel (<i>Falco sparverius</i>)	Year-round
bald eagle (<i>Haliaeetus leucocephalus</i>)	Winter Nonbreeding, Year-round
barn owl (<i>Tyto alba</i>)	Year-round
burrowing owl (<i>Athene cunicularia</i>)	Summer Breeding, Year-round
California condor (<i>Gymnogyps californianus</i>)	Year-round
Cooper's hawk (<i>Accipiter cooperii</i>)	Year-round
ferruginous hawk (<i>Buteo regalis</i>)	Summer Breeding, Year-round
golden eagle (<i>Aquila chrysaetos</i>)	Year-round
goshawk (<i>Accipiter gentilis</i>)	Year-round
great-horned owl (<i>Bubo virginianus</i>)	Year-round
Harris' hawk (<i>Parabuteo unicinctus</i>)	Year-round
Mexican spotted owl (<i>Strix occidentalis lucida</i>)	Year-round
northern harrier (<i>Circus cyaneus</i>)	Winter Nonbreeding, Year-round
osprey (<i>Pandion haliaetus</i>)	Migration
peregrine falcon (<i>Falco peregrinus</i>)	Year-round
prairie falcon (<i>Falco mexicanus</i>)	Year-round
red-tailed hawk (<i>Buteo jamaicensis</i>)	Year-round
rough-legged hawk (<i>Buteo lagopus</i>)	Winter Nonbreeding
sharp-shinned hawk (<i>Accipiter striatus</i>)	Year-round
Swainson's hawk (<i>Buteo swainsoni</i>)	Summer Breeding
turkey vulture (<i>Cathartes aura</i>)	Summer Breeding, Year-round

Navajo Mine

Raptor foraging and nesting habitat occurs in and around the Navajo Mine Lease Area, including the Navajo Mine SMCRA Permit Area, Pinabete SMCRA Permit Area, and proposed Burnham Road realignment areas. Raptor foraging habitat occurs across all habitat types. Raptor nesting habitat is expected to be limited to the following cover classes identified in Table 4.6-2: Developed and Other Human Use (9.8 percent of the Navajo Mine ROI), Forest and Woodland (2.6 percent), and Nonvascular and Sparse Vascular Rock Vegetation (1.2 percent), or approximately 13.6 percent of the Navajo Mine ROI. Ground-nesting raptor species, particularly the burrowing owl and northern harrier, could occur in the Semi-Desert (77.2 percent) and Shrubland and Grassland (5.1 percent) cover classes within and around the Navajo Mine ROI.

Raptor surveys within the Navajo Mine Lease Area have been conducted over the last two decades. Ten species of raptors have been documented, including American kestrel, bald eagle, burrowing owl, Cooper's hawk, ferruginous hawk, golden eagle, great-horned owl, northern harrier, prairie falcon, and red-tailed hawk. These species are expected to forage and nest within and near the vicinity of the Navajo Mine SMCRA Permit Area, Pinabete SMCRA Permit Area, and the Burnham Road realignment (BNCC 2012a, Ecosphere 2008). Raptor nesting surveys completed between 2004 and 2007 within 1 mile of the Navajo Mine SMCRA Permit Area identified and inventoried 12 historic hawk nests. Surveys of these

nests in 2007 identified one active golden eagle nest. Burrowing owl nests occur in burrows and cavities around the Navajo Mine SMCRA Permit Area and Pinabete SMCRA Permit Area, primarily near abandoned prairie dog colonies.

Four Corners Power Plant

Raptor foraging and nesting habitat occurs in and around the FCPP Lease Area, including undeveloped habitat and Morgan Lake, and the proposed DFADA. Raptor foraging habitat occurs across all habitat types. Raptor nesting habitat is expected to be limited to the following cover classes identified in Table 4.6-4: Developed and Other Human Use (3.7 percent of the FCPP ROI), Forest and Woodland (4.2 percent), and Nonvascular and Sparse Vascular Rock Vegetation (1.7 percent), or 9.6 percent of the FCPP ROI. Ground-nesting raptor species, particularly the burrowing owl and northern harrier, could occur in the Semi-Desert and Shrubland and Grassland cover classes (67.8 percent collectively) and within riparian areas around Morgan Lake (1.8 percent). The FCPP itself offers limited foraging or nesting habitat as it is primarily industrial in nature and lacks vegetative cover capable of supporting prey species.

Habitat capable of supporting foraging activities of raptor species occurs within the entire proposed DFADA, including vegetation communities associated with Forest and Woodland, Nonvascular and Sparse Vascular Rock Vegetation, and Semi-Desert cover classes. Vegetation communities within the 1,052 acre DFADAs represent 4.9 percent of the FCPP ROI. While both the Forest and Woodland and Nonvascular and Sparse Vascular Rock vegetation communities are generally considered raptor nesting habitat, both of these cover classes were evaluated and determined to be inadequate for supporting nesting raptors (Ecosphere 2012c). Ferruginous hawk, golden eagle, and burrowing owl are identified as potentially occurring within the proposed DFADAs based upon known nesting data and the presence of potential nesting habitat occurring outside, but within 1 mile, of the proposed DFADAs (Ecosphere 2012c). Two species of raptors were documented in the FCPP DFADAs, including ferruginous hawk and turkey vulture (Ecosphere 2012c).

Transmission Lines

Habitat capable of supporting foraging and nesting activities of raptor species occurs in both the APS and PNM transmission ROWs. Foraging habitat exists across the entire length of both APS and PNM transmission corridors within all habitat types. Raptor nesting habitat is limited to the following cover classes identified in Table 4.6-5: Developed and Other Human use (0.4 percent of the transmission line ROI), Forest and Woodland (22.9 percent), and Nonvascular and Sparse Vascular Rock Vegetation (6.7 percent), or 30.0 percent of the transmission line ROI. Nesting may occur on the transmission poles for some species. Ground-nesting raptor species are expected to occur along the ROW's entire length, but more specifically nesting in Semi-Desert (62.2 percent) and Shrubland and Grassland (6.1 percent) cover classes.

Results of the APS habitat analysis and review of the APS avian database for Navajo and Coconino counties identified the following species expected or documented to occur within the APS transmission ROW: bald eagle, California condor, golden eagle, great-horned owl, ferruginous hawk, Harris' hawk, Mexican spotted owl, and red-tailed hawk (AECOM 2013f, APS 2012c).

Studies completed during 2012 identified the following raptor species within the PNM ROW: American kestrel, prairie falcon, peregrine falcon, red-tailed hawk, ferruginous hawk, Cooper's hawk, golden eagle, and burrowing owl (Marron and Associates 2012a, b, 2013).

Nonraptor Avian Species

Nonraptor avian species occur across a wide range of habitat types occurring within the ROI and may occupy these habitats either seasonally or year-round, depending on species. Nonraptor avian species expected to occur within the ROI include those identified in Table 4.7-2.

Table 4.7-2 Nonraptor Avian Species Expected to Occur in the ROI

Species	Expected to Occur
American avocet (<i>Recurvirostra americana</i>)	Summer Breeding, Migration
American coot (<i>Fulica americana</i>)	Year-round, Summer Breeding
American crow (<i>Corvus brachyrhynchos</i>)	Year-round
American redstart (<i>Setophaga ruticilla</i>)	Migration
American robin (<i>Turdus migratorius</i>)	Year-round
American widgeon (<i>Mareca Americana</i>)	Year-round
ash-throated flycatcher (<i>Myiarchus cinerascens</i>)	Summer Breeding
Audubon's warbler (<i>Setophaga coronata</i>)	Summer Breeding
Baird's sparrow (<i>Ammodramus bairdii</i>)	Winter Migrant, nonbreeding
barn swallow (<i>Hirundo rustica</i>)	Summer Breeding, Migration
Bewick's wren (<i>Thryomanes bewickii</i>)	Year-round
black-chinned hummingbird (<i>Archilochus alexandri</i>)	Summer Breeding
black-crowned night heron (<i>Nycticorax nycticorax</i>)	Year-round
black-headed grosbeak (<i>Pheucticus melanocephalus</i>)	Summer Breeding
black-throated sparrow (<i>Amphispiza bilineata</i>)	Summer Breeding
blue grosbeak (<i>Pheucticus melanocephalus</i>)	Year-round
blue-gray gnatcatcher (<i>Polioptila caerulea</i>)	Summer Breeding
blue-winged teal (<i>Anas discors</i>)	Summer Breeding
black tern (<i>Chlidonias niger</i>)	Migration
black-chinned hummingbird (<i>Archilochus alexandri</i>)	Summer Breeding
black-throated sparrow (<i>Amphispiza bilineata</i>)	Summer Breeding
blue grosbeak (<i>Passerina caerulea</i>)	Summer Breeding
Bonaparte's gull (<i>Larus philadelphia</i>)	Migration
Brewer's sparrow (<i>Spizella breweri</i>)	Year-round
broad-tailed hummingbird (<i>Selasphorus platycercus</i>)	Summer Breeding
brown-headed cowbird (<i>Molothrus ater</i>)	Year-round
Bullock's oriole (<i>Icterus bullockii</i>)	Summer Breeding
bushtit (<i>Psaltriparus minimus</i>)	Year-round
cactus wren (<i>Campylorhynchus brunneicapillus</i>)	Year-round
Canada goose (<i>Branta canadensis</i>)	Year-round
canyon towhee (<i>Melospiza fusca</i>)	Year-round
Cassin's finch (<i>Carpodacus cassinii</i>)	Year—round
Cassin's kingbird (<i>Tyrannus vociferans</i>)	Summer Breeding
cedar waxwing (<i>Bombycilla cedrorum</i>)	Winter Nonbreeding
chipping sparrow (<i>Spizella passerine</i>)	Summer Breeding
cinnamon teal (<i>Anas cyanoptera</i>)	Summer Breeding
cliff swallow (<i>Petrochelidon pyrrhonota</i>)	Summer Breeding
common merganser (<i>Mergus merganser</i>)	Winter Nonbreeding

Species	Expected to Occur
common nighthawk (<i>Chordeiles minor</i>)	Summer Breeding
common raven (<i>Corvus corax</i>)	Year-round
common yellowthroat (<i>Geothlypis trichas</i>)	Summer Breeding
curve-billed thrasher (<i>Toxostoma curvirostre</i>)	Year-round
dark-eyed junco (<i>Junco hyemalis</i>)	Year-round
Eared grebe (<i>Podiceps caspicus</i>)	Year-round
Eurasian collared-dove (<i>Streptopelia decaocto</i>)	Year-round
Eurasian widgeon (<i>Anas penelope</i>)	Migration
gadwall (<i>Anas strepera</i>)	Year-round, Winter Nonbreeding
Gamble's quail (<i>Callipepla gambelii</i>)	Year-round
gray flycatcher (<i>Empidonax wrightii</i>)	Summer Breeding
gray vireo (<i>Vireo vicinior</i>)	Summer Breeding
great blue heron (<i>Ardea Herodias</i>)	Year-round
greater yellowlegs (<i>Totanus melanoleucus</i>)	Migration
green-tailed towhee (<i>Chlorura chlorura</i>)	Year-round
green-winged teal (<i>Anas carolinensis</i>)	Year-round
horned lark (<i>Eremophila alpestris</i>)	Year-round
house finch (<i>Carpodacus mexicanus</i>)	Year-round
house sparrow (<i>Passer domesticus</i>)	Year-round
indigo bunting (<i>Passerina cyanea</i>)	Summer Breeding
killdeer (<i>Setophaga coronata</i>)	Year-Round
lark sparrow (<i>Chondestes grammacus</i>)	Summer Breeding
lesser goldfinch (<i>Spinus psaltria</i>)	Summer Breeding
loggerhead shrike (<i>Lanius ludovicianus</i>)	Year-round
MacGillivray's warbler (<i>Oporonis tolmiei</i>)	Migration
mallard (<i>Anas platyrhyncho</i>)	Year-round
mountain bluebird (<i>Sialia currucoides</i>)	Year-round
Mountain plover (<i>Chiadrius montanus</i>)	Summer breeding
mourning dove (<i>Zenaida macroura</i>)	Year-round
northern flicker (<i>Colaptes auratus</i>)	Year-round
northern mockingbird (<i>Mimus polyglottos</i>)	Year-round
northern shoveler (<i>Anas clypeata</i>)	Year-round
pintail (<i>Anas acuta</i>)	Year-round, Winter Nonbreeding
pied-billed grebe (<i>Podilymbus podiceps</i>)	Year-round
pinyon jay (<i>Gymnorhinus cyanocephalus</i>)	Year-round
plumbeous vireo (<i>Vireo plumbeus</i>)	Summer Breeding
red-winged blackbird (<i>Agelaius phoeniceus</i>)	Year-round
ring-billed gull (<i>Larus delawarensis</i>)	Winter Nonbreeding, Migration
rock dove (<i>Columba livia</i>)	Year-round

Species	Expected to Occur
rock wren (<i>Salpinctes obsoletus</i>)	Year-round
ruddy duck (<i>Oxyura jamaicensis</i>)	Year-round
sage sparrow (<i>Amphispiza belli</i>)	Year-round
sage thrasher (<i>Oreoscoptes montanus</i>)	Year-round
savannah sparrow (<i>Passerculus sandwichensis</i>)	Year-round
Say's phoebe (<i>Sayornis saya</i>)	Year-round
scaled quail (<i>Callipepla squamata</i>)	Year-round
snowy egret (<i>Leucophoyx thula</i>)	Summer Breeding, Winter Nonbreeding
Scott's oriole (<i>Icterus parisorum</i>)	Summer Breeding
song sparrow (<i>Melospiza melodia</i>)	Year-round
southwestern willow flycatcher (<i>Empidonax traillii extimus</i>)	Summer Breeding
spotted sandpiper (<i>Actitis macularius</i>)	Summer Breeding
spotted towhee (<i>Pipilo maculatus</i>)	Year-round
vesper sparrow (<i>Pooecetes gramineus</i>)	Year-round
violet-green swallow (<i>Hirundo rustica</i>)	Summer Breeding
Virginia warbler (<i>Oreothlypis virginiae</i>)	Migration
western flycatcher (<i>Empidonax difficilis</i>)	Migration
western grebe (<i>Aechmophorus occidentalis</i>)	Summer Breeding
western kingbird (<i>Tyrannus verticalis</i>)	Summer Breeding
western meadowlark (<i>Sturnella neglecta</i>)	Year-round
western mockingbird (<i>Mimus polyglottos leucopterus</i>)	Year-round
western sandpiper (<i>Ereunetes mauri</i>)	Winter Nonbreeding
western tanager (<i>Piranga ludoviciana</i>)	Summer Breeding
western wood-pewee (<i>Contopus sordidulus</i>)	Summer Breeding
white-crowned sparrow (<i>Zonotrichia leucophrys</i>)	Winter Nonbreeding
white-faced ibis (<i>Plegadis chihi</i>)	Migration
white-winged dove (<i>Zenaida asiatica</i>)	Summer Breeding
willet (<i>Tringa semipalmata</i>)	Summer Breeding, Migration
willow flycatcher (<i>Empidonax traillii</i>)	Year-round, Migration
Wilson's phalarope (<i>Phalaropus tricolor</i>)	Migration
Wilson's warbler (<i>Wilsonia pusilla</i>)	Migration
yellow-headed blackbird (<i>Xanthocephalus xanthocephalus</i>)	Year-round
yellow-billed cuckoo (<i>Coccyzus americanus</i>)	Summer Breeding
yellow-breasted chat (<i>Icteria virens</i>)	Summer Breeding

Navajo Mine

Nonraptor avian species and their habitats have been evaluated across the Navajo Mine Lease Area since 1975 with more recent studies conducted within the Pinabete SMCRA Permit Area starting in 2008. Nonraptor avian species and their associated foraging and nesting habitats were documented to occur across the entire Navajo Mine Lease Area, including areas within the Navajo Mine SMCRA Permit Area, Pinabete SMCRA Permit Area, and Burnham Road realignment. Nonraptor avian nesting habitat is expected to be limited to the following cover classes identified in Table 4.6-2: Agricultural Vegetation (2.5 percent of the Navajo Mine ROI), Developed and Other Human Use (9.8 percent), Forest and Woodland (2.6 percent), Introduced and Semi Natural Vegetation (0.3 percent), Nonvascular and Sparse Vascular Rock Vegetation (1.2 percent), Semi Desert (77.2 percent), and Shrubland and Grassland (5.1 percent), or 98.7 percent of the cover classes occurring within the Navajo Mine ROI. Upland nonraptor avian species were encountered in greater densities and diversity in the alkali wash and arroyo shrub communities within the Navajo Mine SMCRA Permit Area and Pinabete SMCRA Permit Area (see Section 4.6 for specific detail on these communities). Riparian vegetation communities, identified in Table 4.6-2, including Rock Mountain Lower Montane Riparian Woodland and Shrubland (1.2 percent), Introduced Riparian and Wetland Vegetation (0.3 percent), and Open Water (1.5 percent) habitats were documented to support a number of waterfowl and shorebirds during previous biological studies. Both the riparian habitat and open water habitat within these areas are seasonal and do not serve as permanent water sources within the Navajo Mine SMCRA Permit Area, Pinabete SMCRA Permit Area, and Burnham Road realignment (BNCC 2012a, Ecosphere 2008).

Common species documented within the Navajo Mine SMCRA Permit Area, Pinabete SMCRA Permit Area, and Burnham Road realignment include American avocet, ash-throated flycatcher, black-throated sparrow, brown-headed cowbird, Cassin's finch, Cassin's kingbird, common nighthawk, common raven, Gamble's quail, horned lark, killdeer, mourning dove, northern mockingbird, rock wren, sage sparrow, Say's phoebe, song sparrow, and white-crowned sparrow (BNCC 2012f).

Four Corners Power Plant

Nonraptor avian habitat occurs in and around the FCPP Lease Area including undeveloped upland habitat around the FCPP, habitat around Morgan Lake, and within the proposed DFADAs. Nonraptor avian nesting habitat is expected to be limited to the following cover classes identified in Table 4.6-4: Agricultural Vegetation (11.4 percent of the FCPP ROI), Developed and Other Human Use (3.7 percent), Forest and Woodland (4.2 percent), Introduced and Semi Natural Vegetation (2.2 percent), Nonvascular and Sparse Vascular Rock Vegetation (1.7 percent), Semi-Desert (65.4 percent), and Shrubland and Grassland (2.4 percent), or 91 percent of the cover classes occurring within the FCPP ROI. Morgan Lake (Open Water, 9.1 percent) and riparian vegetation communities identified in Table 4.6-4 including Rocky Mountain Lower Montane Riparian Woodland and Shrubland (1.7 percent), and Introduced Riparian and Wetland Vegetation (1.8 percent) support foraging and nesting habitat for a larger number of upland avian species, shorebirds, and waterfowl. The FCPP facilities could support nonraptor avian species, but offer limited foraging and nesting habitat as these areas are primarily industrial in nature and lack vegetative cover.

Species documented in the FCPP vicinity include American coot, American widgeon, barn swallow, black-throated sparrow, black crowned night heron, black tern, black-chinned hummingbird, blue grosbeak, Bonaparte's gull, Brewer's sparrow, chipping sparrow, cinnamon teal, common raven, eared grebe, great blue heron, greater yellowlegs, green-tailed towhee, green-winged teal, horned lark, killdeer, loggerhead shrike, mallard, MacGillivray's warbler, mourning dove, pintail, pied-billed grebe, red-winged blackbird, ring-billed gull, rock wren, ruddy duck, sage sparrow, sage thrasher, Say's phoebe, shoveler, snowy egret, song sparrow, vesper sparrow, violet-green swallow, Virginia's warbler, western flycatcher, western sandpiper, white-crowned sparrow, white-faced Ibis, Wilson's warbler, and yellow-headed blackbird (BOR 1975).

Habitat capable of supporting foraging and nesting activities of nonraptor avian species occurs within the entire proposed DFADAs, including vegetation communities associated with Forest and Woodland, Nonvascular and Sparse Vascular Rock Vegetation, and Semi-Desert cover classes. While both the Rocky Mountain Lower Montane Riparian Woodland and Shrubland and Inter-Mountains Basins Shale Badlands vegetation communities identified in the proposed DFADAs (Table 4.6-7) are generally considered avian nesting habitat, these two cover classes were evaluated and determined to be inadequate for supporting a wide array of nonraptor avian species (Ecosphere 2012c).

Observations of avian species occurring within the DFADAs upland habitats include blue grosbeak, Brewer's sparrow, bushtit, horned lark, house finch, mourning dove, raven, western king bird, and western mockingbird. Raven and horned lark were identified as the most commonly occurring species in the DFADAs. No permanent water occurs within the proposed DFADAs; therefore, no shorebirds or waterfowl are expected to occur (Ecosphere 2012c).

Transmission Lines

Habitat capable of supporting foraging and nesting activities of nonraptor avian species occurs within both the APS and PNM transmission ROWs. Given that avian species occupy a wide range of habitats, foraging and nesting habitats could occur across the entire length, and in all habitats, occurring within the APS and PNM transmission corridors. Nonraptor nesting habitat is expected to be limited to the following cover classes identified in Table 4.6-5 including: Agricultural Vegetation (1.2 percent of the transmission line ROI), Developed and Other Human Use (0.4 percent), Forest and Woodland (22.9 percent), Introduced and Semi-Natural Vegetation (0.3 percent), Nonvascular and Sparse Vascular Rock Vegetation (6.7 percent), Semi-Desert (62.2 percent), and Shrubland and Grassland (6.1 percent), or 99.8 percent of the transmission line ROI. Riparian cover classes identified in Table 4.6-5 including Rocky Mountain Lower Montane Riparian Woodland and Shrubland (0.3 percent), Western Great Plains Riparian Woodland and Shrubland (<0.1 percent), Introduced Riparian and Wetland Vegetation (0.2 percent), North American Arid West Emergent Marsh (<0.1 percent), Rocky Mountain Alpine-Montane Wet Meadow (<0.1 percent), and Open Water habitats (0.3 percent), capable of supporting shorebirds and waterfowl, collectively represent approximately 2,800 acres or 0.9 percent of the transmission lines ROI.

A large variety of nonraptor avian species is expected to occur across habitats within both the APS and PNM ROWs. Studies completed during the 2012 PNM ROW inventory identified commonly occurring nonraptor avian species foraging and nesting along the PNM ROW. These species include American crow, ash-throated flycatcher, Cassin's kingbird, common raven, gray flycatcher, horned lark, mourning dove, northern mockingbird, pinyon jay, western kingbirds, and western meadowlark (Marron and Associates 2012a, b, 2013; APS 2012c). No avian-specific field surveys were completed within the APS ROW; however, a list of approximately 250 nonraptor avian species expected to occur within the APS ROW is included in the FCPP and Navajo Mine Energy Project ERA (AECOM 2013c). Given the regional similarity in habitat types between the APS and PNM transmission lines, the common nonraptor avian species identified in Table 4.7-2 are also expected to occur within the APS ROW.

Small Mammals

This category includes animals from several families that are collectively referred to as "small mammals," including shrews, pocket mice, kangaroo rats, New World rats, mice, voles, muskrats, squirrels, pocket gophers, and prairie dogs. Small mammals are expected to occur across the entire ROI, using all vegetative cover classes (habitats) for foraging, burrowing, and frequenting riparian areas or open water according to their lifecycle needs. While small mammals occupy a wide range of habitats within the ROI, small mammals occurring within the ROI would likely have the greatest association with Upland Semi-Desert land cover classes and associated vegetation communities. This cover class represents almost 65 percent (Table 4.6-1) of available habitat in the ROI. Industrial facilities within the ROI (Developed and Other Human Use cover class) offer limited habitat, as these areas are primarily industrial in nature

lacking vegetative cover; however, several small species of mammals, primarily rats and mice, are known to occur around developed and urban areas where food and other resources are present. Small mammals documented or possibly occurring in the vicinity of the ROI are listed in Table 4.7-3.

Table 4.7-3 Small Mammal Species Expected to Occur in the ROI

Species	Expected to Occur
antelope ground squirrel (<i>Ammospermophilus nelsoni</i>)	Year-round
banner-tailed kangaroo rat (<i>Dipodomys spectabilis</i>)	Year-round
Botta's pocket gopher (<i>Thomomys bottae</i>)	Year-round
Abert's squirrel (<i>Sciurus aberti aberti</i>)	Year-round
Botta's pocket gopher (<i>Thomomys bottae albatrus</i>)	Year-round
brush mouse (<i>Peromyscus boylii rowleyi</i>)	Year-round
canyon mouse (<i>Peromyscus crinitus</i>)	Year-round
canyon mouse (<i>Peromyscus crinitus auripectus</i>)	Year-round
cliff chipmunk (<i>Neotamias dorsalis dorsalis</i>)	Year-round
Colorado chipmunk (<i>Neotamias quadrivittatus quadrivittatus</i>)	Year-round
common porcupine (<i>Erethizon dorsatum couesi</i>)	Year-round
deer mouse (<i>Peromyscus maniculatus blandus</i>)	Year-round
deer mouse (<i>Peromyscus maniculatus</i>)	Year-round
dusky shrew (<i>Sorex monticolus monticolus</i>)	Year-round
golden-mantled ground squirrel (<i>Spermophilus lateralis lateralis</i>)	Year-round
grasshopper mouse (<i>Onychomys leucogaster</i>)	Year-round
Gunnison's prairie dog (<i>Cynomys gunnisoni gunnisoni</i>)	Year-round
Gunnison's prairie dog (<i>Cynomys gunnisoni</i>)	Year-round
house mouse (<i>Mus musculus</i>)	Year-round
kangaroo rat (<i>Dipodomys sp.</i>)	Year-round
least chipmunk (<i>Neotamias minimus operarius</i>)	Year-round
long-tailed vole (<i>Microtus longicaudus longicaudus</i>)	Year-round
meadow vole (<i>Microtus pennsylvanicus modestus</i>)	Year-round
montane vole (<i>Microtus montanus fuscus</i>)	Year-round
muskrat (<i>Ondatra zibethicus</i>)	Year-round
northern grasshopper mouse (<i>Onychomys leucogaster arcticeps</i>)	Year-round
northern pocket gopher (<i>Thomomys talpoides fossori</i>)	Year-round
Ord's kangaroo rat (<i>Dipodomys ordii longipes</i>)	Year-round
Ord's kangaroo rat (<i>Dipodomys ordii</i>)	Year-round
pinyon mouse (<i>Peromyscus truei truei</i>)	Year-round
pinyon mouse (<i>Peromyscus truei</i>)	Year-round
plains pocket mouse (<i>Perognathus flavescens copei</i>)	Year-round
pocket gopher (<i>Thomomys spp.</i>)	Year-round
pocket mouse (<i>Perognathus apache</i>)	Year-round
red squirrel (<i>Tamiasciurus hudsonicus fremonti</i>)	Year-round

Species	Expected to Occur
rock squirrel (<i>Spermophilus variegatus grammurus</i>)	Year-round
rock squirrel (<i>Spermophilus variegatus</i>)	Year-round
silky pocket mouse (<i>Perognathus flavus flavus</i>)	Year-round
silky pocket mouse (<i>Perognathus flavus</i>)	Year-round
spotted ground squirrel (<i>Spermophilus spilosoma</i>)	Year-round
spotted ground squirrel (<i>Spermophilus spilosoma canescens</i>)	Year-round
western harvest mouse (<i>Reithrodontomys megalotis megalotis</i>)	Year-round
western harvest mouse (<i>Reithrodontomys megalotis</i>)	Year-round
white-tailed antelope squirrel (<i>Ammospermophilus leucurus pennipes</i>)	Year-round
white-tailed antelope squirrel (<i>Ammospermophilus leucurus</i>)	Year-round
white-tailed prairie dog (<i>Cynomys gunnisoni</i>)	Year-round
white-throated wood rat (<i>Neotoma albigula albigula</i>)	Year-round
wood rat (<i>Neotoma</i> sp.)	Year-round
yellow-bellied marmot (<i>Marmota flaviventris</i>)	Year-round

Navajo Mine

Small mammal surveys have been conducted throughout the Navajo Mine Lease Area since 1974. Small mammals commonly occurring within the Navajo Mine SMCRA Permit Area, Pinabete SMCRA Permit Area, and Burnham Road realignment include antelope squirrel, banner-tailed kangaroo rat, deer mice, grasshopper mouse, Gunnison's prairie dog, Ord's kangaroo rats, pinyon mouse, pocket gopher, rock squirrel, silky pocket mouse, and white-tailed antelope squirrels. Small mammal habitat is expected to occur across all cover classes identified in Table 4.6-2, including Open Water throughout the Navajo Mine SMCRA Permit Area, Pinabete SMCRA Permit Area, and Burnham Road realignment. Species most commonly occur within the alkali wash, sandy, and arroyo shrub habitat vegetation communities (Semi-Desert cover class, 77.2 percent) across the Navajo Mine Lease Area (BNCC 2012a, f).

Four Corners Power Plant

Habitat supporting small mammals occurs in and around the FCPP Lease Area, including areas surrounding Morgan Lake, and within the proposed DFADAs. Cumulatively, small mammals are expected to occur across all cover classes identified in Table 4.6-4, including open water. Small mammals identified in and around the FCPP ROI include white-tailed prairie dog, muskrat, spotted ground squirrel, canyon mouse, deer mouse, silky-pocket mouse, and western harvest mouse (BOR 1975).

Small mammals and their habitats occur within the entire proposed DFADAs. Small mammal habitat occurs across all vegetation cover classes within the proposed DFADAs. These habitats are generally characterized as Semi-Desert land cover, including Salt Desert Scrub, Badlands, and Riparian woodlands dominated by saltcedar. Biological inventories conducted in the proposed DFADAs documented the presence of white-tailed squirrel, kangaroo rat, and Gunnison's prairie dog (Ecosphere 2012c).

Transmission Lines

Habitat supporting small mammal species occurs within both the APS and PNM transmission ROWs in all cover classes, including Open Water documented within the ROW. Common potentially occurring and documented small mammal species within the PNM ROW include antelope ground squirrel, banner-tailed kangaroo rat, Botta's pocket gopher, Gunnison's prairie dog, Ord's kangaroo rat, and wood rat (Marron and Associates 2012a, b, 2013). Wildlife habitat analysis completed for the APS transmission corridor

identified the following small mammals as possibly occurring with the ROW: Abert's squirrel, Botta's pocket gopher, brush mouse, canyon mouse, cliff chipmunk, Colorado chipmunk, common porcupine, deer mouse, dusky shrew, golden-mantled ground squirrel, Gunnison's prairie dog, house mouse, least chipmunk, long-tailed vole, meadow vole, montane vole, muskrat, northern grasshopper mouse, northern pocket gopher, Ord's kangaroo rat, pinyon mouse, plains pocket mouse, red squirrel, rock squirrel, silky pocket mouse, potted ground squirrel, western harvest mouse, white-tailed antelope squirrel, white-throated wood rat, and yellow-bellied marmot (AECOM 2013f).

Bats

This category contains members of the common bats and free-tailed bat species. Bats occur across a wide variety of habitat types that support foraging, but roosting habitat is limited to rock outcrops, cliff faces, mine shafts, and man-made structures such as buildings or ledges. Bats could use all cover classes and associated vegetation communities within the ROI for foraging and may frequent riparian areas or water sources. Habitat capable of supporting foraging of bat species occurs across the entire ROI and includes all cover classes, including developed areas. The ROI contains habitat to support roosting of bat species, limited to the following cover classes identified in Table 4.6-1: Developed and Other Human Use (2.3 percent of the ROI), Forest and Woodland (18.7 percent), and Nonvascular and Sparse Vascular Rock Vegetation (5.6 percent) cover classes. Collectively, these cover classes represent 26.6 percent of the total ROI. Within these roosting habitat cover classes, bat roosting is limited to specific crevices and overhang areas within these cover classes, which greatly reduces the amount of available roosting habitat with the ROI. Natural roosting habitats (cliffs, ledges, and forests) do not occur within the ROI, but do occur around the ROI perimeter within the analysis area (1-mile radius around the ROI). Species documented or expected to occur within the ROI are listed in Table 4.7-4 (BNCC 2012a; Marron and Associates 2012a, b, 2013; AECOM 2013f).

Table 4.7-4 Bat Species Expected to Occur in the ROI

Species	Expected to Occur
big brown bat (<i>Eptesicus fuscus</i>)	Year-round
big-freetail bat (<i>Nyctinomops macrotis</i>)	Year-round
Brazilian free-tailed bat (<i>Tadarida brasiliensis</i>)	Year-round
brown bat (<i>Myotis lucifugus occultus</i>)	Year-round
California myotis (<i>Californicus californicus</i>)	Year-round
fringed myotis (<i>Myotis thysanodes</i>)	Year-round
hoary bat (<i>Lasiurus cinereus cinereus</i>)	Year-round
little brown myotis (<i>Myotis lucifugus carissima</i>)	Year-round
long-eared myotis (<i>Myotis evotis evotis</i>)	Year-round
long-legged myotis (<i>Myotis volans interior</i>)	Year-round
pallid bat (<i>Antrozous pallidus pallidus</i>)	Year-round
silver-haired bat (<i>Lasionycteris noctivagans</i>)	Year-round
small-footed myotis (<i>Myotis ciliolabrum melanothinus</i>)	Year-round
spotted bat (<i>Euderma maculatum</i>)	Year-round
Townsend's pale big-eared bat (<i>Corynorhinus townsendii pallescens</i>)	Year-round
western pipistrelles (<i>Pipistrellus hesperus</i>)	Year-round
Yuma myotis (<i>Myotis yumanensis yumanensis</i>)	Year-round

Navajo Mine

Bat species have been documented within the Navajo Mine Lease Area and are expected to forage across all cover classes and associated vegetation communities within the Navajo Mine Permit Area, Pinabete SMCRA Permit Area, and Burnham Road realignment. Roosting habitat is expected to be limited to the following cover classes identified in Table 4.6-2: Developed and Other Human Use (9.8 percent of the Navajo Mine ROI), Forest and Woodland (2.6 percent), and Nonvascular and Sparse Vascular Rock Vegetation (1.2 percent), or 13.6 percent of the Navajo Mine ROI. No natural cliff or wooded habitat capable of supporting bats occurs within the Navajo Mine SMCRA Permit Area, Pinabete SMCRA Permit Area, or Burnham Road realignment. Roosting bats could be encountered within man-made structures and overhangs (bridges), represented by Developed and Other Human Use cover class, within the Navajo Mine SMCRA Permit Area. Previous wildlife studies within the Navajo Mine SMCRA Permit Area, Pinabete SMCRA Permit Area, and Burnham Road realignment have documented the presence of foraging bats, including pipistrelles, pallid bat, silver-haired bat, and hoary bat (BNCC 2012f, Ecosphere 2008).

Four Corners Power Plant

Habitat supporting bat species foraging occurs in and around the FCPP Lease Area including Morgan Lake and proposed DFADAs. Bat foraging habit includes all cover classes and associated vegetation communities in the FCPP ROI. Roosting habitat is expected to be limited to the following cover classes identified in Table 4.6-4: Developed and Other Human Use (3.7 percent), Forest and Woodland (4.2 percent), and Nonvascular and Sparse Vascular Rock Vegetation (1.7 percent), or 9.6 percent of the FCPP ROI. No natural cliff or wooded habitat capable of supporting bat roosting occurs within the FCPP Lease Area; however, this habitat does occur within 1 mile of the FCPP. Roosting bats could be encountered within man-made structures and overhangs (e.g., bridges) within the FCPP area. Bat species occurring within the FCPP Lease Area are expected to be similar, if not identical, to those species documented at the Navajo Mine Lease Area, and, therefore, could include pipistrelles, pallid bat, silver-haired bat, and hoary bat.

Transmission Lines

Bat species foraging and roosting habitat occurs in and around the APS and PNM transmission ROWs. Bat species are expected to forage across all areas and within all habitats that occur along both ROWs. Roosting habitat is expected to be limited to the following cover classes identified in Table 4.6-5: Developed and Other Human Use (0.4 percent), Forest and Woodland (22.9 percent), and Nonvascular and Sparse Vascular Rock Vegetation (6.7 percent), or 30 percent of the APS and PNM transmission line ROI. Bats identified as potentially occurring with the transmission line ROWs include big brown bat, big-freetail bat, Brazilian free-tailed, brown bat, California myotis, fringed myotis, hoary bat, little brown myotis, long-eared myotis, long-legged myotis, pallid bat, silver-haired bat, small-footed myotis, spotted bat, Townsend's pale big-eared bat, and Yuma myotis (Marron and Associates 2012a, b, 2013; AECOM 2013f).

Rabbits and Hares

Rabbits and hares (lagomorphs) occur in a wide variety of habitats, including desert scrub, grassland, and sandy habitats. These species occupy habitats within the ROI across the entire range of cover classes and associated vegetative communities. These species, particularly jackrabbits, are habitat generalists and are capable of occupying disturbed areas and areas where humans commonly occur, but are less likely to occur in unvegetated areas within the ROI. Two species of lagomorphs have been documented in the ROI: desert cottontail (*Sylvilagus audubonii*) and black-tailed jackrabbit (*Lepus californicus*) (BNCC 2012a; Ecosphere 2012c; Marron and Associates 2012a, b, 2013).

Navajo Mine

Habitat supporting lagomorphs occurs within all cover classes and associated vegetation communities identified in Table 4.6-2 (98.5 percent), excluding Open Water (1.5 percent) within the Navajo Mine SMCRA Lease Area, Pinabete SMCRA Permit Area, and Burnham Road realignment ROI. Wildlife surveys conducted in the Navajo Mine Lease Area, including the Navajo Mine SMCRA Permit Area and Pinabete SMCRA Permit Area have been conducted in conjunction with other wildlife surveys for the last two decades. Desert cottontails and black-tailed jackrabbits as well as their tracks and scat are commonly observed. These two wildlife species are cited as the most abundant wildlife species observed in and around the Navajo Mine SMCRA Permit Area, Pinabete SMCRA Permit Area, and Burnham Road realignment (BNCC 2012a, f).

Four Corners Power Plant

Habitat supporting lagomorphs occurs within all cover classes and associated vegetation communities within the FCPP Lease Area, including the proposed DFADAs identified in Table 4.6-4 (90.1 percent of the FCPP ROI), excluding Open Water (9.1 percent) within the FCPP ROI. Lagomorphs are expected to occur throughout upland habitats within the FCPP Lease Area and proposed DFADAs. Biological Surveys conducted in 2012 within the proposed DFADAs identified both desert cottontails and black-tailed jackrabbits and their habitat within the survey area (Ecosphere 2012c)

Transmission Lines

Habitat supporting lagomorphs occurs within all cover classes and associated vegetation communities identified in Table 4.6-5 (99.7 percent of the transmission line ROI), excluding Open Water (0.3 percent), within the APS and PNM transmission line ROI. These species are expected to occur throughout upland habitats within and immediately adjacent to the ROW. Biological Surveys conducted in 2012 within the PNM ROW documented desert cottontails and black-tailed jackrabbits as common occurrences (Marron and Associates 2012a, b, 2013). Both of these species have been identified as possibly occurring within the APS ROW given the similar habitat types of the APS and PNM ROW corridors (AECOM 2013f).

Carnivores

Carnivores include foxes, coyotes, badgers, ferrets, skunks, weasels, bobcats, and wolf. These species occur across a wide range cover classes identified in Table 4.6-1 (99.3 percent), excluding Open Water (0.7 percent) within the ROI. Habitats capable of supporting carnivores range from solitary dense woodlands, riparian, near open water, to highly disturbed, and in some cases, developed landscapes. Generally, these species are expected to occur in greater densities in Semi-Desert and Shrubland Grassland cover classes where prey, such as small mammals and herpetofauna, occur. These species are not expected to occur in large numbers in unvegetated, developed areas, around buildings, or near facilities associated with the FCPP and Navajo Mine SMCRA Permit and Pinabete SMCRA Permit Areas; however, some carnivores may frequent developed areas if food or water resources are readily available. Carnivore species documented or expected to occur within the ROI includes those species listed in Table 4.7-5 (BNCC 2012a; Ecosphere 2012c; Marron and Associates 2012a, b, 2013; AECOM 2013f; BOR 1975).

Table 4.7-5 Carnivore Species Expected to Occur in the ROI

Species	Expected to Occur
badger (<i>Taxidea taxus</i>)	Year-round
black bear (<i>Ursus americanus amblyceps</i>)	Year-round
Black-footed ferret (<i>Mustela nigripes</i>)	Year-round
bobcat (<i>Lynx rufus</i>)	Year-round
Canada lynx (<i>Lynx canadensis</i>)	Year-round
coyote (<i>Canis latrans</i>)	Year-round
gray fox (<i>Urocyon cinereoargenteus</i>)	Year-round
kit fox (<i>Vulpes macrotis</i>)	Year-round
long-tailed weasel (<i>Mustela frenata arizonensis</i>)	Year-round
Mexican gray wolf (<i>Canis lupus baileyi</i>)	Year-round
mountain lion (<i>Puma concolor Azteca</i>)	Year-round
raccoon (<i>Procyon lotor</i>)	Year-round
red fox (<i>Vulpes vulpes</i>)	Year-round
ringtail (<i>Bassariscus astutus arizonensis</i>)	Year-round
spotted skunk (<i>Spilogale putoris</i>)	Year-round
striped skunk (<i>Mephitis mephitis</i>)	Year-round

Navajo Mine

Habitat supporting carnivores exists within the cover classes identified in Table 4.6-2 (98.5 percent of the Navajo Mine ROI), excluding Open Water (1.5 percent) within and around the Navajo Mine SMCRA Permit Area, Pinabete SMCRA Permit Area, and proposed Burnham Road realignment ROI. Wildlife studies completed within the Navajo Mine Lease Area have been conducted routinely since the opening of the mine and have documented the presence of coyote, red fox, kit fox, and bobcat. Carnivore studies completed in conjunction with the Pinabete SMCRA Permit Area identified coyotes, kit foxes, and one kit fox den within the Pinabete SMCRA Permit Area (BNCC 2012a, OSMRE 2012a). Species expected to occur within the Burnham Road realignment include coyote, badger, and the same species identified in the nearby Navajo Mine SMCRA Permit Area and Pinabete SMCRA Permit Areas (Ecosphere 2008). While these species are expected to occur across the ROI, their presence, location, and abundance will be closely associated with the presences of prey species such as small mammals, lagomorphs, and herpetofauna in the upland Semi-Desert and Grassland and Shrubland cover classes. These species are not expected to occur as residents in the active mine areas and support facilities within the Navajo Mine Lease Area, but could occur within reclaimed areas where available food resources are present.

Four Corners Power Plant

Habitat supporting carnivores occurs within FCPP lease area including the proposed DFADAs. This includes all cover classes and associated vegetation communities identified in Table 4.6-4 (90.9 percent of the FCPP ROI), excluding Open Water (9.1 percent), within the FCPP ROI. These species are not expected to occur within the developed industrial areas of the FCPP Lease Area as residents, but may occur as visitors to developed areas if food resources are available. Biological surveys conducted within the FCPP Lease Area documented the following species occurring, or expected to occur, within the FCPP Lease Area: bobcat, coyote, gray fox, kit fox, spotted skunk, and striped skunk (BOR 1975, OSMRE 2012a).

Carnivores expected to occur within the proposed DFADAs include those species documented or expected to occur around the FCPP Lease Area. All cover classes and associated vegetation communities within the proposed DFADAs are expected to support these species. Studies completed in 2012 documented evidence of coyote and habitat capable of supporting kit fox (Ecosphere 2012c).

Transmission Lines

Habitat supporting carnivores occurs within the cover identified within Table 4.6-5 (99.7 percent of the transmission line ROI), excluding Open Water (0.3 percent), within the APS and PNM transmission line ROI. Biological surveys conducted in 2012 within the PNM ROW documented coyote, gray fox, bobcat, and raccoon (Marron and Associates 2012a, b, 2013). Habitat modeling within the APS transmission corridor identified the following species as likely occurring within the APS ROW: badger, black bear, bobcat, raccoon, Canada lynx, coyote, red fox, gray fox, kit fox, long-tailed weasel, mountain lion, ringtail, and striped skunk (AECOM 2013f).

Big Game

Big game species, such as elk, deer, and antelope, commonly occur in upland habitats, which include grassland, shrubland communities, and agricultural areas. These big game species are less likely to occur in disturbed and industrially developed areas but may occur within reclaimed areas where food resources are available. Big game documented, or expected to occur, in the ROI include mule deer, elk, and pronghorn antelope. Deer and elk generally occur in higher elevation Forest and Woodland cover classes identified in Table 4.6-1 (18.7 percent of the ROI), and are expected to occupy lower elevation habitats in winter months during winter migration: Agricultural Vegetation (1.6 percent), Introduced and Semi-Natural Vegetation (0.3 percent), Semi-Desert (64.9 percent), and Shrubland and Grassland (5.8 percent). Pronghorn generally occur in lower elevation Semi-Desert (64.9 percent of the ROI) or Shrubland and Grassland (5.8 percent) cover classes within the ROI. Big game species are less likely to occur within the Developed and Other Human Use and Nonvascular and Sparse Vascular Rock Vegetation cover classes.

Navajo Mine

Habitat supporting big game species occurs throughout cover classes identified in Table 4.6-2 including Agricultural Vegetation (2.5 percent of the Navajo Mine ROI), Forest and Woodland (2.6 percent), Introduced and Semi-Natural Vegetation (0.3 percent), Semi-Desert (77.2 percent), and Shrubland and Grassland (5.1 percent), or 87.7 percent of the total habitat within the Navajo Mine SMCRA Permit Area, Pinabete SMCRA Permit Area, and Burnham Road realignment ROI. Surveys for big game completed for the last two decades and more recent studies around the Pinabete SMCRA Permit Area and Burnham Road realignment have identified mule deer as the only big game species documented to occur. Furthermore, sightings of mule deer within these areas were identified as occasional. Elk and pronghorn are not known to occur within the Navajo Mine Lease Area (BNCC 2012f); however, pronghorn have been identified as possibly occurring based upon the presence of Semi-Desert (77.2 percent) and Shrubland and Grassland (5.1 percent) habitats identified in Table 4.6-2 (Ecosphere 2008).

Four Corners Power Plant

Habitat capable of supporting big game occurs within the FCPP lease area including the proposed DFADAs. This includes cover classes identified in Table 4.6-4: Agricultural Vegetation (11.4 percent of the FCPP ROI), Forest and Woodland (4.2 percent), Introduced and Semi-Natural Vegetation (2.2 percent), Semi-Desert (65.4 percent), and Shrubland and Grassland (2.4 percent), or 85.6 percent of the FCPP ROI. Mule deer is the only big game species documented to occur around the FCPP Lease Area (OSMRE 2012a). Pronghorn and elk have not been documented within the immediate area; however, both of these species could occur within the FCPP Lease Area vicinity (AECOM 2013f). No big

game species or evidence of their presence was identified within the proposed DFADAs (Ecosphere 2012c).

Transmission Lines

Habitat supporting big game within the transmission lines occurs within the cover classes identified in Table 4.6-5 including: Agricultural Vegetation (1.2 percent of the transmission line ROI), Forest and Woodland (22.9 percent), Introduced and Semi Natural Vegetation (0.3 percent), Semi-Desert (62.2 percent), and Shrubland and Grassland (6.1 percent), or 92.7 percent of habitats within the APS and PNM transmission line ROI. Biological surveys conducted in 2012 of the PNM ROW documented evidence of mule deer within the PNM ROW and identified habitat capable of supporting pronghorn. Although no pronghorn were documented, they have been identified as likely to occur within the PNM transmission line ROW (Marron and Associates 2012a, b, 2013). Habitat studies completed for the APS transmission lines identified elk, mule deer, and pronghorn as possibly occurring within the APS ROW (AECOM 2013f).

Amphibians and Reptiles

Amphibians and reptile species (herpetofauna) distribution and abundance are generally related to the distribution and abundance of aquatic habitat; however, many reptile species occur in arid upland environments similar to those occurring in the ROI. Vegetation cover and habitat supporting herpetofauna occur across all cover classes in the entire ROI, but are less likely to occur in developed areas (Developed and Other Human Use cover classes, 2.3 percent of the ROI) associated with the Navajo Mine SMCRA Permit and Pinabete SMCRA Permit Areas and FCPP. The species that have been documented or are expected to occur within the ROI include those listed in Table 4.7-6 (Ecosphere 2012c; Marron and Associates 2012a, b, 2013; BNCC 2012f; AECOM 2013f).

Table 4.7-6 Amphibian and Reptile Species Expected to Occur in the ROI

Species	Expected to Occur
black-necked garter snake (<i>Thamnophis cyrtopsis</i>)	Year-round
bull snake (<i>Pituophis catinifer</i>)	Year-round
bullfrog (<i>Rana catesbeiana</i>)	Year-round
California kingsnake (<i>Lampropeltis getula</i>)	Year-round
canyon tree frog (<i>Hyla arenicolor</i>)	Year-round
collard lizard (<i>Crotaphytus collaris</i>)	Year-round
common lesser earless lizard (<i>Holybrookia maculata</i>)	Year-round
desert striped whipsnake (<i>Masticophis taeniatus</i>)	Year-round
eastern fence lizard (<i>Sceloporus undulates</i>)	Year-round
glossy snake (<i>Arizona elegans</i>)	Year-round
gopher snake (<i>Pituophis melanoceucus</i>)	Year-round
greater short-horned lizard (<i>Phrynosoma hernandesi</i>)	Year-round
hognose snake (<i>Heterodon nasicus</i>)	Year-round
little striped whiptail (<i>Cnemidophorus inoratus</i>)	Year-round
longnose leopard lizard (<i>Gambelia wislizenii</i>)	Year-round
milk snake (<i>Lampropeltis triangulum</i>)	Year-round
New Mexico spadefoot (<i>Spea multiplicata</i>)	Year-round
New Mexico whiptail lizard (<i>Aspidoscelis neomexicano</i>)	Year-round

Species	Expected to Occur
night snake (<i>Hypsiglena torquata</i>)	Year-round
northern leopard frog (<i>Rana pipiens</i>)	Year-round
northern tree lizard (<i>Urosaurus ornatus</i>)	Year-round
orange headed Spiny Lizard (<i>Sceloporus magister cephaloflavus</i>)	Year-round
plains spadefoot (<i>Spea bombifrons</i>)	Year-round
plateau striped whiptail (<i>Aspidoscelis velox</i>)	Year-round
plateau striped whiptail (<i>Cnemidophorus velox</i>)	Year-round
red-spotted toad (<i>Bufo punctatus</i>)	Year-round
sagebrush lizard (<i>Sceloporus graciosus</i>)	Year-round
short-horned lizard (<i>Phrynosoma douglasii</i>)	Year-round
side-blotched lizard (<i>Uta stansburiana</i>)	Year-round
southern many-lined skink (<i>Eumeces multivirgatus epipleurotus</i>)	Year-round
southwestern lizard (<i>Sceloporus cowlesi</i>)	Year-round
spiny desert lizard (<i>Sceloporus magister</i>)	Year-round
striped whipsnake (<i>Masticophis taeniatus</i>)	Year-round
tiger salamander (<i>Ambystoma tigrinum</i>)	Year-round
wandering garter snake (<i>Thamnophis elegans</i>)	Year-round
western chorus frog (<i>Pseudacris triseriata</i>)	Year-round
western painted turtle (<i>Chrysemys picta bellii</i>)	Year-round
western rattlesnake (<i>Crotalus viridis</i>)	Year-round
plateau tiger or western whiptail (<i>Aspidoscelis tigris septentrionalis</i>)	Year-round
western whiptail (<i>Cnemidophorus tigris</i>)	Year-round
western yellow-bellied racer (<i>Coluber constrictor sub. mormon</i>)	Year-round
Woodhouse's toad (<i>Bufo woodhousii</i>)	Year-round

Navajo Mine

Habitat supporting herpetofauna occurs throughout all cover classes identified in Table 4.6-2 (90.2 percent of the Navajo Mine ROI), excluding Developed and Other Human Use (9.8 percent) within the Navajo Mine SMCRA Permit Area, Pinabete SMCRA Permit Area, and proposed Burnham Road realignment ROI. Surveys for herpetofauna have occurred within the Navajo Mine Lease Area over the past two decades around the Navajo Mine SMCRA Permit Area, Pinabete SMCRA Permit Area, and Burnham Road realignment. Herpetofauna species observed include plateau striped whiptail, western whiptail, gopher snake, bull snake, short-horned lizard, western yellow-bellied racer, side-blotched lizard, lesser earless lizard, prairie rattlesnake, and collared lizard. These species occur across all habitat types identified within the Navajo Mine Lease Area (BNCC 2012a, f; OSMRE 2012a; Ecosphere 2008).

Four Corners Power Plant

Habitat supporting herpetofauna occurs within the FCPP Lease Area, including Morgan Lake and the proposed DFADAs. These habitats include all cover classes identified in Table 4.6-4 (96.3 percent of the FCPP ROI), excluding Developed and Other Human Use (3.7 percent), within the FCPP ROI. Species documented to occur within the FCPP Lease Area include leopard frog, lesser earless lizard, northern side-blotched lizard, plateau whiptail, prairie rattlesnake, and Great Basin gopher snake. Herpetofauna

expected to occur within and near the FCPP Lease Area include black-necked garter snake, canyon tree frog, collared lizard, desert short-horned lizard, desert side-blotched lizard, garter snake, little striped whiptail, long-nosed leopard lizard, mountain short-horned lizard, New Mexico milk snake, night snake, northern plateau lizard, northern sagebrush lizard, northern whiptail, orange headed spiny lizard, red-spotted toad, Woodhouse's toad, southern many-lined skink, striped whipsnake, tree lizard, tiger salamander, western painted turtle, western rattlesnake, and western spade foot toad (BOR 1975, AECOM 2013f). Surveys conducted within the proposed DFADAs identified habitat capable of supporting herpetofauna and documented the occurrence of whiptail and sagebrush lizard (Ecosphere 2012c).

Transmission Lines

Habitat supporting herpetofauna occurs within all cover classes identified in Table 4.6-5 (99.6 percent of the transmission line ROI); excluding Developed and Other Human Use (0.4 percent), of the APS and PNM transmission line ROI. Biological surveys conducted in 2012 within the PNM ROW documented bull snake, collared lizard, common lesser earless lizard, greater short-horned lizard, New Mexico whiptail lizard, plateau striped whiptail, sagebrush lizard, side-blotched lizard, and southwestern lizard (Marron and Associates 2012a, b, 2013). Habitat analysis of the APS ROW identified the following species as likely to occur: bullfrog, California kingsnake, collard lizard, desert striped whipsnake, eastern fence lizard, glossy Arizona snake, hognose snake, lesser earless lizard, long-nose leopard lizard, milk snake, New Mexico spadefoot, night snake, northern sagebrush lizard, northern garter snake, northern leopard frog, northern tree lizard, plains spadefoot, plateau striped whiptail, red-spotted toad, short-horned lizard, side-blotched lizard, spiny desert lizard, tiger salamander, wandering garter snake, western chorus frog, western painted turtle, western rattlesnake, western whiptail, Woodhouse's toad, and yellowbelly racer (AECOM 2013f).

Fisheries and Aquatic Habitats

Potential habitat for fish species within the ROI is limited to permanent or perennial water resources. The areas of permanent surface water in the ROI and vicinity include the San Juan River, Morgan Lake, and the lower portions of the Chaco River below Morgan Lake. Other waterbodies in the ROI are intermittent, only containing water during portions of the year. These include Pinabete Arroyo and Cottonwood Arroyo, as well as numerous other washes that carry water only during and very shortly after precipitation events. Other major water bodies in the vicinity include the Animas, La Plata, and Mancos Rivers. None of the latter three watersheds are within or adjacent to the ROI, and all fall outside of the FCPP deposition area as predicted by the atmospheric deposition models (AECOM 2013c). The species that have been documented or are expected to occur within the ROI and vicinity include those listed in Table 4.7-7.

Navajo Mine

Ponds and impoundments that occur within the ROI and surrounding areas function as either livestock watering impoundments or sediment control ponds to control runoff from mining activities. These small ponds are dry most of the year, only containing water following precipitation events. No perennial waters capable of supporting fish occur within the ROI (BNCC 2012a, 2012f).

Four Corners Power Plant

Morgan Lake is a permanent, artificial water body located within the FCPP Lease Area. Morgan Lake receives cooling water from the adjacent FCCP, and also serves as a recreational fishery operated by the Navajo Nation. Water temperatures in the lake exceed 75°F year-round. Water from Morgan Lake supports bass stocked by the New Mexico Department of Game and Fish (NMDGF) (BNCC 2012a). The lake does not support any native fish species; however, at least six species of non-native fish occur in the lake, including channel catfish, bluegill, largemouth bass (all game fish), gizzard shad, and common carp. One concern regarding Morgan Lake is the potential for non-native fish to escape the lake and become established in the San Juan River (New Mexico State Parks 2013a).

Table 4.7-7 Fish Species Occurring in Permanent Water Bodies in the ROI and Vicinity

Species	Origin**	Family	San Juan River (LBF ^a /SBF ^b)	Morgan Lake ^{c,d}	Chaco River ^e	Lake Powell ^f
bluehead sucker (<i>Catostomus discobolus</i>)	N	Catostomidae	C/C			
flannelmouth sucker (<i>Catostomus latipinnis</i>)	N	Catostomidae	C/U			P
razorback sucker (<i>Xyrauchen texanus</i>)	N	Catostomidae	U/-			P
mottled sculpin (<i>Cottus bairdi</i>)	N	Cottidae	R/-			
Colorado pikeminnow (<i>Ptychocheilus Lucius</i>)	N	Cyprinidae	U/U			P
roundtail chub (<i>Gila robusta</i>)	N	Cyprinidae	-/R			
speckled dace (<i>Rhinichthys osculus</i>)	N	Cyprinidae	C/C			P
white sucker (<i>Catostomus commersoni</i>)	I	Catostomidae	U/-			
black crappie (<i>Pomoxis nigromaculatus</i>)	I	Centrarchidae				P
bluegill (<i>Lepomis macrochirus</i>)	I	Centrarchidae		P		P
green sunfish (<i>Lepomis cyanellus</i>)	I	Centrarchidae	R/R			P
largemouth bass (<i>Micropterus salmoides</i>)	I	Centrarchidae	R/R	P		P
smallmouth bass (<i>Micropterus dolomieu</i>)	I	Centrarchidae	R/-			P
white crappie (<i>Pomoxis annularis</i>)	I	Centrarchidae		P		
gizzard shad (<i>Dorosoma cepedianum</i>)	I	Clupeidae		P		P
common carp (<i>Cyprinus carpio</i>)	I	Cyprinidae	U/U	P		
fathead minnow (<i>Pimephales promelas</i>)	I	Cyprinidae	R/U			P
red shiner (<i>Cyprinella lutrensis</i>)	I	Cyprinidae	U/C			P
plains killifish (<i>Fundulus zebrinus</i>)	I	Cyprinodontidae	R/R			
Northern pike (<i>Esox Lucius</i>)	I	Esocidae				P
black bullhead (<i>Ameiurus melas</i>)	I	Ictaluridae	R/R			P
channel catfish (<i>Ictalurus punctatus</i>)	I	Ictaluridae	C/C	P		P
yellow bullhead (<i>Ameiurus natalis</i>)	I	Ictaluridae	R/R			

Species	Origin**	Family	San Juan River (LBF ^a /SBF ^b)	Morgan Lake ^{c,d}	Chaco River ^e	Lake Powell ^f
armored catfish (<i>Plecostomus</i> sp.)	I	Loricariidae		P		
walleye (<i>Stizostedion vitreum</i>)	I	Percidae				P
Western mosquitofish (<i>Gambusia affinis</i>)	I	Poeciliidae	-/C			
brown trout (<i>Salmo trutta</i>)	I	Salmonidae	U/-			
kokanee (<i>Oncorhynchus nerka</i>)	I	Salmonidae				
rainbow trout (<i>Oncorhynchus mykiss</i>)	I	Salmonidae	U/-			P
striped bass (<i>Morone saxatilis</i>)	I	Percichthyidae				P

Notes:

** N = Native, I = Introduced. C=common, U=uncommon, R=Rare, - =not reported, P=present

^a LBF = Large-bodied Fish (Source: Ryden 2012. 2010 SJR Large-bodied Fish Monitoring - based on proportion of catch C>5percent, U>1 percent, R<1 percent)

^b SBF= Small-bodied Fish (Source: Gilbert, et al. 2012. 2011 SJR Small-bodied Fish Monitoring, based on 2011 proportion of catch in three habitats as above)

^c Source: DOE and BIA 2007

^d Source: personal communication to M. Calle of OSMRE

^e Does not support fish

^f Utah = Lake Powell (Source: accessed at www.waterquality.utah.gov/watersheds/lakes/lakepowl.pdf on 7/9/13)

The San Juan River runs east to west approximately 2.3 miles north of the ROI and is the source of FCPP cooling water. The fisheries of the San Juan River have been the focus of numerous studies over the last two decades. These studies have been coordinated through the San Juan River Restoration Implementation Plan, the focus of which is to recover populations of Colorado pikeminnow and razorback sucker. The studies being conducted and most recent reports provide an abundance of information about the fish species present throughout the San Juan River (e.g., Ryden 2010, 2012; Gilbert et al. 2011, 2012). Seven species of native fish have been observed in the San Juan River (Table 4.7-7). Of these, bluehead sucker, flannelmouth sucker, and speckled dace are common, comprising more than 5 percent of the total catch (denoted as “C” in Table 4.7-7). Razorback sucker and Colorado pikeminnow are uncommon, representing 1 to 5 percent of the total catch (denoted as “U” in Table 4.7-7). Mottled sculpin and roundtail chub are rare, representing less than 5 percent of the total catch in either survey (denoted as “R” in Table 4.7-7). Colorado pikeminnow and razorback sucker are listed as endangered under the federal ESA. Roundtail chub in the San Juan River are not listed, but the Lower Colorado Basin Distinct Population Segment is a candidate species under the federal ESA. These species are described in more detail in Section 4.8.2.3.

Surveys conducted within the proposed DFADAs identified no permanent water sources capable of supporting fish (Ecosphere 2012c). The Chaco River runs to the west of the ROI. This river is ephemeral until it passes downstream of Morgan Lake, where leakage from the lake and backwater from the San Juan River creates permanent water. This permanent water has not been sampled, but likely contains many of the same species observed in the San Juan River.

In the San Juan River, native fish tend to outnumber non-native fish (Ryden 2012, Gilbert et al. 2012). Native fish in the river tend to be more dominant in upstream reaches, such as are found near the ROI,

whereas non-native fish tend to increase in abundance in the lower reaches of the river and Lake Powell. The number of native fish, particularly Colorado pikeminnow and razorback sucker are increasing over time because of extensive stocking by the Recovery Program. As recently as 2001, the number of native fish in the large bodied fish monitoring program was very low. In 2010, native fish made up over 80 percent of the total catch in the Large Bodied Fish Monitoring Program (Ryden 2012). The numbers of channel catfish are also down in the upstream areas, but remain strong in the middle and downstream portions of the river. This species is subject to a non-native fish removal program, which appears to be having some success. This same program has also greatly reduced the number of common carp throughout the river. Other common non-native species on the San Juan River include red shiner and western mosquitofish (Table 4.7-7).

The San Juan River flows from the ROI westward to Lake Powell. Because contaminants from FCPP emissions flow downstream with the river and enter Lake Powell, the San Juan River arm of Lake Powell is included in the project vicinity. No quantitative estimates of relative abundance of fish in the San Juan Arm of Lake Powell have been found; however, it is a reasonable presumption that many, if not all of the fish species found in the San Juan River are likely to be found in this arm of the lake. A 30-foot waterfall currently separates the San Juan River from Lake Powell so while fish can easily move from the river into the San Juan River arm of Lake Powell, they cannot move from the lake into the river. While native fish tend to outnumber non-native fish in the river, non-native fish tend to outnumber native fish in the San Juan River arm of Lake Powell and in the lake at large (Ryden 2012, Gilbert et al. 2012). Other non-native species found in Lake Powell include largemouth and smallmouth bass, several species of sunfish, gizzard shad, fathead minnow, northern pike, and black bullhead (Table 4.7-7).

Transmission Lines

Transmission lines in the ROI cross numerous perennial and ephemeral water bodies (see Section 4.5, Water Resources), which support numerous fish and other aquatic species typical of the region. No specific surveys of these species were conducted because the Proposed Action does not include a proposal to construct or modify the existing transmission line structures, which could affect aquatic species.

APS transmission lines extend from FCPP to the west and southwest, extending from San Juan County, New Mexico across Apache, Navajo and into Cococino counties, Arizona. The 500 KV line crosses the Little Colorado River, as well as Chinle Wash and several ephemeral waterways. The 345 KV line crosses only ephemeral waterways. Habitat modeling and field studies found that these lines do not intersect suitable habitat for listed or sensitive fish species (AECOM 2013c).

PNM transmission lines extend from FCPP to the north (FCPP to San Juan Switchyard) and southeast (FCPP to West Mesa line). The FCPP to San Juan Switchyard line lies entirely within San Juan County extending from the FCPP to the San Juan Generating Station Switchyard. The FCPP to West Mesa line crosses portions of San Juan, McKinley, Sandoval, and Bernalillo, counties, New Mexico. Both lines cross lands of the Navajo Nation, as well as BLM and State Trust lands. The FCPP to San Juan Switchyard line wraps around the perimeter of Morgan Lake and crosses the San Juan River between towers FC28 and FC29. The fish community of Morgan Lake and the San Juan River is described above. Both towers are located outside of the active channel and riparian zone. This line does not cross any other permanent waterbodies (Marron and Associates 2012a). The FCPP to West Mesa line crosses a number of ephemeral drainages, including West Fork Gallegos Canyon, Moncisco Wash, Kimbeto Wash, Escavada Wash, Torreon Wash, San Isidro Wash, Betonnie Tsosie Wash, Canada Alemita, Canada Alamos, Canada Correles, Arroyo Pueblo Alto, Chaco Wash, Daniel Wash, Arroyo Piedra Lumbre, Benard Arroyo, and Trujillo Canyon. Of these, only the West Fork Gallegos Canyon and Moncisco Wash supported wetland development. The line also crosses the Rio Puerco, which was dry at the time wildlife surveys were conducted in 2012, but may have perennial water in wetter years (Marron and Associates 2012b).

This area is unlikely to support any fish. The transmission line spans the river and the towers are above the high water line. Any maintenance activities would occur outside of the riparian zone.

4.7.3 Changes to Wildlife and Habitat Affected Environment Post-2014

Two completed Federal actions have been incorporated into the baseline for this analysis: (1) the EPA has made its ruling with respect to BART to control air emissions, and (2) OSMRE has approved the SMCRA permit transfer from BNCC to NTEC (Section 2.4). These completed Federal actions are considered part of the environmental baseline to which the impacts of continuing operations and the Proposed Action are compared in the following section. Therefore, neither of these completed Federal actions would change the affected environment for wildlife and habitats.

4.7.4 Environmental Consequences

Impacts to wildlife may include direct impacts from habitat loss, alteration, and fragmentation, and incidental mortality from vehicle collisions, vegetation clearing with heavy equipment, or construction activities. Impacts may also include indirect impacts from noise and human presence. Direct impacts to wildlife and their habitat were determined using best available data for the wildlife species known or expected to occur within the ROI. Indirect impacts to wildlife and habitat resulting from FCPP air emissions were evaluated through two ERAs (AECOM 2013c, h), described in detail in Section 4.6.

The criteria used to determine impacts to wildlife are defined as follows:

- Major – Impacts that could affect a species at the population level.
- Moderate – Effects that are outside of the random fluctuations of natural processes but do not cause a significant loss of the resource; e.g., significant mortality, habitat loss, or stress.
- Minor – Changes that would affect the quality of wildlife/habitat but are similar to those caused by random fluctuations in natural processes; e.g., habitat loss in relatively small proportion.
- None – Impacts that are not measurable or would not impact wildlife.

4.7.4.1 *Alternative A – Proposed Action*

The Proposed Action impacts analysis includes potential impacts to wildlife that are common to the Proposed Action and the alternatives. These common potential impacts are discussed below, prior to discussion of the specific potential impacts for each alternative.

Wildlife Impacts Common to All Project Components

Combined impacts associated with activities common to all project components and those impacts specific to the Navajo Mine SMCRA Permit Area, the Pinabete SMCRA Permit Area, FCPP, and transmission line ROWs would not substantially impact existing wildlife resources on a population or range-wide level, but would range from moderate to minor on an individual basis depending upon the species size and mobility. Specifically, wildlife populations occurring in the ROI are not expected to be irreversibly impacted due to the availability of thousands of acres of similar habitats adjacent to the ROI, and that large portions of the ROI would be reclaimed to meet reclamation criteria equal to or greater in vegetative cover and production than pre-mining conditions. Finally, the projected future contaminant emissions are not expected to increase the ecological risks to which wildlife species are currently exposed under baseline conditions.

As proposed, the various project components would be implemented and/or designed in such a way so as to minimize overall impacts to wildlife species. This would be accomplished by timing activities resulting in ground or habitat disturbance outside critical breeding or nesting periods. Similarly, where a potential for injury or death of wildlife species exists as a direct result of operations or maintenance, wildlife protection measures, such as reduced speed limits to minimize wildlife vehicle collisions or APLIC-approved design

transmission line standards to minimize or eliminate electrocution risk, would be implemented (as described in Section 3.2.6.7).

Fugitive Dust

Fugitive dust created during construction, mining, development of borrow pits, and transportation on unpaved access roads could impair wildlife respiratory functions and eyesight. The impact of dust pollution on wildlife is expected to be of localized importance near ground-disturbance areas and would be minimized by standard construction practices, such as dust control methods as dust suppression (watered with water trucks), stock pile stabilization, and use of haul roads to minimize airborne dust.

Impacts to wildlife occurring in the ROI from fugitive dust emissions would be minor due to dust control BMPs already in place.

Noise

Noise is expected to be generated during operational activities and active mining, operation of the FCPP, construction associated with the Burnham Road realignment, development of borrow pits, and construction of the DFADAs. Impacts to wildlife from noise depend on multiple variables, such as the magnitude and duration of the noise, proximity to the source, life history of the species affected, time of year, time of day, and the influence of other environmental stressors such as heat or drought. These activities would result in a short-term increase in the ambient noise level. Noise levels associated with these activities would be restricted to the areas surrounding active areas of operation, including borrow areas. Excessive noise can cause wildlife to avoid or temporarily abandon active construction sites and can affect physiology, behavior, or reproductive success until the activity is complete and noise is no longer being generated. Section 4.14 provides detailed information on the maximum noise levels generated by typical construction equipment. Operation of existing facilities within the Navajo Mine SMCRA Permit and Pinabete SMCRA Permit Areas and FCPP that produce noise and unanticipated noises generated could have a minor impact on individual animals in the area, causing flight or stress behaviors that could negatively affect those individuals; however, these noise levels and the frequency with which such noise is generated are not expected to be different from what is currently experienced by wildlife under existing conditions.

Impacts to wildlife associated with noise generated during operation of existing facilities within the Navajo Mine SMCRA Permit and Pinabete SMCRA Permit Areas and FCPP would be minor, as wildlife are expected to be acclimated to noises associated with existing Project components. Noise impacts from these activities would be minor due to the short-term nature of the noise and general acclimation of ROI wildlife to noise from existing operations.

Human Activity

Wildlife occurring in the ROI may temporarily avoid areas where human disturbances are occurring or may permanently abandon areas where human presence is more permanent. Alterations of nesting, foraging, hunting, and breeding behavior in some individuals could result. Wildlife may be especially sensitive to human presence during periods of their annual cycles, such as migration or breeding seasons. These responses would likely be limited to annoyance and avoidance, but if startled, wildlife may flee or panic, which could increase their risk of serious injury or death from other causes such as predators or vehicle impact.

Impacts to wildlife resulting from human activity associated with operation of the Navajo Mine and FCPP would range from minor to moderate depending upon the activity occurring, the proximity of the activity, and the species encountered.

Impacts due to ground disturbing activities are expected to be moderate for smaller terrestrial burrowing species such as small mammals and reptiles occurring in the immediate vicinity of the project components. These species, by nature, occupy smaller home-ranges and would be less capable of

fleeing areas of active operations, maintenance, or other ground disturbing activities and could be subject to injury, death, or displacement due to ground disturbance or habitat fragmentation. These impacts would be limited to individuals located in close proximity to such activities and would not be expected to cause population level impacts due to the amount of similar habitat within and surrounding the ROI. Larger, more mobile, species such as raptors, non-raptor avian species, bats, lagomorphs, carnivores, and big game are expected to experience minor impacts, as these species would likely temporarily flee the immediate terrestrial impact areas and access adjacent habitats, or would remain unaffected by the Proposed Action. Loss or avoidance of foraging, breeding, or nesting habitats associated with these species would be small as most of these species occupy larger home-ranges and would make use of adjacent undisturbed habitats.

Habitat Loss and Fragmentation

Direct impacts from habitat loss and fragmentation would occur in active mining, road construction, development of borrow pits, and construction of roads and the DFADA components. These impacts could affect the wildlife community at differing levels of the food chain, for example, causing such small mammals as rodents and rabbits and their respective predators to abandon an area. Removal of habitat within the ROI is likely to result in displacement of wildlife to adjacent, undisturbed suitable habitat. In areas where vegetation is permanently removed, it is likely that wildlife species would migrate to suitable habitat and not return to the permanently altered area. Generalist species, such as jackrabbits and coyotes, may be more successful than habitat specialists at colonizing disturbed or fragmented habitat types.

Impacts to wildlife from habitat loss during the active mining and reclamation activities in the ROI would be considered short-term and moderate; habitat would be reestablished as a result of on-going reclamation. Construction of ancillary facilities and roads would result in moderate impacts to wildlife as a result of longer-term habitat loss (although all roads and facilities would be removed at the end of the permit period, with the exception of Burnham Road). It is unlikely that wildlife populations in these areas would be irreversibly impacted due to the availability of thousands of acres of similar habitats adjacent to the ROI, and because the majority of the ROI would be reclaimed to meet reclamation criteria equal to or greater in vegetative cover and production than pre-mining conditions.

Ground Disturbance

Direct impacts from ground disturbance would occur from active mining, road construction, development of borrow pits, and construction of the DFADA components where direct ground disturbance is proposed. Permanent losses of soil horizon habitats would reduce the abundance of ground-dwelling wildlife, particularly small mammals. Small mammals that occur within the ROI may experience mortality as topsoil is stripped; however, disturbance would not be expected to affect a species' regional population. Multiple wildlife studies completed for Project components within the Navajo Mine Lease Area since the 1960s and more recent studies completed for the DFADAs indicate that overall densities of small mammals in shrubland habitats within the ROI are generally low, and that their removal from an area would consequently have only minor to moderate impacts to their predators' survival in the ROI. Direct impacts to breeding and nesting avian species could occur as a direct result of ground disturbing activities, particularly to migratory birds, ground nesting avian species, or species nesting directly adjacent to ground disturbing activities. To avoid violation of the MBTA and BGEPA, impacts to breeding and nesting avian species would be reduced or eliminated by clearing vegetation for ground disturbing activities outside critical breeding and nesting periods. This would eliminate the habitat that promotes breeding in that area, avoiding direct loss of birds or nests when ground disturbance occurs.

Impacts to wildlife from ground disturbance would be considered moderate due to temporary and potentially permanent ground loss during the life of the mining and construction activities. It is unlikely that wildlife populations in these areas would be irreversibly impacted, as these species could occupy

extensive adjacent acres of similar undisturbed habitats and because most of the area disturbed would be reclaimed to provide similar or better habitat after mining is completed.

Vehicles

Vehicular traffic could have a negative effect on wildlife, resulting in injury or mortality from wildlife/vehicle collisions with construction equipment and employee vehicles. A variety of wildlife would inevitably be injured or killed by vehicle traffic accessing existing and proposed facilities. Reptiles are more prone to being run over along the paved power plant access road due to their attraction to the warm road surface and their inability to avoid oncoming traffic.

Impacts to wildlife would be considered moderate due to some animals' inability to avoid vehicles. Impacts would not be considered to affect any species at the population level.

Wildlife Impacts Specific to Alternative A

Navajo Mine

The existing Navajo Mine support facilities would be used to process and transport coal mined from the Navajo Mine SMCRA Permit Area and Pinabete SMCRA Permit Areas. No additional removal of wildlife habitat is expected to occur within these areas. Mining activities for the Proposed Action would not create an increase above the current baseline conditions in the number and type of vehicles using the Navajo Mine buildings, support facilities, and coal-handling areas. Infrequent animal vehicle collisions with truck and train travel would be expected to occur at levels consistent with current truck and rail activity. These infrequent, ongoing impacts would persist until coal-hauling activities began to decline as the Pinabete SMCRA Permit Area was mined out. Impacts to wildlife from transportation of coal would be considered moderate due to potential for individual animal mortality, and would be considered long-term as infrequent mortalities would be expected to occur over the life of the Navajo Mine SMCRA Permit and Pinabete SMCRA Permit Areas. Fugitive dust associated with the continued operations of the support facilities would be minimized by the implementation of standard construction and operational fugitive dust control measures. Impacts to wildlife from existing support facilities, coal-handling areas, and buildings would be considered negligible compared to baseline conditions, as no existing facilities would be altered.

The types of wildlife habitat expected to experience the greatest amount of loss and disturbance are those areas in and around the Pinabete SMCRA Permit Area and Burnham Road realignment where direct vegetation removal is proposed. Direct impacts to wildlife from mining operations include the loss and fragmentation of upland habitats in Badlands, Alkali Wash, Sands, Thinbreaks, Dune, and Arroyo Shrub habitats in the Pinabete SMCRA Permit Area (see Section 4.6). More than one-third of the vegetation removed would be Badland habitat, which has the lowest species abundance and diversity of the habitat types represented in the ROI. Sands and Alkali Wash would be the next most impacted areas. Minimal disturbance to riparian habitats are expected as mining operations would avoid the major washes (Pinabete and Cottonwood Arroyos) and riparian habitats within these areas are mostly occupied by saltcedar and are considered marginal riparian habitat. Generalist species such as coyote, black-tailed jackrabbit, desert cottontail, lizards, and small mammals use these habitats and have been commonly documented in the Navajo Mine SMCRA Permit Area and Pinabete SMCRA Permit Area (BNCC 2012f). Small mammal densities are low in the ROI (BNCC 2012f) and concentrated in Arroyo Shrub habitat due to greater availability of food and shelter relative to other area habitats. No permanent waters occur within the Navajo Mine SMCRA Permit and Pinabete SMCRA Permit Areas and BMPs are used to prevent runoff of sediments and chemicals into natural waterways, therefore there would be no impacts to fish or other aquatic resources.

Direct impacts from habitat loss and fragmentation would be confined to the proposed Pinabete SMCRA Permit Area. These impacts would have moderate impacts on wildlife in the short term due to the availability of thousands of acres of similar habitats adjacent to the Pinabete SMCRA Permit Area and the small amount of habitat expected to be disturbed (80 to 150 acres per year). Impacts would be minor in

the long term after reclamation of the mined area was complete. Other direct impacts could include incidental mortality to wildlife from heavy equipment used for mining. Small, burrowing, or less mobile animals may be especially susceptible to mortality. Direct impacts to ground- and shrub-nesting species that may be present in the ROI could occur as a direct result of vegetation removal and ground-disturbing activities. These impacts would be minimized by the required performance of annual wildlife surveys within the mine area (and within 1-mile of the SMCRA permit area for raptors), which will identify species in areas, or in the vicinity of areas to be disturbed and by removal of vegetation during the non-breeding season for most species, as practical, to eliminate habitat prior to beginning ground disturbing activities. These direct impacts would be short-term and limited to the mined area during vegetation removal at the onset of mining activities and, therefore, would be considered moderate.

All areas mined under the Proposed Action would be reclaimed contemporaneously according to the SMCRA permit (BNCC 2012f). Reclamation under Alternative A would restore vegetative cover, resulting in a species composition and density of vegetation necessarily different from but compatible with that which was disturbed, as specified in the permit. Upon completion of mining, post-mining reclamation will restore the vegetative cover to a diverse, stable, and self-sustaining vegetation community composed of native species capable of meeting the designated post-mining land use of supporting wildlife use and grazing. As part of post-mining reclamation, reclaimed lands would meet or exceed pre-mining vegetative cover and vegetative production values, which may provide greater vegetative diversity and cover than pre-mining conditions, particularly in those habitats with naturally low cover and production values and in areas which have experienced historically high grazing activities. Wildlife would return to mined areas following reclamation, although the species that use the reclaimed areas may be different in variety and abundance than those historically documented.

Realigning Burnham Road would result in surface disturbance associated with the permanently removed and replaced driving surfaces (see Table 3-10). Direct impacts from habitat loss would be moderate due to the long-term nature of the disturbance. The primary habitat affected by the Burnham Road realignment would include upland habitats of Alkali Wash, Arroyo Shrub, Badlands, Sands, and Thinbreaks. Wildlife occurring in the path of the realignment would be impacted by habitat loss, alteration, and fragmentation, but the availability and quantity of identical habitat near the realignment would reduce the overall impacts to these wildlife. Low densities of small mammals have been documented using Alkali Wash habitats, as well as Sands and Arroyo Shrub habitats. Herpetofauna are also common in these habitats. Carnivore and raptor species dependent on small mammal species and herpetofauna for prey could also be indirectly impacted by the loss of prey and associated habitat supporting them. Big game and small mammal species could be directly impacted as a result of vehicle collisions but would generally remain unaffected by the alignment. Impacts to wildlife would be considered moderate due to the permanent loss of habit and potential wildlife mortality from long-term traffic on the road, but are anticipated to be similar to those that would occur along the current alignment of Burnham Road over the same time period.

Infrequent animal vehicle collisions with truck and train travel would be expected to occur at levels consistent with current truck and rail activity. These low, ongoing impacts would persist until coal-hauling activities began to decline as the Pinabete SMCRA Permit Area was mined out. Impacts to wildlife from transportation of coal would be considered moderate due to potential animal mortality; however, impacts would be short-term.

Four Corners Power Plant

Wildlife may be affected by air pollutants through direct inhalation, consumption, and absorption of gases through the skin. In general, only soft-bodied invertebrates or amphibians are affected by the absorption of air pollutants through their skin. Compounds including O₃, SO₂, and NO₂ have particularly negative impacts on the respiratory systems of animals. Other chemical pollutants may accumulate in the tissues of both plants and wildlife, which can lead to tissue damage and genetic mutations (AECOM 2013a). The

accumulation of chemical pollutants in the tissues of wildlife can also have additive impacts among higher trophic levels. Wildlife at higher food chain (trophic) levels, such as carnivores, may accumulate much greater concentrations of chemicals through their regular diet, as they consume organisms lower in the food chain. The rate of biomagnification or bioaccumulation varies depending on the chemical, species involved, frequency and magnitude of exposure, and trophic level, among other factors. Concentrations of compounds in wildlife at higher trophic levels can reach levels to cause adverse impacts on behavior, reproduction, longevity, or disease resistance, and even cause death. The concentrations of chemical air pollutants to which wildlife in the ROI would be exposed are expected to be variable and dependent upon location and local environmental factors.

As described in Section 4.6.2.5, the ecological risk assessment conducted for wildlife was based on the comparison of estimated ADDs to TRVs for current conditions as well as for the future Proposed Action of 25 years of FCPP operation, 2016 through 2041. The ecological risk assessment conducted for fish was based on the comparison of estimated fish tissue EPCs to CBRs for current conditions as well as for the future Proposed Action of 25 years of FCPP operation, 2016 through 2041. The results for non-special status wildlife and fish are presented in Tables 4.7-8 and 4.7-9, respectively. ERA results for special status wildlife and fish are presented in Section 4.8.4.

The ERA results show that HQs for some metals exceed 1 for some species under current conditions, indicating a potential for adverse ecological impacts to wildlife. The ERA results also show that all wildlife HQs for the Proposed Action are well below 1 and with two exceptions contribute less than 1 percent to the Total HQ. The two exceptions are willow flycatcher exposure to methylmercury in Morgan Lake and willow flycatcher exposure to mercury in the San Juan River, corresponding to 4.4 percent and 8.7 percent contributions to the Total HQ, respectively. The ERA results show fish HQs exceeding 1 under current conditions indicating a potential for adverse ecological impacts to fish already exist. The ERA results also show that fish HQs for the Proposed Action are well below 1 and contribute less than 1 percent to the Total HQ. The San Juan River ERA also evaluated potential risks to fish in the San Juan River downstream to San Juan River arm of Lake Powell for arsenic, mercury, and selenium (AECOM 2013h). Wildlife and fish HQs reported in the San Juan River risk assessment for San Juan River reaches downstream of the deposition area and into the San Juan River arm of Lake Powell were on the same order of magnitude as reported for the San Juan River within the deposition area, with contributions from future emissions from FCPP to the Total HQs being less than 1 percent for all constituents and receptors evaluated. Based on these evaluations, while risks associated with chemical exposure occur within the ROI under current conditions, no substantive additional risks to wildlife and fish are expected to occur within the deposition area as a result of proposed future operations of the FCPP, and impacts from the Proposed Action are not expected to increase the concentration of metals whose current HQ is less than 1 to a level of concern (AECOM 2013c).

FCPP's continued operation would result in the ongoing generation of noise. No increase in noises associated with FCPP operations are expected, as FCPP operations for the Proposed Action would not increase noise levels above current conditions. Infrequent animal collisions with employee vehicles and noise and avian collisions or electrocution associated with the power infrastructure would be expected to occur at levels commensurate with current operations. These low, ongoing impacts would persist for the FCPP's life. Impacts to wildlife from noise generated at the FCPP would be considered minor as noise levels do not change under the Proposed Action compared to the baseline conditions.

Table 4.7-8 Comparison of HQs for Current Conditions, Future FCPP Emissions, and Current Conditions + Future FCPP Emissions for Non-Special-Status Wildlife

Species / Constituent	Current Conditions ADD (mg/kg-d)	Current Conditions NOAEL-based HQ	Current Conditions LOAEL-based HQ	Future FCPP Emissions ADD (mg/kg-d)	Future FCPP Emissions NOAEL-based HQ	Future FCPP Emissions LOAEL-based HQ	Total LOAEL-based HQ	Percent HQ from Future FCPP Emissions
Little brown bat								
Cadmium	2.3	3.0	0.30	2.6E-06	3.4E-06	3.4E-07	0.30	1.1E-04
Nickel	3.4	2.0	1.0	5.3E-08	3.1E-08	1.6E-08	1.0	1.6E-06
Selenium	0.33	2.3	1.5	2.1E-06	1.5E-05	9.7E-06	1.5	6.5E-04
Zinc	130	1.7	0.44	0.14	1.9E-03	4.8E-04	0.44	0.11
Dusky shrew								
Cadmium	0.94	1.2	0.12	1.1E-06	1.4E-06	1.4E-07	0.12	1.2E-04
Willow Flycatcher – Morgan Lake								
Chromium	6.2	2.3	0.40	0.0011	4.0E-04	6.8E-05	0.40	0.017
Copper	12	2.9	0.97	0.0023	5.6E-04	1.9E-04	0.97	0.020
Lead	26	16	7.9	3.5E-04	2.1E-04	1.1E-04	7.9	0.0014
MeHg	0.017	2.6	0.26	7.7E-04	0.12	0.012	0.27	4.4
Selenium	2.8	9.8	4.9	9.8E-05	3.4E-04	1.7E-04	4.9	0.0035
Mallard Duck – Morgan Lake								
Lead	7.4	4.5	2.3	7.7E-05	4.7E-05	2.4E-05	2.3	0.0010
Selenium	0.80	2.8	1.4	2.9E-05	9.9E-05	4.9E-05	1.4	0.0035
Bald Eagle – Morgan Lake								
Selenium	0.74	2.6	1.3	2.0E-05	6.8E-05	3.4E-05	1.3	0.0026
Willow Flycatcher – San Juan River								
Copper	5.9	1.5	0.49	0.0025	6.1E-04	2.0E-04	0.49	0.041
Lead	2.4	1.5	0.74	1.1E-04	6.8E-05	3.4E-05	0.74	0.0046
Mercury	0.041	1.1	0.23	0.0036	0.091	0.020	0.23	8.7
MeHg	0.043	6.6	0.66	2.8E-05	0.0044	4.4E-04	0.66	0.067
Selenium	0.70	2.4	1.2	2.7E-05	9.2E-05	4.6E-05	1.2	0.0038

Species / Constituent	Current Conditions ADD (mg/kg-d)	Current Conditions NOAEL-based HQ	Current Conditions LOAEL-based HQ	Future FCPP Emissions ADD (mg/kg-d)	Future FCPP Emissions NOAEL-based HQ	Future FCPP Emissions LOAEL-based HQ	Total LOAEL-based HQ	Percent HQ from Future FCPP Emissions
Mallard Duck – San Juan River								
MeHg	0.0082	1.3	0.13	4.4E-06	6.8E-04	6.8E-05	0.13	0.052
Canvasback Duck – San Juan River								
Chromium	3.8	1.4	0.24	1.3E-08	5.0E-09	8.4E-10	0.24	3.5E-07
Lead	6.5	4.0	2.0	3.6E-05	2.2E-05	1.1E-05	2.0	5.5E-04
MeHg	0.0081	1.3	0.13	3.1E-08	4/8E-06	4.8E-07	0.13	3.7E-04
Bald Eagle – San Juan River								
MeHg	0.020	3.1	0.31	5.1E-06	7.9E-04	7.9E-05	0.31	0.025
Muskrat – San Juan River								
Chromium	3.4	1.4	0.35	1.1E-08	4.5E-09	1.1E-09	0.35	3.1E-07
Lead	5.8	1.2	0.65	3.3E-05	3.7E-06	3/7E-06	0.65	5.7E-04

Notes:

The EPC used to calculate HQs for non-special-status plants is the 95percent upper confidence limit on the mean concentration (95percent UCL), defined in the AECOM (2013c) ecological risk assessment as the “Refined Maximum EPC.”

Only those constituents with HQs exceeding 1 for either Current Conditions or Future FCPP Emissions are shown.

Total LOAEL-based HQ is the sum of the Current Conditions LOAEL-based HQ and the Future FCPP Emissions LOAEL-based HQ.

Values less than or equal to 0.0001 are expressed in scientific notation (e.g., 1.0E-04 = 0.0001, 1.0E-05 = 0.00001, 1.0E-06 = 0.000001, etc.).

EPC = exposure point concentration

HQ = hazard quotient

LOAEL = lowest observable adverse effect level

MeHg = methyl mercury

NOAEL = no observable adverse effect level

Table 4.7-9 Comparison of HQs for Current Conditions, Future FCPP Emissions, and Current Conditions + Future FCPP Emissions for Non-Special-Status Fish

Constituent	Current Conditions Sediment EPC (mg/kg)	Current Conditions Early Life HQ	Current Conditions Adult HQ	Future FCPP Emissions Sediment EPC (mg/kg)	Future FCPP Emissions Early Life HQ	Future FCPP Emissions Adult HQ	Total HQ	Percent HQ from Future FCPP Emissions
Fish – Morgan Lake								
Chromium	1.1	8.9	NC	4.9E-08	3.8E-07	NC	8.9	4.3E-06
Chromium, hexavalent	0.14	1.1	NC	2.7E-07	2.1E-06	NC	1.1	1.9E-04
Nickel	0.57	29	NC	5.1E-08	2.5E-06	NC	29	8.6E-06
Selenium	3.5	6.5	190	1.2E-07	2.2E-07	6.6E-06	190	3.5E-06
Zinc	26	6.7	NC	1.7E-08	4.3E-09	NC	6.7	6.4E-08
Fish – San Juan River								
Chromium	0.44	3.5	NC	3.7E-08	2.9E-07	NC	3.5	8.3E-06
Lead	0.37	NC	1.1	7.8E-07	NC	2.3E-06	1.1	2.1E-04
Mercury	0.093	3.7	NC	9.7E-06	3.9E-04	NC	3.7	0.011
MeHg	0.093	1.3	NC	2.4E-05	3.4E-04	NC	1.3	0.026
Nickel	0.42	21	NC	1.1E-08	5.4E-07	NC	21	2.6E-06
Selenium	0.85	1.6	47	2.5E-05	4.7E-05	0.0014	47	0.0030
Zinc	34	8.7	NC	1.9E-08	5.0E-09	NC	8.7	5.7E-08

Notes:

The EPC used to calculate HQs for non-special-status fish is the 95percent upper confidence limit on the mean concentration (95percent UCL), defined in the AECOM (2013c) ecological risk assessment as the "Refined Maximum EPC."

Only those constituents with HQs exceeding 1 for either Current Conditions or Future FCPP Emissions are shown.

Total HQ is the sum of the Current Conditions HQ and the Future FCPP Emissions HQ.

The Total HQ shown is the higher of the Total Early Life HQ and the Total Adult HQ.

Values less than or equal to 0.0001 are expressed in scientific notation (e.g., 1.0E-04 = 0.0001, 1.0E-05 = 0.00001, 1.0E-06 = 0.000001, etc.).

EPC = exposure point concentration

HQ = hazard quotient

MeHg = methyl mercury

Construction of the expanded DFADAs is expected to permanently remove acreage as shown in Table 3-7, primarily upland habitat (92 percent) and riparian dominated by saltcedar (8 percent). Loss of these habitat types would affect a variety of wildlife species as this area provides suitable habitat for nesting/burrowing, foraging, and breeding for terrestrial wildlife, birds, and raptors. Wildlife occurring in the location of the expanded DFADAs would be permanently impacted by habitat loss, alteration, and fragmentation, but the availability and quantity of identical habitat near the proposed facility would reduce the overall impacts to these wildlife. Small mammals and herpetofauna have been documented in habitat within the proposed facility. Carnivore and raptor species dependent on small mammals and herpetofauna for prey could also be indirectly impacted by loss of prey and associated habitat supporting prey species. Potential impacts from fugitive dust would be localized and decreased through the implementation of fugitive dust control measures. Impacts to wildlife from the proposed DFADAs would be considered moderate, for while there is permanent loss of habitat, similar habitats are available in the vicinity of the ROI.

Surface water drawn from the San Juan River into Morgan Lake for use at the FCPP is obtained according to water rights for diversion of 51,600 acre-feet per year, 39,000 acre-feet per year consumptive use held by BBNMC, with average withdrawals of 27,682 acre-feet per year. With the closure of Units 1-3, the diversion of water for use at the FCPP is expected to decrease by approximately 5,000-7,000 acre-feet per year. No changes to the water rights or water use would occur under the Proposed Action, and NTEC (and the FCPP) would maintain the ability to draw as much water as the rights allow for the Project life. This may affect the amount and quality of habitat available for Colorado pikeminnow and razorback sucker (USFWS 2002a, b). The full amount of the consumptive water right available under Permit 2838 has been accounted for in the San Juan River Recovery Implementation Program's water accounting and factored into the flow recommendations for the San Juan River (Reclamation 2006, USFWS 2006). The consumptive water rights of 39,000 acre-feet per year represent approximately 6 percent of the total depletions of the San Juan River in New Mexico and about 4.5 percent of the total basin depletions. Taking the average historic use and subtracting the 5,000 acre-feet per year not used due to the shutdown of Units 1-3, results in about 3.7 percent of New Mexico depletions and 2.7 percent of total basin depletions. Based on the amount of flow affected, the effect of Project specific depletions would not be expected to substantially affect aquatic species or their habitat, relative to baseline conditions. This is consistent with the USFWS findings with regard to impacts of total water use in the San Juan River downstream of Navajo Dam on listed fish species, as discussed in Section 4.8 (USFWS 2006).

The intakes to supply water to Morgan Lake from the San Juan River likely result in the entrainment of fish from the San Juan River. These intakes consist of two 10- by 10-foot intakes at the APS diversion and are screened with 1- by 3-inch mesh screens. The approach velocity to these screens is 0.38 foot per second. The intakes are run in two modes, pumping either 17,000 or 32,000 gpm (approximately 37 and 71 cfs, or 24.5 and 46 million gallons per day, respectively) from the San Juan River. The intake is operated at any time of day, as needed. The 17,000 gpm mode is generally used during the October to May timeframe, when average monthly flows in the river at Farmington are between 784 to 3,490 cfs (USGS Gaging Station 9365000, 2004 to 2013 water years). The 32,000 gpm mode is generally used during the May through October timeframe, when average monthly flows in the river were between 913 to 3,316 cfs. Thus, the maximum proportion of flow diverted to Morgan Lake is 4.7 percent during the October to May timeframe, and 7.8 percent in the June to September timeframe.

No entrainment studies have been conducted at this diversion.¹ Fish species, behavior, and swimming performance affect entrainment risk, as do the configuration of the diversion, and conditions in the river.

¹ APS submitted a Proposal for Information Collection to EPA in 2005, in compliance with proposed Section 316(b) rules. These studies were initiated for the cooling intakes in Morgan Lake, but never completed, as the proposed rules were withdrawn by EPA. These studies were never initiated at the San Juan River intakes (R. Grimes, APS, pers. comm.).

These factors are poorly known for the species in the San Juan River. For fish with planktonic larvae, these larvae are often assumed to be entrained in proportion to the amount of flow diverted, as they tend to drift with the current. However, older lifestages are generally capable of directing their movements independently from the current. For these species, the proportion of flow diverted is likely less indicative of entrainment risk. A study of entrainment at four other diversions (Hogback, Fruitland, Farmers Mutual, and Jewett canals) along the San Juan River was conducted in 2004 and 2005 (Renfro et al. 2006). This study found that most fish captured in the diversions were either small species, or younger lifestages of larger species, although some larger individuals were captured. At Hogback Canal, 70 percent of the fish captured were red shiner and 17 percent were speckled dace. Flannelmouth sucker and bluehead sucker represented 4.8 and 3.3 percent of the total catch, respectively. All other species represented 10 percent of the catch. Catch at both Fruitland Canal and Jewett Canal was dominated by flannelmouth sucker and bluehead sucker, with speckled dace being the third most abundant species. The catch at Farmers Mutual Canal was much smaller than at other diversions and dominated by young lifestages of largemouth bass, with flannelmouth sucker and speckled dace being similar in abundance. Some Colorado pikeminnow were captured, but no razorback suckers were observed. Entrainment of these species is discussed in Section 4.8. The study shows a pattern of decreasing fish catch with the size of diversion, with most fish being captured at Hogback Diversion, where diversion rates ranged from 100 to 150 cfs, and the fewest fish being captured at Farmers Mutual Canal, where diversion rates were estimated to be about 50 cfs and the other diversions falling in between. The amount of water diverted to Morgan Lake (37 or 71 cfs) is near the lower end of this spectrum, suggesting relatively low entrainment rates, although other factors may influence entrainment, as described above. Based on this information, entrainment at the project intakes would not be expected to have a population level effect on fish populations in the San Juan River. On August 15, 2014, EPA promulgated revised regulations on the design and operation of intake structures, in order to minimize adverse environmental impacts. Because the facility intakes greater than 2 million gallons per day of cooling water from the San Juan River, it must meet requirements under CWA Section 316(b), regulating the design and operations of intake structures for cooling water operations. APS will be required to undertake all appropriate measures to reduce impacts from impingement and entrainment at the APS Weir (40 CFR Parts 122 and 125, EPA 2014d). As an existing facility, APS will be required to comply with one of seven options to reduce entrainment, and must meet site-specific entrainment standards as required by the Director of EPA. The specific action to be taken will be determined in accordance with the regulations, but has not been determined at this time. All such actions would be expected to either maintain (in the event that current operations meet standards) or reduce entrainment risk over existing levels.

The APS weir may impede upstream passage for Colorado pikeminnow and razorback sucker at flows between 500 and 5,000 cfs (Bio-West 2005). This effect is discussed in Section 4.8. This study did not evaluate passage conditions for other species in the San Juan River, but it is reasonable some impairment of upstream fish passage at this structure occurs, although the flow range would vary depending on the species swimming abilities. Most fish species in the San Juan are abundant both above and below the APS Weir, with the exception of the two listed species. Thus, while the weir may present some discontinuity in between the populations downstream of the weir and those upstream, the native fish populations in both areas are strong and expected to remain so. Downstream movement of fish is not impaired, and upstream movement is expected to occur over portions of most years so that the two sub-populations would continue to operate as a single population. Thus, this upstream passage impairment is not expected to reduce survival of individuals or to have population level impacts.

Morgan Lake discharges into No Name Wash, which drains to the Chaco River and from there into the San Juan River. Morgan Lake supports several species of non-native fish, including bluegill, largemouth bass, white crappie, gizzard shad, common carp, and channel catfish. Discharges from Morgan Lake could result in the release of non-native species into the San Juan River. No studies have been conducted to evaluate this potential. Non-native fish, particularly channel catfish and common carp (Duran et al. 2013, Gerig and Hines 2013), have been identified as one of the threats to both Colorado

pikeminnow and razorback sucker, and may also affect other native fish. Non-native fish have the potential to compete with and prey upon native fish and may also serve as vectors for disease and parasites. While the San Juan River currently supports populations of several of these non-native fish, release of these fish from Morgan Lake could help support these populations. These non-native fish also occur in Navajo Reservoir, which may also support populations of these species in the San Juan River. Some of the non-native fish in Morgan Lake (e.g., gizzard shad) do not have populations in the San Juan River, and if such populations became established, they could exacerbate the existing non-native fish problem, as they may prey on eggs, larval and post-larval fish. The San Juan River tends to have a relatively high gradient, and thus may not provide much suitable habitat for these non-native fish, and as many of these fish also occur in Navajo Lake, it is likely that those fish that the San Juan provides suitable habitat for have already established populations (i.e., channel catfish and carp are already the focus of invasive species control efforts, bass and sunfish have been observed in the San Juan River in low numbers [Ryden 2012, Gilbert et al. 2012, Schleicher and Ryden 2013]). The degree to which non-native fish released from Morgan Lake may support existing populations of non-native fish, or may consume or compete with native fish is unknown. Given existing populations of non-native fish in the San Juan River, the length of time that Morgan Lake has been in operation and has served as a source of non-native fish, other sources of non-native fish in the basin, it is unlikely that continued operation of Morgan Lake would cause a substantial impact in the future, but the potential for moderate impacts is present.

Transmission Lines

The existing power poles provide perching, nesting, and roosting opportunities for many avian species. Continued use of power structures could negatively affect some avian species by collisions with the structures or by electrocution. Raptors and large birds are electrocuted through energized line to ground contacts, while small birds can be electrocuted from transformers and other power pole components. Both the APS and PNM high voltage transmission lines are constructed in compliance with National Electric Safety Code and internal engineering standards. The transmission lines also substantially exceed the USFWS recommended APLIC minimum 60 inches horizontal and 48 inches vertical recommended conductor spacing to reduce risks of raptor electrocutions. As a general rule, APLIC design recommendations were developed to reduce avian electrocution risk along distribution lines, which are generally much smaller than the APS or PNM transmission lines. By design the conductor separation for the APS and PNM line voltages (500 and 345 kV) is in excess of 12 feet, well over the APLIC recommended conductor spacing. The California condor is the largest avian species that could occur or potentially utilize the power lines structures for perching and has an approximate wing span of 9 feet, 3 feet narrower than the smallest APS or PNM transmission line conductor separation. Both utilities have developed implemented a corporate level and system wide program designed to minimize the risks of electrocution or collision to protected birds and a variety of mammals. APS has a Wildlife Protection Program and PNM has an Avian Protection Plan that they comply with, and these programs cover the transmission lines within the ROI.

Nesting raptors are monitored on a semiannual basis near the Navajo Mine Lease Area to identify and manage risks to avian species from mining activities, including electrocution at the mines distribution lines. APS implements a Wildlife Protection Program designed to minimize the danger of energized lines for birds of prey and a variety of mammals. Both APS and PNM wildlife programs collect data system-wide that document collisions and electrocutions on a yearly basis to identify wildlife hazards across their service area and submit annual reports regarding such incidents to the USFWS. Although the records do not specify the specific lines where the mortality incidents occurred, they do provide a general sense of the potential risk associated with their distribution and transmission lines. Of the 90 documented PNM records between 2003 and 2011 and 1,143 documented APS records between 2002 and 2012, there was only one occurrence that could not be excluded from the ROI. This event occurred in 2005 and involved an American kestrel near Star Lake, McKinley County. Based on the mortality reports and transmission lines conductor configuration and spacing it was concluded that this incident was likely associated with a

smaller distribution line and not the Project transmission lines. Therefore, impacts to raptors and migratory birds are considered minor. While a potential for electrocution exists, this risk is minimized by the configuration of the lines, and further reduced through the implementation of the Wildlife and Avian Protection programs. The continued operation of electrical transmission towers and lines would continue the long-term potential for large bird or raptor collisions and electrocution from perching on or near tower conductors. With continued implementation of the existing APS and PNM Avian Protection Plans, this potential impact would be minor. Continued use of the APS and PNM transmission corridors would have relatively little human activity associated with them outside of regular maintenance activities. During maintenance, wildlife may flee the immediate area and would return following the departure of maintenance crews.

Renewal of the ROW leases would not remove or alter wildlife habitats within the APS or PNM ROWs. Renewal of the ROW leases would allow both APS and PNM to continue routine inspections, maintenance activities, and repairs along the entire length of the ROW leases. Vegetation management within the ROWs is expected to result in the minor loss of woody debris and woody vegetation along the ROWs during tree trimming efforts that could result in direct impacts to nesting avian species within the ROWs.

4.7.4.2 *Alternative B – Navajo Mine Extension Project Mine Plan*

Navajo Mine

Under Alternative B, the affected footprint would be larger than that of the Proposed Action (see Table 3-7). The types of direct and indirect impacts on wildlife occurring within these areas would be identical to those described in the Proposed Action, but would result in greater loss of wildlife and their associated upland habitats.

The Burnham Road realignment would result in the removal of approximately 75 acres of upland vegetation during construction. Approximately 30 acres of vegetation associated with the driving surface and drainage structures would be permanently removed, resulting in long-term impacts to wildlife habitat. Short-term impacts would occur on the extended acreage, which would be reclaimed following construction. The types of direct and indirect impacts on wildlife occurring in these areas would be identical to those described in the Proposed Action, but could increase the wildlife-vehicle collision risks to wildlife species as a direct result of additional roadway construction and usage, but the impact would be moderate.

Under Alternative B, additional primary and ancillary roads would be required to support mining activities (see Table 3-7). The types of direct and indirect impacts on wildlife occurring within these areas would be identical to those described in the Proposed Action, but could increase the wildlife-vehicle collision risks to wildlife species as a direct result of additional roadway usage, but the impact would be moderate.

Use of the existing Navajo Mine buildings, support facilities, and coal-handling areas would operate as described under the Proposed Action. Under Alternative B, eight more miles of transmission lines would be constructed over what is described for the Proposed Action. The types of direct and indirect impacts on wildlife occurring within these areas would be identical to those described in the Proposed Action, but could increase the collision or electrocution risks to avian species as a direct result of additional power line operation, but the impact would be minor.

Mine operations, mine reclamation, and wildlife management measures associated with mining operations, road construction and use, and existing facility operations would be the same as described under the Proposed Action.

Four Corners Power Plant

Under Alternative B, the FCPP would operate as described under the Proposed Action. No changes are proposed, and impacts would be as described for the Proposed Action.

Transmission Lines

Under Alternative B, the transmission line ROWs would continue to be operated and maintained as described under the Proposed Action. No changes are proposed, and impacts would be as described for the Proposed Action.

4.7.4.3 Alternative C – Alternative Pinabete Mine Plan

Navajo Mine

Alternative C would result in a slightly larger footprint than the Proposed Action (see Table 3-8). The types of direct and indirect impacts on wildlife occurring in these areas would be identical to those described in the Proposed Action, but would result in greater loss to existing wildlife and their associated upland habitats.

Under Alternative C, additional primary and ancillary roads would be required to support mining activities (see Table 3-8). The types of direct and indirect impacts on wildlife occurring within these areas would be identical to those described in the Proposed Action, but could increase the wildlife-vehicle collision risks to wildlife species as a direct result of additional roadway usage, but the impact would be moderate.

The Burnham Road realignment would be extended, resulting in removal of approximately 75 acres of upland vegetation during construction. Approximately 30 acres of vegetation associated with the driving surface and drainage structures would be permanently removed, resulting in long-term impacts to wildlife habitat. Short-term impacts would occur on the remaining acres, which would be reclaimed following construction. The types of direct and indirect impacts on wildlife occurring within these areas would be identical to those described in the Proposed Action, but could increase the wildlife-vehicle collision risks to wildlife species as a direct result of additional roadway construction and use, but the impact would be moderate.

Use of the existing Navajo Mine buildings, support facilities, and coal-handling areas would occur as described under the Proposed Action. Under Alternative C, eight more miles of transmission lines would be constructed over what is described for the Proposed Action. The types of direct and indirect impacts on wildlife occurring within these areas would be identical to those described in the Proposed Action, but could increase the collision or electrocution risks to avian species as a direct result of additional power line operation. Impacts to wildlife due to existing support facilities would be similar to those established under Alternative A, with a slightly larger footprint, but the impact would be minor.

Mine operations, mine reclamation, and wildlife management measures associated with mining operations, road construction and use, and existing facility operations would be the same as described under the Proposed Action.

Four Corners Power Plant

Under Alternative C, the FCPP would operate as described under the Proposed Action. No changes are proposed, and impacts would be as described for the Proposed Action.

Transmission Lines

Under Alternative C, the transmission line ROWs would continue to be operated and maintained as described under the Proposed Action. No changes are proposed, and impacts would be as described for the Proposed Action.

4.7.4.4 Alternative D – Alternative Ash Disposal Area Configuration

Navajo Mine

Under this alternative, OSMRE would approve the Pinabete SMCRA permit application and renew the Navajo Mine SMCRA Permit. The Navajo Mine would operate as described under the Proposed Action. Impacts would be the same as described for the Proposed Action.

Four Corners Power Plant

Under this alternative, the area of disturbance required for the DFADAs would be 350 acres instead of 385 acres. The types of direct and indirect impacts on wildlife occurring as a result of the DFADAs would be of the same nature as those described for the Proposed Action but would result in less loss to the local biological community. The 10 percent reduction in surface area of the DFADAs would result in less permanent loss, alteration, or fragmentation of suitable habitat and therefore less potential for impacts to the local wildlife community. All other FCPP components of this alternative are the same as for the Proposed Action. Therefore, impacts would be the same as described for the Proposed Action.

Transmission Lines

Under this alternative, the transmission line ROWs would be approved and they would continue to be operated and maintained as described for the Proposed Action. No changes are proposed, and impacts would be as described for the Proposed Action.

4.7.4.5 Alternative E – No Action Alternative

Navajo Mine

Under the No Action Alternative, the Navajo Mine would close; therefore, no additional loss or modification of wildlife habitat, direct impacts, or indirect impacts to wildlife would occur. Upon permit expiration, NTEC would begin reclamation activities within the Navajo Mine until all requirements of the existing SMCRA permit are met.

Four Corners Power Plant

Under the No Action Alternative, Units 4 and 5 would be shut down and the FCPP would be decommissioned and demolished. Wildlife would be disturbed as a result of increased noise and dust during demolition; however, these impacts would be short term. Upon completion of demolition activities, wildlife could return to the area depending on site conditions after either the decommissioning or the demolition.

Transmission Lines

Under the No Action Alternative, wildlife or their habitats could be disturbed by activities associated with decommissioning and dismantling of APS and PNM transmission lines. It is anticipated that such activities would be coordinated with the Navajo Nation and the BLM to maintain compliance with all environmental laws and regulations throughout the demolition process; therefore, impacts to wildlife are anticipated to be short term and minor.

4.7.5 Wildlife and Habitats Mitigation Measures

The Project Applicants have proposed measures that would be implemented to reduce or eliminate some of the environmental impacts of the Proposed Action. These measures include standard operating procedures and best management practices for specific activities and other measures that reduce or avoid environmental impacts. These are described in Section 3.2.6.7. These measures are part of their application materials and are enforceable through permit or lease conditions. In addition, the Project Applicants must comply with additional protective regulatory requirements including laws, ordinances,

regulations, and standards that are enforceable by the responsible agency over that activity. These are described in the Regulatory Compliance Framework Section for each resource category. Where the environmental analysis in this EIS recommends additional protective measures, over and above the applicant proposed measures and regulatory compliance, they are listed below as specific mitigation measures.

The Proposed Action, including the continuing operations of Navajo Mine, FCPP, and the transmission lines, would not result in major adverse impacts to Wildlife and Habitats. Therefore, no additional mitigation is recommended.