4.8 Special-Status Species

This section addresses the potential effects of the alternatives to special-status plant and wildlife species. Special-status species are those that are protected or proposed to be protected (i.e., candidate) by the Federal ESA. In addition, agencies and organizations such as BLM, and NMDGF, and tribal governments maintain lists of special concern or sensitive species that are also appropriate to consider in this NEPA analysis. For purposes of this environmental analysis, special-status plants and animals include species that are proposed for Federal listing as threatened or endangered or considered candidates for listing, and species noted as sensitive or of special concern by other Federal agencies and state or tribal governments. The special-status species identified may also be protected by other Federal legislation including the MBTA, BGEPA, and Neotropical Migratory Bird Conservation Act. The ROI for this section is described in Section 4.6.

4.8.1 Regulatory Compliance Framework

4.8.1.1 Federal Regulations

Endangered Species Act of 1973

Congress passed the ESA (16 USC 1531-1544) in 1973 in recognition that many of our nation's native plants and animals were in danger of becoming extinct. The purposes of the Act are to protect these endangered and threatened species and to provide a means to conserve their ecosystems. To this end, Federal agencies are directed to use their authorities to conserve listed species and make sure that their actions do not jeopardize the continued existence of these species. For the Proposed Action, the law is administered by the USFWS. The USFWS works with other agencies to plan or modify Federal authorized projects so that they will have minimal impact on listed species and their habitats.

Federal agencies are required by ESA Section 7 (19 USC Part 1536[c], as amended) to ensure that any actions authorized, funded, or carried out by the agency do not jeopardize the continued existence of a Federally listed threatened or endangered species, or result in the destruction or adverse modification of the designated critical habitat of a Federally listed species. The lead Federal agency (e.g., OSMRE) is required to consult with USFWS and/or U.S. Department of Commerce, NOAA, National Marine Fisheries Service (NMFS) to determine whether Federally listed threatened or endangered species or designated critical habitat are found in the vicinity of the ROI, and to determine the Proposed Action's potential effects on those species or critical habitats. For actions involving major ground-disturbing activities with the potential to affect listed species or designated critical habitat, the lead Federal agency must prepare a Biological Assessment (BA) for those species that may be affected. The BA is submitted to USFWS and/or NMFS and, if it is determined that the action may adversely affect a listed species, the Federal agencies must submit a request for formal consultation to comply with ESA Section 7. In response, USFWS or NMFS would issue a BO as to whether or not the Federal action would likely jeopardize the continued existence of a listed species, or result in the destruction or adverse modification of designated critical habitat. In compliance with ESA Section 7, OSMRE has submitted a BA to the USFWS and initiated formal consultation. No species under the jurisdiction of NMFS would be affected by the Proposed Action.

The NEPA and ESA processes interact, but the EIS is a public document, wherein the public is encouraged to participate in scoping a project, provide suggestions for alternatives, and provide comments on the evaluation of the effects of the Proposed Action and its alternatives. The ESA process is an agency-to-agency process and does not include public participation. The ESA process generally considers only the Proposed Action, while the alternatives analysis is the heart of the EIS. The potential effects of a project on listed species and their critical habitats are evaluated during both processes. Generally speaking, the two processes will use the same information in making their assessments. The NEPA assessment focuses on the potential effects on the species in a ROI and immediate vicinity. The

ESA BA focuses on effects to individuals and then projects how those effects might affect the species regionally, and places those effects within the context of the entire population of that species. The BA will include an effects determination as to whether a project is likely or not likely to adversely affect these threatened, endangered, or candidate species or may adversely modify designated critical habitat.

The submittal of the BA to the USFWS initiates formal consultation on a project and starts the time period for the consultation, as described in the ESA. USFWS will use the BA as the basis for preparing a BO that determines whether a project is likely to jeopardize the continued existence of the species or result in destruction or adverse modification of designated critical habitat. If the USFWS determines that the proposed action will result in jeopardy to a species or adversely modify critical habitat so that it no longer retains its function and serve its intended role in species recovery, the BO will include reasonable and prudent alternatives that the USFWS believes the agency or applicant may take to avoid jeopardy to the species or adverse modification of designated critical habitat. It will include terms and conditions that specify the methods by which these alternatives are to be accomplished, and provide reporting and monitoring requirements to ensure adequate oversight of any incidental take. Finally, the BO will include an incidental take statement that provides for a specific level of take or habitat modification that is allowed for a project, when the project is implemented in accordance with requirements of the BO.

The USFWS BO was published on April 8, 2015 and is included in Appendix E of this EIS.

Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act

During vegetation clearing activities, the Project will be subject to compliance with the MBTA. In accordance with the MBTA, active nests (presence of egg or young) would be protected from ground or vegetation clearing activities, requiring nest searches and avoidance measures be implemented to protect breeding migratory birds. Another potentially relevant regulatory compliance framework is the BGEPA (16 USC 668-668d), which affords additional legal protection to bald and golden eagles.

4.8.1.2 Tribal Regulations

The Navajo Natural Heritage Program (NNHP) is the Navajo Nation's rare, threatened, and endangered species office. NNHP's purpose is to collect, manage and disseminate biological and ecological information for land-use planning to promote the conservation of biological diversity on the Navajo Nation. The NNHP maintains a comprehensive database of information on rare and protected plant and animal species and biological communities on the Navajo Nation. Special-status species listed on the Navajo Nation Endangered Species List (NESL) only include Groups 2 and 3, because species in NESL Group 1 no longer exist on the Navajo Nation and NESL Group 4 species are not afforded protection under Navajo law. Group 2 (G2) species are those whose prospects of survival or recruitment are in jeopardy. Group 3 (G3) species are those whose prospects of survival or recruitment are likely to be in jeopardy in the foreseeable future. Group 4 (G4) are those species for which the NNDFW does not currently have sufficient information to support their being listed in G2 or G3, but has reason to consider them as a species of interest. The Proposed Action is subject to compliance with the NESL, pursuant to the Navajo Tribal Code. This code (17 Navajo Nation Code Part 507) makes it "unlawful for any person to take, possess, transport, export, process, sell or offer for sale or ship" any species in Groups 2 and 3 on the NESL.

Due to a covenant in the FCPP lease between APS and the Navajo Nation (Covenant 17: Operation of Power Plant; 1960 *et. seq*.), the Navajo Nation does not impose tribal regulation on the operations of FCPP; therefore, NNDFW does not regulate tribally listed species occurring within the FCPP lease area. This provision is not present in the Navajo Mine lease agreement, so potential effects to tribally listed species occurring within the Navajo Mine Lease Area (including the Pinabete SMCRA Permit Area) are assessed in a Biological Evaluation (BE) that has been prepared and submitted to NNDFW for review/concurrence. Although the preparation of a BE per the Navajo Nation ESA (Title 17 Part 507 of the Navajo Tribal Code) is not required for tribally listed species occurring within the FCPP Lease Area, potential effects to those species are considered in this EIS to provide a comprehensive assessment of

potential impacts to sensitive species per the requirements of NEPA for projects occurring on tribal trust lands (Secretarial Order 3206).

4.8.1.3 State Regulations

The State of New Mexico designates species as either endangered, threatened, or as species of concern. Endangered species are those in danger of extinction throughout all or a significant portion of its range. Threatened species are those likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Species of concern are those for which further biological research and field study are needed to resolve their conservation status, or those considered sensitive, rare, or declining on lists maintained by Natural Heritage Programs, state wildlife agencies, Federal agencies, or professional scientific societies. The State of New Mexico has responsibility for management of these species and state trust and private lands. Authority for managing species on tribal lands lies with the tribes, as described above. State and private lands occur along portions of the PNM transmission lines.

The State of Arizona designates state status to wildlife and plant species through the Arizona Game and Fish Department and the Arizona Department of Agriculture. The Arizona Game and Fish Department designates Wildlife of Special Concern in Arizona to wildlife that is or may be in jeopardy, or with known or perceived threats or population declines. Arizona Department of Agriculture designates special listing to those plant species in the follow categories: Highly Safeguarded where no collection is allowed; Salvage Restricted where collection is allowed only by permit; Export Restricted where transport out of state is prohibited; Salvage Assessed where permits are required to remove live trees; and Harvest Restricted where permits are required to remove plant by-products. All Project lands within Arizona are on Navajo and Hopi traditional lands and during agency consultation the Arizona state wildlife agency deferred the management or protection responsibility of any special-status wildlife and plant species on tribal lands to the Navajo Nation or Hopi Tribe so only those NESL Group 2-3 and Hopi Cultural Sensitive species are listed.

4.8.2 Affected Environment Pre-2014

A multistep process was developed to describe the potential occurrence of special-status species in the ROI. First, lists of species within the seven counties included in the ROI were requested from the following:

1. Federally listed species were obtained from the USFWS website (USFWS 2012, 2013c);
2. The NNHP within the NNDFW provided information on the NESL Groups 2, 3, and 4 species known to occur in the vicinity of the ROI (NNHP 2011, 2012a, b). NESL Group 4 species were not included in the detailed habitat model evaluation or evaluated for potential Project-related impacts because these species are not afforded protection under Navajo or Federal law.
3. The Hopi Tribe provided a list of Hopi culturally sensitive species, as designated through the tribe's Wildlife and Ecosystem Management Program (AECOM 2013f).
4. Sensitive species lists were obtained from the BLM for portions of the PNM transmission line that crosses BLM lands.
5. Natural Heritage New Mexico and the Arizona Game and Fish Department also were contacted for species information, but deferred any management or assessment on potential occurrence response to the NNHP for species on Navajo Nation lands. A list of species present on nontribal lands was obtained for San Juan, McKinley, Bernalillo, and Sandoval counties, New Mexico, as portions of the PNM FCPP to West Mesa transmission line crosses nontribal lands.

These lists substantially overlap. The results of this first step are described in Section 4.8.2.1, "Regional Setting." Next, recent survey data for the Navajo Mine Lease Area, FCPP, and Transmission Lines are used to determine whether any of these species has a potential to occur within the ROI. The results of this evaluation are described in component-specific subsections after "Regional Setting."

Although these lists provide those species with the potential to occur within the ROI, special status wildlife and vegetation species identified as occurring within the Navajo Mine Lease Area, FCPP Lease Area, Ash Disposal Facility, and within the PNM and APS transmission line ROWs have been well-documented over time as a result of species specific studies completed for past 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 to 1975 (BOR 1975) and 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 to 1996 (Marron 2012a, b, 2013, AECOM 2013f, g). Furthermore, the presence of special status species were again reviewed through biological surveys and modeling efforts conducted during the spring and summer of 2012 and 2013. Because of this reporting, special status species identified and expected to occur within the ROI have been well documented since the operation of many of these facilities.

4.8.2.1 Regional Setting

The combined lists from the NNHP, the Hopi Tribe, USFWS, BLM, and NMDGF included a total of 76 different special-status species that could occur within the seven counties crossed by the Project or Project-related ROI (NNHP 2011, 2012a, 2012b; USFWS 2012, 2013c). Thirty-eight species occur on the on the USFWS threatened and endangered, candidate, or proposed (TECP) list, 29 species occur on the NESL and Hopi list, and 39 species occur on BLM and NMDGF lists. Fifteen species on the NNHP and Hopi list are also on the USFWS TECP list and 15 species on the BLM or NMDGF lists occur on either the USFWS or NNHP or Hopi lists. Potential to Occur within the ROI was evaluated for each of the 76 species based on their habitat requirements and/or known distribution. As a result, 24 special-status species were eliminated from the USFWS TECP, 4 species were eliminated from the NNHP and Hopi species lists, and 18 species were eliminated from the BLM and NMDGF species lists and detailed analysis because their known ranges are outside of the ROI or the ROI does not include suitable habitat for these species. The identified NNHP, Hopi Tribe, USFWS, BLM, and NMDGF special status species with potential to occur in the ROI include 13 bird species, 9 mammal species, 4 fish species, 1 invertebrate, and 14 plant species.

Federally Listed Species

Lists of TECP species under the ESA that could occur in the counties within which the Project occurs were obtained from the USFWS and included Apache, Coconino, and Navajo counties in Arizona and McKinley, Bernalillo, Sandoval, and San Juan counties in New Mexico (USFWS 2012, 2013c). The USFWS lists include a total of 38 TECP species that could occur within the seven counties crossed by the Project or ROI area. These include 5 bird species, 4 mammal species, 4 reptile and amphibian species, 10 fish species, 2 invertebrate species, and 13 plant species. These species, their scientific names, status, associated habitats, and their potential for occurrence within the ROI are summarized in Table 4.8-1.

Occurrence potential within the ROI was evaluated for each of the 38 species based on the habitat requirements and/or known distribution. As a result, 2 TECP plant and wildlife species were eliminated from further detailed analysis because their known ranges are outside of the ROI or the ROI does not include suitable habitat.

Table 4.8-1 Federally Listed Threatened, Endangered, Candidate, and Proposed Species within the Project Region of Influence

Species Scientific Name	Species Common Name	Status	Counties (AZ, NM)	Habitat Type	Eliminate from Further Analysis (Yes, No)
Mammals					
Canis lupus baileyi	Mexican gray wolf	Federally Endangered	Apache, Navajo	Chaparral, woodland, and forested areas.	**Yes.** Mexican gray wolf may occur as rare migrant through the ROI. Any limited potential habitat is too isolated to support this species.
Lynx canadensis	Canada lynx (New Mexico population)	Federal Proposed Threatened	San Juan	Subalpine/coniferous forests. Mature forests with downed logs and windfalls provide cover for denning, escape and protection from severe weather.	**Yes.** Lynx may occur as migrant through the ROI. Limited potential habitat in the Chuska mountains is too isolated to support this species.
Mustela nigripes	Black-footed ferret	Federally Endangered	Apache, Coconino, Navajo, San Juan	Grassland plains/prairie. Prairie Dog town complexes of 200 acres or more for the Gunnison's prairie dog (*Cynomys gunnisoni*) and/or 80 acres or more for any subspecies of Black-tailed prairie dog (*Cynomys ludovicianus*). No known wild ferrets on the Navajo Nation except for those associated with the Arizona Game and Fish Department reintroduction on Tribal Ranch lands of Big Boquillas in Aubrey Valley, Coconino County, approximately 100 miles to the west of the ROI.	**Yes.** No black-footed ferrets have been observed in New Mexico since 1934 and they were moved to the historically present list for San Juan County by NMDGF in 2004 (BISON-M database). This species has not been observed in repeated surveys within suitable habitat in the Navajo Mine Lease area. Suitable habitat was modeled to be present, but no known wild ferrets are present on Navajo Land, except for those associated with a reintroduction effort at Big Boquillas, Coconino County, Arizona, approximately 100 miles west of the ROI.

Species Scientific Name	Species Common Name	Status	Counties (AZ, NM)	Habitat Type	Eliminate from Further Analysis (Yes, No)
Zapus hudsonius luteus	New Mexico jumping mouse	Federal Endangered	Apache, Bernalillo	Nests in dry soils but also uses moist, streamside, dense riparian/wetland vegetation. The jumping mouse appears to only utilize two riparian community types: (1) persistent emergent herbaceous wetlands; and (2) scrub-shrub wetlands. The New Mexican jumping mouse is diminished to six populations in the White Mountains, Arizona.	**Yes**. Suitable habitat was not found.
Birds					
Coccyzus americanus	Yellow-billed cuckoo	Federal Proposed Threatened	Apache, Coconino, Navajo, San Juan, Bernalillo	Nesting cuckoos are associated with relatively dense, wooded, streamside riparian habitat, with varying combinations of Fremont cottonwood, willow, velvet ash, Arizona walnut, mesquite, and tamarisk. Some cuckoos also have been detected nesting in velvet mesquite, netleaf hackberry, Arizona sycamore, Arizona alder, and some exotic neighborhood shade trees.	**No**. Suitable habitat is not found along the transmission line ROI, but potential habitat could occur in riparian areas with higher canopies or salt cedar along the San Juan River.
Empidonax traillii extimus	Southwestern willow flycatcher	Federally Endangered	Apache, Coconino, Navajo, San Juan , Bernalillo	Riparian-obligate bird found in cottonwood/willow and tamarisk vegetation communities along rivers and streams.	**No**. Suitable nesting habitat is not found along the transmission line ROI , but marginal habitat was identified within 30 km of the FCPP.
Gymnogyps californicus	California Condor	Federally Endangered	Apache, Coconino, Navajo,	High desert canyons and plateaus. Ill-defined nest, if any, composed of existing debris within overhung cliff ledges, crevices, potholes, or caves; in northern Arizona, nesting will likely be within walls of major river canyons or tall, steep cliffs within desert scrub and grasslands that allow easy approach from the air, and are inaccessible for terrestrial predators.	**No**. Results of AECOM habitat model identified suitable nesting habitat within the ROI but the ROI is outside this species' known nesting range. California condors could occur as occasional visitors within the ROI or use the area for foraging.
Strix occidentalis lucida	Mexican spotted owl	Federally Threatened	Apache, Coconino, Navajo, San Juan , Bernalillo	Nests in canyons and dense forests with multilayered foliage structure. Generally nest in older forests of mixed conifer or ponderosa pine/gambel oak type. Restricted habitat includes mixed-conifer forest, pine-oak forest, and riparian areas.	**No**. Results of AECOM habitat model identified suitable habitat adjacent to the transmission line ROWs. No suitable habitat occurs within the ROI as the ROWs have been cleared of woody vegetation. Mexican spotted owl could occur as an occasional visitor within the ROI or use the area for foraging.

Species Scientific Name	Species Common Name	Status	Counties (AZ, NM)	Habitat Type	Eliminate from Further Analysis (Yes, No)
Anthus spragueii	Sprague's pipit	Federal Candidate	San Juan, Bernalillo	Breeds in northern Great Plains. Non breeding range extends from south-central and south-eastern Arizona, occasionally in southern New Mexico. Habitat during migration and in winter consists of pastures and weedy fields, including grasslands with dense herbaceous vegetation or grassy agricultural fields.	**Yes.** The current range of this species is outside the ROI.
Amphibians					
Lithobates chiricahuensis	Chiricahua leopard frog	Federally Threatened	Apache, Navajo, Coconino	Streams, rivers, backwaters, ponds, and stock tanks that are mostly free from introduced fish, crayfish, and bullfrogs.	**Yes**. The current range of this species is outside the ROI.
Plethodon neomexicanus	Jemez Mountains salamander	Federally Endangered	Sandoval, Bernalillo	Restricted to the Jemez Mountains in moss-covered talus and under bark and beneath logs and rocks in and near mixed forest of fir, spruce, and aspen. It occurs underground except during periods of warm seasonal rains.	**Yes,** The current range of this species is outside the ROI.
Reptiles					
Thamnophis eques megalops	Northern Mexican Garter-snake	Federal Threatened	Apache, Navajo, Coconino	Cienegas, stock tanks, large-river riparian woodlands and forests, streamside gallery forests. Core population areas in the U.S. include mid/upper Verde River drainage, mid/lower Tonto Creek, and the San Rafael Valley and surrounding area. Status on tribal lands unknown. Strongly associated with the presence of a native prey base including leopard frogs and native fish.	**Yes.** Suitable habitat is not found within the ROI.
Thamnophis rufipunctatus	Narrow-headed Garter-snake	Federal Proposed	Apache, Navajo, Coconino	The narrow-headed gartersnake is one of the most aquatic of the gartersnakes. This species is strongly associated with clear, rocky streams using predominantly pool and riffle habitat that includes cobbles and boulders, but it has also been observed using lake shoreline habitat in New Mexico. The species occurs at elevations from 2,300 – 8,200-feet in four types of biotic communities: Petran Montane Conifer Forest, Great Basin Conifer Woodland, Interior Chaparral, and the Arizona Upland subdivision of Sonoran Desert scrub.	**Yes.** Suitable habitat is not found within the ROI.

Species Scientific Name	Species Common Name	Status	Counties (AZ, NM)	Habitat Type	Eliminate from Further Analysis (Yes, No)
Fish					
Catostomus discorbolus yarrow	Zuni bluehead sucker	Federally Endangered	Apache, Bernalillo	Small streams in low velocity, moderate deep pools, and pool runs with seasonal dense algae. Young prefer quieter shallow areas near shoreline. Limited to possibly one creek in Arizona and to the headwaters of Zuni River drainage in New Mexico.	**No.** Occupied suitable habitat for this species occurs within the ROI.
Gila cypha	Humpback chub	Federally Endangered	Coconino	Large, warm turbid rivers especially canyon areas with deep fast water. Species found in the Upper Colorado River basin in Utah and Colorado, and in the Little Colorado and Colorado rivers in Marble and Grand canyons, Arizona.	**Yes.** Suitable habitat is not found within the ROI.
Gila robusta	Roundtail chub	Federal Candidate (Lower Colorado River Basin DPS	Apache, Coconino, Navajo, San Juan	Candidate population occurs on Little Colorado River and its tributaries, but does not occur where the APS FCPP to Moenkopi Substation transmission line crosses the Little Colorado. Individuals of the non-candidate Upper Colorado River Distinct Population Segment are found within the San Juan and Mancos rivers. Rarely encountered in recent surveys; they have been found from Shiprock to near Lake Powell with most between Shiprock and Aneth (RM 107-140). Adults inhabit the most permanent water in cool to warm water mid-elevation streams, typically using pools and eddies, adjacent to rapids and boulders. They are often found near cover (e.g., rocks, plant roots) and in pools behind irrigation diversions. Juveniles prefer the margins of flowing water and backwater areas. Spawning occurs over gravel bottoms in runs and pools with ≥25-cm water depth.	**No.**
Hybognathus amarus	Rio Grande silvery minnow	Federally Endangered	Sandoval, Bernalillo	Pools and backwaters of low-gradient creeks and small to large rivers. Occurs in waters with slow to moderate flow in perennial sections of the Rio Grande and associated irrigation canals. Uses a variety of habitats throughout the season in depths less than 50 cm.	**Yes.** The current range of this species is outside the ROI.
Lepidomeda vittata	Little Colorado spinedace	Federally Threatened	Apache, Coconino, Navajo	Moderate to small streams; found in pools and riffles with water flowing over fine gravel and silt substrate.	**Yes.** The current range of this species is outside the ROI.

Species Scientific Name	Species Common Name	Status	Counties (AZ, NM)	Habitat Type	Eliminate from Further Analysis (Yes, No)
Oncorhynchus clarkia virginalis	Rio Grande cutthroat trout	Federal Candidate	Sandoval, Bernalillo	Restricted to small headwater streams and spawns in clean gravel. Nursery habitat is often along stream margins in slower water; winter habitat includes deep pools. Colifax, Lincoln, Los Alamos, Mora, Otero, Rio Arriba, Sandoval, San Miguel, Santa Fe, Sierra, and Taos Counties.	**Yes.** The current range of this species is outside the ROI.
Oncorhynchus gilae apache	Apache trout	Federally Threatened	Apache, Coconino, Navajo	This species is presently restricted to drainages in the White Mountains. Habitat includes streams and rivers generally above 6,000-foot elevation with adequate stream flow and shading; temperatures below 77°F; and substrate composed of boulders, rocks, gravel, and some sand and silt.	**Yes.** The current range of this species is outside the ROI.
Ptychocheilus lucius	Colorado pikeminnow	Federally Endangered	San Juan	On the Navajo Nation, it has been documented throughout the San Juan River, from Shiprock to Lake Powell; the mouth of the Mancos River is used during the spring runoff period. The majority of adults use the stretch from about 11 km downstream of Shiprock (RM 142) to just downstream of Four Corners (RM 117), and spawn in 'The Mixer Area' (RM 131-132); young-of-year have primarily been found within the lower 26 km of the San Juan River just upstream of Lake Powell. Adults use backwaters and flooded riparian areas during spring runoff, and migrate large distances (15 to 64 km in the San Juan River) to spawn in riffle run areas with cobble/gravel substrates. Post-spawning adults primarily use run habitats, with eddies and slackwater also being important. Young-of-year (<120-mm length) use warm backwaters along shorelines. Deeper backwater areas (>1 meter deep at confluence with main channel) are the preferred habitat of young fish into the subadult stage (>3 years age and 200- to 400-mm length). Irrigation canals and ponds connected to San Juan River may be potential habitat.	**No.**
Tiaroga cobitis	Loach minnow	Federally Endangered	Apache, Navajo	Presently found in small to large perennial streams with swift shallow water over cobble and gravel. Recurrent flooding and natural hydrograph important.	**Yes.** The current range of this species is outside the ROI.

Species Scientific Name	Species Common Name	Status	Counties (AZ, NM)	Habitat Type	Eliminate from Further Analysis (Yes, No)
Xyrauchen texanus	Razorback sucker	Federally Endangered	Coconino; San Juan	This species is restricted to the Colorado River and a few of its warm-water tributaries; rare along the mainstem Colorado River in Marble Canyon and the mouth of the Little Colorado River, San Juan arm of Lake Powell, and upstream within the San Juan River. In mainstream portions of rivers, pre- and post-spawning suckers mostly use low-flow areas (backwaters over sand and silt substrate, deep eddies, and impoundments), but shallow to deep runs over sandbars and seasonally flooded shorelines also are important. Spawning occurs in areas with shallow, swift riffles over gravel or cobble substrate, and they also may use backwater habitats. Young-of-year use warm, flooded bottomlands and backwaters. Irrigation canals and ponds connected to the San Juan River may be potential habitat.	**No.**
Invertebrates					
Oxyloma haydeni kanabensis	Kanab ambersnail	Federally Endangered	Coconino	Extremely geographically isolated. Three historical populations; two remaining; one on private property in Utah and one in Grand Canyon National Park. Associated with travertine seeps and springs, watercress, monkey flower, and other wetland vegetation.	**Yes.** The known range is outside ROI.
Pyrgulopsis trivialis	Three Forks springsnail	Federally Endangered	Apache	Rheocrene springs, seeps, marshes, spring pools, outflows, and diverse lotic waters commonly referred to as cienegas. Distribution limited to Three Forks and Boneyard Spring complexes in the North Fork of the East Fork Black River watershed.	**Yes.** The known range is outside of the ROI.
Plants					
Asclepias welshii	Welsh's milkweed	Federally Threatened	Coconino	Open, sparsely vegetated semistabilized sand dunes and on lee slopes of actively drifting sand dunes.	**Yes.** Known range outside the ROI.
Astragalus cremnophylax var. *cremnophylax*	Sentry milk-vetch	Federally Endangered	Coconino	Grows on a white layer of Kaibab limestone, with little or no soil, in an unshaded opening within a pinyon-juniper-cliffrose plant community.	**Yes.** Known range outside ROI.

Species Scientific Name	Species Common Name	Status	Counties (AZ, NM)	Habitat Type	Eliminate from Further Analysis (Yes, No)
Astragalus humillimus	Mancos milk-vetch	Federally Endangered	San Juan	Forms highly localized populations from 4 to 20 acres in size. It is typically found on large, nearly flat sheets of exfoliating whitish-tan colored sandstone, in small depressions and sand-filled cracks on or near ledges and mesa tops in slickrock communities of Point Lookout and Cliffhouse Sandstone. Known only from the Four Corners area of New Mexico, San Juan County, and adjacent Montezuma County, Colorado. Navajo Nation Distribution: San Juan County, New Mexico, Palmer Mesa east to the Hogback area and south of the San Juan River, to a hogback east of Little Water. Potential Navajo Nation Distribution: Four Corners area, all slickrock formations of Point Lookout and Cliffhouse Sandstone, and possibly other related members.	**No.** Suitable habitat was modeled within the ROI and the species has been observed within the ROI.
Carex specuicola	Navajo sedge	Federally Threatened	Apache, Coconino, Navajo	Silty soils at shady seeps and springs. Typically found in seeps and hanging gardens, on vertical sandstone cliffs and alcoves. General Distribution: Northern Arizona, San Juan County, Utah. Navajo Nation Distribution: From the Navajo Creek drainage in Coconino County, east to the Tsegi Canyon Watershed in Navajo County, south to the Rock Point/Mexican Water and Canyon de Chelly National Monument, Apache County, Arizona area. Potential Navajo Nation Distribution: Northern Arizona and southeastern Utah, especially in hanging gardens of the San Juan River drainage and Lake Powell.	**No.** Results of the AECOM habitat model identified suitable habitat within the ROI; however, this species was not documented to occur within the ROI during surveys.
Erigeron rhizomatus	Zuni fleabane	Federally Threatened	Apache; San Juan, Bernalillo	Typically, only found on fine textured clay hillsides. It is known from clays derived from the Chinle Formation in the Zuni and Chuska Mountains, and to similar clays of the Baca Formation in the Datil and Sawtooth ranges in New Mexico. Only one known Arizona location in the Chuska Mountain on the Navajo Nation. Potential Navajo Nation Distribution: Chuska Mountains and in suitable habitat in the pinion-juniper associations between Lupton, Apache County, Arizona, and Prewitt, McKinley County, New Mexico.	**No.** Results of the AECOM habitat model identified suitable habitat within the ROI; however, this species has not been documented within the ROI.

Species Scientific Name	Species Common Name	Status	Counties (AZ, NM)	Habitat Type	Eliminate from Further Analysis (Yes, No)
Helianthus paradoxus	Pecos Sunflower	Federally Threatened	Bernalillo	Typically found in areas consisting of non-shaded open vegetation of permanently saturated soils in the root zone along desert springs, seeps, wet meadows, margins of lakes, impoundments, and creeks. Preferred soils include saline or alkaline silty clays and fine sands with high organic content.	**Yes.** Known range outside.
Packera franciscana	San Francisco Peaks groundsel	Federally Threatened	Coconino	Alpine tundra. Found above spruce-fir and pine forests.	**Yes.** Known range outside.
Pediocactus bradyi	Brady pincushion cactus	Federally Endangered	Coconino	Benches and terraces in Navajo desert near Marble Gorge. Plant community dominated by shadscale (*Atriplex confertifolia*), snakeweed (*Gutierrezia sarothrae*), mormon tea (*Ephedra viridis*), and desert trumpet (*Eriogonum inflatum*).	**Yes.** This species was not included on NNHP data response as potentially occurring within the ROI.
Pediocactus knowltonii	Knowlton's cactus	Federally Endangered	San Juan	Rolling, gravelly hills covered with pinyon pine, Rocky Mountain juniper, and sagebrush. Knowlton cactus is found on the very eastern edge of the Colorado Plateau Province, adjacent to the San Juan Mountains. Grows on tertiary alluvial deposits overlying the San Jose Formation. Known populations range from 2,075- to 2,300-meter elevation. The only viable populations exist in San Juan County, New Mexico.	**Yes.** The known range is outside the ROI.
Pediocactus peeblesianus var. *fickeiseniae*	Fickeisen plains cactus	Federally Endangered	Coconino	Soils overlain by Kaibab Limestone in Navajoan desert or Great Plains Grassland, along canyon rims and flat terraces along washes, typically with limestone chips scattered across the surface. General Distribution: Arizona: Coconino County, from House Rock Valley and Gray Mountain, to the Little Colorado and Colorado rivers. Navajo Nation Distribution: Gray Mountain to southwest of Bitter Springs, Coconino County, Arizona. Potential Navajo Nation Distribution: Marble Canyon to Gray Mountain.	**No.** Results of the AECOM habitat model identified suitable habitat within the ROI; however, this species was not documented to occur within the ROI during surveys.
Pediocactus peeblesianus var. *peeblesianus*	Peebles Navajo cactus	Federally Endangered	Navajo	Gravely soils of the Shinarump conglomerate of the Chinle Formation.	**Yes.** Known range outside the ROI.

Species Scientific Name	Species Common Name	Status	Counties (AZ, NM)	Habitat Type	Eliminate from Further Analysis (Yes, No)
Pediocactus sileril	Siler pincushion cactus	Federally Threatened	Coconino	Desert-scrub transitional areas of Navajo, sagebrush, and Mohave Deserts.	**Yes.** Known range outside the ROI.
Sclerocactus mesae-verdae	Mesa Verde cactus	Federally Threatened	San Juan	Salt-desert scrub communities, typically in the Fruitland and Mancos shale formations, but also in the Menefee Formation overlaying Mancos shale. It is most frequently found on the tops of hills or benches and along slopes. General Distribution: San Juan County, New Mexico, and adjacent Montezuma County, Colorado. Navajo Nation Distribution: Colorado border south to near Naschitti, New Mexico. Potential Navajo Nation Distribution: Within the known distribution to the north, south, and west. The eastern limits are still unclear.	**No.** Results of the AECOM habitat model identified suitable habitat within the ROI. Individuals are known to occur within the ROI.

Navajo Nation and Hopi Tribe Species of Special Importance

The NNHP within the NNDFW provided information on the NESL species known to occur or with likelihood to occur in the vicinity of the ROI. The Hopi Tribe provided a list of Hopi culturally sensitive species, as designated through the tribe's Wildlife and Ecosystem Management Program. The list includes a total of 29 species that could occur within the seven counties crossed by the Project or ROI, and includes 9 bird species, 2 mammal species, 2 amphibian species, 3 fish species, 1 invertebrate species, and 12 plant species. Fifteen of these species are also on the USFWS TECP list. These species, their scientific names, status, associated habitats, and their potential for occurrence within the ROI, are summarized Table 4.8-2.

Occurrence potential within the ROI was evaluated for each of the 29 species based on the habitat requirements and/or known distribution. As a result, four special-status plant and wildlife species were eliminated from further detailed analysis because their known ranges are outside of the ROI or the ROI does not include suitable habitat for them.

New Mexico Species of Concern and BLM Sensitive Species

PNM owns and operates two major electric transmission lines that cross approximately 70 miles of the Navajo Nation properties within San Juan, McKinley, and Sandoval counties, New Mexico, that require reauthorization of the existing ROWs. The remaining portion of the line (approximately 85 miles) is outside of the Navajo Nation and cross a mixture of BLM, State of New Mexico, and private lands. The segment of line from Rio Puerco to West Mesa Switching Station has been reauthorized and no pending or future ROW issues exist on this 19.7-mile segment of line. However, assessment of special-status species occurrences or potential Project-related impacts has been included for this segment of line since it is part of the Proposed Action.

The list of USFWS TECP, New Mexico Species of Concern (New Mexico State listed Threatened or Endangered), and BLM Sensitive Species with the potential to occur within or adjacent to the portion of the PNM transmission corridor in McKinley, Bernalillo, and Sandoval counties consists of 39 species shown in Table 4.8-3. These species were evaluated based on the habitat requirements and/or known distribution. As a result, 1 plant, 2 mammals, 10 birds, and 5 fish special-status wildlife species were identified as not likely to occur and eliminated from further analysis.

The 39 special-status species on the potential to occur list includes 7 species of birds, 7 species of mammals, and 6 species of plants, 5 of which occur on either the USFWS or the Navajo/Hopi list. These species, their scientific names, status, associated habitats, and their potential for occurrence within the ROI are summarized in Table 4.8-3.

The preceding paragraphs refer to the species with the potential to occur in the ROI as a whole. While many of these species will occur in association with some of project elements, few of the species will occur in all of those areas. Only a subset of these species will be associated with each element, as described in the following sections. The species counts for those elements will not match those provided above.

Table 4.8-2 Hopi and NNHP Special-Status Species within the Project Region of Influence

Species Scientific Name	Species Common Name	Status	Counties (AZ, NM)	Habitat Type	Eliminate from Further Analysis (Yes, No)
Mammals					
Antilocapra americana	Pronghorn	NESL G3	Apache, Coconino, Navajo, San Juan	Found in grasslands or desert scrub areas with rolling or dissected hills or small mesas, and usually with scattered shrubs and trees (typically juniper and sagebrush). Range includes most western U.S. states from south central Canada west to Nevada and south to Arizona, New Mexico, and western Texas. Occupied range on Navajo Nation is the southwestern portion north of Flagstaff, and checkerboard lands in New Mexico. Results of data request from NNHP indicate Coconino as the only county with potential for occurrence.	**No.** The ROI lies within the known range of this species and suitable habitat was modeled within the ROI.
Mustela nigripes	Black-footed ferret	NESL G2	Apache, Coconino, Navajo, San Juan	Grassland plains/prairie. Prairie Dog town complexes of 200 acres or more for the Gunnison's prairie dog (*Cynomys gunnisoni*) and/or 80 acres or more for any subspecies of Black-tailed prairie dog (*Cynomys ludovicianus*). No known wild ferrets on the Navajo Nation except for those associated with the Arizona Game and Fish Department reintroduction on Tribal Ranch lands of Big Boquillas in Aubrey Valley, Coconino County, approximately 100 miles to the west of the ROI.	**Yes.** No black-footed ferrets have been observed in New Mexico since 1934 and they were moved to the historically present list for San Juan County by NMDGF in 2004 (BISON-M database). This species has not been observed in repeated surveys within suitable habitat in the Navajo Mine Lease area. Suitable habitat was modeled to be present, but no known wild ferrets are present on Navajo Land, except for those associated with a reintroduction effort at Big Boquillas, Coconino County, Arizona, approximately 100 miles west of the ROI.
Birds					
Aquila chrysaetos canadensis	Golden Eagle	NESL G3; Hopi Cultural Sensitive Species	Apache, Coconino, Navajo, San Juan	Nest on steep cliffs in middle to upper parts of cliffs in sheltered ledges, potholes, or small caves, typically ≥30 meters in height, although shorter cliffs (≥10 meters) occasionally used. Nesting cliffs are normally directly adjacent to foraging habitat of desert grasslands or desert scrub, with only sparse shrubs if present, that provides primary prey of cottontail and jackrabbits.	**No.** Suitable habitat occurs within ROI.

Species Scientific Name	Species Common Name	Status	Counties (AZ, NM)	Habitat Type	Eliminate from Further Analysis (Yes, No)
Buteo jamaicensis	Red-tailed Hawk	Hopi Cultural Sensitive Species	Coconino, Navajo	This species is common within the ROI and is found in almost all habitats from mountains to deserts, in forested areas and open country. Prefers trees for nesting sites, but will utilize shrubs and cliffs in open country.	**No.** Suitable habitat occurs within ROI.
Buteo regalis	Ferruginous hawk	NESL G3	Apache, Coconino, Navajo, San Juan	Ferruginous Hawks nest in badlands, flat or rolling desert grasslands, and desert scrub. Most nests on Navajo Nation are on clay or rock pinnacles, small buttes, or short cliffs (<30-meter height); fewer are placed in top of juniper trees or on the ground, and one record exists of a nest on the crossarm of a transmission-line tower. Habitat surrounding nest site must support populations of prey items like cottontail and jackrabbits, prairie dogs, ground squirrels and gophers.	**No.** Suitable habitat occurs within ROI.
Cinclus mexicanus	American dipper	NESL G3	Apache, Coconino, Navajo, San Juan	Nests are near clear, unpolluted streams usually ≤15 meters in width and ≤2 meters in depth, with a variety of riffles, pools, and waterfalls with instream and streamside substrate of rocks, sand, and rubble; boulders are necessary for perches.	**Yes.** Suitable habitat is not found within the ROI.
Coccyzus americanus	Yellow-billed cuckoo	NESL G2	Apache, Coconino, Navajo, San Juan, Bernalillo	Nesting cuckoos are associated with relatively dense, wooded, streamside riparian habitat, with varying combinations of Fremont cottonwood, willow, velvet ash, Arizona walnut, mesquite, and tamarisk. Some cuckoos also have been detected nesting in velvet mesquite, netleaf hackberry, Arizona sycamore, Arizona alder, and some exotic neighborhood shade trees.	**No**. Suitable habitat is not found along the transmission line ROI, but potential habitat could occur in riparian areas with higher canopies or salt cedar along the San Juan River.
Empidonax traillii extimus	Southwestern willow flycatcher	NESL G2	Apache, Coconino, Navajo, San Juan, Bernalillo	Riparian-obligate bird found in cottonwood/willow and tamarisk vegetation communities along rivers and streams.	**No**. Suitable nesting habitat is not found along the transmission line ROI, but was identified within 30 km of the FCPP.
Gymnogyps californicus	California Condor	NESL G4	Apache, Coconino, Navajo,	High desert canyons and plateaus. Ill-defined nest, if any, composed of existing debris within overhung cliff ledges, crevices, potholes, or caves; in northern Arizona, nesting will likely be within walls of major river canyons or tall, steep cliffs within desert scrub and grasslands that allow easy approach from the air, and are inaccessible for terrestrial predators.	**No**. Results of AECOM habitat model identified suitable nesting habitat within the ROI but the ROI is outside this species' known nesting range. California condors could occur as occasional visitors within the ROI or use the area for foraging.

Species Scientific Name	Species Common Name	Status	Counties (AZ, NM)	Habitat Type	Eliminate from Further Analysis (Yes, No)
Haliaeetus leucocephalus alascanus	Bald eagle	NESL G2; Hopi Cultural Sensitive Species	Apache, Coconino, San Juan, Bernalillo	Typically nest within trees in forested areas, especially mature and old-growth stands, adjacent (usually <2 km) to large bodies of water with suitable forage of waterfowl and fish; rarely uses cliff face adjacent to large body of water. Winter roost in large trees in forests, river bottoms, or near canyon rims, usually within a few miles of ponds, lakes and rivers with adequate prey. Ponds and lakes are used until completely iced-over and prey availability is reduced.	**No.** Suitable habitat occurs within ROI.
Strix occidentalis lucida	Mexican spotted owl	NESL G3	Apache, Coconino, Navajo, San Juan, Bernalillo	Nests in canyons and dense forests with multilayered foliage structure. Generally nest in older forests of mixed conifer or ponderosa pine/gambel oak type. Restricted habitat includes mixed-conifer forest, pine-oak forest, and riparian areas.	**No.** Results of AECOM habitat model identified suitable habitat adjacent to the transmission line ROWs. No suitable habitat occurs within the ROI as the ROWs have been cleared of woody vegetation. Mexican spotted owl could occur as an occasional visitor within the ROI or use the area for foraging. Modeled suitable habitat in Deposition Area.
Amphibians					
Lithobates chiricahuensis	Chiricahua leopard frog	NESL G2	Apache, Navajo, Coconino	Streams, rivers, backwaters, ponds, and stock tanks that are mostly free from introduced fish, crayfish, and bullfrogs.	**Yes**. The current range of this species is outside the ROI.
Rana pipiens	Northern leopard frog	NESL G2	Apache. Coconino, Navajo, San Juan	Breeds in wetlands usually with permanent water and aquatic vegetation (especially cattails), ranging from irrigation ditches and small streams to rivers, and small ponds and marshes to lakes or reservoirs. Distribution: On Navajo Nation, historic records include Chuska Mountains, Little Colorado, Colorado, and San Juan rivers; most of these populations are now extirpated. Potential exists throughout the Navajo Nation where appropriate habitat is present.	**No.** Suitable habitat occurs within the ROI.

Species Scientific Name	Species Common Name	Status	Counties (AZ, NM)	Habitat Type	Eliminate from Further Analysis (Yes, No)
Fish					
Gila robusta	Roundtail chub	NESL G2	Apache, Coconino, Navajo, San Juan	This species is found within the San Juan and Mancos rivers. Rarely encountered in recent surveys; they have been found from Shiprock to near Lake Powell with most between Shiprock and Aneth (RM 107-140). Adults inhabit the most permanent water in cool to warm water mid-elevation streams, typically using pools and eddies, adjacent to rapids and boulders. They are often found near cover (e.g., rocks, plant roots) and in pools behind irrigation diversions. Juveniles prefer the margins of flowing water and backwater areas. Spawning occurs over gravel bottoms in runs and pools with ≥25-cm water depth.	**No.**
Ptychocheilus lucius	Colorado pike-minnow	NESL G2	San Juan	On the Navajo Nation, it has been documented throughout the San Juan River, from Shiprock to Lake Powell; the mouth of the Mancos River is used during the spring runoff period. The majority of adults use the stretch from about 11 km downstream of Shiprock (RM 142) to just downstream of Four Corners (RM 117), and spawn in 'The Mixer Area' (RM 131-132); young-of-year have primarily been found within the lower 26 km of the San Juan River just upstream of Lake Powell. Adults use backwaters and flooded riparian areas during spring runoff, and migrate large distances (15 to 64 km in the San Juan River) to spawn in riffle run areas with cobble/gravel substrates. Post-spawning adults primarily use run habitats, with eddies and slackwater also being important. Young-of-year (<120-mm length) use warm backwaters along shorelines. Deeper backwater areas (>1 meter deep at confluence with main channel) are the preferred habitat of young fish into the subadult stage (>3 years age and 200- to 400-mm length). Irrigation canals and ponds connected to San Juan River may be potential habitat.	**No.**

Species Scientific Name	Species Common Name	Status	Counties (AZ, NM)	Habitat Type	Eliminate from Further Analysis (Yes, No)
Xyrauchen texanus	Razorback sucker	NESL G2	Coconino; San Juan	This species is restricted to the Colorado River and a few of its warm-water tributaries; rare along the mainstem Colorado River in Marble Canyon and the mouth of the Little Colorado River, San Juan arm of Lake Powell, and upstream within the San Juan River. In mainstream portions of rivers, pre- and post-spawning suckers mostly use low-flow areas (backwaters over sand and silt substrate, deep eddies, and impoundments), but shallow to deep runs over sandbars and seasonally flooded shorelines also are important. Spawning occurs in areas with shallow, swift riffles over gravel or cobble substrate, and they also may use backwater habitats. Young-of-year use warm, flooded bottomlands and backwaters. Irrigation canals and ponds connected to the San Juan River may be potential habitat.	**No.**
Invertebrates					
Speyeria nokomis	Nokomis fritillary	NESL G3	Apache, Coconino, Navajo and San Juan	Perennially wet meadows associated with seeps, springs, and streams variable in size (0.1 hectare to >1.2 hectare), relatively open, and dominated by grasses and with few shrubs. Violets (*Viola nephrophylla*), found in wet soils in shady areas beneath shrubs or within stream banks, are a necessary component of habitat as the host plant for larvae. Distribution: Range extends across eastern Utah, western Colorado, and northern Arizona and New Mexico. On Navajo Nation, known from <10 populations in Chuska Mountains and Defiance Plateau where appropriate habitat is present.	**No.** Suitable habitat occurs within the ROI.
Plants					
Allium gooddingii	Gooding's onion	NESL G3	Apache; San Juan	Generally in spruce-fir forests and mixed conifer forests; in the Chuska Mountains also under Gambel oak thickets interspersed with aspen, dogwood, and Douglas fir; in moist, shady canyon bottoms and north-facing slopes, often along streams. General Distribution: Apache County, Arizona, and New Mexico. Navajo Nation Distribution: Chuska Mountains, Apache County, Arizona, and San Juan County, New Mexico. Potential Navajo Nation Distribution: Throughout the Chuska Mountains and the Defiance Plateau.	**No.** Results of the AECOM habitat model identified suitable habitat within the ROI; however, this species has not been documented within the ROI.

Species Scientific Name	Species Common Name	Status	Counties (AZ, NM)	Habitat Type	Eliminate from Further Analysis (Yes, No)
Astragalus humillimus	Mancos milk-vetch	NESL G2	San Juan	Forms highly localized populations from 4 to 20 acres in size. It is typically found on large, nearly flat sheets of exfoliating whitish-tan colored sandstone, in small depressions and sand-filled cracks on or near ledges and mesa tops in slickrock communities of Point Lookout and Cliffhouse Sandstone. Known only from the Four Corners area of New Mexico, San Juan County, and adjacent Montezuma County, Colorado. Navajo Nation Distribution: San Juan County, New Mexico, Palmer Mesa east to the Hogback area and south of the San Juan River, to a hogback east of Little Water. Potential Navajo Nation Distribution: Four Corners area, all slickrock formations of Point Lookout and Cliffhouse Sandstone, and possibly other related members.	**No.** Results of the AECOM habitat model identified suitable habitat within the ROI and this species was observed during biological surveys ROI.
Astragalus naturitensis	Naturita milk-vetch	NESL G3	San Juan	Habitat: Sand-filled pockets of sandstone slickrock and rimrock pavement along canyons in the pinion juniper zone. General Distribution: McKinley and San Juan counties, New Mexico, southwestern Colorado and southeastern Utah. Known Distribution on the Navajo Nation: Hogback, San Juan County, to the Pinetree Canyon area, McKinley County, New Mexico. Potential Distribution on the Navajo Nation: In suitable habitat of the Hogback, San Juan County, New Mexico.	**No.** Results of the AECOM habitat model identified suitable habitat within the ROI; however, this species has not been documented within the ROI.
Carex specuicola	Navajo sedge	NELS G3	Apache, Coconino, Navajo	Silty soils at shady seeps and springs. Typically found in seeps and hanging gardens, on vertical sandstone cliffs and alcoves. General Distribution: Northern Arizona, San Juan County, Utah. Navajo Nation Distribution: From the Navajo Creek drainage in Coconino County, east to the Tsegi Canyon Watershed in Navajo County, south to the Rock Point/Mexican Water and Canyon de Chelly National Monument, Apache County, Arizona area. Potential Navajo Nation Distribution: Northern Arizona, especially in hanging gardens of the San Juan River drainage and Lake Powell.	**No.** Results of the AECOM habitat model identified suitable habitat within the ROI; however, this species has not been documented within the ROI.

Species Scientific Name	Species Common Name	Status	Counties (AZ, NM)	Habitat Type	Eliminate from Further Analysis (Yes, No)
Erigeron rhizomatus	Zuni fleabane	NESL G2	Apache; San Juan, Bernalillo	Typically, only found on fine textured clay hillsides. It is known from clays derived from the Chinle Formation in the Zuni and Chuska Mountains, and to similar clays of the Baca Formation in the Datil and Sawtooth ranges in New Mexico. Only one known Arizona location in the Chuska Mountain on the Navajo Nation. Potential Navajo Nation Distribution: Chuska Mountains and in suitable habitat in the pinion-juniper associations between Lupton, Apache County, Arizona, and Prewitt, McKinley County, New Mexico.	**No.** Results of the AECOM habitat model identified suitable habitat within the ROI; however, this species has not been documented within the ROI.
Errazurizia rotundata	Round dunebroom	NESL G3	Apache, Coconino, Navajo	Generally, in exposed habitats in the semiarid environment of the Great Basin Desert scrub. Known Distribution on the Navajo Nation: Between Moenave and Willow Springs, Coconino County, Arizona. Potential Navajo Nation Distribution: In suitable habitats between Gap, Coconino County, and Petrified Forest National Park, Apache County, Arizona.	**No.** Results of the AECOM habitat model identified suitable habitat within the ROI; however, this species has not been documented within the ROI.
Lesquerella navajoensis	Navajo bladderpod	NESL G3	Apache; San Juan	Windswept mesa rims and nearby habitat with little vegetative cover and high insolation. Also found at the base and slopes of small hills of the Chinle Formation. Typically only found in a combination of Todilto Limestone overlaying Entrada Sandstone or Chinle outcrops in pinion-juniper communities. Known Distribution on the Navajo Nation: In New Mexico on mesa rims northwest of Thoreau and Continental Divide, and Chuska Mountains, at Todilto Park, McKinley County. In Arizona, from the Red Valley area (north of Navajo, New Mexico) to Wheatfields Lake, Apache County. Potential Navajo Nation Distribution: Todilto limestone and Chinle outcroppings northeast and northwest of Thoreau, and the Chuska Mountains, San Juan County, New Mexico. Possibly in the Chuska and Carrizo Mountains, Apache County, Arizona.	**Yes.** Habitat capable of supporting this species does not occur within the ROI.
Pediocactus bradyi	Brady pincushion cactus	NESL G2	Coconino	Benches and terraces in Navajo desert near Marble Gorge. Plant community dominated by shadscale (*Atriplex confertifolia*), snakeweed (*Gutierrezia sarothrae*), mormon tea (*Ephedra viridis*), and desert trumpet (*Eriogonum inflatum*).	**Yes.** This species was not included on NNHP data response as potentially occurring within the ROI.

Species Scientific Name	Species Common Name	Status	Counties (AZ, NM)	Habitat Type	Eliminate from Further Analysis (Yes, No)
Pediocactus peeblesianus var. *fickeiseniae*	Fickeisen plains cactus	NESL G3	Coconino	Soils overlain by Kaibab Limestone in Navajoan desert or Great Plains Grassland, along canyon rims and flat terraces along washes, typically with limestone chips scattered across the surface. General Distribution: Arizona: Coconino County, from House Rock Valley and Gray Mountain, to the Little Colorado and Colorado rivers. Navajo Nation Distribution: Gray Mountain to southwest of Bitter Springs, Coconino County, Arizona Potential Navajo Nation Distribution: Marble Canyon to Gray Mountain.	**No.** Results of the AECOM habitat model identified suitable habitat within the ROI; however, this species has not been documented within the ROI.
Platanthera zothecina	Alcove bog-orchid	NESL G3	Apache, Coconino, Navajo	Seeps, hanging gardens, and moist stream areas from the desert shrub to pinion-juniper and Ponderosa pine/mixed conifer communities. Known Distribution on the Navajo Nation: Headwaters of Oljeto Wash, Tsegi Canyon Watershed, hanging gardens surrounding Navajo Mountain, Chinle Wash drainages.	No. Results of the AECOM habitat model identified suitable habitat within the ROI; however, this species has not been documented within the ROI.
Sclerocactus mesae-verdae	Mesa Verde cactus	NESL G2	San Juan	Salt-desert scrub communities, typically in the Fruitland and Mancos shale formations, but also in the Menefee Formation overlaying Mancos shale. It is most frequently found on the tops of hills or benches and along slopes. General Distribution: San Juan County, New Mexico, and adjacent Montezuma County, Colorado. Navajo Nation Distribution: Colorado border south to near Naschitti, New Mexico. Potential Navajo Nation Distribution: Within the known distribution to the north, south, and west. The eastern limits are still unclear.	**No.** Suitable habitat occurs within the ROI.
Zigadenus vaginatus	Alcove death camass	NESL G3	Apache; Coconino	Hanging gardens in seeps and alcoves. Endemic to the Colorado Plateau in southern Utah and northern Arizona. Navajo Nation Distribution: Hanging gardens in sandstone canyon surrounding Navajo Mountain, Coconino County, Arizona, and San Juan County, Utah. Potential Navajo Nation Distribution: Hanging gardens surrounding the drainages into Lake Powell and the drainages of Chinle Wash south to Canyon de Chelly New Mexico, Apache and Coconino counties, Arizona, San Juan County, Utah.	**Yes.** Suitable habitat is not found within the ROI.

Table 4.8-3 Federally Listed TECP, BLM Sensitive, and State of New Mexico Species of Concern along the PNM transmission line ROW in McKinley, Bernalillo, and Sandoval Counties

Species Scientific Name	Species Common Name	Status; Federal/BLM/NM	Counties (NM)	Habitat Requirements	Eliminated from Further Analysis (No, Yes)
Mammals					
Euderma maculatum	Spotted bat	NM Threatened	McKinley, San Juan, Sandoval	The habitat likely to be utilized by bats as roosting areas is primarily the small sandstone outcrops that are scattered throughout the central and southern portions of the ROW corridor.	**No.** Potential foraging habitat for this species occurs within the ROW area.
Mustela nigripes	Black-footed ferret	Federally Endangered	McKinley, San Juan, Sandoval, Bernalillo	Grassland plains/prairie. Prairie Dog town complexes of 200 acres or more for the Gunnison's prairie dog (*Cynomys gunnisoni*). No known wild ferrets in these three counties.	**Yes.** No prairie dog (*Cynomys gunnisoni*) towns of sufficient size exist to support black-footed ferret along the ROWs
Myotis leibii	Small-footed bat	BLM Sensitive	McKinley, San Juan, Sandoval	The habitat likely to be utilized by bats as roosting areas is primarily the small sandstone outcrops that are scattered throughout the central and southern portions of the ROW corridor.	**No.** Potential foraging habitat for this species occurs within the ROW area.
Myotis occultus	Occult little brown bat	BLM Sensitive	McKinley, San Juan, Sandoval	The habitat likely to be utilized by bats as roosting areas is primarily the small sandstone outcrops that are scattered throughout the central and southern portions of the ROW corridor. This species would be limited to the area near the Rio Puerco drainage.	**No.** Potential foraging habitat for this species occurs within the ROW area.
Myotis thysanodes	Fringed myotis	BLM Sensitive	McKinley, San Juan, Sandoval	The habitat likely to be utilized by bats as roosting areas is primarily the small sandstone outcrops that are scattered throughout the central and southern portions of the ROW corridor.	**No.** Potential foraging habitat for this species occurs within the ROW area.
Myotis volans	Long-legged myotis	BLM Sensitive	McKinley, San Juan, Sandoval, Bernalillo	The habitat likely to be utilized by bats as roosting areas is primarily the small sandstone outcrops that are scattered throughout the central and southern portions of the ROW corridor.	**No.** Potential foraging habitat for this species occurs within the ROW area.
Myotis yumanensis	Yuma myotis	BLM Sensitive	McKinley, San Juan, Sandoval, Bernalillo	The habitat likely to be utilized by bats as roosting areas is primarily the small sandstone outcrops that are scattered throughout the central and southern portions of the ROW corridor. This species would be limited to the area near the Rio Puerco drainage.	**No.** Potential foraging habitat for this species occurs within the ROW area.

Species Scientific Name	Species Common Name	Status; Federal/BLM/NM	Counties (NM)	Habitat Requirements	Eliminated from Further Analysis (No, Yes)
Nyctinomops macrotis	Big-freetail bat	BLM Sensitive	McKinley, San Juan, Sandoval	The habitat likely to be utilized by bats as roosting areas is primarily the small sandstone outcrops that are scattered throughout the central and southern portions of the ROW corridor.	**No.** Potential foraging habitat for this species occurs within the ROW area.
Zapus hudsonius luteus	New Mexico jumping Mouse	Federally Endangered, NM Endangered	Bernalillo	Nests in dry soils but also uses moist, streamside, dense riparian/wetland vegetation. The jumping mouse appears to only utilize two riparian community types: (1) persistent emergent herbaceous wetlands; and (2) scrub-shrub wetlands. The New Mexican jumping mouse is diminished to six populations in the White Mountains, Arizona.	**Yes**. Suitable habitat was not found.
Birds					
Ammodramus bairdii	Baird's sparrow	NM Threatened	McKinley, San Juan, Sandoval, Bernalillo	This sparrow is normally found in shrubby, short-grass and prairie habitats in New Mexico where it occurs as a migrant.	**No**. Potential habitat for this species occurs within the ROW area.
Athene cunicularia hypogea	Western burrowing owl	BLM Sensitive	McKinley, San Juan, Sandoval, Bernalillo	Nests in ground burrows often using deserted prairie dog burrows in dry open grasslands or desert scrub.	**No**. Potential habitat for this species and burrows found within the ROW area.
Buteo regalis	Ferruginous hawk	BLM Sensitive	McKinley, San Juan, Sandoval	Nests in badlands, flat or rolling desert grasslands, and desert scrub. Most nests are on clay or rock pinnacles, small buttes, or short cliffs (<30 meters height).	**No.** Potential foraging and known nesting habitat for this species occurs within the ROW area and on structures.
Buteogallus anthracinus	Common black hawk	NM Threatened	Bernalillo	Inhabit lowland areas, with a source of water and aquatic food are found. Occupy trees for roosting and nesting.	**Yes.** Suitable habitat was not found.
Coccyzus americanus	Yellow-billed cuckoo	Federal Candidate Proposed Threatened	McKinley, San Juan, Sandoval. Bernalillo	Breeds in riparian woodlands with dense understory vegetation.	**No.** Poor migratory stopover habitat found in scattered patches of decadent tamarisk (*Tamarix* sp.*)*.No suitable nesting habitat in the ROW area.
Cynanthus latirostris	Broad-billed hummingbird	NM Threatened	Bernalillo	Inhabit riparian woodland habitats.	**Yes.** Suitable habitat was not found.

Species Scientific Name	Species Common Name	Status; Federal/BLM/NM	Counties (NM)	Habitat Requirements	Eliminated from Further Analysis (No, Yes)
Empidonax traillii extimus	Southwestern willow flycatcher	Federally Endangered; NM Endangered	McKinley, San Juan, Sandoval, Bernalillo	Riparian-obligate bird found in cottonwood/willow and tamarisk vegetation communities along rivers and streams.	**No**. Poor migratory stopover habitat found in scattered patches of decadent tamarisk (*Tamarix* sp.*)*.No suitable nesting habitat in the ROW area.
Falco femoralis	Aplomado Falcon	Federal Experimental-non essential NM Endangered	Bernalillo	Occur in open grassland or savannah habitat with scattered trees or shrubs in southwestern New Mexico.	**Yes.** Suitable habitat was not found.
Falco peregrinus anatum	American peregrine falcon	NM Threatened	McKinley, San Juan, Sandoval Bernalillo	Cliffs that generally exceed 200 feet in height near permanent surface water.	**No.** Potential foraging habitat for this species occurs within the ROW area.
Falco peregrinus tundrus	Arctic peregrine falcon	NM Threatened	Bernalillo	Breeds in mountainous areas and occurs statewide, except during winter. Nest on tall, steep, rock cliffs associated with forest or woodland in close proximity to water. Winter in South America and nest in Alaska, Canada, and Greenland.	**Yes.** Suitable habitat was not found. Project is outside this species known nesting and wintering areas.
Haliaeetus leucocephalus	Bald eagle	NM Endangered	McKinley, San Juan, Sandoval, Bernalillo	Typically nest within trees in forested areas, especially mature and old-growth stands, adjacent (usually <2 km) to large bodies of water with suitable forage of waterfowl and fish; rarely uses cliff face adjacent to large body of water. Winter roost in large trees in forests, river bottoms, or near canyon rims, usually within a few miles of ponds, lakes, and rivers with adequate prey.	**Yes**. Absent in the FW ROW area and no large rivers or suitable habitat occurs off of Navajo Nation lands.
Hylocharis leucotis	White-eared hummingbird	NM Threatened	Bernalillo	Occurs in mountain scrub woodlands and forests.	**Yes.** No significant woodlands or forests occur within ROIs in Bernalillo County
Lanius ludovicianus	Loggerhead shrike	BLM Sensitive	McKinley, San Juan, Sandoval, Bernalillo	This species is found in open grasslands, deserts, riparian area and woodlands and nests in shrubs, hedgerows and trees often using the same nest year after year.	**No.** Potential habitat for this species occurs within the ROW area.
Pelecanus occidentalis	Brown pelican	NM Endangered	Bernalillo	Occur along southern and western coastal areas and rarely occur inland.	**Yes.** Suitable habitat was not found.

Species Scientific Name	Species Common Name	Status; Federal/BLM/NM	Counties (NM)	Habitat Requirements	Eliminated from Further Analysis (No, Yes)
Phalacrocorax brasilanus	Neotropic cormorant	NM Threatened	Bernalillo	This species is found in fresh, brackish, and saltwater wetland habitats. Nests and roost in trees, cliffs, and man-made structures. More common to southern North America, Central America, and South America.	**Yes.** Suitable habitat was not found.
Strix occidentalis lucida	Mexican spotted owl	Federally Threatened	San Juan, Bernalillo	Nests in canyons and dense forests with multilayered foliage structure. Generally nest in older forests of mixed conifer or ponderosa pine/gambel oak type.	**Yes.** Suitable habitat was not found in portions of the Project in Bernalillo County.
Vireo bellii	Bell's vireo	NM Threatened	Bernalillo	Occur in dense, low, shrubby vegetation, generally early successional stages in riparian areas, brushy fields, oak woodland, coastal chaparral, and mesquite badlands.	**Yes.** No suitable riparian habitat occurs in portions of the Project in Bernalillo County.
Vireo vicinior	Gray vireo	NM Threatened	McKinley, San Juan, Sandoval, Bernalillo	The Gray vireo is found through much of the western U.S. and northern Mexico and utilizes juniper savanna and pinyon-juniper woodland habitats.	**No.** Potential habitat for this species found within limited portions of the ROW area.
Fish					
Cataostomus plebeisu	Rio Grande sucker	NM Endangered	Bernalillo	Habitats include rocky pools, runs, and riffles of small to medium rivers. Common to the Rio Grande and Mimbres River and Guzman Basin and introduced to the Rio Hondo and Pecos drainage of New Mexico.	**Yes.** Suitable habitat is not within the area due to lack of perennial waters.
Gila robusta	Roundtail chub	Federal Candidate; BLM Sensitive, NM Endangered	San Juan	Uses large rivers and present in low numbers in the San Juan, Mancos, La Plata, and Animas rivers in New Mexico and Colorado.	**Yes.** Suitable habitat is not within the area due to lack of perennial waters.
Hybognathus amarus	Rio Grande Silvery Minnow	Federally Endangered with critical habitat, NM Endangered	McKinley, Sandoval, Bernalillo	The silvery minnow is a pelagic spawning species; i.e., its eggs flow within the water column (Piatania and Altenbach 1998). The silvery minnow is the only surviving small, native pelagic spawning minnow in the Middle Rio Grande, and its range has been reduced to only 5 percent of its historic extent.	**Yes.** The ROW corridor does not occur within or near the Rio Grande or designated critical habitat.
Ptychocheilus lucius	Colorado pike-minnow	Federally Endangered with critical habitat, NM Endangered	San Juan	Large rivers with strong currents, deep pools and quite backwaters. On the Navajo Nation it has been documented throughout the San Juan River, from Shiprock to Lake Powell; the mouth of the Mancos River is used during the spring runoff period.	**Yes.** Suitable habitat is not within the area due to lack of perennial waters.

Species Scientific Name	Species Common Name	Status; Federal/BLM/NM	Counties (NM)	Habitat Requirements	Eliminated from Further Analysis (No, Yes)
Xyrauchen texanus	Razorback sucker	Federally Endangered with critical habitat, NM Endangered	San Juan	Medium to large rivers with silty to rocky substrates. Species prefers strong currents and deep pools. This species is restricted to the Colorado River and a few of its warm-water tributaries.	**Yes.** Suitable habitat is not within the area due to lack of perennial waters.
Plants					
Aliciella formosa	Aztec gilia	BLM Sensitive, NM Endangered	McKinley, San Juan	The Aztec gilia is a perennial herb approximately 2.75-12.00 inches tall. It is known to occur on Navajo lands in Kutz Canyon, south of Bloomfield. It often occurs within dry salt desert scrub communities.	**No.** Suitable habitat occurs in scattered areas along much of the northern half of the ROW.
Asclepias sanjuanensis	San Juan milkweed	BLM Sensitive/NM Species of Concern	San Juan	Sandy loam soils in juniper savanna and Great Basin desert scrub at 5,000- to 5,500-foot elevations.	**No**. Suitable habitat occurs within ROW area
Astragalus humillimus	Mancos milk-vetch	Federally Endangered; NM Endangered	San Juan	Cracks of Point Lookout sandstone of the Mesa Verde series at 5,000- to 6,000-foot elevations.	**Yes.** This type of sandstone formation does not occur within the ROW area.
Astragalus naturitensis	Naturita milk-vetch	NM Species of Concern	San Juan	Sand-filled pockets of sandstone slickrock and rimrock pavement along canyons in the pinyon juniper zone.	**No.** Suitable habitat is within the ROW area.
Puccinellia parishii	Parish's alkali grass	BLM Sensitive	San Juan	Parish's alkali grass occurs within a very specific type of wetland soils in areas that have shallow groundwater that moves to the surface and evaporates, leaving behind an alkali crust.	**No.** Potential habitat occurs within a small area of ROW.
Sclerocactus cloveriae ssp. *Brackii*	Brack's fishhook cactus	BLM Sensitive, NM Endangered	McKinley, San Juan	This species occurs principally on clay soils from near Angel's Peak south of the San Juan River. Potential habitat occurs along the same segments of line as Aztec gilia.	**No.** Suitable habitat occurs in scattered areas along much of the northern half of the ROW.
Sclerocactus mesae-verdae	Mesa Verde cactus	Federally Threatened; NM Endangered	San Juan	Highly alkaline soils in sparse shale or adobe clay badlands of the Mancos and Fruitland formations at 4,000- 5,550-foot elevations.	**No.** Potential habitat occurs within ROW area.

4.8.2.2 Potential for Species Occurrence by Project Element

The potential for one of the species retained for analysis in the tables above to occur in various project elements (Navajo Mine or Pinabete Mine permit areas, FCPP Lease Area or Deposition Area, APS Transmission Line ROWs, PNM Transmission Line ROWs) is shown in Table 4.8-4. This potential was assessed based on species lists available from the USFWS, NMDGF, NNHP, as well as resource studies conducted within each element for the applicants (AECOM 2013c,f,g; BNCC 2009, 2012a,e,f; Ecosphere 2011, 2012a,c,e, 2013; Marron and Associates 2012a,b, 2013), fisheries studies conducted by the San Juan River Recovery Implementation Plan, and other available information.

In Table 4.8-4, 'Y' indicates the species has potential to occur and that the listing agency exercises its authority on those lands, 'N' indicates the species does not occur, and 'n/a' indicates that the agency that listed that species does not have jurisdiction in the lands occupied by that project element. Species were retained for evaluation within a project element only if the agency that listed that species as special status has jurisdiction over the management of that species on the lands occupied by that project element.

4.8.2.3 Species Distribution and Habitat

Pronghorn

The pronghorn antelope is a NESL G3 Species.

Distribution and Habitat: Found in grasslands or desert scrub areas with rolling or dissected hills or small mesas, and usually with scattered shrubs and trees (typically juniper and sagebrush). Range includes most western U.S. states. Occupied range on Navajo Nation is the southwestern portion north of Flagstaff, and checkerboard lands in New Mexico. NNDFW indicates the species has potential to occur within the ROI.

Potential to Occur: Suitable habitat for pronghorn antelope occurs in the undeveloped portions of the ROI, including mine areas, the FCPP Lease Area, and the APS and PNM ROWs. Due to their large range size and high mobility, their occurrence in these habitats would likely be as occasional visitors. No indication of this species occurrence has been detected for any of the project elements.

Special-Status Bat Complex - Spotted Bat, Big-Freetail Bat, Small-footed bat, Long-Legged Myotis, Yuma Myotis, Occult Little Brown Bat, and Fringed Myotis

The Spotted Bat is New Mexico threatened and the Long-legged myotis, small-footed myotis, Yuma myotis, Occult little brown bat, fringed myotis, and Big-freetail bat are all BLM sensitive species. The bat species complex is evaluated only for Federal, state, and private lands along the PNM FCPP to West Mesa transmission line, as the listing entities do not regulate activities on tribal lands.

Distribution and Habitat: Bats are generally found roosting in cracks, crevices, and snags or on man-made structures. The habitat likely to be utilized by bats for roosting is primarily the small sandstone outcrops that are scattered throughout the central and southern portions of the FCPP to West Mesa transmission line corridor. Although at least marginal potential habitat for these species of bats existed, none was found within the ROI, nor was any bat use indicated within the FCPP to West Mesa transmission line corridor based on an extensive survey.

Potential to Occur*:* It is likely that no more than 100 acres of habitat along the entire length of the PNM FCPP to West Mesa transmission line that would be considered suitable roosting areas for these bat species. Most of the marginally suitable potential habitat would be found along the central and southern portions of the ROW.

Table 4.8-4 Potential for Occurence[1] of Special Status Species by Project Element.

Species	Status[2]	Project Element Navajo or Pinabete SMCRA Permit Area	Project Element FCPP Lease/ Deposition Area	Project Element APS T-line ROWs	Project Element PNM T-line ROWs
Mammals					
Pronghorn	NESL G3	Y	Y/Y	Y	Y
Spotted bat (Bat complex)	BLM, NMT	n/a	n/a	n/a	Y
Small-footed bat (Bat complex)	BLM	n/a	n/a	n/a	Y
Occult little brown bat (Bat complex)	BLM	n/a	n/a	n/a	Y
Fringed myotis (Bat complex)	BLM	n/a	n/a	n/a	Y
Long-legged myotis (Bat complex)	BLM	n/a	n/a	n/a	Y
Yuma myotis (Bat complex)	BLM	n/a	n/a	n/a	Y
Big-freetail bat (Bat complex)	BLM	n/a	n/a	n/a	Y
Birds					
California Condor	FE-EP, NESL G4	Y	Y/Y	Y	N
Yellow-billed cuckoo	PFT, NESL G2	N	Y/Y	N	Y
Southwestern Willow flycatcher	FE, NESL G2, NME	Y	Y/Y	Y	Y
Mexican spotted owl	FT, NESL G3	N	Y/Y	Y	N
Golden eagle	NESL G3, Hopi	Y	Y/Y	Y	Y
Red tail hawk	Hopi	n/a	n/a	Y	n/a
Ferruginous hawk	NESL G3, BLM	Y	Y/Y	Y	Y
Bald eagle	NESL G2, Hopi, NME	N	Y/Y	Y	Y
Baird's Sparrow	NMT	n/a	n/a	n/a	Y
Western burrowing owl	BLM	n/a	n/a	n/a	Y
American peregrine falcon	NMT	n/a	n/a	n/a	Y
Loggerhead shrike	BLM	n/a	n/a	n/a	Y
Gray vireo	NMT	n/a	n/a	n/a	Y
Amphibians					
Leopard frog	NESL G2	N	Y/Y	Y	Y

Species	Status[2]	Project Element Navajo or Pinabete SMCRA Permit Area	Project Element FCPP Lease/ Deposition Area	Project Element APS T-line ROWs	Project Element PNM T-line ROWs
Fish					
Zuni bluehead sucker	FE	N	N	Y	N
Colorado pikeminnow	FE, NESL G2, NME	N	Y/Y	N	Y
Razorback sucker	FE, NESL G2, NME	N	Y/Y	N	Y
Roundtail chub	FE, NESL G2, PFT, BLM, NME	N	Y/Y	N	Y
Invertebrates					
Nokomis fritillary	NESL G3	n	N/Y	Y	N
Plants					
Mancos milk-vetch	FE, NESL G3, NME	N	N/Y	Y	N
Navajo sedge	FT, NESL G3	N	N/N	Y	N
Zuni fleabane	FT, NESL G2	N	N/N	Y	N
Fickeisen plains cactus	FE, NESL G3,	N	N/N	Y	N
Mesa Verde Cactus	FT, NESL G2,	N	Y/Y	Y	Y
Gooding's onion	NESL G3	N	N/Y	Y	N
Naturita milk-vetch	NESL G4, NMSC	N	N/Y	Y	Y
Round dunebroom	NESL G3	N	N/N	Y	N
Alcove bog orchid	NESL G3	N	N/N	Y	N
San Juan milkweed	BLM, NMSC	n/a	n/a	n/a	Y
Brack's fishhook cactus	BLM, NME	n/a	n/a	n/a	Y
Aztec gilia	BLM, NME	n/a	n/a	n/a	Y
Parish's alkali grass	BLM	n/a	n/a	n/a	Y

Notes:

[1] Y – Species has potential to occur within that element, N – Species does not have potential to occur within that element, n/a – listing agency does not regulate species within that element

[2] FE-Federal Endangered, FT-Federal Threatened, PFT-Proposed Federal Threatened, NESL – Navajo Nation category, Hopi- Hopi Culturally Sensitive Species, BLM – BLM Sensitive Species, NME-New Mexico Endangered, NMT-New Mexico Threatened, NMSC-New Mexico Species of Concern

California Condor

California condor is listed as endangered under the Federal ESA and a NN NESL G4 species. It is also protected under the MBTA.

Distribution and Habitat: California condors nest in various types of rock formations including crevices, overhung ledges, and potholes. In northern Arizona, California condors are located primarily near the Vermilion Cliffs and Grand Canyon, approximately 250 miles west of the ROI. This population in northern Arizona is a "nonessential experimental population."

Potential to Occur*:* This species has not been documented in the ROI. The nearest population is the "Nonessential – Experimental" population with nesting locations occurring along the Vermillion Cliffs and the Grand Canyon, more than 250 miles from the Action Area (Arizona Game and Fish Department 2014). If a California condor were to occur within the Action Area, it is expected that the individual(s) would be a member of this population, and could occur on a rare incidental basis in the Action Area as a result of long-range foraging or reconnaissance. California condor has been recorded regularly traveling into Utah and portions of Colorado, ranging into eastern Arizona. This species would be expected to make use of large open areas for foraging and is expected to avoid developed facilities such as the FCPP, Ash Disposal Facility, and Navajo Mine operations areas. Results of the AECOM (2013f) Habitat Modeling Report identified 2.5 acres of potentially suitable nesting habitat for this species along the APS transmission ROW along portions of the 500-kV APS transmission line and 1,385 acres of foraging habitat along portions of the 500-kV APS line, south of Cameron, Arizona.

Yellow-billed cuckoo

The yellow-billed cuckoo is a Federally proposed threatened and a NESL G2 species. It is also protected under the MBTA.

Distribution and Habitat: Based on historic accounts, the species was widespread and locally common in California and Arizona and locally common in a few river reaches in New Mexico. The species was fairly common in the mid-1980s along the Rio Grande between Albuquerque and Elephant Butte Reservoir, and along the Pecos River in southeastern New Mexico. In New Mexico, nonnative salt cedar has provided habitat for approximately 1,000 pairs of yellow-billed cuckoos in historically unforested areas. The broad-scale clearing of exotic vegetation, such as salt cedar or loss of riparian vegetation, will likely result in additional loss of nesting habitat for the yellow-billed cuckoo. The occurrence of yellow-billed cuckoo is associated with relatively dense, wooded, streamside riparian habitat, with varying combinations of Fremont cottonwood, willow, velvet ash, Arizona walnut, mesquite, and salt cedar.

Potential to Occur*:* The breeding range of yellow-billed cuckoo extends into the ROI; however, no nesting yellow-billed cuckoos have been documented in the Action Area. In New Mexico, the species was historically rare statewide, but common in riparian areas along the Pecos River and Rio Grande and uncommon to common locally along portions of the Gila, San Francisco, and San Juan rivers. Historically, yellow-billed cuckoo has been documented as occurring along the San Juan River from Navajo Reservoir to the Arizona state line (New Mexico Partners in Flight 2014). BLM, Farmington Field Office documented this species at five of their San Juan River tract management parcels during 2002 and 2003 surveys between the Hogback and Bloomfield, New Mexico. The closest potential habitat for this species was documented along the San Juan River (Ecosphere 2011); however, given this species documented use of salt cedar, it could occur in the Project Area as a migrant to the Rio Puerco River, Morgan Lake, or where salt cedar and other riparian vegetation occur from May to August. Approximately 6,726 acres of potentially suitable yellow-billed cuckoo habitat was identified within the Deposition Area, but more than 30 km of FCPP (AECOM 2013c, 2014b). These reports identified this habitat as stop-over habitat that did not support nesting.

No habitat capable of supporting yellow-billed cuckoo is present within the Navajo Mine Lease Area or Pinabete Permit Area due to lack of riparian woodland habitats and perennial water resources (BNCC 2012l).

Some marginally suitable habitat for yellow-billed cuckoo occurs in the FCPP Lease Area along the riparian vegetation around Morgan Lake and within the salt cedar vegetation within the DFADA (AECOM 2013f, Appendix C). Field surveys completed for the DFADA identified that no riparian woodland habitats or perennial water sources occur within with DFADA and, therefore, this area is unlikely to support yellow-billed cuckoo (Ecosphere 2012c). Given the existing condition of riparian areas around Morgan Lake and salt cedar vegetation within the DFADA, this habitat would be considered marginal habitat as it occurs adjacent to existing disturbance and consist primarily of exotic riparian tree species. It is possible an occasional yellow-billed cuckoo could use the areas around Morgan Lake or the San Juan River as stopover habitat during migration. If they did, it is anticipated that they would only be present in the area for less than 2 weeks a year.

No suitable nesting or suitable migratory stopover habitat for yellow-billed cuckoo were identified along the APS ROWs (AECOM 2013f). Along the PNM ROWs, areas identified as potentially capable of supporting yellow-billed cuckoo habitat were identified at the Rio Puerco River (FW towers 757-758), San Juan River (FC towers 29-30), and at Morgan Lake approximately 220 meters northwest of FC towers 46-47. Each of these areas were considered to be marginal habitat as it occurs immediately adjacent to existing disturbance regimes and consisted of a dense, low-growing Russian olive trees or salt cedar and lacked overstory structure that yellow-billed cuckoo usually prefers. Suitable habitat along the San Juan River and Morgan Lake were subject to protocol surveys in June and July 2012 (Marron and Associates 2012b). No yellow-billed cuckoos were identified during these surveys.

Southwestern Willow flycatcher

Southwestern willow flycatcher is listed as Federal and New Mexico endangered species, and a NESL G2 species. It is also protected under the MBTA.

Distribution and Habitat: The southwestern willow flycatcher is a riparian obligate bird found in cottonwood/willow and tamarisk vegetation communities along rivers and streams in the desert southwest. Southwestern willow flycatchers primarily occur along or near rivers, swamps, wetlands, lakes, areas supporting moist soils, and riparian habitats consisting of Geyer's willow (*Salix geyeriana*), coyote willow (*Salix exigua*), Goodding's willow (*Salix gooddingii*), boxelder (*Acer negundo*), salt cedar (*Tamarix* sp.), Russian olive (*Elaeagnus angustifolia*), and live oak (*Quercus agrifolia*) for nesting. Southwestern willow flycatcher forage on insects throughout the year and some small berries during fall. They have been observed as occasional migrants along the San Juan River and near Morgan Lake.

Potential to Occur*:* Some marginal, stop-over habitat for southwestern willow flycatcher occurs within the ROI, but none of this habitat is suitable for nesting. Within the mine permit areas marginally suitable migratory stopover habitat is confined to Cottonwood Arroyo, Chinde Wash, and other ephemeral waterways in widely scattered patches of tamarisk (*Tamarix* sp.) in Pinabete Arroyo and at a small stock pond in the southern portion of the permit area. These areas lack the vegetative structure and density to support breeding flycatchers and the habitat lies more than 100 meters from water, which does not meet the hydrologic parameter for suitable habitat. Because of the marginal quality and decadent tamarisk stands found in the survey area, no species-specific or protocol surveys for southwestern willow flycatcher were conducted by NTEC/MMCo for this baseline evaluation. No southwestern willow flycatcher habitat occurs within the FCPP plant area, due to its industrialized nature. Marginal stopover habitat occurs around Morgan Lake and approximately 85 acres of potential, but poor quality, habitat for southwestern willow flycatcher occurs within the DFADA survey area (Ecosphere 2012a). This habitat includes suitable, but poor quality, migratory stopover habitat in the ephemeral drainages located in the southern portion of the ash disposal action area, in areas just east of the Chaco River, and in the dense salt cedar stands located at the base of the existing Ash Disposal Area. Because of the poor quality and limited quantity of this habitat and the lack of permanent water nearby, these areas do not presently support nesting of this species. No southwestern willow flycatcher has been observed using this habitat. Habitat modeling identified approximately 34 acres of marginal quality stop-over habitat along the

transmission lines and within 30 km of FCPP (AECOM 2013f), and approximately 6,726 acres of potentially suitable southwest willow flycatcher habitat was identified within the Deposition Area, but more than 30 km of FCPP (AECOM 2013c, 2014b). No suitable breeding habitat was identified during the field surveys (AECOM 2013f). Along the PNM ROWs, potential nesting habitat was identified within the FCPP to San Juan transmission line within floodplain of the San Juan River and 12 wetlands areas distributed along the transmission line (Marron 2012b), and marginal habitat is located near the Rio Puerco to West Mesa transmission line between poles FW 757-758 along the Rio Puerco River(Marron 2013). During original construction these ROWs were cleared of woody vegetation and have been maintained as such through the operational life of the transmission corridors. In their present condition these ROWs generally lack the vegetative structure and density to support breeding flycatchers, with the exception of areas between transmission structure spans which are inaccessible. Surveys completed in the transmission corridors identified willow flycatcher habitat; however this species was not observed during surveys. This species may occur as a migrating visitor or nest within limited areas of these transmission ROWs.

Mexican spotted owl

Mexican spotted owl is listed as Federal threatened species and a NESL G3 species. It is also protected under the MBTA.

Distribution and Habitat: Mexican spotted owl occurs in disjunct, isolated forested mountains and canyonlands throughout the southwestern U.S. and Mexico. It ranges from Utah, Colorado, Arizona, New Mexico, and western portions of Texas south into several states of Mexico. The Mexican spotted owl are residents of old-growth or mature forests that possess complex structural components or narrow canyons supporting riparian or conifer communities (USFWS 2012b).

Potential to Occur: This species has not been documented in the ROI. Detailed review of Mexican spotted owl protected activity centers identified a site approximately 75 miles northeast of the Action Area (USFWS 2012b). Surveys completed for BLM Farmington Field Office indicates that no nesting Mexican spotted owls occur within their management territory (BLM 2003b), which encompasses both the Navajo Mine and Deposition Area.

Suitable habitat for Mexican spotted owl does not occur within the mine permit areas or the FCPP lease areas. Previous surveys completed as a result of permitting for the Navajo Mine identified the nearest potential Mexican spotted owl habitat as occurring along the New Mexico-Arizona state line within the Chuska Mountains 20 miles west of the FCPP. Habitat modeling (AECOM 2013f) identified approximately 34 acres of suitable habitat along the APS transmission corridor; however, this habitat occurs in scattered areas outside, but adjacent to, the APS transmission line ROWs. An additional 800 acres of potential habitat was identified within the Deposition Area, but more than 30 km from FCPP. While this species is undocumented within the Action Area, this species could occur as a migrating visitor. If Mexican spotted owls were to occur within the Action Area, it is expected, due to the lack of suitable habitat, that the individual(s) would be migrating through in search of more favorable habitats outside the Action Area.

Golden eagle

The golden eagle is a NESL G3 species and a Hopi culturally sensitive species. It is also protected under the Federal BGEPA and MBTA.

Distribution and Habitat: Golden eagles are found year round throughout northwestern New Mexico. They typically inhabit mountainous or hilly terrain, hunting over open country. On the Navajo Nation, golden eagle nests most often occur on steep cliff ledges, usually ≥ 100 feet in height; although shorter cliffs may also be used (Ecosphere 2013). In other parts of their range, golden eagles may nest in large trees, man-made structures, and rarely on the ground. Nest sites are adjacent to open habitats that support preferred prey populations such as black-tailed jackrabbits, desert cottontails, reptiles, and prairie dogs. Golden eagle territories in the west typically range from 12 to 20 square miles (Ecosphere 2013).

Potential to Occur: The relatively open shrublands and mild terrain of the mine permit areas, FCPP Lease Area, and APS and PNM transmission line ROWs provide potential foraging habitat for golden eagles. Prairie dog colonies and numerous other rodents located within the analysis area provide a prey base for golden eagles. Power line poles, numerous rock escarpments, bluffs, and formations in and adjacent to the permit areas serve as potential perches. In 2012, an active golden eagle nest with one nestling was documented outside the mine permit area, west of the boundary between Area IV South and Area V. Two previous records of nesting golden eagles within 5 miles of the Navajo Mine Lease Area have been made since raptor monitoring within the Navajo Mine Lease Area was initiated in the early 1990s. One nest was found within the analysis area near Area V in the mid-1990s. The other nest was found atop the Hogback monocline, several miles west of the Navajo Mine Lease Area. Because golden eagle home ranges are so large and numerous records exist of golden eagles nesting in San Juan County, it is likely that eagles occupying territories within 20 miles could utilize the permit areas for foraging. Potential for the species to nest within the mine permit areas is limited. No golden eagles or nests were recorded within the FCPP survey or transmission line ROW areas during the field studies by APS. Five previously known nest sites occur within 0.6 to 1.5 miles of the PNM FCPP to West Mesa transmission line ROW. Golden eagles have also been observed flying over the FCPP to San Juan Switchyard transmission line near the FCPP.

Red-tailed hawk

The red-tailed hawk is a Hopi Cultural Sensitive species and is protected under one Federal statute MBTA. Impacts are evaluated only for the APS FCPP to Moenkopi transmission line ROW, which crosses Hopi Lands.

Distribution and Habitat: This species is common within the Navajo Nation and along the transmission line ROWs. It will occupy almost all habitats from deserts to mountains and open grasslands to forested foothills. It nests in trees, cliffs, and man-made structures such as power line structures.

Potential to Occur: The relatively flat terrain and open vegetation along the FCPP to Moenkopi transmission line ROW provide potential foraging habitat for red-tailed hawks. Prairie dog colonies, ground squirrels, and small mammals provide a prey base for hawks within and adjacent to the ROW area. Potential nesting habitat is provided by the transmission poles, and trees and cliffs within and adjacent to the ROW.

Ferruginous hawk

The ferruginous hawk is a NESL G3 species, a BLM sensitive species and also protected under the Federal MBTA statute.

Distribution and Habitat: Ferruginous hawks occur year round within the ROI, inhabiting dry, flat, or rolling grasslands and desert scrub (Ecosphere 2013). This species prefers elevated nest sites; nests on the Navajo Nation are most often on rock pinnacles, buttes, or short cliffs. Nests have also been documented in juniper (*Juniperus* spp.) trees, transmission-line towers, and on the ground (Ecosphere 2013). Nest sites are adjacent to habitats supporting populations of preferred prey species such as cottontails, jackrabbits, prairie dogs, and ground squirrels.

Potential to Occur: The relatively flat terrain and open vegetation in the mine permit areas, FCPP Lease Area, and APS and PNM transmission line ROWs provide potential foraging habitat for ferruginous hawks. Prairie dog colonies provide a prey base for ferruginous hawks within and adjacent to the analysis area. Badlands in the analysis area offer potential nesting habitat for ferruginous hawks. Ferruginous hawk populations within and in proximity to the Navajo Mine SMCRA Permit Area have been monitored annually since 1993. Since then, 2 to 12 nests have been documented as active in and adjacent to the Navajo SMCRA Mine Permit Area annually. One ferruginous hawk nest, located just beyond the Navajo Mine SMCRA Permit Area southeast of Area IV North, was active in 2009, 2010, and 2011, but not in 2012. Two historical nests southwest of Area IV North are within the Navajo Mine SMCRA Permit Area.

One of the nests has never been recorded as active; the second nest was last active in 1998 and in 1999. Finally, a third historical territory occurs east-northeast of Area IV North within the Navajo Mine SMCRA Permit Area, but none of the nests in that territory has been active since 1993. Recorded home ranges of ferruginous hawks range from 3.7 square miles to 4.7 square miles (Ecosphere 2013). Ferruginous hawks may forage and nest within and beyond the analysis area.

Two active ferruginous hawk territories lie within 1 mile of the surveyed FCPP area or based on a review of other studies completed by APS in the vicinity. One record exists of a ferruginous hawk nest on a crossarm of one of the APS transmission towers. Six nests of ferruginous hawks were reported on PNM transmission towers, as well as numerous observations of birds with five occurring on Navajo Nation lands. The only ferruginous hawk next on BLM or private lands was located near the southern terminus of the FCPP to West Mesa ROW in Sandoval County, New Mexico.

Bald eagle

The bald eagle is a NESL G2, New Mexico Endangered, and Hopi Cultural Sensitive species. It is protected under two Federal statutes, the MBTA and BGEPA.

Distribution and Habitat: Bald eagles typically nest within trees in forested areas, especially mature and old-growth stands, adjacent (usually <2 km) to large bodies of water with suitable forage of waterfowl and fish; it rarely uses cliff faces adjacent to large bodies of water.

Potential to Occur: Bald eagles are occasionally observed near the most suitable habitat along the San Juan River or Morgan Lake. Bald eagles are likely to be only migrants through the area. They are not known to occur within other areas of the ROI, and these areas do not provide suitable habitat for this species.

Baird's Sparrow

The Baird's sparrow is a New Mexico threatened species and is protected under the MBTA. This species is evaluated for Federal, state, and private lands located along the PNM ROWs.

Distribution and Habitat: Identified in a variety of shrubby short-grass habitats in northern New Mexico from desert grassland, prairies, and mountain meadows. This species is considered a migrant and may winter in portions of northern New Mexico. Breeding occurs in the northern Great Plains region.

Potential to Occur: Wintering habitat is limited to portions of the FCPP to West Mesa Switchyard transmission line ROW near poles FW 609-611 and FW 637-639. The corridor lacks suitable habitat in other areas and the species is not likely to occur in these other area.

Western Burrowing Owl

The western burrowing owl is a BLM sensitive species and is also protected by the MBTA. This species is evaluated for Federal, state, and private lands located along the PNM ROWs.

Distribution and Habitat: The western burrowing owl is found throughout the western U.S. Its preferred habitat in New Mexico includes plains, treeless valleys, and mesas. It occupies burrows dug by various small mammals including prairie dogs, ground squirrels, and badgers. They will occupy rural as well as urban settings like airports and baseball fields.

Potential to Occur: Potential habitat for this species occurs throughout the FCPP to West Mesa Switchyard transmission line ROW corridor; however, only one burrowing owl nest site was found in a prairie dog colony on Navajo Nation lands during field surveys. Current population numbers are down for this species in New Mexico, so if the population was to increase, additional habitat could become occupied.

American Peregrine Falcon

The American peregrine falcon is a New Mexico threatened species and is also protected by the MBTA. This species is evaluated for Federal, state, and private lands located along the PNM ROWs.

Distribution and Habitat: In New Mexico, this species breeds in mountainous areas and nests on tall, steep, rocky cliffs associated with forested or woodland pockets and in close proximity to water. It preys on song birds and waterfowl, taking its prey on the wing. They have been observed near the FCPP.

Potential to Occur: This species is known to breed on the Navajo Nation within 1 mile of poles FW 1-12. The species may also occur in other portions of the San Juan basin where suitable cliff habitat is found. No nests of this species were found on any of the FCPP to West Mesa transmission structures. Potentially suitable habitat along the FCPP to West Mesa Switchyard transmission line ROW would be between poles FW 576-731 where sandstone ridges and mesas exist.

Loggerhead shrike

The loggerhead shrike is a BLM sensitive species and is also protected by the MBTA. This species is evaluated for Federal, state, and private lands located along the PNM ROWs.

Distribution and Habitat: Found in open grasslands, deserts, riparian areas and woodlands. Nests in hedgerows, shrubs, and trees, and often uses bard wire fences for perching and hunting. Its habitat ranges from low elevation agricultural to montane meadows and is considered a permanent resident in New Mexico.

Potential to Occur: Large portions of the FCPP to West Mesa Switchyard transmission line ROW can be considered potential habitat for this species. However, multiple surveys over much of the corridor resulted in the observance of only one bird and it was not on BLM lands.

Gray vireo

The gray vireo is a New Mexico threatened species and is also protected by the MBTA. This species is evaluated for Federal, state, and private lands located along the PNM ROWs.

Distribution and Habitat: The gray vireo is found through much of the western U.S. and northern Mexico. It utilizes juniper savanna and pinyon-juniper woodland habitats. In New Mexico, this species is only found seasonally during the months of April to September.

Potential to Occur: Potential gray vireo habitat is scattered along the FCPP to West Mesa Switchyard transmission line ROW, with the best habitat occurring between poles FW 257-265, FW 324-337, FW 714-736, and FW 918-924. Five occupied territories were discovered during the field surveys, located on BLM lands at the northern portion the ROW.

Northern Leopard frog

The northern leopard frog is a NESL G2 species.

Distribution and Habitat: The northern leopard frog range includes the northern tier U.S. and, western Canadian provinces and is considered uncommon in a large portion of its range in the western U.S. The northern leopard frog breeds in wetlands usually with permanent water and aquatic vegetation (especially cattails), ranging from irrigation ditches and small streams to rivers, and small ponds and marshes to lakes or reservoirs (USFWS 2014a)

Potential to Occur: Results of the habitat model identified 12 acres of potential habitat within the APS transmission ROW along wetlands, waterbodies, and rivers including intermittent riparian habitat was identified at the Little Colorado River. Potential habitat was also identified as occurring within the 30-km habitat model study area and Deposition Area, but not located within the developed areas around the FCPP and DFADA (AECOM 2013f,c). Habitat capable of supporting this species was identified along

portions of the San Juan River, and in wetlands and ponds within the PNM FCPP to San Juan transmission line ROW (Marron 2012b). This species has the potential to occur in all areas identified as potential habitat.

Colorado Pikeminnow

The Colorado pikeminnow is Federally and New Mexico endangered species, and a NESL G2 species.

Distribution and Habitat: The Colorado pikeminnow is a cyprinid, endemic to large and medium sized rivers in the Colorado River Basin. Its current distribution includes portions of the Green, Yampa, Little Snake, White, Price and lower Duchesne, Gunnison, Delores, and upper Colorado rivers, as well as the San Juan River. Within the San Juan, it has been observed from Lake Powell, as far upstream as Farmington. Adults require pools, deep runs and eddy habitats maintained by high spring flows. These flows flush sediments from spawning areas and maintain channel and habitat diversity, including side channel and backwater areas that are the primary rearing habitat of larvae and juveniles. The species can make extended migrations of hundreds of kilometers to spawn. Larval fish are moved downstream by currents and find suitable rearing areas in backwaters and side channels.

Potential to Occur: The San Juan River Recovery Implementation Program has documented Colorado pikeminnow in the San Juan River from upstream of the Animas River confluence downstream to Lake Powell (Ryden 2012, Gilbert et al. 2012). The PNM FCPP to San Juan Switchyard ROW crosses this habitat. Suitable habitat does not occur within other elements of the project, but their habitat lies within the Deposition Area.

Razorback sucker

The razorback sucker is a Federal and New Mexico endangered species and is a NESL G2 species.

Distribution and Habitat: The razorback sucker is a member of the sucker family, *Catostomidae*, and is endemic to the Colorado River Basin. Its current distribution includes portions of the Green, Yampa, White, Duchesne, upper Colorado, Gunnison, and San Juan River in the upper Colorado River basin. It is also found in Lake Mohave, Lake Mead, and in the lower Colorado River from Lake Havasu to Davis Dam, and has been stocked into the Verde and Salt rivers in the lower Colorado River basin. Within the San Juan, it has been observed from Lake Powell, as far upstream as the PNM weir. Adults use deep runs, eddies, backwaters, and flooded off channel area in the spring; runs and pools during the summer, and low-velocity runs, pools and eddies in the winter. This species make long migrations to spawn, and young are dispersed downstream by flow. Young fish require low velocity, warm, shallow habitats, associated with backwaters, tributary mouths, and side channels.

Potential to Occur: The San Juan River Recovery Implementation Program has documented razorback sucker in the San Juan River from upstream of the Animas River confluence downstream to Lake Powell (Ryden 2012, Gilbert el al. 2012). The PNM FCPP to San Juan Switchyard ROW crosses this habitat. Suitable habitat does not occur within other elements of the project, but their habitat lies within the Deposition Area.

Roundtail chub

The roundtail chub is a NESL G2 species, a New Mexico endangered species, and a BLM sensitive species. This species is not listed under the Federal ESA in the ROI, but the lower Colorado River basin district population segment has been a candidate species for listing under the Federal ESA since 2009. Critical habitat has not been designated.

Distribution and Habitat: The roundtail chub is a cyprinid, endemic to the Colorado River basin. It historically occurred in two subpopulations, one in the upper Colorado River and the other in the Lower Colorado River, with a gap of some 275 miles between the two populations (74 Federal Register 32351). The species typically inhabits riverine habitats, where it is generally found in deep pools and eddies along

large streams. They are often associated with cover elements. They are tolerant of a wide range of temperatures, with an upper thermal tolerance of over 36°C. Spawning occurs the spring and early summer in areas of slow to moderate water velocity. Individuals may live up to 7 years. The species is omnivorous feeding on aquatic and terrestrial invertebrates, detritus, fish, algae and aquatic plants.

Potential to Occur*:* The San Juan River Recovery Implementation Program has documented a single roundtail chub in the San Juan River in sampling in 2011, just downstream of McElmo Creek. It is likely that this fish was stocked on McElmo Creek by the Colorado Division of Parks and Wildlife (Gilbert et al. 2012). This collection was the first of a roundtail chub on the San Juan River since 1998.The species may occur in the action area in low numbers.

Zuni bluehead sucker

The Zuni bluehead sucker is federal and New Mexico endangered species, and Arizona Species of Special Concern, and BLM Sensitive species. It is not currently listed by the Navajo Nation, but there are plans to list it as endangered in the near future (C. Smith pers. comm. 2014).

Distribution and Habitat: The Zuni bluehead sucker occupies a few streams in eastern New Mexico and western Arizona. The final listing package (USFWS 2014b) concluded that the species occurs in the Zuni River watershed in New Mexico (well outside of the ROI) and the Kinlichee Creek watershed in eastern Arizona. The Zuni bluehead sucker is a fusiform fish with a sub-terminal mouth. Adults are generally less than 20.3 cm (8 inches) long. They occupy pool and pool-run habitats in streams with clean, perennial water flowing over hard substrates. They are rare in areas dominated by sand or silt. The species is most commonly observed in areas of low velocity (< 0.1 meter per second) and in depths of 20 to 50 cm. The species feeds predominantly on algae attached to rocks. They require clean gravel substrate for spawning.

Potential to Occur*:* The APS FCPP to Cholla transmission line crosses over Kinlichee Creek just southwest of the town of Kinlichee. Zuni bluehead sucker have been observed to occupy this section of the creek (C. Smith pers. comm. 2014). The transmission towers on both banks are located approximately 1,000 feet from the creek at this location. The line is more than 0.5 mile from the creek and its tributaries throughout the remainder of the Kinlichee Creek watershed.

Nokomis fritillary

The Nokomis fritillary is a NESL G3 listed species

Distribution and Habitat: The Nokomis fritillary range extends across eastern Utah, western Colorado, and northern Arizona and New Mexico. On Navajo Nation, known from <10 populations in Chuska Mountains and Defiance Plateau where appropriate habitat is present. This species occurs in perennially wet meadows associated with seeps, springs, and streams variable in size, in relatively open areas dominated by grasses and with few shrubs, and show a preference of habitats occupied by violets (*Viola nephrophylla*) which are a necessary component of habitat as the host plant for larvae.

Potential to Occur*:* Nokomis fritillary habitat was identified along the APS transmission ROW and includes 6.9 acres of modeled habitat (AECOM 2013f). This species may occur as a resident or migrating visitor to areas of the APS transmission ROW. It is not found in other areas within the ROI.

Mancos Milk-vetch

The Mancos milk vetch is Federally listed as endangered, a New Mexico endangered species, and a NESL G3 species.

Distribution and Habitat: The Mancos milk-vetch forms highly localized populations from 4 to 20 acres in size. It is typically found on large, nearly flat sheets of exfoliating whitish-tan colored sandstone, in small depressions and sand-filled cracks on or near ledges and mesa tops in slickrock communities of Point

Lookout and Cliffhouse sandstones. The species only occurs in the Four Corners area including San Juan County, New Mexico, and adjacent Montezuma County, Colorado. Within the Navajo Nation, the species is found within San Juan County, New Mexico, from Palmer Mesa east to the Hogback area and south of the San Juan River to a hogback east of Little Water. It is potentially found within the Navajo Nation in the Four Corners area on all slickrock formations of Point Lookout and Cliffhouse sandstones and possibly other related members (AECOM 2013g).

Potential to Occur***:*** Six potential areas of suitable habitat were identified along the APS ROWs (AECOM 2013f); two along the FCPP to Moenkopi transmission line ROW and four along the FCPP to Cholla transmission line ROW. Field biologists surveyed these locations in 2013 and 1 population consisting of 8 colonies with 15 individuals total was found around MP 18 of the FCPP to Cholla ROW. Some of the colonies covered a large area but only had approximately 20 percent living plants. Suitable habitat has not been identified in other project elements, nor has it been observed in those other elements.

Navajo sedge

The Navajo sedge is a Federally threatened species and a NESL G3 species.

Distribution and Habitat: This species occurs in San Juan County, Arizona, along the Navajo Creek drainage in Coconino County, east to the Tsegi Canyon Watershed in Navajo County, south to the Rock Point/Mexican Water and Canyon de Chelly National Monument, Apache County Arizona, and in northern Arizona and southeastern Utah, especially in hanging gardens of the San Juan River drainage and Lake Powell (AECOM 2013f). Habitat for this species includes silty soils at shady seeps and springs, found in seeps and hanging gardens, on vertical sandstone cliffs and alcoves.

Potential to Occur*:* The habitat model identified a total of 58.8 acres of potential habitat along the APS transmission line ROW (AECOM 2013f). This species may occur within the APS transmission line ROW along steep canyons which are completely inaccessible by foot or vehicle traffic. This species does not occur elsewhere in the ROI, nor does suitable habitat for this species.

Zuni fleabane

The Zuni fleabane is a Federally threatened species and a NESL G2 species.

Distribution and Habitat: Zuni fleabane is known to occur in 3 locations in the Zuni Mountains of the Cibola National Forest near Fort Wingate, 28 locations in the Sawtooth and northwest Datil mountains, at least 3 locations in the Chuska Mountains, and in small scattered populations on the Colorado Plateau in Catron, McKinley, and San Juan counties, New Mexico and Apache County, Arizona (New Mexico Rare Plants 2014). Zuni fleabane grows in zones of Chinle shale and associated soils in sparsely vegetated areas within the pinyon-juniper woodland association at 2,190 to 2,499 meters (7,189 to 7,870 feet) elevation. The Zuni Mountain population is found on loose, decaying slopes of Chinle shale geologic formations, and the Datil plants occur in Baca geologic formations (USFWS 1984b).

Potential to Occur: The habitat model identified a total of 11.8 acres of potential habitat along the hillsides of the Chuska Mountains within the APS transmission line ROW (AECOM 2013f). Biologists surveyed these potential habitat locations in 2013, and confirmed that potential Zuni fleabane habitat was present in these locations, but no individual of the target species was observed during field surveys. This species does not occur elsewhere in the ROI, nor does suitable habitat for this species.

Fickeisen Plains cactus

The Fickeisen's Plains cactus is Federally listed as endangered and also a NESL G3 species.

Distribution and Habitat: The Fickeisen’s Plains cactus occupies soils overlain by Kaibab Limestone in Navajoan desert or Great Plains Grassland, along canyon rims and flat terraces along washes, typically with limestone chips scattered across the surface. Its range in Coconino County, Arizona is from House

Rock Valley and Gray Mountain to the Little Colorado and Colorado rivers. Within the Navajo Nation, the species is found from Gray Mountain to southwest of Bitter Springs, Coconino County. It also is potentially found on the Navajo Nation from Marble Canyon to Gray Mountain (AECOM 2013g).

Potential to Occur*:* APS ROW: Five potential habitat locations for the Fickeisen's Plains cactus were identified by the habitat assessment model and projected to occur along the FCPP to Moenkopi transmission line ROW. Biologists surveyed these potential habitat locations in 2013. Approximately 11.5 miles of potential habitat along the 500-kV line ROW was surveyed, with about 6.5 miles of moderate to low quality habitat and 5 miles of low quality habitat. No individuals of the target species were observed during field surveys. Critical habitat has been proposed for this species, but does not occur within the Action Area. The nearest occurrence of proposed critical habitat is about 4 miles from the FCPP to Moenkopi line ROW. This species does not occur elsewhere in the ROI, nor does suitable habitat for this species.

Mesa Verde Cactus

Mesa Verde cactus is Federally listed as threatened and is a NESL G2 species.

Distribution and Habitat: Mesa Verde cactus occurs in San Juan County, New Mexico and Montezuma County, Colorado. It is generally found in salt-desert scrub communities, typically in the Fruitland and Mancos shale formations. It is most frequently found on the tops of hills or benches and along slopes.

Potential to Occur*:* Surveys completed by APS in April 2012 identified approximately 204 acres of potential habitat for this species in DFADA, based on evaluation of soil characteristics and vegetation community types in the survey area. Presence/absence pedestrian surveys for this species were completed in suitable habitat during the blooming period by APS biologists and no Mesa Verde cactus was recorded. Ten potential habitat locations were identified by the habitat model along the FCPP to Moenkopi transmission line ROW and two along the FCPP to Cholla transmission line ROWs (AECOM 2013f). Field biologists surveyed these locations in April 2013 and they did not find any of the target species within the 10 modeled habitat areas. Potential habitat for Mesa Verde cactus occurred along two portions of the FCPP to San Juan Generating Station transmission line corridor between poles FC 38-42 and FC5-18. Four Mesa Verde cactus population sites were found scattered between poles FC 13-18. No suitable habitat for Mesa Verde cactus occurs within the mine lease areas or the PNM FCPP to West Mesa ROW.

Gooding's onion

The Gooding's onion is a NESL G3 listed species.

Distribution and Habitat: Gooding's onion occurs in Apache, Greenlee, and Pima counties, Arizona, and McKinley and San Juan counties New Mexico. This species occurs in spruce-fir forests and mixed conifer forests in the Chuska Mountains and also under Gambel oak thickets interspersed with aspen, dogwood, and Douglas fir; in moist, shady canyon bottoms and north-facing slopes, often along streams.

Potential to Occur: Gooding's onion habitat was identified along the APS transmission ROW and includes 6.5 acres of verified habit (AECOM 2013f); however, none of this species was identified within the ROW as a result of confirmation field surveys. This species does not occur within other elements of the ROI.

Naturita milk-vetch

The Naturita milk-vetch is a NESL G3 species and a New Mexico Species of Concern.

Distribution and Habitat: The Naturita milk-vetch is found in sand-filled pockets of sandstone slickrock and rimrock pavement along canyons in the piñon juniper zone. The species range includes McKinley and San Juan counties, New Mexico, southwestern Colorado, and southeastern Utah. Within the Navajo Nation, the species is known from the Hogback, San Juan County, to the Pinetree Canyon area, McKinley

County, New Mexico. Within the Navajo Nation, potential habitat is found north of Interstate 40 in McKinley County to the Hogback near the FCPP in San Juan County, New Mexico (AECOM 2013g).

Potential to Occur: The habitat model identified three potential areas of suitable habitat along the FCPP to Moenkopi transmission line ROW and four areas along the FCPP to Cholla transmission line ROW. Field biologists surveyed these locations in 2013 and none of the target species were found. No suitable habitat for this species occurs within the mine or FCPP lease areas or along the PNM transmission line ROWs.

Round dunebroom

The round dunebroom is a NESL G3 species.

Distribution and Habitat: This Arizona-endemic plant is known from only a few small areas along creeks flowing into the Little Colorado River in Coconino and Navajo counties, Arizona (AECOM 2013g). Its habitat consists of dunes, loose sand, sandstone ledges, and rimrock. The round dunebroom generally occurs in exposed habitats in the semiarid environment of the Great Basin Desert. Its known distribution within the Navajo Nation is between Moenave and Willow Springs, Coconino County, Arizona. Potential habitat within the Navajo Nation includes suitable habitats between Gap in Coconino County, Arizona, and Petrified Forest National Park in Apache County, Arizona (AECOM 2013g).

Potential to Occur*:* The habitat model identified three potential areas of suitable habitat along the FCPP to Moenkopi transmission line ROW. Field biologists surveyed these locations in 2013 and none of the target species were found. No suitable habitat for this species occurs within the mine or FCPP lease areas or along the PNM transmission line ROWs.

Alcove bog orchid

The Alcove bog orchid is a NESL G3 species.

Distribution and Habitat: Known distribution on the Navajo Nation includes headwaters of Oljeto Wash, Tsegi Canyon watershed, hanging gardens surrounding Navajo Mountain, Chinle Wash and drainages in Apache, Coconino, and Navajo counties Arizona. Habitat includes seeps, hanging gardens, and moist stream areas from the desert shrub to pinion-juniper and ponderosa pine/mixed conifer communities.

Potential to Occur: The habitat model identified 6.8 acres of potentially suitable habitat along the APS transmission line ROW; however, this species was not documented during field surveys. Suitable habitat for this species does not occur within other areas of the ROI.

San Juan milkweed

The San Juan milkweed is a BLM sensitive species and New Mexico species of concern. This species is evaluated for Federal, state, and private lands located along the PNM ROWs.

Distribution and Habitat: San Juan milkweed usually occurs in sandy loam soils in coniferous woodlands, juniper savannas, or Great Basin desert scrub communities at 5,000- to 6,200-foot above mean sea level elevations in San Juan County, New Mexico. Suitable habitat is likely to occur along the entire FCPP to West Mesa Switchyard transmission line corridor.

Potential to Occur: *T*wo populations observed on the northern end of the FCPP to West Mesa line near poles FW 260 and FW 269 on state and BLM land, within the Navajo Nation and at the southern limits of its known range. Suitable habitat for this species does not occur within other areas of the ROI.

Brack's fishhook cactus

The Brack's fishhook cactus is a BLM sensitive and New Mexico endangered species. This species is evaluated for Federal, state, and private lands located along the PNM ROWs.

Distribution and Habitat: This species occurs primarily on clay soils or sandy clay strata in sparse shadscale scrub at 5,000- to 6,000-foot above mean sea level elevations and often occurs in similar habitat as Aztec gilia.

Potential to Occur: Suitable habitat for Brack's fishhook cactus occurred in scattered areas along the northern half of the FCPP to West Mesa Switchyard transmission line corridor but no populations were found during field surveys. This segment of line is south of any known range for this species but potential exists for occurrence in areas of suitable habitat.

Aztec gilia

The Aztec gilia is a BLM sensitive and New Mexico endangered species. This species is evaluated for Federal, state, and private lands located along the PNM ROWs.

Distribution and Habitat: This species is known to occur only in San Juan County, New Mexico and can be found at 5,000- to 6,400-foot above mean sea level elevations in sandy-clay outcrop soils in salt desert scrub communities in similar habitat as Brack's fishhook cactus.

Potential to Occur: Suitable habitat for Aztec gilia occurred in scattered areas along the northern half of the FCPP to West Mesa Switchyard transmission line corridor, but no populations were found during field surveys. This segment of line is south of any known range for this species, but potential exists for occurrence in areas of suitable habitat.

Parish's alkali grass

The Parish's alkali grass is a BLM sensitive species. This species is evaluated for Federal, state, and private lands located along the PNM ROWs.

Distribution and Habitat: Parish's alkali grass occurs within a very specific type of wetland soils in areas that have shallow groundwater that moves to the surface, evaporates, and leaves behind an alkali crust. It has been documented in alkaline seeps and seasonally wet areas such as washes.

Potential to Occur: Two arroyos on the northern quarter of the FCPP to West Mesa Switchyard transmission line have marginal habitat for this species but they are on Navajo Nation land. No other suitable habitat and no populations of this species were found during surveys so it is unlikely to occur.

4.8.3 ROI Changes to Special-Status Species 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 effects of continuing operations and the Proposed Actions are compared in the following section. Neither of these completed Federal Actions would change the affected environment for special-status species.

4.8.4 Environmental Consequences

This section describes impacts to special-status species that have a likelihood of occurrence within the ROI and resulting from each of the Project components. Impacts were determined through a comparison of the type and anticipated area of disturbance, available habitat, and potential for species to occur within that area. Potential impacts related to atmospheric emissions from the FCPP were evaluated based on a review of the results of deposition modeling for the FCPP and the ERAs prepared for the Project (AECOM 2013c,h), described in detail in Section 4.6. The following criteria are used to determine impacts:

- *Major.* Effects that would limit recovery of a Federally listed species; result in the lethal take of individuals of listed species; or impair the reproductive success of a listed species.
- *Minor.* For Federally listed species, any disturbance that causes an individual to move from suitable habitat, as long as the movement occurs outside of breeding season. Minor losses or disturbance of foraging habitat.
- *Negligible.* Impacts of less magnitude, but still predictable under current technology (e.g., computer models) or measurable under commonly employed monitoring technology.
- *None.* No adverse effects are predicted, or effects are below a level that can be measured.

4.8.4.1 Alternative A – Proposed Action

Navajo Mine

The special status species with the potential to occur in the Navajo Mine SMCRA Permit Area and the Pinabete Mine SMCRA Permit Area are indicated in Table 4.8-4. The potential for Project-related impacts to these species is discussed below.

Mammals

Pronghorn

Suitable habitat for this species occurs in the general vicinity of the mine lease areas; however, this species has not been observed during annual surveys and is not expected as a regular visitor or resident to areas around developed areas and operational facilities within the FCPP Lease Area. Pronghorn are likely to avoid the FCPP and DFADA during operational activities due to noise associated with human activity, machinery operation, and vehicular traffic and thus are unlikely to be directly impacted.

Birds

California Condor

California condor could occur as infrequent visitors to the Navajo Mine or Pinabete SMCRA permit areas during long range reconnaissance surveys. The mine may provide some suitable forage habitat for this species, but does not provide suitable breeding habitat. California condor would be expected to avoid active work areas. Due to the infrequency with which condor would be expected to be present and their avoidance of active work areas, mining operations are not likely to impact this species.

Southwestern willow flycatcher

Only marginally suitable migratory stopover habitat is present; it is confined to Cottonwood Arroyo, Chinde Wash, and other ephemeral waterways as well as in widely scattered patches of tamarisk (*Tamarix* sp.) in Pinabete arroyo and at a small stock pond in the southern portion of the permit areas. These areas lack the vegetative structure and density to support breeding flycatchers, and do not meet the hydrologic parameter for suitable habitat and, thus, are not likely to be utilized except as a migratory stopover for short periods.

Implementation of the Proposed Action would result in permanent impacts to 5.0 acres of waters of the U.S. As described in Section 4.5, the USACE will consider these impacts in its decision to approve a CWA 404 Individual Permit. In addition, consistent with USACE guidance provided in the Final Compensatory Mitigation Rule (April 10, 2008), Regulatory Guidance Letter No. 02-2 (December 24, 2002), and the Memorandum of Agreement Between the EPA and USACE Concerning the Determination of Mitigation Under the Final Compensatory Mitigation Rule, the USACE will include compensatory mitigation requirements as part of the 404 Permit for the Navajo Mine that are designed to compensate

for the loss of jurisdictional areas in the Project Area, so as to ensure no net loss of functions and services of waters of the U.S. as a result of the permitted activity.

To offset the loss of functionality impacts of waters of the U.S. during active mining, MMCo has proposed the re-establishment of native riparian habitat and the creation of wetland habitat. Because MMCo's impacts to waters of the U.S. would occur incrementally per year of operation, the USACE is working with MMCo to prepare a phased approach when addressing compensatory mitigation requirements. Among the compensatory mitigation measures proposed, are: reestablishing wetland habitat in a section of the San Juan River; removing exotic species (e.g., tamarisk, knapweed, and Russian olive); and planting riparian species along the banks of the river. Given the poor quality of the existing habitat for southwestern willow flycatcher and yellow-billed cuckoo, and the replacement habitat that would be created as mitigation, this would potentially benefit these species.

Minor alterations to the hydrology within the Navajo Mine and Pinabete Permit Area are expected to occur as a direct result of mining. These changes would result in changes in runoff patterns, which could result in some minor disturbance of riparian habitat. Conservation measures to ensure that impacts to hydrology are minimized and prevent degradation of surface water include measures to minimize or prevent downstream sedimentation, spill prevention measures, management of hazardous materials, routine monitoring of surface water for the life of the mine, and other protective measures discussed previously for Colorado pikeminnow and razorback sucker and detailed in Section 3.2.6. The hydrology would be restored after mining is completed and the area is restored. These minor alterations to hydrology are expected to have a minor temporary disturbance to poor quality stopover habitat. Sediment and contaminant runoff would be limited by BMPs and Conservation Measures. Therefore, sediment and contaminant runoff are unlikely to adversely impact southwestern willow flycatcher.

The marginal habitat quality in the decadent tamarisk stands found in the outer edges of the leased area may only be utilized by southwestern willow flycatcher for short periods. Continued operation of the Navajo Mine SMCRA Permit Area and authorization of the Pinabete SMCRA Permit Area is not likely to impact this species.

Golden Eagle

Golden eagles typically prefer steeper cliff walls than are present in the permit areas so direct impacts to suitable nesting substrate are unlikely. Approximately 4,104 acres of potential foraging habitat for golden eagles would be altered during the 25-year mining period within the Pinabete Mine SMCRA Permit Area, but would be reclaimed to approximate premining conditions once mining is completed. Based on the amount of suitable habitat in the surrounding area, impacts resulting from the alteration of foraging habitat would be low and long term. Monitoring of golden eagle nests, as required under the SMCRA and in coordination with NNHP, would continue to occur in the Navajo Mine Lease Area. Golden eagles may avoid the permit areas during mining activities due to noise associated with human activity, blasting, machinery operation, and vehicular traffic. The proposed electric power line would be constructed using the Navajo Nation Raptor Electrocution Prevention Regulations (Ecosphere 2013; NNDFW 2008), and so no impacts associated with these power lines are associated.

Based on the availability of habitat for this species, lack of suitable nesting habitat in the immediate ROI, and the ability of this species to quickly travel large distances, some disturbance of individuals may occur, but none are expected to be otherwise affected by the Project. No population-level impacts to golden eagles are expected to result from extending mining into the Pinabete SMCRA Permit Area and continued authorization of the Navajo Mine SMCRA Permit Area and no loss of species viability would occur rangewide. Therefore, any affects to Golden eagle would be minor and no mitigation is required.

Ferruginous hawk

Three potential ferruginous hawk nesting areas that include seven historic nests occur along the perimeter of the ROI. Monitoring of ferruginous hawk nests—as required under the SMCRA and in

coordination with NNHP—would continue to occur in the Navajo Mine SMCRA Permit and Pinabete SMCRA Permit Areas. Direct impacts to ferruginous hawks would include the alteration of approximately 4,104 acres of suitable foraging habitat in the Pinabete SMCRA Permit Area. Reclamation would mitigate the loss of foraging habitat by restoring habitat for prey species once an area has been mined. Therefore, impacts to foraging habitat would be low and short to long term (more than 25 years). A long-term loss of vegetation would be associated with the realignment of 2.8 miles of Burnham Road. Badland habitats within the Pinabete SMCRA Permit Area provide potential nesting habitat for ferruginous hawks. Approximately 1,481 acres of badlands would be permanently removed from the Pinabete SMCRA Permit Area, resulting in an irretrievable loss of potential nesting habitat for ferruginous hawks. Given the abundance of suitable nesting habitat within the ROI area immediately surrounding the Navajo Mine Lease Area and Pinabete SMCRA Permit Area and in the surrounding multistate region, impacts from this amount of habitat loss within the Pinabete SMCRA Permit area would be low. Ferruginous hawks may avoid the Pinabete SMCRA and Navajo Mine SMCRA permit areas during mining activities due to noise associated with human activity, blasting, machinery operation, and vehicular traffic. Ferruginous hawks are sensitive to human disturbance, especially during the breeding season (Ecosphere 2013). The ferruginous hawk population, monitored by mine personnel and the NNDFW, has been relatively constant and stable since annual raptor monitoring was initiated. Mine operators would follow the Navajo Nation's *Ferruginous Hawk Management Guidelines* for any ferruginous hawk nests within the two permit areas. The electric power line would be constructed using the Navajo Nation Raptor Electrocution Prevention Regulations, and thus electrocution and collision risks would be minimized.

Based on the availability of habitat for this species, lack of suitable nesting habitat in the immediate ROI, and the ability of this species to quickly travel large distances, some disturbance of individuals may occur, but none are expected to be otherwise affected by the Project. No population level impacts to ferruginous hawks are expected to result from extending mining into the Pinabete SMCRA Permit Area and continued authorization of the Navajo Mine SMCRA Permit Area and no loss of species viability would occur rangewide. Therefore, there would be minor impacts on the species and no mitigation is required.

Amphibians and Reptiles

No special-status amphibian or reptiles are known to occur within the Navajo Mine Lease Area.

Fish

No special-status fish are known to occur within the Navajo Mine Lease Area and the mine employs appropriate BMPs to prevent runoff of sediment or pollutants from the mine to water bodies supporting sensitive fish species. Therefore, no impacts from this action would occur to special-status fish species.

Plants

No special-status plants are known to occur within the Navajo Mine Lease Area.

Four Corners Power Plant

No new ground-disturbing activities area anticipated to be carried out within the FCPP Lease Area, except for the expansion of the DFADAs. Units 1 through 3 were shut down on December 31, 2013. Units 4 and 5 would continue to operate with increased emissions treatment. Construction of the new emissions treatment facilities is expected to occur on highly disturbed areas within or adjacent to the FCPP. FCPP would continue to use water from the San Juan River for its processes and would continue to discharge cooling water to Morgan Lake. The evaluation of impacts is separated into those relating to the ecological risks associated with the future emissions from FCPP, followed by an evaluation of impacts associated with other activities by project element.

Four Corners Power Plant Air Emissions

The assessment of ecological risks to non-special status plants and non-special status wildlife and fish associated with current conditions and the Proposed Action were presented in Sections 4.6.4.1 and 4.7.4.1, respectively. For State of New Mexico and Navajo Nation special status species plants, wildlife, and fish, the generic plant and fish HQs presented in Sections 4.6.4.1 and 4.7.4.1 would apply. The relationship between representative wildlife species and special status species, as summarized by AECOM (2013c), is presented in Table 4.8-5. The ERA results indicate that the HQs resulting from FCPP emissions are all much less than one, and further indicate that those emissions would not substantially increase the risk to those species over baseline conditions.

Table 4.8-5 Representative Wildlife Receptors Corresponding to Special Status Species that may occur within the Deposition Zone

Special Status Species	Representative Wildlife Receptors
Mexican spotted owl (U.S.-threatened, NESL G3), golden eagle (NESL G3; Hopi Cultural Sensitive Species), ferruginous hawk (NESL G3; BLM-sensitive), peregrine falcon (NM-threatened), western burrowing owl (BLM-sensitive)	Red-tailed hawk
Bald eagle (NESL G2; Hopi Cultural Sensitive Species; NM Threatened), common black-hawk (NM-threatened)	Bald eagle
American dipper (NESL G3)	Mallard duck
Gray vireo (NM-threatened)	American robin
Southwestern willow flycatcher (U.S.-endangered; NESL G2; NM- endangered), yellow-billed cuckoo (U.S.-candidate, NESL G2)	Willow flycatcher
Pronghorn (NESL G3)	Meadow vole
Spotted bat, big-freetail bat, small-footed bat, long-legged myotis, Yuma myotis, occult little brown bat, fringed myotis (BLM Sensitive species)	Little brown bat

Notes:

The red-tailed hawk and the American robin are not shown on the HQ summary tables in Section 4.7.4.1 because none of the current conditions HQs or Future FCPP Emissions HQs exceeded the target HQ of one.

Federally listed species that could be impacted from future FCPP emissions include two plant species (Mancos milk-vetch and Mesa Verde cactus within the Deposition Area), two avian species (southwestern willow flycatcher and yellow-billed cuckoo at Morgan Lake and along the San Juan River), and two fish species (Colorado pikeminnow and razorback sucker in the San Juan River). For immobile early life stage Federally listed species (e.g., plants, fish eggs adhered to sediment bed substrate) the maximum concentration was used to represent the EPC. For mobile Federally listed species, the 95 percent UCL concentration was used to represent the EPC as was done for non-special status species. ERA results are presented in Tables 4.8-6 through 4.8-10.

EPC = exposure point concentration

HQ = hazard quotient

The Deposition Area ERA results indicate that current soil conditions may pose a risk to the two Federally listed plants, Mancos milk-vetch and Mesa Verde cactus (Tables 4.8-6 and 4.8-7). As described in AECOM (2013c), these HQs for plants are likely overestimated due to the very conservative soil screening levels used to estimate the HQs, and because these TRVs were developed from crop plants that grow in very different soils and environmental conditions than found in the ROI. Mancos milk-vetch and Mesa Verde cactus are also restricted to substrates that have elevated metals concentrations and thus are tolerant of these higher concentrations. The ERA results also show that HQs for the Proposed Action are well below one and contribute less than 0.1 percent to the total HQ.

Table 4.8-6 Comparison of HQs for Current Conditions, Future FCPP Emissions, and Current Conditions + Future FCPP Emissions for Mancos Milk-Vetch

Constituent	Current Conditions Soil EPC (mg/kg)	Current Conditions HQ	Future FCPP Emissions Soil EPC (mg/kg)	Future FCPP Emissions HQ	Total HQ	% HQ from Future FCPP Emissions
Boron	8.8	18	1.5E-04	3.0E-04	18	0.0017
Chromium	15	15	04.2E-04	4.2E-04	15	0.0027
Vanadium	25	13	0.0031	0.0015	13	0.012

Notes:

The EPC used to calculate HQs for Federally listed plants is the maximum concentration, defined in the AECOM (2013c) ecological risk assessment as the "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.

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

Table 4.8-7 Comparison of HQs for Current Conditions, Future FCPP Emissions, and Current Conditions + Future FCPP Emissions for Mesa Verde Cactus

Constituent	Current Conditions Soil EPC (mg/kg)	Current Conditions HQ	Future FCPP Emissions Soil EPC (mg/kg)	Future FCPP Emissions HQ	Total HQ	% HQ from Future FCPP Emissions
Boron	19	37	1.5E-04	3.0E-04	37	8.1E-04
Chromium	17	17	4.2E-04	4.2E-04	17	0.0025
Molybdenum	3.0	1.5	2.3E-05	1.1E-05	1.5	7.3E-04
Selenium	1.7	3.3	5.9E-08	0.00000011	3.3	3.3E-06
Vanadium	35	18	0.0031	0.0015	18	0.0083

Notes:

The EPC used to calculate HQs for Federally listed plants is the maximum concentration, defined in the AECOM (2013c) ecological risk assessment as the "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.

EPC = exposure point concentration

HQ = hazard quotient

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.). For both Morgan Lake and San Juan River exposures to the two Federally listed birds, the southwestern willow flycatcher and the yellow-billed cuckoo, the ERAs show that current conditions may pose a risk to these species (Tables 4.8-8 and 4.8-9). However, Morgan Lake does not provide suitable nesting habitat for either species, nor is there currently suitable nesting habitat along the San Juan River. However, such habitat could develop along the San Juan River over the life of the project as a result of riparian restoration efforts, such as the San Juan Watershed Woody Invasives Initiative (San Juan Watershed Woody-Invasives Initiative 2006). Habitat for these species is not expected to improve above current conditions at Morgan Lake, as the lake would continue to be managed as it has been and there are no plans to improve or restore the riparian vegetation around the lake. The ERA results show that HQs for the Proposed Action are well below one and, with two exceptions, contribute less than 0.1 percent to the total HQ. The two exceptions are Morgan Lake exposure to methylmercury which contributes 4.4 percent to the total HQ and San Juan River exposure to selenium which contributes 0.23 percent to the Total HQ.

For the Federally listed Colorado pikeminnow and razorback sucker, ERA results indicate that current conditions in the San Juan River may pose a risk to these species (Tables 4.8-10). The ERA results also show that HQs for the Proposed Action are well below one and contribute less than 0.1 percent to the total HQ.

While the ERAs identified a number of COPECs with elevated HQs related to existing conditions, future FCPP emissions associated with the Proposed Action did not contribute significantly to this risk for any species. HQs associated with future FCPP emissions were much less than one and representing less than 0.1 percent of the total HQ for most species.

FCPP Operation and Construction of Dry Fly Ash Disposal Area

Operation of the FCPP and construction of the proposed DFADAs would entail an increase in human presence and ground disturbance above existing levels. Based on the known historic range or known suitable habitat, further analysis is warranted for one plant and three avian species with some potential to occur in the ROI: Mesa Verde cactus, southwestern willow flycatcher, golden eagle, and ferruginous hawk. These species are evaluated below under the appropriate sub-headings, which include discussions of other potentially occurring special status species.

Mammals

Pronghorn

Suitable habitat for this species occurs in the general vicinity of the FCPP, DFADA, and Deposition area; however, this species is not expected as a regular visitor or resident to areas around developed areas and operational facilities within the FCPP Lease Area. Pronghorn are likely to avoid the FCPP and DFADA during operational activities due to noise associated with human activity, machinery operation, and vehicular traffic and thus are unlikely to be directly impacted.

Birds

California Condor

California condor could occur as infrequent visitors to the FCPP lease area during long range reconnaissance survey. Portions of the lease area may provide some suitable forage habitat for this species, but suitable breeding habitat does not occur in or near the FCPP lease area. California condor would be expected to avoid active work areas. Due to the infrequency with which condor would be expected to be present and their avoidance of active work areas, FCCP operations are not likely to impact this species.

Table 4.8-8 Comparison of HQs for Current Conditions, Future FCPP Emissions, and Current Conditions + Future FCPP Emissions for Morgan Lake Exposures to the Southwestern Willow Flycatcher and Yellow-Billed Cuckoo

Constituent	Current Concentrations Sediment Concentration (mg/kg)	Current Concentrations Water Concentration (mg/L)	Current Concentrations HQ	Future FCPP Emissions Sediment Concentration (mg/kg)	Future FCPP Emissions Water Concentration (mg/L)	Future FCPP Emissions HQ	Total HQ	% HQ from Future FCPP Emissions
Chromium	7.0	0.0030	2.3	9.3E-07	4.9E-08	4.0E-04	2.3	0.017
Copper	10	0.0045	2.9	7.3E-07	2.1E-08	5.6E-04	2.9	0.019
Lead	8.7	0.0076	16	5.9E-05	6.6E-08	2.1E-04	16	0.0013
Methylmercury	0.0024	3.7E-08	2.6	3.2E-05	3.6E-08	0.12	0.27	4.4
Selenium	0.35	0.0034	9.8	5.9E-07	1.2E-07	3.4E-04	9.8	0.0034

EPC = exposure point concentration

HQ = hazard quotient

MeHg = methyl mercury

Notes:

The EPC used to calculate HQs for mobile Federally listed wildlife is the 95 percent upper confidence limit on the mean concentration (95 percent 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.

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.)

Table 4.8-9 Comparison of HQs for Current Conditions, Future FCPP Emissions, and Current Conditions + Future FCPP Emissions for San Juan River Exposures to Southwestern Willow Flycatcher and Yellow-Billed Cuckoo

Constituent	Current Concentrations Sediment Concentration (mg/kg)	Current Concentrations Water Concentration (mg/L)	Current Concentrations HQ	Future FCPP Emissions Sediment Concentration (mg/kg)	Future FCPP Emissions Water Concentration (mg/L)	Future FCPP Emissions HQ	Total HQ	% HQ from Future FCPP Emissions
Copper	11	0.028	1.5	9.2E-07	2.6E-08	6.1E-04	1.5	0.041
Lead	24	0.020	1.5	1.5E-05	1.7E-08	6.8E-05	1.5	0.0045
Mercury	0.020	2.0E-04	6.6	2.1E-06	2.9E-09	0.0044	6.6	0.067
Selenium	0.13	0.0095	2.9	1.6E-07	2.3E-06	0.0066	2.9	0.23

EPC = exposure point concentration

HQ = hazard quotient

MeHg = methyl mercury

Notes:

The EPC used to calculate HQs for mobile Federally listed wildlife is the 95 percent upper confidence limit on the mean concentration (95 percent 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.

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.).

Table 4.8-10 Comparison of HQs for Current Conditions, Future FCPP Emissions, and Current Conditions + Future FCPP Emissions for San Juan River Exposures to Federally Listed Fish

Constituent/ Species	Current Concentrations Tissue Concentration (mg/kg)	Current Concentrations Hazard Quotient	Future FCPP Emissions Tissue Concentration (mg/kg)	Future FCPP Emissions Hazard Quotient	Total HQ	% HQ from Future FCPP Emissions
Chromium	2.0	15	4.0E-08	3.2E-07	15	2.1E-06
Copper	3.0	1.8	0.00	0.00	1.8	NA
Lead	1.7	5.0	8.5E-07	2.5E-06	5.0	5.0E-05
Mercury/FF	0.31	12	5.3E-05	0.0021	12	0.018
Mercury/CPM1	0.31	12	1.6E-04	0.0063	12	0.053
Mercury/CPM2	0.31	12	2.5E-04	0.010	12	0.083
Mercury/RS1	0.31	12	4.7E-05	0.0019	12	0.016
Mercury/RS2	0.31	12	7.3E-05	0.0029	12	0.024
Selenium	3.9	220	0.0018	0.10	220	0.045
Zinc	70	18	2.1E-08	5.5E-09	18	3.1E-08

CPM1 = Colorado pikeminnow (<400 mm)

CPM2 = Colorado pikeminnow (>400 mm)

EPC = exposure point concentration

FF = forage fish

HQ = hazard quotient

RS1 = Razorback sucker (<400 mm)

RS2 = Razorback sucker (>400 mm)

Notes:

The EPC used to calculate HQs for Federally listed fish is the maximum concentration, defined in the AECOM (2013c) ecological risk assessment as the “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.

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.).

Yellow-billed Cuckoo

Some marginally suitable habitat for yellow-billed cuckoo occurs in the FCPP Lease Area along the riparian vegetation around Morgan Lake and within the salt cedar vegetation within the DFADA (AECOM 2013f, Appendix C). Approximately 6,726 acres of potentially suitable yellow-billed cuckoo habitat was identified within the Deposition Area, but more than 30 km of FCPP (AECOM 2013c, 2014b). These reports identified this habitat as stop-over habitat that did not support nesting. Nesting and migratory stopover habitat potentially capable of supporting this species was identified as a result of habitat modeling. This habitat occurred more than 30 km of the FCPP, but within the Deposition Area. These habitats include riparian woodland capable of supporting nesting around Morgan Lake, San Juan River, and other waterbodies supporting riparian vegetation. It is possible an occasional yellow-billed cuckoo could use the areas around Morgan Lake or the San Juan River as stopover habitat during migration. If they did, it is anticipated that they would only be present in the area for less than 2 weeks a year. Furthermore, cuckoos are likely to avoid the FCPP and DFADA during operational activities due to the presence of humans, traffic, and plant/machinery operation. This species is unlikely to be directly impacted by Project Activities.

The operation of FCPP and associated facilities will have a minimal effect on groundwater and surface water runoff within or downstream of the FCPP Lease Area, as this area represents a very small fraction of the Chaco River watershed. Diversions at the APS Weir may also affect the hydrology of the San Juan River. The Navajo Reservoir Operations BO (USFWS) found that the combined authorized diversions from the San Juan River, including those at the APS Weir, may affect, but were not likely to adversely affect southwestern willow flycatcher. This conclusion would also apply to yellow-billed cuckoo, given the similarity in habitat requirements between this species and southwestern willow flycatcher.

Contaminants have the potential to impair the survival and success of a species. Contaminant runoff would be limited by BMPs and Conservation Measures. Therefore, contaminant runoff may affect, is unlikely affect yellow-billed cuckoo.

The effects of FCPP operations would not be expected to result in substantive impacts to any individual, the loss of any known populations or population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be negligible effects to yellow-billed cuckoo, and no mitigation is required.

Southwestern Willow Flycatcher

Suitable, low-quality southwestern willow flycatcher foraging habitat occurs within the survey area and in habitat patches in the adjacent Chaco River. No suitable nesting habitat exists within this area. Individual southwestern willow flycatchers are only expected to occur in the area as they migrate through and are not expected to spend a substantial amount of time there. The effects of FCPP operations would be the same as described for yellow-billed cuckoo, and would not be expected to result in substantive impacts to any individual, the loss of any known populations or population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be negligible effects to southwestern willow flycatcher, and no mitigation is required.

Mexican spotted owl

Suitable habitat for Mexican spotted owl does not occur within the FCPP Lease Area, and the nearest potential Mexican spotted owl habitat is along the New Mexico-Arizona state line within the Chuska Mountains 20 miles west of the FCPP. Habitat modeling (AECOM 2013f) identified approximately 34 acres of suitable habitat along the APS transmission corridor; however, this habitat occurs in scattered areas outside, but adjacent to, the APS transmission line ROWs. Habitat modeling (AECOM 2013c) identified 800 acres of potential habitat within the Deposition Area, but more than 30 km from FCPP. While this species is undocumented within the FCPP Lease Area or Deposition Area, this species could

occur as a migrating visitor. Direct impacts to this species, as a result of construction, traffic, or noise associated with activities at the FCPP would be negligible or non-existent. Given that this species' potential habitat occurs within the Deposition Area, impacts to this species resulting from emissions might occur if this species occupied the areas modeled as suitable habitat. However, the Deposition Area ERA found no HQs greater than 1 for Mexican spotted owl.

The effects of FCPP operations would not be expected to result in substantive impacts to any individual, the loss of any known populations or population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be negligible effects to Mexican spotted owl, and no mitigation is required.

Golden Eagle

Golden eagles typically prefer steeper cliff walls than are present near the ROI so direct impacts to nesting eagles are unlikely. Approximately 1,450 acres (a little more than 2 square miles) of potential foraging habitat for golden eagles would be altered during the development of the five ash disposal sites. This represents one tenth to one sixth of a typical golden eagle territory size (12 to 20 square miles). Based on the amount of suitable habitat in the surrounding area, impacts resulting from the alteration of foraging habitat would be low, but permanent. Golden eagles are likely to avoid the FCPP during operational activities due to noise associated with human activity, machinery operation, and vehicular traffic and thus are unlikely to be directly impacted.

Based on the availability of habitat for this species, lack of suitable nesting habitat in the immediate ROI, and the ability of this species to quickly travel large distances, some disturbance of individuals may occur, but none are expected to be otherwise affected by the Project. No population level impacts to golden eagles are expected to result from expanding the ash disposal sites or continued operation of the FCPP. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be negligible adverse effects to the species and no mitigation is required.

Ferruginous hawk

The potential ferruginous hawk nesting areas and two historic territories occur outside, but close to the perimeter of the DFADA analysis area. Direct impacts to ferruginous hawks would include the alteration and loss of approximately 1,450 acres of suitable foraging habitat for the expansion of the ash disposal sites. Given the presence of suitable foraging and nesting habitat within the analysis area and surrounding region, impacts from Project-related habitat loss would be low. Ferruginous hawks may avoid the ROI due to noise associated with human activity, machinery operation, and vehicular traffic. Ferruginous hawks are sensitive to human disturbance, especially during the breeding season.

Based on the availability of habitat for this species, lack of suitable nesting habitat in the immediate ROI, and the ability of this species to quickly travel large distances, some disturbance of individuals may occur, but none are expected to be otherwise affected by the Project. No population level impacts to ferruginous hawks are expected to result from expanding the ash disposal sites and continued operation of the FCPP. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be negligible adverse effects to the species and no mitigation is required.

Bald Eagle

Bald eagles are expected to occur as regular visitors or possibly residents to areas adjacent to the FCPP, DFADA, and suitable habitats within the Deposition Area. The most suitable habitat for this species occurs along the San Juan River or Morgan Lake where both large woody vegetation and year round water occur. Bald eagles are expected to avoid developed areas and facilities associated with the FCPP Lease Area, DFADA, and developments within the Deposition Area. Given that the species is likely to occur in the area, but outside developed and facilities associated with the FCPP, it is unlikely that this species would be impacted by continued operations and maintenance associated with the FCPP.

Impacts to this species would occur only if FCPP operation and maintenance activities were conducted during nesting periods and nests were located on FCPP facilities such as a power pole or in close proximity. Disturbance to nests are prohibited under the MBTA and the BGEPA, which prevents activities that have the potential to disturb a bird on an active nest or the nest itself. If such activities are essential it would require separate coordination with the NNDFW or NMDGF and Arizona Game and Fish Department, and possibly the USFWS, depending on the location of the nest. These impacts are expected to be very rare and isolated and are not likely to result in a loss of species viability rangewide. Therefore, there would be little to no direct impact to this species.

Amphibians and Reptiles

Northern Leopard Frog

Potential habitat capable of supporting this species was modeled within 30 km of the FCPP and within the Deposition Area, but not on the FCPP lease area. This species is unlikely to be directly impacted by Project Activities.

Fish

Colorado pikeminnow, razorback sucker, and roundtail chub

No special-status fish occur within the DFADA or the FCPP lease area, including Morgan Lake. No uncontrolled discharge from the FCPP lease area to downstream waters would occur, so no direct effect to listed fishes would occur from ground disturbing activities or runoff. Listed fish species may be affected by future emissions from FCPP, as described in the previous section. Diversions from the San Juan River and potential releases of non-native fish from Morgan Lake could also affect these species. As these effects are similar for all three species, these effects are discussed together, with species specific information included within the discussion, as appropriate.

Diversions from the San Juan River

Surface water drawn from the San Juan River into Morgan Lake for use at the FCPP is obtained according to water rights for 51,600 acre-feet per year diversion, 39,000 acre-feet per year consumptive 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 (Listing Factor A [USFWS 2002a,b]). The full amount of the consumptive water right available under Permit 2838 has been accounted for in the San Juan River Recover 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. Average historic use less 5,000 acre-feet per year following the shutdown of Units 1-3, represents about 3.7 percent of New Mexico depletions and 2.7 percent of total basin depletions. Based on the findings of the Navajo Reservoir BO (USFWS 2006), which evaluated the effects of the operations of Navajo Reservoir and all known diversions, including those described above, these depletions may affect, but are not likely to adversely affect Colorado pikeminnow and razorback sucker or their critical habitat. These effects are therefore determined to be minor for the purposes of this NEPA analysis.

Fish Passage at APS Weir

The APS Weir at RM 163.3 lies within the designated critical habitat for Colorado pikeminnow and upstream of designated critical habitat for razorback sucker. It may impede fish passage during some times of the year (Bio-West 2005), but Colorado pikeminnow and razorback sucker and other species

have been observed to pass this structure under some conditions. Bio-West found that both species would likely be able to pass over the right embankment of the dam at flows higher than 5,000 cfs, but passage is likely somewhat impaired at flows between 500 and 5,000 cfs; however, they note that Colorado pikeminnow, razorback sucker, and other species have moved upstream past the APS Weir, although the specific flows at which they did so is unknown because recaptures "were separated by hundreds of days." One Colorado pikeminnow was observed to pass the weir at flows between 671 and 741 cfs (Bio-West 2005).

The full extent of this blockage is not known at this time because the swimming performance of Colorado pikeminnow and razorback sucker are not well known; however, the Bio-West study documents that the hydraulic drop associated with the weir may prevent these species from swimming over the crest of the weir at flows below 2,000 cfs, and high velocities may prevent them from swimming over the crest of the weir at flows of 2,000 to 5,000 cfs. Fish may be able to move through the sluiceway of the weir when flows are less than 500 cfs, particularly if the gate is fully open. The impairment of fish passage at the weir could limit the ability of Colorado pikeminnow and razorback sucker to move within the river to different areas in response to changing needs and environmental conditions. This could reduce the amount of accessible spawning and rearing habitat under some conditions, and may reduce habitat availability for the species. Temperatures upstream of the APS Weir are likely too cool to support spawning and rearing of Colorado pikeminnow (Durst and Franssen 2014). However, the weir lies within the critical habitat for Colorado pikeminnow, and may affect, and is likely to adversely affect the function of the habitat for the conservation and recovery of the species, as this structure may impede the migration of Colorado pikeminnow within its critical habitat (Listing Factor A, USFWS 2002a,b). The weir lies upstream and outside of the designated critical habitat for razorback sucker; therefore, no effect on designated critical habitat would occur for this species.

Entrainment of Listed Species

The intake structure and operation of the diversion is described in Section 2.2.4. The operation of this diversion has the potential to result in entrainment of listed fish species. No entrainment studies have been conducted at this diversion[1].

Colorado pikeminnow larvae typically enter the drift from mid-July to early August and drift passively for 3 to 6 days after emergence (USFWS 2009). Larvae would be subject to loss at the diversion for about 30 days. Because the fish drift with the currents, it is assumed that they would be entrained in direct proportion to the amount of flow diverted and the proportion of larvae that enter the drift upstream of the diversion point. Mean daily flows from mid-July to mid-August averaged about 1,030 cfs during this time period from 2003 to 2013 (USGS Gage 09365000). During this timeframe, approximately 71 cfs, or approximately 7 percent of the flow, would be diverted to Morgan Lake. With the reduced diversions of 5,000 to 7,000 acre-feet per year resulting from the shutdown of Units 1-3, total diversions would be 18 to 25 percent less. These reductions would be attained by operating the diversion less frequently, so when the diversion was in operation, approximately 7 percent of the flow would be taken, but the total amount of water diverted would be less than 7 percent of the total flow. The USFWS (2009) estimated that spawning potentially could occur between RMs 128 and 180. The APS Weir is located at approximately RM 163.3, so about 26 percent of the available spawning habitat could lie above the weir, assuming an equal distribution of spawning habitat throughout the reach. While no spawning activity has been observed above the weir, spawning activity has been poorly documented because of the very limited number of adult pikeminnow in the system. Lacking information on the spawning distribution of Colorado pikeminnow, an assumption of equal distribution of spawning habitat is reasonable. Based on about 26 percent of the population spawning above the APS Weir and 7 percent loss of those individuals, it is

[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.).

estimated that about 1.8 percent of the population of larvae could be lost to the diversion. With the reduced diversions described above and assuming an equal distribution of larvae over time, the loss would be reduced to 1.4 to 1.5 percent of the population.

However, water temperatures near Farmington (RM 180), generally do not exceed 20°C and only exceed 18°C from mid-July to mid-August (Durst and Franssen 2014). Colorado pikeminnow generally spawn at temperatures of 18 to 23°C (USFWS 2002a). These cold temperatures make conditions less suitable for spawning near Farmington and for some distance downstream. Known spawning locations are located further downstream in "the Mixer" (RM 130-134) and in the Four Corners area RM 119), and spawning has not been documented above the APS Weir (USFWS 2009). Thus, it is likely that the area above the APS Weir would not be used for spawning to the same extent as areas further downstream, if it is used at all. Therefore, it is likely that entrainment of larval Colorado pikeminnow will be substantially less than the 1.4 to 1.8 percent cited above.

The San Juan River Recovery Implementation Plan currently stocks the San Juan River with Colorado pikeminnow. Approximately 300,000 to 400,000 Colorado pikeminnow approximately 6 months of age (50 to 65 mm in size) are stocked each year. Historically, larger fish have been stocked, but there are no plans to do so in the future. Since 2007, nearly all of these fish have been stocked above the APS Weir. These fish could also be vulnerable to entrainment at the diversion. These fish are stocked in October and November when flows in the San Juan River are 728 to 1,530 cfs (USGS Gage 09365000). The diversion is typically operating in the 17,000 gpm mode during this time (37 cfs), and is diverting between 2.4 and 5.1 percent of the flow. These fish actively swim and do not drift passively, as the larvae do, so they would not necessarily be entrained in proportion to the amount of flow diverted. Behavioral characteristics are known to influence the entrainment risk of fish. However, these characteristics are unknown for Colorado pikeminnow, and so it cannot be predicted whether their entrainment risk would be higher or lower than that predicted by the proportion of water diverted. Therefore, it is assumed that these fish could be entrained in proportion to the amount of flow diverted.

A study of entrainment at Hogback, Farmers Mutual, Jewitt Valley, and Fruitland Irrigation diversions conducted in 2004 and 2005 indicates that the proportion of stocked Colorado pikeminnow entrained in the canals is considerably lower than what would be predicted based on the proportion of flow diverted (Renfro et al. 2006). This study found that between 0.002 and 0.004 percent of Colorado pikeminnow stocked shortly before the study was conducted were observed in Hogback and Fruitland Irrigation diversions (no razorback sucker were observed, although other native suckers were). While this study likely did not capture every Colorado pikeminnow entrained, it provides an indication that the magnitude of the effect is likely to be less than 0.5 percent of the abundance of recently stocked fish, even allowing for a 100-fold underestimate by the study of the number of fish actually entrained.

Colorado pikeminnow would remain vulnerable to entrainment for some time after the initial stocking. The exact size of a pikeminnow vulnerable to entrainment at the 1- by 3-inch screens at the intake is unknown at this time. The most vulnerable time for these fish is shortly after release as these fish distribute themselves within the river. It is not known how far or how rapidly these fish would disperse. Fish that successfully move downstream of the APS Weir would be less likely to be subsequently entrained because of the passage restrictions at the APS Weir.

Currently, few naturally produced Colorado pikeminnow are present in the San Juan River, so little, if any, entrainment of wild fish would occur. As the species moves toward recovery and more natural reproduction occurs, then entrainment would be more likely to occur. It is probable that most natural reproduction would occur primarily below the APS Weir, because of the cool temperatures near Farmington, however, the proportion of spawning that might take place above the weir is unknown. Currently, the only known natural spawning occurs downstream of the APS Weir, and no known spawning sites have been observed upstream of the APS Weir (USFWS 2009); therefore, the larvae and young fish produced would not be exposed to entrainment at the Project intakes.

Because Colorado pikeminnow are currently stocked above the APS Weir and because they could spawn in this area in the future, entrainment at the APS diversion will affect Colorado pikeminnow. Due the low proportion of the population anticipated to be entrained (well below natural mortality rates); this would be expected to have a minor impact at the population level.

The diversion of water to Morgan Lake from the San Juan River could entrain razorback sucker. Razorback sucker spawn on the ascending limb of the hydrograph during the spring. Larvae are found in the drift from late March to early July. Spawning is assumed to potentially occur between RM 100 and 180, with the effort spread evenly throughout the reach (USFWS 2009); however, no spawning has been documented to occur above the APS Weir. The intakes are about 16 miles below the top of the potential spawning reach and thus affect about 20 percent of the potential habitat. Average flow during the spawning season between 2003 and 2007 ranged from 717 to 6,455 cfs (USFWS 2009). During the spawning season, the Proposed Action would divert 37 cfs in March and April and 71 cfs in May and June. Thus, the Proposed Action would divert between 0.6 percent of the flow in low diversion operations at high river flows and 9.9 percent of the flow at high diversion operations at low river flows. The potential entrainment of recently, naturally spawned fish would be 0.12 to 2.0 percent of the fish spawned. With the shutdown of Units 1-3, the diversion operated would be 18 to 25 percent less often, but the relative volume of water diverted would be as described above. The reduced operation would reduce entrainment below the levels described above. Razorback suckers spawn at cooler temperatures than Colorado pikeminnow (>14°C, USFWS 2002b, with spawning occurring at temperatures between 11.3 and 15.6 in the Gunnison and Colorado rivers [Osmundson and Seal 2009]), and therefore the cooler temperatures at Farmington would not have as great an effect on their spawning.

Razorback sucker are stocked into the river at a length of approximately 300 mm (approximately 1 foot). These stocked fish would not be anticipated to be vulnerable to entrainment and low approach velocities would not result in impingement of these fish on the screens.

Renfro et al. (2006) did not observe any razorback sucker in the Hogback, Farmers Mutual, Jewitt Valley, and Fruitland Irrigation diversions during an entrainment study conducted in 2004 and 2005. This may indicate this species is somewhat less likely to be entrained, particularly at the sizes at which they are stocked into the San Juan River. However, this may also be the result of other factors such as the timing of the study (September to November) in relation to the life history activities of razorback sucker. It is possible that entrainment may occur at other times of year. Based on the potential for natural spawning to occur above APS Weir, the entrainment at the diversion is likely to have a minor impact on the species at the population level.

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 2014b). 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.

Release of Non-Native Fish from Morgan Lake

As described in Section 4.7.4, 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. While Colorado pikeminnow and razorback sucker do not occupy Morgan Lake, the 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. Non-native fish have the potential to compete with and prey upon native fish, including Colorado pikeminnow and razorback sucker, 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 Colorado pikeminnow and razorback sucker is unknown. Release of non-native fish from Morgan Lake is likely to adversely impact Colorado pikeminnow and razorback sucker and their critical habitat. The magnitude of this effect cannot be determined from the available information, but is not likely to increase above baseline conditions. Therefore this effect is determined to be moderate.

The effects of the Proposed Action, including the BMPs, conservation measures, and resource protection areas would not affect the potential for recovery of the Colorado pikeminnow or razorback sucker. The recovery plan for these species identify the recovery of populations in the San Juan Basin as essential (USFWS 2002a, b). The Proposed Action is a continuation of activities that were currently in effect when the recovery plans were written, with the same effects with regard to entrainment, passage impairment, and potential for release of non-native fish from Morgan Lake, and greatly reduced emissions of mercury and selenium. While mercury and selenium would continue to be released, it would be released in very low amounts that would not perceptibly increase the risk these species face under baseline conditions. The overall effect on the recovery of the species would be negligible. This effect would be offset by applicant proposed conservation measures including development of the Colorado pikeminnow population viability analyses, which provides a tool to better assess the potential effects of management actions in the future, and the proponent's ongoing participation in the San Juan River Recovery Implementation Plan, whose focus is recovering these two species. Invertebrates

Nokomis fritillary

Potential wetland habitat capable of supporting this species was modeled within the Deposition Area. These habitats are well outside the FCPP and DFADA and would remain unaffected by ground disturbance within the FCPP Lease Area. This species may occur as a rare migrating visitor through the FCPP Lease Area, but would unlikely be directly impacted by Project Activities. If this species occupies the potential habitat identified within the Deposition Area, it is possible that the species could be impacted by future emissions. The impacts of such emissions were not directly modeled due to lack of suitable TRVs. However, based on the analyses that were completed, it is unlikely that future FCPP emissions would substantially increase the ecological risk to this species.

Plants

Mancos Milk-vetch

Habitat capable of supporting the Mancos milk-vetch was identified as part of habitat modeling within the Deposition Area, but more than 30 km from the FCPP. Therefore, no direct impacts to this species are expected to occur as no ground disturbing activity would occur in the areas of suitable habitat identified.

Mesa Verde cactus

Approximately 204 acres of potential Mesa Verde cactus habitat occurs on the DFADA and would be modified, resulting in long-term impacts to potential habitat. No Mesa Verde cactus was observed during focused surveys of this habitat in 2012. Recent discussion between USFWS and Navajo Nation indicated there is no suitable habitat. As this area is not occupied, this action will have no effect on this species.

Given the limited amount of potential habitat within the DFADA and this species distribution, expansion of the DFADA would result in impacts to limited areas of potentially suitable habitat, but would not be expected to result in the loss of any known populations or population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be minor adverse effects to the species and no mitigation is required.

Gooding's Onion

Habitat capable of supporting the Gooding's onion was identified as part of habitat modeling within the Deposition Area, but more than 30 km from the FCPP. Therefore, no direct impacts to this species are expected to occur as no ground disturbing activity would occur in the areas of suitable habitat identified.

Naturita Milk-vetch

Habitat capable of supporting the Naturita milk-vetch was identified as part of habitat modeling within the Deposition Area, but more than 30 km from the FCPP. Therefore, no direct impacts to this species are expected to occur as no ground disturbing activity would occur in the areas of suitable habitat identified.

Transmission Lines

Renewal of the ROW leases will have no direct impact on vegetation communities or special-status species habitat within the APS or PNM ROWs. Vegetation management activities will continue to be conducted as a regular part of routine operations to ensure reliability and safety across the length of the transmission lines. Vegetation management within the ROW will include removal of taller growing woody vegetation within or adjacent to the ROWs and would result in minimal changes to the vegetation communities or habitat occurring within the ROW. Ground-disturbing activities would also be minimal and only associated with the required routine maintenance activities.

Both APS and PNM have internal wildlife special-status species and avian protection programs that identify BMPs and avoidance measures, as discussed in Section 3.2.6. The BMPs and avoidance measures for transmission line maintenance activities are intended to reduce impacts to special-status species that may utilize habitat within the ROW or protected avian species that nest on the transmission structures.

The following discusses the potential impacts to special-status species with potential to occur in the transmission line ROIs, as indicated in Table 4.8-4. The APS transmission lines are discussed first, followed by the PNM transmission lines.

APS Lines: FCPP to Moenkopi Substation and FCPP to Cholla Substation

Mammals

Pronghorn Antelope

Much of the transmission line ROW could be considered potential habitat for pronghorn; however, no indications of pronghorn (tracks, droppings, or direct observation) were found within the transmission line corridor during the 2012 surveys. Conversations with NNDFG employees indicates that pronghorn have the potential to occur within the ROW, but their distribution is limited. Any maintenance associated disturbance impacts would be temporary and of short duration.

Due to the mobility of this species and their broad distribution and the small size of the ROWs relative to the range size of the species, continued operation of the transmission lines, and performance of required maintenance activities as previously authorized would not result in any new or additional impacts to suitable habitat, or any known populations or population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be negligible adverse effects to the species and no mitigation is required.

Birds

California Condor

Results of the Habitat Modeling Report (AECOM 2013f) identified 2.5 acres of potentially suitable nesting habitat for this species along the APS transmission ROW along portions of the 500-kV APS transmission line and 1,385 acres of foraging habitat along portions of the 500-kV APS line, south of Cameron, Arizona. No California condor observations have been reported in the vicinity of the ROW. Potentially suitable nesting habitat would not be physically disturbed, as suitable nesting habitat would be confined to cliff areas, and poles would not be located in this area and these areas are inaccessible to work vehicles or personnel. California condor could occur as infrequent visitors to this area during long range reconnaissance survey. California condor would be expected to avoid active work areas. Due to the infrequency with which condor would be expected to be present and their avoidance of active work areas, transmission line inspection and maintenance activities are not likely to impact this species.

Southwestern Willow Flycatcher

Approximately 34 acres of marginal migratory stopover habitat was modeled along the APS transmission line ROW where it crosses wetland areas, rivers, and riparian woodland vegetation types. While this species is undocumented in the APS transmission ROW, this species could occur as a rare visitor or seasonal migrant to the ROW. Through time the ROW will continue to be managed in its current condition, and loss of this stopover habitat is not expected.

Vegetation management is part of the routine maintenance and has been ongoing since the line was constructed. If it is done outside of the breeding season, then continued operation of the transmission lines and performance of required maintenance activities as previously authorized would not result in any new or additional impacts, or any population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Given the limited amount of migratory stopover habitat that lies within the ROW and because ROW maintenance practices include a number of measures to protect the species, there would be a negligible adverse effect to the species.

Mexican Spotted Owl

Approximately 34 acres of potential habitat was modeled along the APS transmission line ROW. This habitat is all adjacent to the ROW, in scattered patches. While this species is undocumented in the APS transmission ROW, this species could occur as a foraging visitor or seasonal migrant to the ROW. As a direct result of vegetation management in the ROW, no nesting habitat occurs, nor is it expected to develop over time. Through time, the ROW will continue to be managed in its current condition, and loss of this potential foraging habitat is not expected.

ROW maintenance practices include a number of measures to protect the species. Because of this and given the limited amount of potential foraging habitat that lies within the ROW, continued operation of the transmission lines and performance of required maintenance activities as previously authorized would not result in any new or additional impacts, or any known populations or population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be a negligible adverse effect to the species.

Golden Eagle

The relatively open shrublands and mild terrain of the transmission ROW provide potential foraging habitat for golden eagles. Power line poles, rock escarpments, bluffs, and formations in and adjacent to the ROI serve as potential perches and nest site. No golden eagles or nests were recorded within the survey area during the field studies by APS.

Impacts to this species would occur only if required maintenance activities and associated disturbances were conducted during nesting periods and nests were located on the transmission structures or in close proximity. However, the restrictions of the MBTA and the BGEPA, which prevent activities that would disturb birds on an active nests or the nest itself during the breeding season would apply. All transmission structures are designed with adequate line clearances to prevent electrocutions and meet APLIC design guidelines so no risk of electrocution exists. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be negligible adverse effects to the species and no mitigation is required.

Red-tailed hawk

This species is common within the Navajo Nation and Hopi reservation and along the transmission line ROWs. The relatively flat terrain and open vegetation along the transmission line ROW provide potential foraging habitat and transmission structures may provide nesting substrate for red-tailed hawks.

Impacts to this species would occur only if required maintenance activities and associated disturbances were conducted during nesting periods and nests were located on the transmission structures or in close proximity. Such activities are prohibited under the MBTA, which prevents activities that have the potential to disturb a bird on an active nest or the nest itself. If such activities are essential during the breeding season it would require separate coordination with the NNDFW or NMDGF and Arizona Game and Fish Department, and possibly the USFWS, depending on the location of the structures. All transmission structures are designed with adequate line clearances to prevent electrocutions and meet APLIC design guidelines. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be a minor adverse effect to the species and no mitigation is required.

Ferruginous hawk

Ferruginous hawks occur year round throughout the Navajo Nation, inhabiting dry, flat, or rolling grasslands and desert scrub (Ecosphere 2012b). This species prefers elevated nest sites and could utilize transmission-line towers. One record exists of a ferruginous hawk nest on a crossarm of a transmission tower.

Impacts to this species would occur only if required maintenance activities and associated disturbances were conducted during nesting periods and nests were located on the transmission structures or in close proximity. Such activities are prohibited under the MBTA, which prevents activities that have the potential to disturb a bird on an active nest or the nest itself. If such activities are essential it would require separate coordination with the NNDFW or NMDGF, and possibly the USFWS, depending on the location of the structures. All transmission structures are designed with adequate line clearances to prevent electrocutions and meet APLIC design guidelines. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be a minor adverse effect to the species and no mitigation is required.

Bald Eagle

Bald eagles are occasionally observed at the northern end of the ROW corridor near the most suitable habitat along the San Juan River or Morgan Lake. Bald eagles are likely to be only migrants through the area and not likely to be impacted by maintenance activities.

Impacts to this species would occur only if required maintenance activities and associated disturbances were conducted during nesting periods and nests were located on the transmission structures or in close

proximity. Such activities are prohibited under the MBTA and the BGEPA, which prevents activities that have the potential to disturb a bird on an active nest or the nest itself. If such activities are essential it would require separate coordination with the NNDFW or NMDGF and Arizona Game and Fish Department, and possibly the USFWS, depending on the location of the structures. All transmission structures are designed with adequate line clearances to prevent electrocutions and meet APLIC design guidelines. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be a negligible adverse effect to the species and no mitigation is required.

Amphibian and Reptile

Northern Leopard Frog

Twelve acres of potential habitat capable of supporting this species was modeled within the APS transmission line ROWs. These habitats include riparian woodlands, wetlands, and permanent water sources capable of supporting breeding and life stages of this species. Maintenance activities generally avoid such areas to the maximum extent practical. Therefore, it is very unlikely that this species would experience direct impacts associated with continued inspection and maintenance activities.

Fish

Zuni bluehead sucker

The APS FCPP to Cholla transmission line crosses Kinlichee Creek just southwest of the town of Kinlichee, on Navajo Nation lands in eastern Arizona. This area of Kinlichee Creek is known to be occupied by Zuni bluehead sucker (C. Smith pers. comm. 2014). The transmission towers on either side of the creek are located approximately 1,000 ft from the creek on either bank and are more than 50 feet above the elevation of the creek. As a result, maintenance activities on the towers themselves would not affect the species. There is no road crossing through the creek under the transmission lines, nor any need for one, as there is a bridge a short distance away. Vegetation management activities could affect habitat for the species, but there was minimal riparian vegetation under the transmission lines as of June 2014 (Google Earth). Given the height of the lines, it is unlikely that vegetation management would be required. In the event it were, the vegetation management conservation measures would avoid any effect on the stream or its fish. The transmission line is more than ½ mile from the creek and its tributaries throughout the rest of watershed and thus maintenance activities elsewhere on the line would not affect these waterways. Based on this, Zuni bluehead sucker would not be affected by the Project activities.

Invertebrates

Nokomis Fritillary

Approximately 7 acres of potential wetland habitat capable of supporting Nokomis fritillary was modeled within the APS transmission line ROW. These habitats include wetlands and permanent water sources capable of supporting breeding and life stages of this species and its host plant. It is very unlikely that this species would experience direct impacts associated with continued use of the ROW as a transmission corridor. This species' habitats are within the APS ROW and would be managed in their present condition throughout the life of the transmission line ROW. This species is unlikely to be directly impacted by Project activities as wetlands, ponds, rivers, and creeks are generally avoided, and sometimes inaccessible, during completion of routine ROW maintenance activities or repairs.

Plants

Mancos Milk-vetch

The habitat for the Mancos Milk-vetch along the existing transmission lines was surveyed. Two potential habitat locations, as identified by the habitat assessment model, along the FCPP to Moenkopi Substation transmission line and four along the FCPP to Cholla Substation line were surveyed. High quality habitat was identified at five locations, with the remaining location identified as having moderate/low quality habitat. One individual population of the target species was observed along the FCPP to Cholla line during field surveys.

One population of Mancos milk-vetch was identified below and around FCPP to Cholla line. The population consisted of 8 colonies totaling 15 individuals. Some of the colonies covered a large area but only had approximately 20 percent living plants. The continued operation of the transmission lines and performance of required maintenance activities as previously authorized, along with associated BMPs identified in Section 3.2.6 and existing regulatory mechanisms would result in little to no impacts to individuals, and would not result in any new or additional impacts to the limited suitable habitat, known populations or any population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be a negligible adverse effect to the species and no mitigation is required.

Navajo Sedge

Approximately 59 acres of Navajo sedge habitat was modeled as a result of an assessment on the APS transmission ROW in scattered locations along both the 500 kV and 345 kV lines. Confirmation surveys were not completed for this species. This species may occur within the APS transmission line ROWs in modeled habitat. These areas are on steep hillsides and cliff faces that are inaccessible either by vehicle or on foot. The ROWs would continue to be operated and maintained in their current state and no major alterations to existing habitats within the ROW are expected to occur.

Continued operation of the transmission lines and performance of required maintenance activities as previously authorized utilizing current BMPs would not result in impacts to individuals, habitat, known populations or population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be no effect to the species and no mitigation is required.

Zuni Fleabane

Approximately 12 acres of Navajo sedge habitat was modeled as a result of an assessment on the APS transmission ROW along both the 500 kV and 345 kV lines in the Chuska mountains. Confirmation surveys were completed for this species, and identified none of this species occurring within the ROW. This species may occur within the APS transmission line ROWs in modeled habitat. The ROWs would continue to be operated and maintained in their current state and no major alterations to existing habitats within the ROW are expected to occur. Transmission line ROW areas with suitable habitat along the 345-kV line have been surveyed for this species and areas of low quality, suitable habitat have been mapped. Crews will receive environmental training to recognize the species. Inspection vehicles and crews will follow existing BMPs, including keeping vehicles on existing roads and traveling on foot to access areas that cannot be inspected from the roads.

Continued operation of the transmission lines and performance of required maintenance activities as previously authorized utilizing current BMPs could result in minor impacts to individuals but would not result in any new or additional impacts to the limited habitat, or any known populations or population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be a negligible adverse effect to the species and no mitigation is required.

Mesa Verde Cactus

The habitat for the Mesa Verde cactus along the existing transmission lines was surveyed by APS in 2012. Ten potential habitat locations, identified by the habitat assessment model, were surveyed along the FCPP to Moenkopi Substation transmission line and two potential habitat locations were surveyed along the FCPP to Cholla Substation line. Survey results identified 11 locations as low quality habitat and 1 location was moderate quality habitat. No populations of the target species were observed along the ROWs during field surveys.

Given the limited suitable habitat within the ROW area and this species distribution, continued operation of the transmission lines and performance of required maintenance activities as previously authorized and using current BMPs identified in Section 3.2.6 and existing regulatory mechanisms would result in little to no impacts to individuals, and would not result in any new or additional impacts to the limited suitable habitat, or any known populations or population level impacts. Impacts are not likely to result in a loss of species viability rangewide.

Fickeisen's Plains Cactus

Five potential habitat locations identified by the habitat assessment model were projected to occur along the FCPP to Moenkopi Substation transmission line ROW. These five locations were surveyed and identified as low quality habitat. No individuals of the target species were observed during field surveys.

Given the limited suitable habitat within the ROW area and this species distribution, continued operation of the transmission lines and performance of required maintenance activities as previously authorized and using current BMPs identified in Section 3.2.6 and existing regulatory mechanisms would result in little to no impacts to individuals, and would not result in any new or additional impacts to the limited suitable habitat, or any known populations or population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be a negligible adverse effect to the species and no mitigation is required.

Gooding’s Onion

Approximately 7 acres of Gooding’s onion habitat was modeled as a result of an assessment on the APS transmission ROW along both the 500 kV and 345 kV lines near the New Mexico/Arizona stateline. Confirmation surveys were completed for this species, and identified none of this species occurring within the ROW. This species may occur within the APS transmission line ROWs in modeled habitat. The ROWs would continue to be operated and maintained in their current state and no major alterations to existing habitats within the ROW are expected to occur.

Continued operation of the transmission lines and performance of required maintenance activities as previously authorized utilizing current BMPs identified in Section 3.2.6 could result in minor impacts to individuals but would not result in any new or additional impacts to the limited habitat, or any known populations or population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be a negligible adverse effect to the species and no mitigation is required.

Naturita Milk-vetch

Three potential habitat locations identified by the habitat assessment model, along the FCPP to Moenkopi Substation transmission line and four potential habitat locations along the FCPP to Cholla Substation line were surveyed. Two of these locations were identified as low quality habitat, three high-quality habitat, and one each were moderate- or moderate/low-quality habitat. No populations of the target species were observed along the ROWs during field surveys.

A portion of the suitable habitat is high to moderate quality but no populations were observed within the ROWs in these higher quality suitable habitat areas. Given the limited amount of suitable habitat identified

and because no populations were found within the ROW area and this species' distribution, continued operation of the transmission lines and performance of required maintenance activities is not likely to result in a loss of species viability rangewide. Therefore, there would be a negligible adverse effect to the species and no mitigation is required.

Round Dunebroom

Three potential habitat locations were identified along the FCPP to Moenkopi line ROW by the habitat assessment model and surveyed. Survey results identified two locations as high quality habitat and one location was moderate/low quality habitat. No populations of the target species were observed along the ROWs during field surveys.

Continued operation of the transmission lines and performance of required maintenance activities as previously authorized utilizing current BMPs could result in minor impacts to individuals but would not result in any new or additional impacts to the limited habitat, or any known populations or population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be a negligible adverse effect to the species and no mitigation is required.

Alcove Bog Orchid

Approximately 7 acres of Alcove bog orchid habitat was modeled as a result of an assessment on the APS transmission ROW along both the 500 kV and 345 kV lines near Chinle Wash and other scattered wetland locations. Confirmation surveys were completed for this species, but no individuals were observed. This species may occur within the APS transmission line ROWs in modeled habitat. The ROWs would continue to be operated and maintained in their current state and no major alterations to existing habitats within the ROW are expected to occur.

Continued operation of the transmission lines and performance of required maintenance activities as previously authorized utilizing current BMPs identified in Section 3.2.6 could result in minor impacts to individuals but would not result in any new or additional impacts to the limited habitat, or any known populations or population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be a negligible adverse effect to the species and no mitigation is required.

PNM Lines: FCPP to San Juan Switchyard and FCPP to West Mesa Switchyard

Mammals

Pronghorn Antelope

Much of the FCPP to West Mesa Switchyard and FCPP to San Juan Switchyard transmission line ROWs could be considered potential habitat for pronghorn however, no indication (tracks, droppings, or direct observation) of pronghorn was observed within the transmission line corridors during the 2012 surveys. The occupied range of antelope on the Navajo Nation includes only the checkerboard lands in New Mexico. The maintenance activities associated with the ROW would have minimal disturbance impacts on any pronghorn within or along the ROW, as this species is highly mobile and could easily avoid any disturbance.

Special-Status Bat Complex - Spotted Bat, Big-freetail Bat, Small-footed bat, long-legged myotis, Yuma myotis, occult little brown bat, and fringed myotis

The roosting habitat likely to be utilized by bats is primarily the small sandstone outcrops that are scattered throughout the central and southern portions of the FCPP to West Mesa Switchyard transmission line corridor. Although at least marginal potential habitat existed for these species of bats, none were found within the ROI, nor was any bat use indicated within the FCPP to West Mesa Switchyard transmission line corridor based on an extensive survey.

It is likely that no more than 100 acres of habitat along the entire length of the line would be considered suitable roosting areas for these bat species. None of the proposed actions are likely to alter this habitat beyond the conditions that already exist or preclude its use by these seven bat species. The proposed maintenance activities should have no impact on this species. Therefore, there would be no effect to the species and no mitigation is required.

Birds

Yellow-billed cuckoo

Potential habitat occurs along the southern portion of the FCPP to West Mesa line where it crosses the Rio Puerco in Sandoval County between poles FW 757-758 and adjacent to the FCPP at Morgan Lake approximately 1 mile north of the FCPP to West Mesa Switchyard transmission line ROW corridor. This habitat was considered marginal for nesting and was unoccupied during field surveys.

Because the ROW contains limited amounts of marginal suitable habitat, and this habitat is unoccupied, and because ROW maintenance practices include a number of measures to protect the species, continued operation of the transmission lines and performance of required maintenance activities as previously authorized would not result in any new or additional impacts.

Routine inspection of the APS or PNM transmission lines would not entail any disturbance of habitat for southwestern willow flycatcher or yellow-billed cuckoo, however, individual birds may be disturbed by inspectors moving through an occupied area. This disturbance would be short-term and temporary and infrequent (once a year). Any birds so disturbed would be expected to return to their normal behavior shortly after the inspectors depart.

Maintenance activities within both the APS and PNM transmission ROWs would entail the continued management of vegetation adjacent to the rivers, washes, and riparian habitats. These ROWs were cleared when the transmission lines were originally constructed and are maintained to prevent the establishment of large woody vegetation. Expected maintenance activities include the trimming or removal of trees or large shrubs within the ROW over the life of the transmission lines. Vegetation management is not expected to result in the loss or conversion of existing riparian habitats, as woody vegetation within the ROWs has been managed since the construction of the transmission lines. Both APS and PNM have prepared and follow the conservation measures described in Section 3.2.6 such as environmental screening, environmental awareness training, watching for active nests, nesting season avoidance and adherence to their respective Wildlife Management and Avian Protection plans to reduce impacts to nesting avian species.

The continued operation of the transmission lines and performance of required maintenance activities as previously authorized would not result in any new or additional impacts, or any known populations or population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be a negligible adverse effect to the species and no mitigation is required.

Southwestern willow flycatcher

Potential migration or nesting habitat occurs along portion of the line where it crosses wetland areas, the San Juan River, and the Rio Puerco River. No suitable habitat for this species existed on Navajo Nation lands within or adjacent to the FCPP to West Mesa Switchyard transmission line corridor, although a migrating flycatcher was documented at the northeast corner of Morgan Lake in Spring 2012, approximately 1 mile north of the FCPP to West Mesa Switchyard transmission line ROW corridor.

The potential effects of transmission line operation and maintenance would be similar to those described for yellow-billed cuckoo and would be minimized or avoided through the same Conservation Measures and BMPs. Given the limited amount of suitable migration habitat that lies within the ROW and because ROW maintenance practices include a number of measures to protect the species, continued operation of

the transmission lines and performance of required maintenance activities as previously authorized would not result in any new or additional impacts, or any known populations or population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be a negligible adverse effect to the species and no mitigation is required.

Golden eagle

Hunting habitat for golden eagles occurs along the entire length of the FCPP to West Mesa Switchyard transmission line ROW. ROI large man-made structures such as the FCPP and transmission line structures, potential golden eagle nesting habitat occurs on large man-made structures, including the transmission poles, high ridges, or mesa sides where cliffs of sufficient height for golden eagles nest exist. The birds have been observed using the transmission structures as perches. Five documented historic nest locations exist and one newly discovered nest is located between 0.6 to 1.5 miles from the FCPP to West Mesa Switchyard ROW corridor and none are on Navajo lands. Impacts to golden eagles would occur if required maintenance activities and associated disturbances were conducted during nesting periods and nests were located on the transmission structures or in close proximity. Such activities are prohibited under the MBTA, which prevents activities that have the potential to disturb a bird on an active nest or the nest itself. If such activities are essential during the breeding season it would require separate coordination with the NNDFW or NMDGF, and possibly the USFWS, depending on the location of the structures. All transmission structures are designed with adequate line clearances to prevent electrocutions and meet APLIC design guidelines so no risk of electrocution exists.

Should a nest occur on Navajo lands in the future, the Navajo Nation has specific guidelines governing activities in the proximity of raptor nests. Navajo Nation guidelines for avoiding impacts to golden eagles call for no brief activity within 0.37 mile of a nest site, no light activity within 0.5 mile of a nest site, and no heavy activity within 0.75 mile of a nest site from January 15 to June 15. Continued operation of the transmission lines and performance of required maintenance activities as previously authorized would not result in any new or additional impacts to the suitable habitat, or any known populations or population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be a negligible adverse effect to the species and no mitigation is required.

Ferruginous Hawk

Foraging and nesting habitat for ferruginous hawks occurs along the entire length of the FCPP to West Mesa Switchyard transmission line ROW and the birds have been observed using the transmission structures as perches and for nesting. Six active ferruginous hawk nests were observed, all of which were on FCPP to West Mesa transmission line poles and five of which were located on Navajo Nation lands. The last nest was on a transmission pole on private land in Sandoval County. Impacts to this species would occur if required maintenance activities and associated disturbances were conducted during nesting periods and nests were located on the transmission structures or in close proximity. All transmission structures are designed with adequate line clearances to prevent electrocutions and meet APLIC design guidelines so no risk of electrocution exists.

Navajo Nation guidelines for avoiding impacts to ferruginous hawks call for no disturbance activity within 0.50 mile of a nest site, from March 1 to June 15. Heavy activity can occur within 0.75 mile of an occupied nest site and loud activity should not occur within 1 mile of an active nest site. If maintenance activities within these buffers are essential during the breeding season it would require separate coordination with the NNDFW or NMDGF, and possibly the USFWS, depending on the location of the structures. Unoccupied nests are not subject to the restrictions so all maintenance activates could be scheduled outside of the breeding season. Continued operation of the transmission lines and performance of required maintenance activities as previously authorized would not result in any new or additional impacts to the suitable habitat, or any known populations or population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be a negligible adverse effect to the species and no mitigation is required.

Bald Eagle

Limited suitable foraging habitat for the bald eagle occurs along the FCPP to San Juan Switchyard ROW and no suitable foraging habitat exists along the FCPP to West Mesa ROW. The species is not likely to occur, so no impacts are anticipated.

Baird's sparrow

A survey of the ROI was conducted in May and June 2012 to ascertain potential migration habitat for the species. Baird's sparrow wintering habitat is generally composed of dense grasslands with a minor shrub component. Field surveys determined no likely wintering habitat lies within the ROI, although some of the grassland habitats in the northern end and near the southern end of the FCPP to West Mesa Switchyard transmission line corridor are suitable for migration.

Because ROW maintenance practices include a number of measures to protect the species, continued operation of the transmission lines and performance of required maintenance activities as previously authorized would not result in any new or additional impacts.

Vegetation management is part of the routine maintenance and has been ongoing since the line was constructed and if it is done outside of the breeding season, then continued operation of the transmission lines and performance of required maintenance activities as previously authorized would not result in any new or additional impacts, or any known populations or population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be a negligible adverse effect to the species and no mitigation is required.

Western burrowing owl

Potential habitat for western burrowing owl occurs throughout the ROI. Although prairie dogs were present, they were mainly concentrated within the northern one-quarter of the FCPP to West Mesa Switchyard transmission line corridor. If owls were present, noise from line maintenance activities may cause burrowing owls to avoid using the limited suitable habitat near the ROW corridor and migrate to adjacent areas. Impacts from avoidance would be low and short to long term.

No burrowing owls were documented along this transmission line ROW. It is possible that future burrowing owls could occupy areas in other suitable habitat within the ROW and any impacts to this species are expected to be low or none if maintenance work is performed outside of the breeding season. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be a minor adverse effect to the species and no mitigation is required.

American peregrine falcon

Over a dozen other areas have potential nesting habitat for peregrine falcon at several locations near the transmission line on BLM lands. A protocol survey for peregrine falcon was conducted in the early Spring and Summer 2012 and peregrine falcons were observed only in the FCPP area. There, were no indications of falcon nests on any of the transmission line structures along the FCPP to West Mesa Switchyard transmission line corridor. Impacts to this species would occur if required maintenance activities and associated disturbances were conducted during nesting periods and nests were located on the transmission structures or in close proximity. Such activities are prohibited under the MBTA, which prevents activities that have the potential to disturb a bird on an active nest or the nest itself from occurring within species specific buffers. If such activities are essential during nesting season and within the buffer area it would require separate coordination with the BIA or NMDGF, and possibly the USFWS, depending on the location of the structures. All transmission structures are designed with adequate line clearances to prevent electrocutions and meet APLIC design guidelines so no risk of electrocution exists.

Peregrine falcons are known to occur adjacent to the FCPP to West Mesa Switchyard transmission line near the FCPP. Any proposed line maintenance activities at this location (which are generally far less than the daily activity at the plant) are not anticipated to adversely affect peregrine falcons that occur there. Although no peregrine falcons were present at the other potential habitat locations along the corridor, it is possible that in the future peregrine falcons could establish nests at these cliff locations. Continued operation of the transmission lines and performance of required maintenance activities as previously authorized would not result in any new or additional impacts to the suitable habitat, or any known populations or population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be a negligible adverse effect to the species and no mitigation is required.

Loggerhead shrike

Large portions of the FCPP to West Mesa Switchyard transmission line corridor can be considered potential habitat for the loggerhead shrike. However, multiple surveys over many portions of the line have identified just one bird along the northern end of FCPP to West Mesa transmission line corridor on Navajo lands. This bird was not associated with a nest. No loggerhead shrike observations occurred on BLM lands anywhere within the FCPP to West Mesa transmission line corridor.

Because ROW maintenance practices include a number of measures to protect the species, continued operation of the transmission lines and performance of required maintenance activities as previously authorized would not result in any new or additional impacts.

Vegetation management is part of the routine maintenance and has been ongoing since the line was constructed and if it is done outside of the breeding season, then continued operation of the transmission lines and performance of required maintenance activities as previously authorized would not result in any new or additional impacts, or any known populations or population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be a negligible adverse effect to the species and no mitigation is required.

Grey vireo

Potential habitat for gray vireo was confined to the woodland and savanna portions of the FCPP to West Mesa Switchyard transmission line. Five occupied gray vireo territories were discovered during the survey of the transmission line, all on BLM lands. All of these are in close proximity to the line and four are tightly clustered between poles FW 326-333. The remaining outlying territory occurred west of the line between poles FW 357-358.

BLM has no published prescriptions regulating the activities around gray vireo sites. Routine line patrols along the existing cleared ROW would not impact the nesting activities of gray vireo between poles FW 326-331.

Because ROW maintenance practices include a number of measures to protect the species, continued operation of the transmission lines and performance of required maintenance activities as previously authorized would not result in any new or additional impacts.

Vegetation management is part of the routine maintenance and has been ongoing since the line was constructed and if it is done outside of the breeding season, then continued operation of the transmission lines and performance of required maintenance activities as previously authorized would not result in any new or additional impacts, or any known populations or population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be a negligible adverse effect to the species and no mitigation is required.

Amphibians and Reptiles

Leopard Frog

Potentially suitable habitat was identified along portions of FCPP to San Juan transmission ROW, along the San Juan River and in wetlands and ponds within ROW. Potential habitat capable of supporting this species was identified as a result of intensive field surveys within the PNM FCPP to West Mesa ROW. These habitats include riparian woodlands, wetlands, and permanent water sources capable of supporting breeding and life stages of this species. These habitats would be managed in their present condition through the life of the project. Project Activities would generally avoid wetlands, ponds, rivers, and creeks, and these habitats are sometimes inaccessible during completion of routine ROW maintenance activities or repairs. Therefore, it is very unlikely that this species would experience direct impacts associated with continued use of the ROW as a transmission corridor.

Plants

Mesa Verde Cactus

Potential habitat for Mesa Verde cactus and populations were identified along the FCPP to San Juan Switchyard ROW (Marron and Associates 2012b).

The proposed maintenance activities could have several potential impacts on Mesa Verde cactus. These potential effects fall into direct impacts and indirect impacts. The potential direct impacts would include vehicles driving over Mesa Verde cactus and crushing them; excavation within active population areas that would not only remove cacti but potentially destroy their habitat; and direct disposal of fill or waste materials on top of Mesa Verde cactus. Indirect impacts would occur if excavated fill materials silted over Mesa Verde cacti due to stormwater runoff. Continued operation of the transmission lines would include routine maintenance using BMPs described in Section 3.2.6 to avoid known populations or impacts to individual plants. All such activities would be conducted in accordance with the BO for the Project that will be issued by the USFWS; therefore, the work is unlikely to affect individuals of this species, and would not adversely affect suitable habitat, known populations or have population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be a negligible adverse effect to the species and no mitigation is required.

Naturita milkvetch

Field surveys determined that the limited sandstone outcrops were of insufficient size and structure to provide suitable habitat. Field surveys determined no suitable habitat for this species within the transmission line corridor. No individuals of this species were observed during surveys (Marron and Associates 2012a). Given the limited amount of habitat and the general lack of suitability of that habitat, along with the lack of observation of any individuals of this species, Project activities would have no effect on this species.

San Juan Milkweed

This plant is limited to areas with suitable habitat in San Juan County. During surveys conducted in 2012, two populations of San Juan milkweed were found within the FCPP to West Mesa transmission line ROW corridor near poles FW 260 and FW 269. The population at FCPP to West Mesa pole 260 occurs on BLM lands and the population at FCPP to West Mesa pole 269 occurs on state lands.

PNM patrols are required to stay on the existing trails or access roads to the maximum extent possible; as such they would not be expected to impact the two discovered populations of San Juan milkweed within the FCPP to West Mesa transmission line ROW. Given the limited suitable habitat within the ROW area and this species distribution, continued operation of the transmission lines and performance of required maintenance activities as previously authorized with inclusion of the measures proposed in Section 3.2.6 could affect individuals of this species, but would not result in any new or additional impacts to the limited

suitable habitat, or any known populations or population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be a negligible adverse effect to the species and no mitigation is required.

Brack's fishhook cactus

Potential habitat for this species occurred in the northern half of the FCPP to West Mesa transmission line corridor.

Survey results did not identify any occurrences of the target species in the areas of suitable habitat. Additionally, this species has not been observed this far south, so the suitable habitat along the transmission line corridor is outside of the known range for the species. Given the limited suitable habitat within the ROW area and this species distribution, continued operation of the transmission lines and performance of required maintenance activities as previously authorized could affect individuals of this species, but would not result in any new or additional impacts to the suitable habitat, or any known populations or population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be a negligible adverse effect to the species and no mitigation is required.

Aztec gilia

Aztec gilia occurs on substrates provided by the Nacimiento formation. Portions of the Nacimiento formation surface along the FCPP to West Mesa transmission line from approximately poles 154-478. In most cases these outcrops of suitable habitat extended under only short segments of the FCPP to West Mesa transmission line. Although suitable habitat for Aztec gilia occurred along portions of the transmission line in the southeast corner of San Juan County and northeast corner of McKinley County, no populations of the target species were observed along the ROWs during field surveys (Marron and Associates 2012a).

The proposed line maintenance activities, when implemented with the measures in Section 3.6.2, would have a negligible effect upon this species, should it occur along the ROW in the future, and no mitigation is required.

Parish's alkali grass

Two arroyos in the northern quarter of the FCPP to West Mesa transmission line corridor provide marginal habitat for Parish's alkali grass. No Parish's alkali grass existed at either of these locations, or at any other locations along the FCPP to West Mesa transmission line corridor.

Given the limited potential habitat within the ROW area and this species distribution, continued operation of the transmission lines and performance of required maintenance activities as previously authorized could affect individuals of the species, but would not result in any new or additional impacts to the suitable habitat, or any known populations or population level impacts. Impacts are not likely to result in a loss of species viability rangewide. Therefore, there would be a negligible adverse effect to the species and no mitigation is required.

4.8.4.2 Federal Endangered Species Act Compliance

In accordance with the federal ESA, OSMRE submitted a BA to the USFWS on August 8, 2014 (physical copy received by USFWS August 14, 2014). OSMRE received notice that the BA provided the information necessary for the USFWS to initiate formal consultation on September 8, 2014.

The BA reviewed the Proposed Action, as described in Section 3, in sufficient detail to determine to what extent the Proposed Action may affect ESA threatened, endangered, proposed or candidate species and designated or proposed critical habitat, within the Action Area (the ROI for the biological resources chapters in this EIS).

As described in Section 4.8.4.1, 39 species were identified through review of IPaC and USFWS websites as being potentially present in the counties affected by the project. Of these species, 26 were eliminated from further review, because OSMRE concluded that the known distribution of these species did not overlap the ROI (Action Area). Three other species, Mexican gray wolf (*Canis lupus baileyi*), Canada lynx (*Lynx canadensis*), and Navajo sedge (*Carex specuicola*), have suitable habitat within the Action Area, but it was determined that the Proposed Action would not affect these species.

OSMRE requested Section 7 coverage for the incidental take of 10 species:

- Colorado pikeminnow (*Ptychocheilus lucius*) – Endangered
- Razorback sucker (*Xyrauchen texanus*) – Endangered
- Southwestern willow Flycatcher (*Empidonax traillii extimus*) – Endangered
- Yellow-billed cuckoo (*Coccyzus americanus*) – Proposed Threatened
- California condor (*Gymnogyps californianus*) – Endangered, experimental population
- Mexican spotted owl (*Strix occidentalis lucida*) – Threatened
- Mancos milk-vetch (*Astragalus humillimus*) - Endangered
- Mesa Verde cactus (*Sclerocactus mesae-verdae*) – Threatened
- Fickeisen plains cactus (*Pediocactus peeblesianus* var. *fickeiseniae*) – Endangered
- Zuni fleabane (*Erigeron rhizomatous*) – Threatened

Critical habitat occurs within the Action Area for Colorado pikeminnow and razorback sucker.

OSMRE determined that the Proposed Action may affect and is likely to adversely affect Colorado pikeminnow and razorback sucker and their designated critical habitat as a result of entrainment at the APS Weir, release of non-native fish from Morgan Lake into the San Juan River via No Name Wash and the Chaco River, and atmospheric emissions of contaminants that are already present in watershed in quantities that may adversely affect the species.

OSMRE determined that the Proposed Action may affect, but is not likely to adversely affect southwestern willow flycatcher and yellow-billed cuckoo under current conditions, based on the limited amount of low quality, suitable habitat for the species within the Action Area, which is used only as migratory stopover habitat and does not support nesting for this species. The Proposed Action associated with the Navajo Mine, FCPP, and the transmission lines include Conservation Measures that would avoid impacts to these species. However, OSMRE determined that the Proposed Action may affect and is likely to adversely affect these species in the future, if nesting of these species occurs in the Action Area over the life the Proposed Action, as a result of ongoing riparian habitat restoration efforts, through atmospheric emissions of mercury, which while not harmful, in and of themselves, would add to the current concentrations of these contaminants in the environment that are already at levels that may adversely affect the species, and which are expected to increase in the future as a result of deposition from sources other global and regional sources, even without FCPP.

OSMRE determined that the Proposed Action may affect, but is not likely to adversely affect California condor, Mexican spotted-owl, Mancos milk-vetch, Mesa Verde cactus, Fickeisen Plains Cactus, and Zuni fleabane, because of the distribution patterns of these species and the Conservation Measures included in the Proposed Action to avoid and minimize effects to these species.

Based on information received from NNDFW on December 3, 2014, OSMRE determined that Zuni bluehead sucker (*Catostomus discobolus yarrowi*) would occur within the ROI. OSMRE determined the Proposed Action would not affect Zuni bluehead sucker based on the limited area of overlap between the species habitat and the ROI and distance between the nearest transmission towers and the stream where the species occurs (~1,000 feet). This finding was transmitted to USFWS on December 23, 2014.

Through the formal consultation process with USFWS, OSMRE, the cooperating agencies, and the proponents developed additional conservation measures to further reduce the potential impacts of the

projects on the species. These were transmitted to USFWS on March 13, 2015. These measures include the following:

1. As the lead federal agency conducting consultation under Section 7 of ESA for the FCPP and Navajo Mine Energy Project, and acting under the provisions of SMCRA, OSMRE will evaluate and consult with USFWS on the effect of all discretionary OSMRE permitting actions that have the potential to result in the deposition of Hg in the San Juan River Basin. OSMRE will conduct this evaluation every 2 years and consult with USFWS upon completion of the evaluation. In evaluating and consulting on such actions, if adverse Hg effects to the Colorado pikeminnow, or adverse effects to its critical habitat due to Hg deposition, are determined likely, OSMRE will initiate formal ESA consultation to reduce these likely effects; and will ensure implementation of any subsequently developed measures to offset Hg effects to this species.
2. As a key cooperating agency coordinating with OSMRE in this consultation process, BIA will obligate funding in fiscal year 2015 for the purposes of a Razorback Sucker Selenium Effects Study. This study is expected to assist with clarifying what level of selenium causes adverse impacts to razorback sucker in the San Juan Basin.
3. OSMRE will work with EPA and the Project Proponents to minimize effects of the Proposed Action on Colorado pikeminnow, razorback suckers, southwestern willow flycatchers, or yellow-billed cuckoos by developing comprehensive guidelines and criteria for ESA review of future EPA-issued NPDES permits for the Project.
    a. OSMRE will coordinate with EPA and the Project Proponents to review the likelihood and pathways of effluent exposure, the concentrations of Hg and selenium necessary to protect endangered species in suitable habitats, and results of the monitoring program funded in Conservation Measure 7 to identify such concentrations in their habitats, and will develop guidelines and protocols for subsequent programmatic ESA review of future proposed NPDES permits for the Project.
    b. The programmatic review and guidelines will seek USFWS review and concurrence.
    c. Pending finalization of the guidelines and protocols for programmatic review, customary ESA review will occur for future proposed NPDES permit or renewal for the Project.
4. Project Proponents will develop and implement a Pumping Plan to reduce the magnitude and types of entrainment of Colorado pikeminnow and razorback sucker. The Pumping Plan will optimize avoidance of entrainment of larvae and impingement of larger fishes through measures that are deemed feasible without altering the current operating configuration at the river pump station.
    a. The Pumping Plan measures shall be developed with the oversight of OSMRE and the approval of the Service.
    b. The final Pumping Plan shall be implemented within 2 years of issuance of a ROD.
5. Project Proponents will develop and implement a Non-native Species Escapement Prevention Plan, which will include the following measures to minimize: (a) the risk of nonnative species (plants, invertebrates, and fish) that inhabit Morgan Lake invading San Juan River; and (b) the introduction of additional nonnative species into Morgan Lake.
    a. Project Proponents will develop and disseminate public education materials regarding the threat of nonnative species targeted to recreational users of Morgan Lake. The materials will recommend practices to prevent the introduction of new nonnative species to Morgan Lake or the transfer of existing nonnative species from Morgan Lake to the San Juan River.

b. Project Proponents will install and operate a device designed to prevent the transfer of nonnative fish species from Morgan Lake to the San Juan River.

6. Project Proponents will work with the USFWS to support the San Juan River Recovery Implementation Program efforts to ensure that a fish passage is designed and constructed by the San Juan River Recovery Implementation Program at the APS Weir by contributing funds for the fish passage, as outlined in Conservation Measure 7 below.

7. Project Proponents shall contribute to the survival and recovery of the Colorado pikeminnow and razorback sucker by funding the specific Recovery Actions. USFWS, in coordination and collaboration with the San Juan River Recovery Implementation Program, will determine the most appropriate method for implementing these Recovery Actions.

   a. Funding will be provided to the San Juan River Recovery Implementation Program through the National Fish and Wildlife Foundation on an initial and annual basis every year that the Project remains in operation. Funding will contribute to both new and existing San Juan River Recovery Implementation Program Recovery Actions.

   b. Funding through National Fish and Wildlife Foundation will be managed and administered by the San Juan River Recovery Implementation Program Office according to the terms and conditions set forth in a contract with National Fish and Wildlife Foundation, including a condition that the San Juan River Recovery Implementation Program provide reports on implementation of Funded Recovery Actions.

   c. Propagation of endangered fishes will contribute towards the offset of losses associated with the Proposed Action.

   d. Nonnative fish removal, combined with the measures in Conservation Measure 5, will reduce the adverse effects to Colorado pikeminnow and razorback sucker designated critical habitat.

   e. Protection, management, and augmentation of fish habitat will contribute towards the offset of losses associated with the Proposed Action.

   f. Monitoring of fish and habitat is required to track implementation of the Funded Recovery Actions and contribute scientific information to support adaptive management by the San Juan River Recovery Implementation Program.

   g. Modification of APS Weir with a fish passage will allow endangered fish increased access of up to 18 miles of fish habitat, including new portions of Colorado pikeminnow critical habitat.

   h. Monitoring of Hg and selenium in endangered fish every 5 years allows appropriate tracking of implementation of the Funded Recovery Actions and will contribute scientific information to support adaptive management by the San Juan River Recovery Implementation Program.

   i. Conducting Hg Studies in Colorado pikeminnow will assist the tracking of implementation of the funded Recovery Actions and contributes scientific information to support adaptive management by the San Juan River Recovery Implementation Program.

   j. Funding a USFWS Senior Biologist will facilitate Hg/selenium reviews and contribute towards implementation of funded Recovery Actions.

8. Project Proponents shall provide a Spill Contingency Countermeasures Plan which addresses potential Ash Pond Failure impacts on suitable habitat for Colorado pikeminnow, razorback suckers, southwestern willow flycatchers, or yellow-billed cuckoos.
    a. All necessary equipment, training, and materials will be made available for emergency response to a potential Ash Pond Failure.
    b. A practice response table-top drill with appropriate authorities will be conducted every 10 years.
9. Project Proponents shall conduct standard protocol surveys for southwestern willow flycatchers and yellow-billed cuckoos.
    a. Within at least 85 acres of the Deposition Area beginning in 2016 and continuing until 2042 or until the Project ceases operation, to monitor the effects of Hg and selenium deposition to nesting flycatchers and cuckoos.
    b. Presence/absence flycatcher and cuckoo surveys will be conducted within at least one optimal or suitable habitat (AECOM 2013f, i) on the Navajo Mine Lease Area during the spring migration period to monitor the potential effects of noise and disturbance to migrant flycatchers beginning in 2016 and continuing until 2042 or until the Project ceases operation.
10. Project Proponents shall mitigate effects of endangered plants within the ROWs of transmission line maintenance activities through implementation of the Environmental Screening Program.
11. Project Proponents shall share data and report to the USFWS and OSMRE annually on implementation of the Conservation Measures and their implementing terms and conditions.

OSMRE received USFWS' final BO on April 8, 2015 (Appendix E). In the BO, the USFWS concurred with OSMRE's effects findings that the Proposed Action is likely to adversely affect Colorado pikeminnow and its critical habitat, razorback sucker and its critical habitat, southwestern willow flycatcher, and the yellow-billed cuckoo, and that the Proposed Action may affect, but is not likely to adversely affect, California condor, Mexican spotted owl, Mancos milk vetch, Fickeisen plains cactus, Mesa Verde cactus, and Zuni fleabane.

After review of the BA and other existing, pertinent scientific information, and conducting their own analysis, the USFWS concluded that the Proposed Action will not jeopardize the continued existence of the Colorado pikeminnow, razorback sucker, southwestern willow flycatcher, or yellow-billed cuckoo, and will not adversely modify or destroy designated critical habitats for Colorado pikeminnow and razorback sucker in the San Juan River Basin so as to appreciably diminish the value of this critical habitat to satisfy the function and conservation role during the timeframe of the Proposed Action.

The USFWS found that the Proposed Action will result in the increased likelihood of noise and disturbance, water withdrawal, effluent discharges either pursuant to NPDES permits or in the unlikely event of ash pond failure, entrainment, APS Weir operations, nonnative species release, and the emission, subsequent deposition, and bioaccumulation of Hg and selenium. The BO concluded that the historic and ongoing recovery benefits provided by the actions taken by the San Juan River Recovery Implementation Program and the Conservation Measures included in the Proposed Action create a cumulative beneficial effect to these species, when added to the environmental baseline, cumulative effects, and project effects.

The BO provides for incidental take of Colorado pikeminnow, razorback sucker, southwestern willow flycatcher, and yellow-billed cuckoo relating to the effects described above. The BO provides Reasonable and Prudent Measures based on the Conservation Measures provided by OSMRE on March 13, 2015 and associated Terms and Conditions. These Reasonable and Prudent Measures and Terms and Conditions are non-discretionary and must be undertaken by OSMRE or delegated to other federal action agencies, so they become binding conditions of any grant or permit issued to any applicants for the Section 7(o)(2) exemption to apply.

4.8.4.3 Alternative B – Navajo Mine Extension Project

Navajo Mine

Under Alternative B, OSMRE would approve an alternative SMCRA Permit for the Navajo Mine Extension Project.

Additional special-status species habitat and foraging areas would be permanently lost due to the expanded construction area, power lines, and roadways in Alternative B. Also, a greater likelihood of disturbance and vehicle collisions exists with the additional 5 miles of roadways and 28 acres of disturbance. Alternative B would result in potentially greater impacts to special-status species than Alternative A.

Four Corners Power Plant

Under Alternative B, FCPP would operate as described under the Proposed Action. No changes are proposed and any identified impacts to special-status species would be the same.

Transmission Lines

Under Alternative B, the transmission line ROWs would be approved and they would continue to be operated and maintained as described under the Proposed Action. No changes are proposed and any identified impacts to special-status species would be the same as describe in Alternative A.

4.8.4.4 Alternative C – Alternative Pinabete Mine Plan

Navajo Mine

Under Alternative C, OSMRE would approve an alternative mine plan for the Navajo Mine, known as the Alternative Pinabete SMCRA Mine Plan.

Additional special-status species habitat and foraging areas would be permanently lost due to the expanded construction area, power lines, and roadways in Alternative C. This alternative would result in potentially greater impacts to special-status species than Alternative A.

Four Corners Power Plant

Under Alternative C, FCPP would operate as described under the Proposed Action. No changes are proposed and any identified impacts to special-status species would be the same.

Transmission Lines

Under Alternative C, the transmission line ROWs would be approved and they would continue to be operated and maintained as described under the Proposed Action. No changes are proposed and any identified impacts to special-status species would be the same.

4.8.4.5 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. No changes are proposed and any identified impacts to special-status species 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 effects on special-status species resulting from the DFADAs would be of the same nature as those described for the Proposed Action but would result in less potential

impact to the biological community. Potential impacts related to the proposed DFADAs to four special-status species (the southwestern willow fly catcher, golden eagle, ferruginous hawk, and the Mesa Verde cactus) would be as described for the Proposed Action, except that the 10 percent reduction in surface area of the DFADAs would result in less potential for impacts to suitable habitat and an associated reduction in the potential impacts to population level impacts. All other FCPP components of this alternative are the same as for the Proposed Action. Therefore, impacts would 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 any identified impacts to special-status species would be the same as described for the Proposed Action.

4.8.4.6 Alternative E – No Action Alternative

Alternative E would have no FCPP construction or operation, no use of existing transmission lines, access road, and water-supply system or need for new ash disposal sites. No mine permit or ROW renewal approvals or additional loss or modification of vegetation communities or special-status species habitat would occur. The demolition of FCPP and the loss of Morgan Lake would reduce habitat, at least temporarily. In the event of No Action, further analysis is speculative because the future disposition of the assets is not known with certainty.

Navajo Mine

Under the No Action Alternative, mining would cease when the ROD is issued in 2015. The Pinabete SMCRA Permit Area would not be mined. Burnham Road would not be realigned. Upon permit expiration, NTEC would begin reclamation activities in Areas III and IV North. Reclamation activities would continue until OSMRE approval that all reclamation requirements have been met and OSMRE jurisdiction is terminated. It is expected that all reclamation would be completed by June 2021. All ancillary buildings and facilities (e.g., communication lines, railroad) would be removed, and the land would be reclaimed according to OSMRE requirements and performance standards. No loss of habitat would be associated with the No Action Alternative, so for special-status species, these activities would not lead to adverse effects and could result in potential beneficial impacts due to replacement of habitat.

Four Corners Power Plant

Under the No Action Alternative, FCPP would shut down and the DFADAs would not be constructed. APS would decommission all facilities that are not required or permitted to be left behind by the 1960 and 1966 leases. As such, decommissioning and dismantling activities would need to be coordinated with the Navajo Nation so that the area meets the specific needs of any planned reuse. APS has not yet prepared a decommissioning plan, but any demolition activities would comply with all environmental laws and regulations applicable at the time, potentially including NEPA review. Decommissioning would require environmental abatement activities in the power block, including removal of environmental and safety hazards (e.g., asbestos, lead paint), and chemicals and oils. All waste generated during this phase would be managed and disposed of in accordance with applicable Federal environmental regulations. Dismantling and demolition would commence following the removal of asbestos, PCB, lead paint, and any other hazardous chemicals. Upon removal of structures and facilities, the structural foundations would be removed to 24 inches below grade, the site profiled to allow for proper drainage, and native vegetation planted as applicable. In addition to the five units, decommissioning and dismantling may also include removal of all three switchyards. The timeline for this process is at the discretion of APS and the Navajo Nation. For special-status species, these activities and this time would not lead to adverse effects and could result in potential beneficial impacts due to reduction in emissions and revegetation efforts.

Transmission Lines

Under the No Action Alternative, the ROWs for the four subject transmission lines would not be approved. Since the subject lines primarily transmit power from the FCPP, under the No action Alternative, the power source for the transmission lines would be removed. The lines would either be decommissioned and dismantled or left in place. As with the FCPP, decommissioning and dismantling activities would need to be coordinated with the Navajo Nation and the BLM such that the area meets the specific needs of the planned reuse. Compliance with all environmental laws and regulations would occur throughout the demolition process. The timeline for this process is not mandated in regulatory statutes and is unknown at this time. For special-status species, these activities and this time would not lead to adverse effects.

4.8.5 Special-Status Species 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 specific mitigation measures for certain environmental impacts, standard operating procedures that reduce or avoid environmental impacts, and BMPs for specific activities. These are described in Section 3.2.6.8 and 4.8.4.2. These measures are part of their application materials, and ESA Consultation 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, including continued implementation of all existing BMPs, would not result in major adverse effects to any special-status species. Therefore, no additional mitigation is recommended.