EXHIBIT C

EXHIBIT C – AREAS OF BIOLOGICAL WEALTH

As stated in Exhibit C of Exhibit 1 to the Rules of Practice and Procedure Before Power Plant and Transmission Line Siting Committee:

"Describe any areas in the vicinity of the proposed site or route which are unique because of biological wealth or because they are habitats for rare and endangered species. Describe the biological wealth or species involved and state the effects, if any, the proposed facilities will have thereon."

Separate, extensive biological wealth studies were conducted for the Nogales Interconnection Project and the Nogales Tap to Kantor Upgrade Project. See the following exhibits with information pertaining to rare and endangered species and any habitats for these species in the vicinity of the proposed CEC Transmission Facilities:

Exhibit C-1	Biological Wealth in the Vicinity of the Nogales Interconnection Project
Exhibit C-2	Biological Wealth in the Vicinity of the Nogales Tap to Kantor Upgrade Project
Exhibit C-2(a)	Biological Evaluation of the Nogales Tap to Kantor Upgrade Project

Pursuant to Footnote 1 of Exhibit 1 to the Rules of Practice and Procedure Before Power Plant and Line Siting Committee, Applicants refer the Committee to the following studies for additional analysis of rare and endangered species in the vicinity of the Nogales Interconnection Project:

- Exhibit B-1(a): PP EA (Appendix A: Biological Field Report for the Nogales Interconnection Project, Nogales, Santa Cruz County, Arizona)
- Exhibit B-1(b): DOE Draft EA (Sections 3.3.2, 3.4.2, 4.3, 4.4, 4.16.4.2, 4.16.4.3)

Applicants further refer the Committee to the following studies for additional analysis of rare and endangered species in the vicinity of the Nogales Tap to Kantor Upgrade Project:

- Exhibit B-2(a): Pima Pineapple Cactus Survey for the Nogales Tap to Kantor Upgrade Project

Exhibit C-1 – Biological Wealth in the Vicinity of the Nogales Interconnection Project

Both the Biological Field Report for the Nogales Interconnection Project, included as Appendix A to the PP EA (Exhibit B-1(a)), and the DOE Draft EA (Exhibit B-1(b)) discuss biological wealth in the vicinity of the Nogales Interconnection Project. To determine the potential occurrence of special status plant and wildlife species protected under the Endangered Species Act ("ESA") and the habitats they live in, DOE Draft EA researchers consulted the US Fish & Wildlife Service ("USFWS") Information for Planning and Conservation ("IPaC") web tool to investigate endangered, threatened, and candidate species that may be found in the area. The Arizona Game and Fish Department ("AGFD") online environmental review tool was also used to investigate special status species in the vicinity of the project.

I. SPECIAL STATUS SPECIES THAT MAY OCCUR IN THE VICINITY OF THE NOGALES INTERCONNECTION PROJECT

Table C-1 below lists endangered, threatened, and candidate species protected under the ESA, as well as state-listed species of concern, that have the potential to occur within three miles of the DOE Draft EA analysis area (a one-mile buffer of the centerline of the alternative routes).

Table C-1 – Special Status Species

Common Name ***Scientific Name***	**Status**	**Habitat**	**Potential for Occurrence**
		Mammals	
Jaguar *Panthera onca*	Endangered	Found in Sonoran desertscrub up through subalpine conifer forest Elevation: 1,600–9,000 feet (AGFD 2004)	Unlikely to occur; this species may pass through the analysis area but would avoid the area if developed; designated critical habitat is 1.5 miles to the west, on National Forest System lands.

Lesser long-nosed bat *Leptonycteris curasoae yerbabuenae*	Endangered	Desert scrub habitat with agave and columnar cacti present as food plants Elevation: 1,600–7,500 feet (AGFD 2011a)	May occur; this species may pass through the analysis area during migration in the fall and spring; it feeds on pollen of columnar cacti and agaves when they are in bloom.
Mexican gray wolf *Canis lupus baileyi*	Endangered, experimental nonessential population	Chaparral, woodland, and forested areas; may cross desert areas Elevation: 4,000–12,000 feet (AGFD 2001a)	Unlikely to occur; project is in 10(j)* area; this species could pass through the analysis area but would likely avoid the area if developed.
Ocelot *Leopardus pardalis*	Endangered	Variable, including thorn scrub, semiarid woodland, tropical deciduous and semideciduous forest, subtropical forest, lowland rainforest, palm savanna, and seasonally flooded savanna woodland; in Arizona, most recent (since 2009) detections have occurred in Madrean Encinal woodland Elevation: generally<4,000 feet (AGFD 2010a)	Unlikely to occur; this species may pass through the analysis area, but would likely avoid the area if developed.

Sonoran pronghorn *Antilocapra americana sonoriensis*	Endangered, experimental nonessential population	Broad intermountain alluvial valleys with creosote-bursage and palo verde-mixed cacti associations Elevation: 400–1,600 feet (AGFD 2002a)	Unlikely to occur; project is in 10(j)* area; no suitable habitat within the analysis area.
Yellow-nosed cotton rat *Sigmodon ochrognathus*	State Listed Species of Concern	Grassy slopes in oak-pine woodlands, and montane meadows within ponderosa pine (*Pinus ponderosa*) and Douglas-fir (*Pseudotsuga menziesii*) forests. It is often associated with rocks.	May occur: suitable habitat occurs within the analysis area.
Birds			
Mexican spotted owl *Strix occidentalis lucida*	Threatened	Nests in canyons and dense forests with multilayered foliage structure Elevation: 4,100–9,000 feet (AGFD 2005)	Unlikely to occur; designated critical habitat is 1.5 miles to the west on National Forest System lands; no suitable habitat within the analysis area.
Southwestern willow flycatcher *Empidonax traillii extimus*	Endangered	Cottonwood/willow (Populus sp./Salix sp.) and tamarisk (Tamarix sp.) vegetation communities along rivers and streams Elevation: <8,500 feet (AGFD 2002c)	Unlikely to occur; no suitable habitat within the analysis area.

Sprague's pipet *Anthus spragueii*	Candidate	Strong preference for native grasslands with vegetation of intermediate height and lacking woody shrubs Elevation: <5,000 feet (AGFD 2010b)	Unlikely to occur; no suitable habitat within the analysis area.
Yellow-billed cuckoo *Coccyzus americanus*	Threatened	Large blocks of riparian woodlands (cottonwood, willow, or tamarisk galleries) Elevation: <6,500 feet (AGFD 2011b)	Unlikely to occur; no suitable habitat within the analysis area.
Gray hawk *Buteo plagiatus*	State Listed Species of Concern	Riparian woodlands with large trees (cottonwoods [*Populus sp.*]), usually near mesquite forests Elevation: not listed (AGFD 2013a)	Unlikely to occur; no suitable habitat within the analysis area.
Reptiles			
Northern Mexican gartersnake *Thamnophis eques megalops*	Threatened	Cienegas, livestock tanks, largeriver riparian woodlands and forests, streamside gallery forests Elevation: 3,000–5,000 feet (AGFD 2001c)	Unlikely to occur; no suitable habitat within the analysis area.
Giant spotted	State Listed Species	Riparian habitat dominated by	Unlikely to occur; no suitable habitat

whiptail *Aspidoscelis stictogramma*	of Concern	sycamore (Platanus sp.), cottonwood, ash (Fraxinus sp.), and various grasses and forbs Elevation: sea level–4,500 feet (AGFD 2013b)	within the analysis area.
Amphibians			
Arizona treefrog *Hyla wrightorum*	Candidate	Habitat with water within Madrean oak woodlands, savannah, pineoak woodlands, and mixed conifer forests Elevation: 5,000–8,500 feet (AGFD 2013c)	Unlikely to occur; no suitable aquatic habitat within the analysis area.
Chiricahua leopard frog *Rana chiricahuensis*	Threatened	Restricted to springs, livestock tanks, and streams in upper portion of watersheds that are free from non-native predators or where marginal habitat for nonnative predators exists Elevation: 3,281–8,890 feet (AGFD 2015a)	Unlikely to occur; no suitable aquatic habitat within the analysis area.
Fish			
Gila topminnow *Poeciliopsis*	Endangered	Small streams, springs, and cienegas; vegetated shallows	Unlikely to occur; no suitable aquatic habitat within the

occidentalis		Elevation: <4,500 feet (AGFD 2001b)	analysis area.
Gila longfin dace *Agosia chrysogaster chrysogaster*	State Listed Species of Concern	Wide ranging from intermittent hot low-desert streams to clear and cool brooks at higher elevations; usually occupy relatively small streams Elevation: <4,900 feet (AGFD 1997)	Unlikely to occur; no suitable aquatic habitat within the analysis area.
Desert sucker *Catostomus clarkii*	State Listed Species of Concern	Rapids and flowing pools of streams and rivers; adults live in stream and river pools Elevation: 480–8,840 feet (AGFD 2002b)	Unlikely to occur; no suitable aquatic habitat within the analysis area.
Snails			
Huachuca springsnail *Pyrgulopsis thompsoni*	Candidate	Aquatic areas, small springs with vegetation and slow to moderate flow Elevation: 4,500–7,200 feet (AGFD 2015b)	Unlikely to occur; no suitable aquatic habitat within the analysis area.
Insects			
Stephan's riffle beetle *Heterelmis stephani*	Candidate	Free-flowing springs and seeps, commonly referred to as rheocrenes Elevation: 5,100–6,600 feet (AGFD	Unlikely to occur; no suitable aquatic habitat within the analysis area.

		2002d)	
Plants			
Pima pineapple cactus *Coryphantha scheeri* var. *robustispina*	Endangered	Valley floors between the Baboquivari and Santa Rita Mountains, in desert scrubland or ecotone between desert scrubland and desert grassland, and on relatively flat areas Elevation: < 4,000 feet (USFWS 2007)	May occur; suitable habitat within the species' range within the analysis area.
Large-flowered blue star *Amsonia grandiflora*	State Listed Species of Concern	Canyon bottoms and sides in oak woodlands, often associated with Emory and Mexican blue oak. Elevation: 3,900–4,500 feet (Arizona Rare Plant Committee n.d.)	May occur: suitable habitat occurs within the analysis area
Santa Cruz beehive cactus *Coryphantha recurvata*	State Listed Species of Concern, USFWS species of concern	Rocky hillsides and/or rock crevices. Found in the valleys and foothills of oak woodlands and desert grasslands. Elevation: 3,500–5,500 feet (Arizona Rare Plant Committee n.d.)	Known to occur: surveys within the analysis area identified 25 individuals of this species.
Supine bean *Macroptilium*	State Listed Species of Concern	Ridge tops and gentle slopes of rolling hills in semidesert grassland	May occur: suitable habitat occurs within the analysis area, and

supinum		or grassy openings in oak-juniper woodland; growing in sandy loam. Elevation: 3,600–4,900 feet (Arizona Rare Plant Committee n.d.)	surveys of the analysis area identified a possible individual plant.

* A 10(j) area is an area where experimental populations of endangered or threatened species are introduced into the wild in a location that is geographically isolated from non-introduced populations (NMFS 2015).

II. SPECIAL STATUS SPECIES: KNOWN TO OCCUR OR MAY OCCUR IN THE VICINITY OF THE NOGALES INTERCONNECTION PROJECT

A. Lesser long-nosed bat

The lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*), an endangered species, is anticipated to occur in the analysis area. The species was recently proposed to be removed from the endangered list as threats to this subspecies have been eliminated or reduced to the point that the subspecies has recovered and no longer meets the definition of endangered or threatened (82 FR 1665). The lesser long-nosed bat occurs seasonally in Arizona from April to September in desert scrub and grassland/oak transition habitat where it feeds on nectar and pollen from the flowers of columnar cacti and agave (AGFD 2011a). The species roosts in caves, abandoned mine tunnels, and occasionally in old buildings; and while foraging, will roost short-term on rocks and vegetation to groom.

The habitat found in the western portion of the analysis area is suitable for lesser long-nosed bat and may be a resource for this species. During initial biological surveys completed as part of Nogales Transmission's Presidential Permit application, 27 agaves were recorded (HDR 2016a). During these surveys, 29 agaves were recorded within the ROW of Alternative Route 1, 22 agaves were recorded within the ROW of Alternative Route 2, and 22 agaves were recorded within the ROW of Alternative Route 4. An additional survey completed in May 2017 of Alternative Route 3 (the Applicants' preferred alternative) identified 94 agaves within the ROW and new or upgraded access roads. Of these, two agaves were the previous year's blooms and were dead, and one agave showed signs of pending inflorescence. Eleven of the 94 agaves were determined to be close to mature size, with the potential to flower in coming years (DOE Draft EA).

B. Yellow-nosed cotton rat

The yellow-nosed cotton rat (*Sigmodon ochrognathus*) is the only state-listed special status species with the potential to occur within the impact analysis area. Habitat for this species includes grassy slopes in oak-pine woodlands. This species breeds from March through October and may produce several litters during that time. Nests can be found in burrows or areas of dense vegetation.

C. Pima pineapple cactus

The Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*) is the only federally listed plant species known to occur within three miles of the analysis area. Listed endangered in 1993, Pima pineapple cacti have been documented on valley floors between the Baboquivari and Santa Rita Mountains, in desert scrubland or ecotone between desert scrubland and desert grassland, and on relatively flat areas. This species is generally restricted to elevations of less than 4,000 feet (USFWS 2007). There is the potential for this species to occur within the analysis area, as there is suitable habitat, and it is within the species' range.

D. Large-flowered blue star

The large-flowered blue star (*Amsonia grandiflora*) may occur in suitable habitat in the analysis area. The large-flowered blue star has been documented on canyon bottoms and sides in oak woodlands, often associated with Emory and Mexican blue oak (Arizona Rare Plant Committee n.d.). This species is generally restricted to elevations between 3,900 to 4,500 feet, in full sun or partial shade between the Patagonia Mountains and Atascosa/Pajarito Mountains. The large-flowered blue star is not protected by the Arizona Native Plant Law (HDR 2016a).

E. Santa Cruz beehive cactus

The Santa Cruz beehive cactus (*Coryphantha recurvata*) is a state species of concern documented within the analysis area. The species ranges from four to eight inches high by four to seven inches in diameter and is globular to cylindrical in shape (Breslin et al. 2015). It is a low-growing plant that starts as an individual stem and grows into large clumps up to 30 inches wide (Breslin et al. 2015). The Santa Cruz beehive cactus is found in mountainous regions of Santa Cruz County, Arizona, on alluvial soils in valleys and foothills in desert grassland and oak woodland on rocky hillsides with good grass cover (AGFD 2001). The species is typically restricted to elevations between 2,500 and 5,500 feet (Arizona Rare Plant Committee n.d.). The Santa

Cruz beehive cactus is considered to be highly safeguarded and salvage restricted under the Arizona Native Plant Law. Biological surveys recorded 25 Santa Cruz beehive cacti within the ROWs for all alternative routes (HDR 2016a).

F. Supine bean

The supine bean (*Macroptilium supinum*) is a perennial herb known to occur in grass woodlands in Santa Cruz and Pima Counties, Arizona; also, there are two historical records in Sonora and Nayarit, Mexico (Arizona Rare Plant Committee [ARPC] 2000; Toolin 1982). It has prostrate, creeping stems arising from an elliptical tuber that ranges in size from three to 14 cm (ARPC 2000). The leaves are opposite with three lanceolate leaflets that taper from the base to the tip; each leaflet ranges from 0.6 to 1.2 cm wide by three to eight cm long. It has an unusual breeding syndrome of being able to produce flowers and seeds both above and below ground. The supine bean produces flowers and fruits after the onset of summer rains in July. The species typically grows on ridge tops and gentle slopes of rolling hills in semidesert grassland or grassy openings in oak-juniper woodland, growing in sandy loam in elevations between 3,600 to 4,900 feet (Arizona Rare Plant Committee n.d.).

III. POTENTIAL IMPACTS

A. Plants

The Arizona Department of Agriculture regulates native plants according to the Arizona Native Plant Law and assigns some species of native plants into four categories: highly safeguarded (removal is generally not allowed), salvage restricted (a permit is required for removal), salvage assessed (may require a permit for removal), and harvest restricted (a permit is required to cut or remove plants for by-products or wood) (ADA 2015). All plant species listed in table C-1 are protected by the Arizona Native Plant Law, except the large-flowered blue star. The Santa Cruz beehive cactus is considered to be highly safeguarded and salvage restricted, while the supine bean is salvage restricted (AGFD 2016).

Applicants will comply with all applicable laws governing removal and conservation of special status plants. If protected native plants within the ROW will be affected, Arizona Department of Agriculture notification will be provided 60 days prior to construction. Prior to vegetation removal, all viable protected native plants will be tagged for avoidance, transplanted to areas of the ROW that will not be disturbed, or removed. Local nurseries, the Cacti and Succulent Society, and/or other interested non-

governmental organizations who have obtained plant tags from the Arizona Department of Agriculture would remove the protected native plants.

As described in the DOE Draft EA, although the Pima pineapple cactus has the potential to occur in the project area, neither the project area surveys conducted on November 30 and December 1, 2015, nor the survey of Applicants' preferred route completed in May 2017 documented Pima pineapple cacti. However, indirect impacts could occur. New access roads could improve access to potential Pima pineapple cacti populations and/or into potential habitat, increasing the potential for illegal collection, or trampling/crushing from off-highway-vehicle use. In order to discourage unauthorized use of access roads, the Applicants would discuss including locked gates at access roads with landowners as part of the landowner agreements. Signage would be posted to make users aware that the access roads would be closed to the public, as well as subject to trespass laws.

B. Wildlife

Any alternative route may affect the lesser long-nosed bat; however, given the small number of agaves that would be affected by any of the alternative routes and the number of available agaves in the surrounding habitat, this effect is not likely to be adverse because the number of agaves that would be affected by the project, and that are likely to flower in any season, is small. Where impacts to agaves cannot be avoided, the Applicants would be required to comply with USFWS requirements, which may include both transplanting and planting an additional agave for each transplant or replacing them at a 3:1 ratio (or other requirement, as determined by the USFWS).

Long-term impacts to the yellow-nosed cotton rat include the increased potential for direct mortality from vehicle strikes, habitat loss, and loss of forage plants should invasive plant species become established. The following number of acres of potentially suitable yellow-nosed cotton rat habitat could be disturbed by project construction: 19.72 (Alternative Route 1), 11.18 (Alternative Route 2), 10.85 (Alternative Route 3), and 10.8 (Alternative Route 4). Habitat loss impacts would be minimal as a result of the placement of transmission structures and would primarily occur as a result of the construction of access roads and vegetation clearing. Due to the amount of suitable habitat that would be available adjacent to the project area, impacts from habitat loss are anticipated to not be significant.

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Exhibit C-2 – Biological Wealth in the Vicinity of the Nogales Tap to Kantor Upgrade Project

Exhibit C-2(a), Biological Evaluation of the Nogales Tap to Kantor Upgrade Project, describes in detail the special status plant and wildlife species that potentially occur within the Nogales Tap to Kantor Upgrade Project alternative routes or within two miles of the alternative routes.

I. Special Status Species that May Occur in the Vicinity of The Nogales Tap to Kantor Upgrade Project

Table C-2 includes the following special-status species that may occur within two miles of the Nogales Tap to Kantor Upgrade Project: (1) species listed under the ESA as endangered, threatened, candidate, or proposed for listing based on a project-specific inquiry to the USFWS IPaC webtool; and (2) federally listed species with known occurrences near the project area, based on records maintained by the AGFD and a project-specific inquiry to the Heritage Data Management System ("HDMS").

Table C-2 – Special Status Species

Common Name ***Scientific Name***	**Status**	**Habitat**	**Potential for Occurrence**
Mammals			
Jaguar *Panthera onca*	Endangered	Found in Sonoran desertscrub up through subalpine conifer forest Elevation: 1,600–9,000 feet (AGFD 2004)	Unlikely to occur; this species may pass through the project area as a transient.
Lesser long-nosed bat *Leptonycteris curasoae yerbabuenae*	Endangered	Desert scrub habitat with agave and columnar cacti present as food plants Elevation: 1,600–7,500 feet (AGFD	May occur; appropriate foraging habitat is present in the project area, but roosting habitat is not present.

		2011a)	
Ocelot *Leopardus pardalis*	Endangered	Variable, including thorn scrub, semiarid woodland, tropical deciduous and semideciduous forest, subtropical forest, lowland rainforest, palm savanna, and seasonally flooded savanna woodland; in Arizona, most recent (since 2009) detections have occurred in Madrean Encinal woodland Elevation: generally<4,000 feet (AGFD 2010a)	Unlikely to occur; this species may pass through the project area as a transient.
Sonoran pronghorn *Antilocapra americana sonoriensis*	Endangered, experimental nonessential population	Broad intermountain alluvial valleys with creosote-bursage and palo verde-mixed cacti associations Elevation: 400–1,600 feet (AGFD 2002a)	No potential to occur; area; project area is outside the known current restricted range of the species.
Birds			
Mexican spotted owl *Strix occidentalis lucida*	Threatened	Nests in canyons and dense forests with multilayered foliage structure Elevation: 4,100–9,000 feet (AGFD 2005)	No potential to occur; no suitable habitat within the project area.

Southwestern willow flycatcher *Empidonax traillii extimus*	Endangered	Cottonwood/willow (Populus sp./Salix sp.) and tamarisk (Tamarix sp.) vegetation communities along rivers and streams Elevation: <8,500 feet (AGFD 2002c)	No potential to occur; no critical habitat or riparian breeding habitat within the project area.
Yellow-billed cuckoo *Coccyzus americanus*	Threatened	Large blocks of riparian woodlands (cottonwood, willow, or tamarisk galleries) Elevation: <6,500 feet (AGFD 2011b)	No potential to occur; no critical habitat within the project area.
California least tern *Sterna antillarum Browni*	Endangered	Coasts, nesting in sparsely vegetated open areas associated with permanent waters. Typical nesting colonies occur on open beaches, mud or sand flats, or gravel pits along shorelines of rivers, lakes, and reservoirs (USFWS 1985; USFWS 2009). Transient migrants have been observed in Mohave and Pima counties (USFWS 2009).	No potential to occur; no suitable nesting habitat within the project area.
Reptiles			
Northern Mexican gartersnake	Threatened	Cienegas, livestock tanks, largeriver riparian woodlands	No potential to occur; no suitable habitat within the project

Thamnophis eques megalops		and forests, streamside gallery forests Elevation: 3,000–5,000 feet (AGFD 2001c)	area.
Sonoyta mud turtle *Kinosternon sonoriense longifemorale*	Proposed Endangered	Springs, creeks, ponds, and waterholes of intermittent streams occurring in upland biotic communities ranging from Sonoran desertscrub to montane pine forests. Found in Gila River drainage of central and southeast Arizona and tributaries of the Colorado River in west-central Arizona (Brennan and Holycross 2006)	Unlikely to occur; no suitable habitat within the project area.
Amphibians			
Chiricahua leopard frog *Rana chiricahuensis*	Threatened	Restricted to springs, livestock tanks, and streams in upper portion of watersheds that are free from non-native predators or where marginal habitat for nonnative predators exists Elevation: 3,281–8,890 feet (AGFD	No potential to occur; no suitable aquatic habitat within the project area.

		2015a)	
Plants			
Pima pineapple cactus *Coryphantha scheeri* var. *robustispina*	Endangered	Valley floors between the Baboquivari and Santa Rita Mountains, in desert scrubland or ecotone between desert scrubland and desert grassland, and on relatively flat areas Elevation: < 4,000 feet (USFWS 2007)	Known to occur; suitable habitat within the species' range within the project area.

II. SPECIAL STATUS SPECIES: KNOWN TO OCCUR OR MAY OCCUR IN THE VICINITY OF THE NOGALES TAP TO KANTOR UPGRADE PROJECT

A. Lesser long-nosed bat

Please refer to Subsection II.A of Exhibit C-1 for a description of the lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*) and lesser long-nosed bat habitat.

Based on the biological analysis in Exhibit C-2(a), there is no suitable day roost habitat (caves, mine adits, or mine shafts) for the lesser long-nosed bat on or adjacent to the project area, but lesser long-nosed bats feed on the nectar and pollen of columnar cacti (including saguaros) and agave flowers, and there is a low number of saguaros on the project area that could produce forage for this species. Arizona Game and Fish Department Heritage Data Management System ("HDMS") records indicate at least one occurrence of the species within two miles of the analysis area. It is possible for foraging lesser long-nosed bats to occasionally utilize the project area for foraging.

B. Pima pineapple cactus

Please refer to Subsection II.C of Exhibit C-1 for a description of the Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*) and Pima pineapple cactus habitat.

Because the biological analysis (Exhibit C-2(a)) indicated that the project could affect the Pima pineapple cactus, UNSE conducted a survey for the species (Exhibit B-2(a)) following the guidelines set forth in the USFWS document entitled *Pima Pineapple Cactus Three Tier Survey Methods* (Roller 1996). Because UNSE could not obtain right-of-entry from the Arizona State Land Department to complete field studies of Alternative Routes 1 and 2, this survey covered the 272 acres of the existing ROW (Alternative Route 3). Surveyors identified 13 viable Pima pineapple cacti within the existing ROW, all of which occur on state trust land, ranging from fair to excellent condition. A total of five cacti with pups were identified.

III. POTENTIAL IMPACTS

A. Plants

Based on the small number of Pima pineapple cacti in the area, UNSE will avoid disturbing the cacti within the project area where practical, and apply mitigation measures as required. Should Alternative Route 1 or Alternative Route 2 be selected, UNSE will conduct additional studies prior to construction of the project.

B. Wildlife

UNSE proposes to apply the following measures to preserve potential forage habitat for the lesser long-nosed bat so long as the species is listed:

1. Conduct a survey of mature saguaros and agave within the 100-foot-wide project area;
2. Avoid disturbing mature saguaros and agave within the project area where possible, and consult with USFWS regarding mitigation measures to reduce impacts where avoidance is not possible.

REFERENCES

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Exhibit C-2(a) – Biological Evaluation of the Nogales Tap to Kantor Upgrade Project

BIOLOGICAL EVALUATION OF THE NOGALES TAP – KANTOR 138kV TRANSMISSION LINE PROJECT

TUCSON ELECTRIC POWER COMPANY

Prepared for:

Tucson Electric Power Company
P.O. Box 711
Tucson, Arizona 85702

Project Number: 1610.201

Date: May 2017

WestLand Resources

WestLand Resources, Inc. • 4001 E. Paradise Falls Drive • Tucson, Arizona 85712 • 520•206•9585

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APPENDICES

Appendix A. U.S. Fish and Wildlife Service Information for Planning and Conservation Report (IPaC) Online Query
Appendix B. Arizona Game and Fish Department Heritage Database Management System (HDMS) On-Line Review

1. INTRODUCTION

At the request of Tucson Electric Power Company (TEP), WestLand Resources Inc. (WestLand) conducted a desktop Biological Evaluation (BE) in support of the Nogales Tap (NP) to Kantor 138kV Transmission Line Project (the Project), located in Pima and Santa Cruz counties, Arizona (**Figure 1**). The 100-foot-wide Project corridor is approximately 27.5 miles in length (Project Area; **Figure 2**).

This BE describes the natural resources within the Project Area, evaluates the potential occurrence of "special-status species", considers the potential impact of the Project to those species determined likely to occur in the Project Area, and recommends mitigation measures designed to reduce potential impacts to such species.

2. PROJECT DESCRIPTION

The Project corridor runs from the Kantor Substation in Santa Cruz County, just south of the county line with Pima County, northeast to the Nogales Tap Substation (**Figure 1**). The corridor is approximately 27.5 miles in length and 100 feet wide and comprises approximately 333 acres (Project Area; **Figure 2**) and crosses privately-held land and lands managed by the Arizona State Land Department (**Figure 3**). A new or upgraded utility line will be located within the corridor and will involve some new construction and pole relocation. The specific alignment, access to the line, and wash crossing locations will be determined during the planning process.

3. PROJECT AREA DESCRIPTION

3.1. LAND USES

The predominant historic and current land uses in the Project Area and its immediate surroundings include livestock grazing, rural and suburban housing developments, outdoor recreation, and small scale mining. Other land uses include cattle grazing and public recreation activities that include bird watching, hiking, rock-climbing, off-road vehicle use, target shooting, and hunting. A portion of the Project traverses the Santa Rita Experimental Range (SRER), an active rangeland research facility and biological field station.

3.2. PHYSICAL FEATURES

The topography in the Project Area consists of incised channels, low terraces and alluvial fan remnants composed of cobbles, sand, silt, and boulders. The geology of the Project Area is composed of Quaternary and late Tertiary alluvial deposits that cover most of the piedmont area west of the Santa Rita Mountains (Pearthree and Youberg 2000). The soils are fine, cobbly, gravelly, sandy loams (Soil Survey Staff 2017). A portion of the Project Area crosses the SRER, an undeveloped, government-owned preserve. A weather station maintained at the SRER Headquarters provides

climatological data for the Project Area. Average annual precipitation is approximately 22 inches and average annual maximum temperature is approximately 76° F (NEON 2017). The Project Area is within the drainage basin of the Santa Cruz River, and crosses minor and major ephemeral drainages that discharge stormwater flows to the river. Several of these drainages are classified by Pima County Ordinance 2005-FC2 as Regulated Riparian Habitat (**Figure 3**), and per the ordinance, onsite mitigation is required if greater than 1/3 acre (14,520 square feet) of Regulated Riparian Habitat is disturbed (PCRFCD 2011).

3.3. VEGETATION COMMUNITY

The corridor crosses undisturbed, open space. The Project Area is mapped within two different biotic communities: Semidesert Grassland occurs in the southern portion and the Arizona Upland subdivision of Sonoran Desertscrub occurs in the northern portion (Brown and Lowe 1980).

Dominant plant species associated with Semidesert Grassland (Brown and Makings 2014) include tree and shrub species such as velvet mesquite (*Prosopis velutina*), catclaw acacia (*Senegalia greggii*), and burroweed (*Isocoma tenuisecta*) intermixed with cacti and succulents including soaptree yucca (*Yucca elata*), cholla (*Cylindropuntia* spp.), prickly pear (*Opuntia* spp.), and barrel cactus (*Ferocactus wislizeni*). An understory of grasses includes grama grasses (*Bouteloua* spp.), three awn grasses (*Aristida* spp.), and Lehmann lovegrass (*Eragrostis lehmanniana*).

Dominant plant species associated with Arizona Upland subdivision of Sonoran Desertscrub (Turner and Brown 1982) include saguaro (*Carnegiea gigantea*), paloverde (*Parkinsonia* spp.), creosotebush (*Larrea tridentata*), chainfruit cholla (*Cylindropuntia fulgida*), velvet mesquite, and jojoba (*Simmondsia chinensis*).

4. SCREENING ANALYSIS METHODS

4.1. SPECIAL-STATUS SPECIES IDENTIFICATION

For the purposes of this report, special-status species considered in the evaluation included:

1) Species listed under the Endangered Species Act (ESA) as endangered, threatened, candidate, or proposed for listing based on a project-specific inquiry to the US Fish & Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) web tool; and
2) Federally listed species with known occurrences within the prescribed search distance from the Project Area, based on records maintained by the Arizona Game and Fish Department (AGFD) and a project-specific inquiry to the Heritage Data Management System (HDMS).

The USFWS IPAC tool was accessed to obtain information on special-status species with potential to occur within the Project Area or vicinity, as well as to identify whether designated or proposed critical habitat occurs within or near the Project Area (**Appendix A**). Presence of critical habitat within the Project Area was also verified using the USFWS Critical Habitat Portal online mapping tool (USFWS 2016). The AGFD HDMS on-line environmental review tool query was used to identify records of special-status species within 2 miles (3.2 km) of the Project Area (**Appendix B**).

4.2. SPECIAL-STATUS SPECIES SCREENING

Based on the special-status species lists generated from the above sources, a screening analysis was performed to evaluate the potential for special-status species or designated or proposed critical habitat to occur within the Project Area. Determinations of the potential for special-status species were based on:

- Review of the natural history and known geographical and elevational ranges of special-status species;
- Review of other occurrence records in published or grey literature[1]; and
- Comparisons of this information with the habitats present in the Project Area, using biotic community maps (Brown and Lowe 1980) and aerial photographs.

The criteria used to determine the potential of occurrence of each species included in this screening analysis are defined as follows:

Present: The species has been observed to occur in the Project Area based on known records, the Project Area is within the known range of the species, and habitat characteristics required by the species are known to be present.

Possible: The species has not been observed in the Project Area based on known records, but the known, current distribution of the species includes the Project Area and the required habitat characteristics of the species appear to be present in the Project Area.

Unlikely: The known, current distribution of the species does not include the Project Area, but the distribution of the species is close enough such that the Project Area may be within the dispersal or foraging distance of the species. The habitat characteristics required by the species may be present in the Project Area.

[1] Grey literature includes documents that are not controlled by commercial publishers such as technical reports produced by government agencies, academic institutions, scientific research groups, or private industry (e.g., AGFD unpublished species abstracts and maps).

None: The Project Area is outside of the known distribution of the species, and/or the habitat characteristics required by the species are not present.

Species with a Present or Possible determination are considered in more detail following the screening analysis.

5. RESULTS

5.1. SPECIAL-STATUS SCREENING ANALYSIS

Results from the IPaC query (**Appendix A**) and HDMS records (**Appendix B**) yielded 12 special-status species to consider for potential to occur in the Project Area or its vicinity. There is no designated or proposed critical habitat in the Project Area; however, designated critical habitat for the jaguar occurs within two miles of the Project Area. The basis of determination of each species' potential to occur within the Project Area is provided in **Table 1**.

Table 1. Potential for Occurrence of Special-status Species within the Project Area

Species	Status	Potential to Occur	Basis for Determination
Pima pineapple cactus (PPC) (*Coryphantha scheeri* var. *robustispina*)	Endangered	Possible	Found at elevations below 4,000 ft, in desert scrubland or ecotone between desert scrubland and desert grassland, on relatively flat areas (less than 10 percent slope). Geographically restricted to southeast Arizona, specifically the valley floors between the Baboquivari Mountains on the west and the Santa Rita Mountains to the east, and in low densities in the northern areas of Sonora, Mexico (USFWS 2007). The Project Area is within known geographic range and contains appropriate habitat of alluvial fans and stream terraces in Sonoran desertscrub. IPaC results indicate potential for the species to occur within the Project Area (**Appendix A**), and HDMS records indicate at least one occurrence of the species within 2 miles of the Analysis Area (**Appendix B**). This species is discussed further in **Section 5.2.1**.
Chiricahua leopard frog (*Lithobates [Rana] chiricahuensis*)	Threatened	None	Occurs in perennial to near-perennial aquatic environments including springs, creeks, cienegas, and rivers; currently most often associated with man-made earthen ponds (Brennan and Holycross 2006). Occurs at elevations of 3,200 to 8,890 ft (USFWS 2012). Historically occurred in central and east-central Arizona into west-central New Mexico, in the mountains and high valleys of southeastern Arizona, southwestern New Mexico, and south through western Chihuahua and northeastern Sonora, Mexico. Critical habitat includes a total of 10,346 acres in Apache, Cochise, Gila, Graham, Greenlee, Pima, Santa Cruz, and Yavapai Counties, Arizona; and Catron, Grant, Hidalgo, Sierra, and Socorro Counties, New Mexico (USFWS 2012). IPaC results indicate potential for species to occur within the Project Area (**Appendix A**), but appropriate habitat of perennial to near perennial waters is not present in the Project Area. HDMS records do not indicate occurrence of the species within 2 miles of the Project Area (**Appendix B**).
Northern Mexican gartersnake (*Thamnophis eques megalops*)	Threatened	None	Inhabits densely vegetated habitats along water sources from 3,000 to 5,000 ft. Populations in Arizona occur within the middle/upper Verde River drainage, middle/lower Tonto Creek and Cienega Creek, and in isolated wetlands in Southeast Arizona (AGFD 2017). IPaC results indicate potential for species to occur within the Project Area (**Appendix A**), but appropriate habitat of densely vegetated habitats along water sources is not present in the Project Area. HDMS records do not indicate occurrence of the species within 2 miles of the Project Area (**Appendix B**).

Species	Status	Potential to Occur	Basis for Determination
Sonoyta mud turtle (*Kinosternon sonoriense longifemorale*)	Proposed Endangered	Unlikely	Occupies springs, creeks, ponds, and waterholes of intermittent streams occurring in upland biotic communities ranging from Sonoran desertscrub to montane pine forests. May be found away from water during movements among aquatic features (Brennan and Holycross 2006). Found in Gila River drainage of central and southeast Arizona and tributaries of the Colorado River in west-central Arizona (Brennan and Holycross 2006). IPaC results indicate potential for species to occur within the Project Area (**Appendix A**), but appropriate habitat of ponds and waterholes of intermittent streams is not present. HDMS records do not indicate occurrence of the species within 2 miles of the Project Area (**Appendix B**).
California least tern (*Sterna antillarum browni*)	Endangered	None	Occurs along coasts, nesting in sparsely vegetated open areas associated with permanent waters. Typical nesting colonies occur on open beaches, mud or sand flats, or gravel pits along shorelines of rivers, lakes, and reservoirs (USFWS 1985; USFWS 2009). Typically found along the pacific coast of California from San Francisco to Baja. May occur in Arizona where suitable nesting habitat occurs. Breeding documented in Maricopa County. Transient migrants have been observed in Mohave and Pima counties (USFWS 2009). IPaC results indicate potential for species to occur within the Project Area (**Appendix A**), but appropriate nesting habitat of shorelines of rivers, lakes, and reservoirs is not present. HDMS records do not indicate occurrence of the species within 2 miles of the Project Area (**Appendix B**).
Mexican spotted owl (*Strix occidentalis lucida*)	Threatened	None	Occurs in mature montane forests and woodlands of mixed conifer dominated by Douglas fir, pine, or true fir, or in ponderosa pine/Gambel oak at elevations of 4,000 to 9,000 ft (Gutiérrez, Franklin, and Lahaye 1995). Also, found in narrow canyons dominated by vertical-walled rocky cliffs within complex watersheds. Nesting typically occurs near a water source (USFWS 2004). Winters at lower elevations in pinyon-juniper woodlands, in open mountain-shrub, or higher-elevation conifer forests. (Gutiérrez et al. 1995). IPaC results indicate potential for species to occur within the Project Area (**Appendix A**), but appropriate habitat of mature montane forests and woodlands and vertical-walled rocky canyons within complex watersheds is not present. HDMS records do not indicate occurrence of the species within 2 miles of the Project Area (**Appendix B**).

Species	Status	Potential to Occur	Basis for Determination
Southwestern willow flycatcher (SWFL) (*Empidonax traillii extimus*)	Endangered	None	Inhabits densely vegetated multilayered blocks of willow/cottonwood/exotic riparian vegetation and standing water/saturated soils at elevations from 75 to 9,180 ft (AGFD 2017). Present in Arizona approximately May through August. IPaC results indicate potential for species to occur within the Project Area (**Appendix A**), but no SWFL critical habitat is mapped within the Project Area. HDMS records do not indicate occurrence of the species within 2 miles of the Project Area (**Appendix B**). Appropriate riparian breeding habitat for SWFL is not present in the Project Area.
Yellow-billed cuckoo (YBC) (*Coccyzus americanus*), western DPS	Threatened	None	In Arizona, most commonly found in lowland riparian woodlands where Fremont cottonwood, willow, velvet ash, Arizona walnut, mesquite, and tamarisk are dominant (USFWS 2013). Also uses mesquite bosques and smaller stands of isolated cottonwoods mixed with mesquite (AGFD 2017; Halterman et al. 2015), and areas of upland-associated vegetation along drainages dominated by oaks and junipers (WestLand Resources 2013). Dense understory foliage is an important factor for nesting. IPaC results indicate potential for species to occur within the Project Area (**Appendix A**). HDMS records indicate occurrence of the species within 2 miles of the Project Area (**Appendix B**), but no YBC critical habitat is mapped within the Project Area. Appropriate riparian habitat for YBC is not present in the Project Area.
Jaguar (*Panthera onca*)	Endangered	Unlikely	Occurs in southeastern Arizona in arid habitat types, including oak-pine woodland (AGFD 2017). Sightings in the Baboquivari, Santa Rita, Huachuca, Dos Cabezas, Peloncillo Mountains, and Whetstone mountains (AGFD 2017, Center for Biological Diversity 2016, USFWS 2017). IPaC results indicate potential for this species to occur within the Project Area (**Appendix A**), and HDMS records indicates critical habitat occurs within 2 miles of the Project Area (**Appendix B**). The jaguar could use the major drainages in the Project Area for access to other mountain ranges, as the Project Area occurs within the Santa Rita - Sierrita Linkage Design Wildlife Corridor (**Appendix B**). Although it cannot be ruled out, it is highly unlikely, that this species would occur as a transient in the Project Area.

Species	Status	Potential to Occur	Basis for Determination
Lesser long-nosed bat (LLNB) (*Leptonycteris curasoae yerbabuenae*)	Endangered Proposed for Delisting	Possible	Occupies Sonoran desertscrub through semi-desert grasslands and into oak woodlands where columnar cacti and agaves occur. Roosts in caves, abandoned mines and occasionally old buildings, and forages on fruits and flowers of columnar cacti and agave (AGFD 2017). Occurs in southern Arizona from the Picacho Mountains southwesterly to the Agua Dulce Mountains and southeasterly to the Galiuro and Chiricahua mountains and then southerly into Mexico. Not present in Arizona during winter months (AGFD 2017). IPaC results indicate potential for species to occur within the Project Area (**Appendix A**), and HDMS records indicate occurrence of the species within 2 miles of the Project Area (**Appendix B**). Appropriate foraging habitat for LLNB is present in the Project Area, but roosting habitat is not present. This species is discussed further in **Section 5.2.2**.
Ocelot (*Leopardus pardalis*)	Endangered	Unlikely	In Arizona, this species occupies thornscrub, oak and oak-pine woodland, chaparral, and grasslands. Established sightings in Arizona are rare for this species but five ocelot sightings have been detected in southern Arizona since 2009, two of which were in the Santa Rita Mountains. The closest known sighting of this species was in the Santa Rita Mountains in 2014 (USFWS 2016). IPaC results indicate potential for this species to occur within the Project Area (**Appendix A**), but HDMS records do not indicate occurrence of the species within 2 miles of the Project Area (**Appendix B**). The ocelot could use the major drainages in the Project Area for access to other mountain ranges, as the Project Area occurs within the Santa Rita - Sierrita Linkage Design Wildlife Corridor (**Appendix B**). It is possible, although unlikely, that this species could occur as a transient in the Project Area.
Sonoran pronghorn (*Antilocapra americana sonoriensis*)	Endangered Experimental Population, Non-essential	None	Inhabits broad alluvial valleys separated by block-faulted mountain and surface volcanics. The Sonoran pronghorn diet typically consists of anywhere from 20 to 99% forbs in certain seasons so the presence of these plants in the vegetation communities is vital. The species ranges in elevation from 2000 to 4,000 ft (AGFD 2017). Occupies extreme southwestern Arizona, particularly within the Cabeza Prieta National Wildlife Refuge, Organ Pipe Cactus National Monument, and the Luke Air Force Barry M. Goldwater Gunnery Range (AGFD 2017). IPaC results indicate potential for species to occur within the Project Area (**Appendix A**), but HDMS records do not indicate occurrence of the species within 2 miles of the Project Area (**Appendix B**). The Project Area is outside the known current restricted range of the species.

5.2. DETAILED ANALYSIS

5.2.1. Pima Pineapple Cactus (*Coryphantha scheeri var. robustispina*)

Status: Pima pineapple cactus (PPC) was proposed as endangered without critical habitat on April 20, 1992 (57 FR 14374) and listed as endangered without critical habitat on September 23, 1993 (58 FR 49875). It also is protected by the Arizona Native Plant Law, is a Forest Service Sensitive Species, and is protected from illegal international trade by the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

***Range of Species*:** The PPC is reported to occur from 2,300 to 4,500 feet (700 to 1,400 meters) in elevation (Ecosphere Environmental Services 1992) in Pima and Santa Cruz counties, southern Arizona, and northern Sonora, Mexico (Benson 1982; Phillips, Phillips, and Brian 1981). The known range of PPC in Arizona is from the Baboquivari Mountains east to the Santa Rita Mountains, and north to near the southern flanks of the Tucson and Rincon mountains. Most of the known locations are in the Altar and Avra valleys, Santa Cruz River Basin, and the alluvial fans of the Sierrita, Santa Rita, Empire, Coyote, and Pajarito mountains (AGFD 2017). A PPC range study under the direction of the Bureau of Reclamation (Ecosphere Environmental Services 1992) refined the extent of PPC range in areas southeast and west of Tucson. Two documented populations are known in northern Sonora, Mexico. The PPC does not occur in mountainous areas within its range, including the Sierrita, Baboquivari, Santa Rita, Quinlan, Coyote, Atascosa, Pajarito, Cerro Colorado, San Luis, and Tumacacori mountains. The species has not been found in riparian areas such as the Santa Cruz River floodplain or the Sonoita Creek drainage of Arizona (58 FR 49875).

***Habitat Requirement*s:** The PPC is generally found on Sonoran desertscrub alluvial fans and semi-desert grassland ridges (Mills 1991). In rolling hilly habitats, the species has been found mainly on flat hilltops and rarely on slopes or in drainages separating the hilltops. Although PPC occur most commonly on flat ridge tops with little (less than 10 percent) slope, Mills (ibid.) reported some plants on south-facing hillsides (mid to upper slope) with slopes up to 15 percent (ibid.). Mills (ibid.) also reported that they found no plants on north-facing slopes of any significant size, despite intensive surveys. However, PPC have been found on a northern slope with approximately 25 percent grade (S. Hart, WestLand Resources, Inc., pers. obs.), but occurrence on these slopes is uncommon. Substrate composition is likely an important factor in determining PPC distribution, although we are not aware of any studies that conclusively identify important substrate factors. Substrates in which PPC occur are described as rocky to sandy or silty soils in alluvial valleys or on shallow-sloped (less than 10 percent grade) hillsides (Mills 1991). They are not known to occur in very sandy or very rocky soils, in deeper soils along drainages, or in soils with high clay content (Mills 1991).

Potential for Occurrence Recommendations

Based on the screening analysis (**Table 1**), PPC has potential to occur in the Project Area. The Project Area is within the known geographic range and contains appropriate habitat of alluvial fans and stream terraces in Sonoran desertscrub in the White-house sandy loam series (Soil Survey Staff 2017). IPaC results indicate potential for the species to occur within the Project Area (**Appendix A**) and herbarium vouchers (SEINet 2017) and HDMS records indicate at least one occurrence of the species within 2 miles of the Analysis Area (**Appendix B**).

5.2.2. Lesser Long-nosed bat (*Leptonycteris curasoae yerbabuenae*)

Status: The lesser long-nosed bat (LLNB) was proposed for listing as endangered by the USFWS in 1987 (52 FR 25171), with a final ruling in 1988 (53 FR 38456), without critical habitat. The species was recently proposed to be removed from the endangered list as threats to this subspecies have been eliminated or reduced to the point that the subspecies has recovered and no longer meets the definition of endangered or threatened (82 FR 1665).

***Range of Species*:** LLNB have been found in southern Arizona from the Picacho Mountains southwest to the Copper Mountains and Agua Dulce Mountains and southeast to the Chiricahua Mountains (USFWS 1988). They are also found in the Animas and Peloncillo Mountains of southwestern New Mexico and are widespread throughout the drier parts of Mexico, including Baja California (USFWS 1988). Because this species is highly colonial, they often number in the thousands, where found. In Arizona, the LLNB feeds on the nectar, pollen, and fruit of plants in the families *Cactaceae* and *Agavaceae* (Cockrum 1991). These mammals migrate approximately 1,500 miles to follow the seasonal flowering of their food plants and to reproduce in maternity colonies in northern Mexico and southwestern Arizona in early summer (Cockrum 1991).

***Habitat Requirement*s:** Suitable day roosts and suitable concentrations of food plants are critical for LLNB. In Arizona, these bats are found in palo verde/saguaro, semi-desert grassland, and shrubland up to the oak transition. They roost in caves, abandoned mine tunnels, and occasionally in old buildings; and while foraging, will roost short-term on rocks and vegetation to groom. They forage in areas of saguaro, ocotillo, palo verde, prickly pear, and organ pipe cactus; and later in the summer among agaves, leading to seasonal differences in habitat use. From April to at least July, they are generally found at elevations below 3,500 feet, but from July to September or October, they may be found at elevations up to about 5,600 feet (AGFD 2017).

Potential for Occurrence Recommendations

We are aware of no suitable day roost habitat (caves, mine adits, or mine shafts) for LLNB on or adjacent to the Project Area, but LLNB feed on the nectar and pollen of columnar cacti (including

saguaros) and agave flowers, and there is a low number of saguaros on the Project Area that could produce forage for this species. HDMS records indicate at least one occurrence of the species within 2 miles of the Analysis Area (**Appendix B**). Based on the above evaluation, we conclude that it is possible for foraging LLNB to occasionally utilize the Project Area for foraging. In the section below we discuss potential impacts of the Project to LLNB that may forage on the Project Area.

6. RECOMMENDATIONS

The Project could affect PPC or potential forage habitat for the LLNB. The following recommendations are provided to address these potential concerns.

WestLand recommends that a PPC survey be conducted of the entire Project Area following the guidelines set forth in the USFWS document entitled *Pima Pineapple Cactus Three Tier Survey Methods* (Roller 1996). Given the potential for PPC occurrence, a survey with negative results would indicate that impacts to PPC would not occur as a result of the proposed Project. Avoidance of any plants identified within the Project Area would be recommended. If avoidance is not possible, mitigation may be required depending on the land jurisdiction and location. For example, if plants are located in close proximity to a potential water of the U.S. and a Clean Water Act Section 404 permit required, it may be necessary for the Army Corps of Engineers to consult with the USFWS to determine impacts and mitigation.

Mature saguaros, those generally over 8 feet in height, and agave may be present within the Project Area and would be a potential forage source for LLNB. A survey for these plants would identify any such plants within the Project Area and avoidance would be recommended. If avoidance is not possible, it may be necessary to consult with the USFWS to identify mitigation designed to reduce impacts, such as transplanting healthy individuals. However, the listing of this species is currently under review and if it is delisted prior to Project construction, no mitigation will be necessary.

7. REFERENCES

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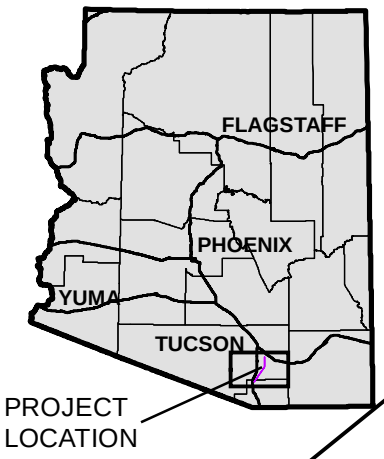
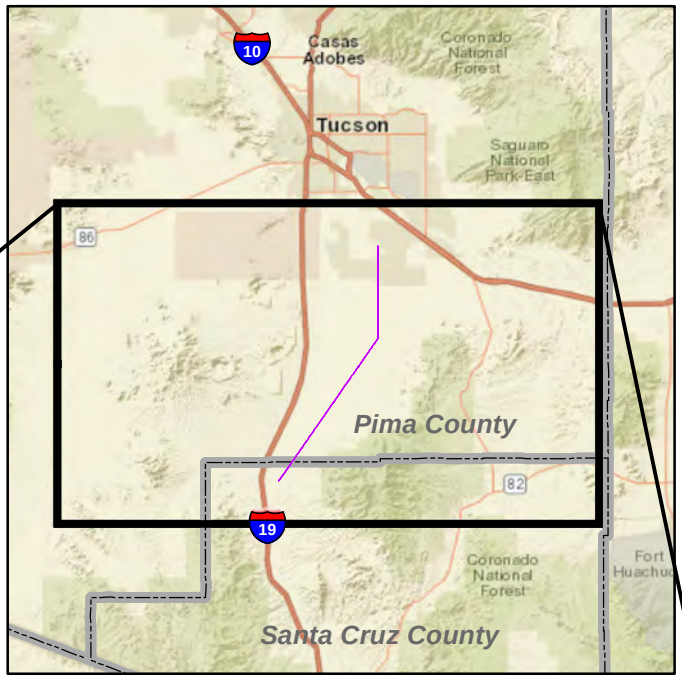
FIGURES





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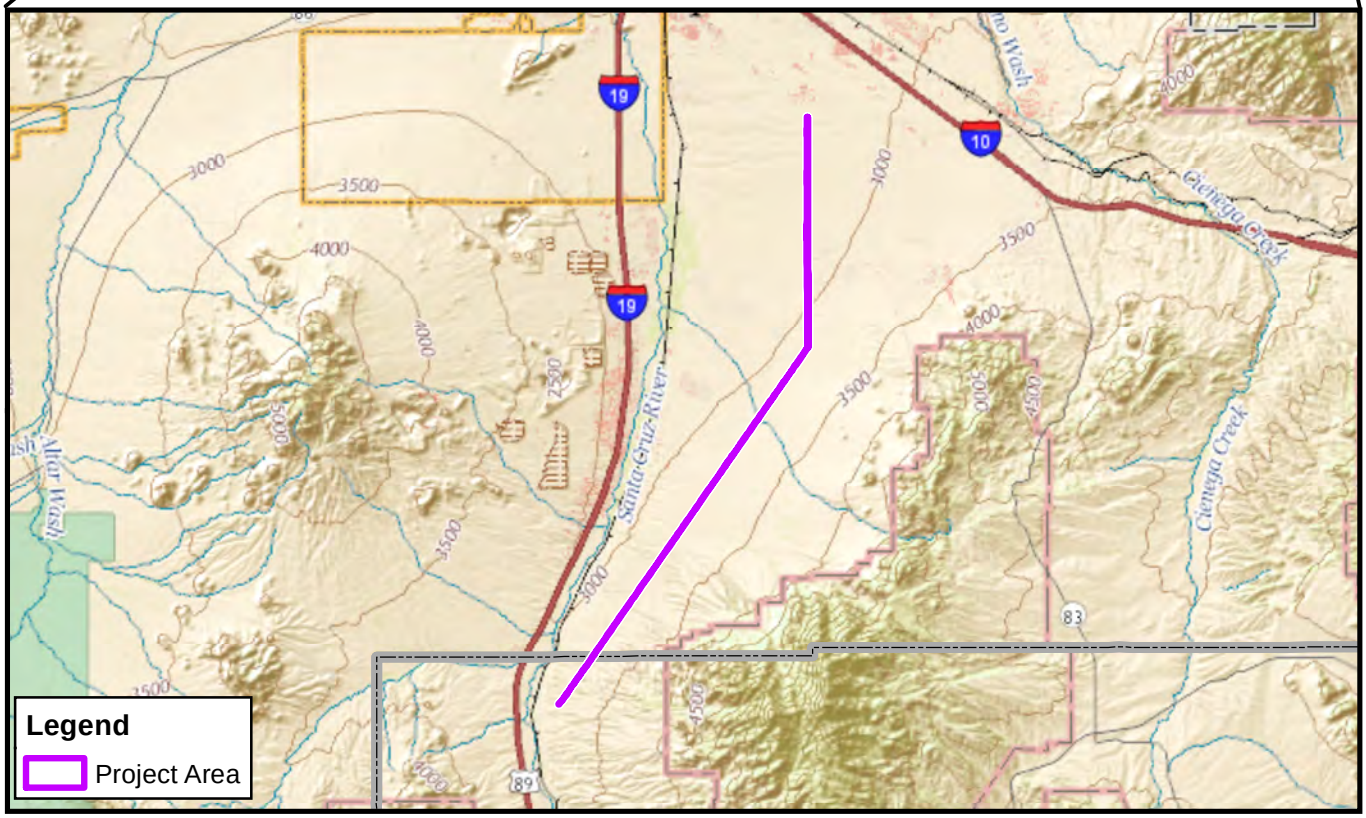

Pima and Santa Cruz Counties, Arizona,
Image Source: ArcGIS Online USGS National Map and World Street Map

TUCSON ELECTRIC POWER CO.

Biological Evaluation of the Nogales Tap - Kantor 138kV Transmission Line Project

VICINITY MAP

Figure 1

WestLand Resources

N

0 3 6 Miles

0 5 10 Kilometers

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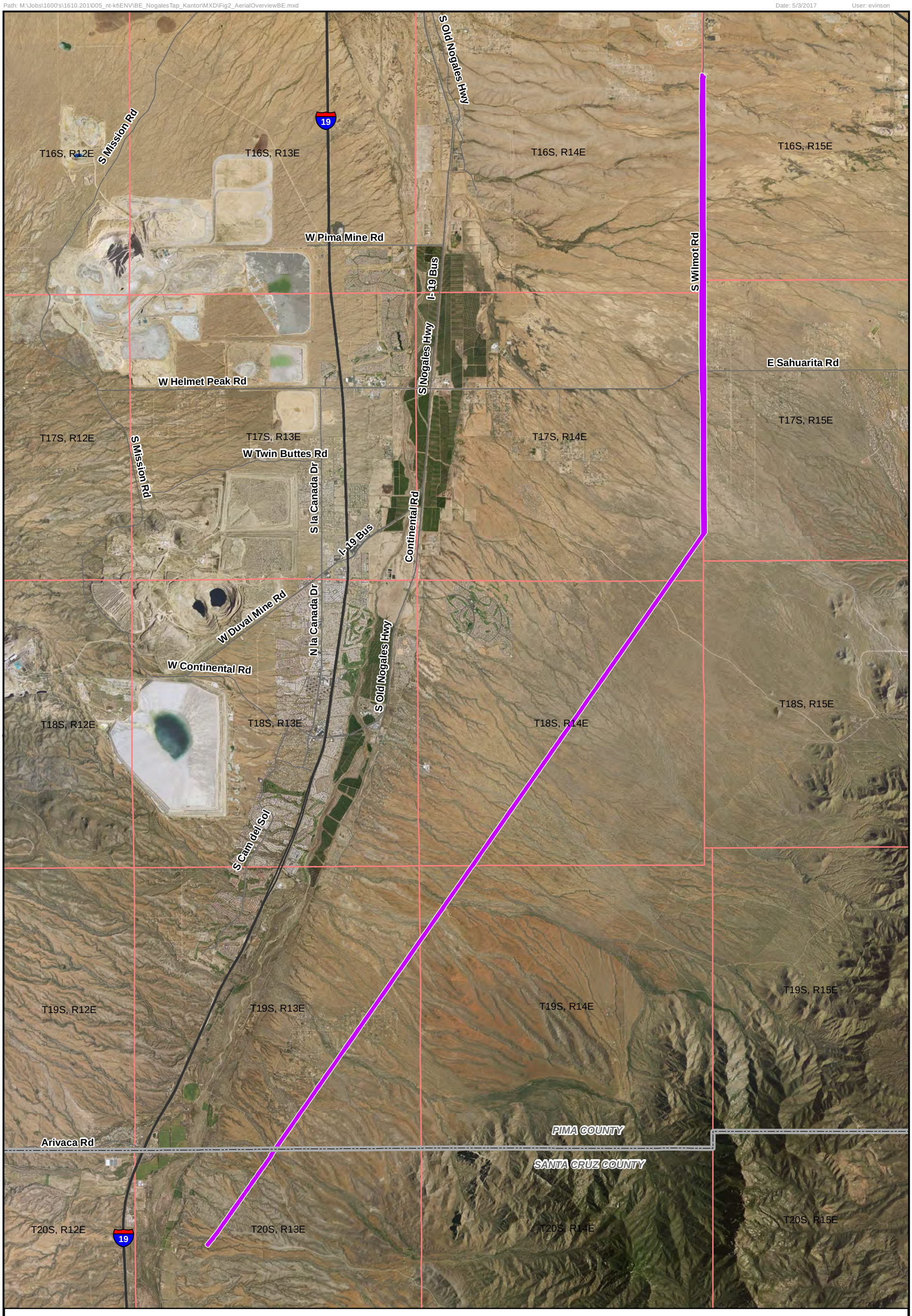


Project area within portions of:
T16-20S, R13-15E,
Pima and Santa Cruz Counties, Arizona,
Data Source: ALRIS Arizona Roads
Image Source: 2015 USDA NAIP Orthophoto

N

0 5,000 10,000 Feet

0 1,500 3,000 Meters

Legend

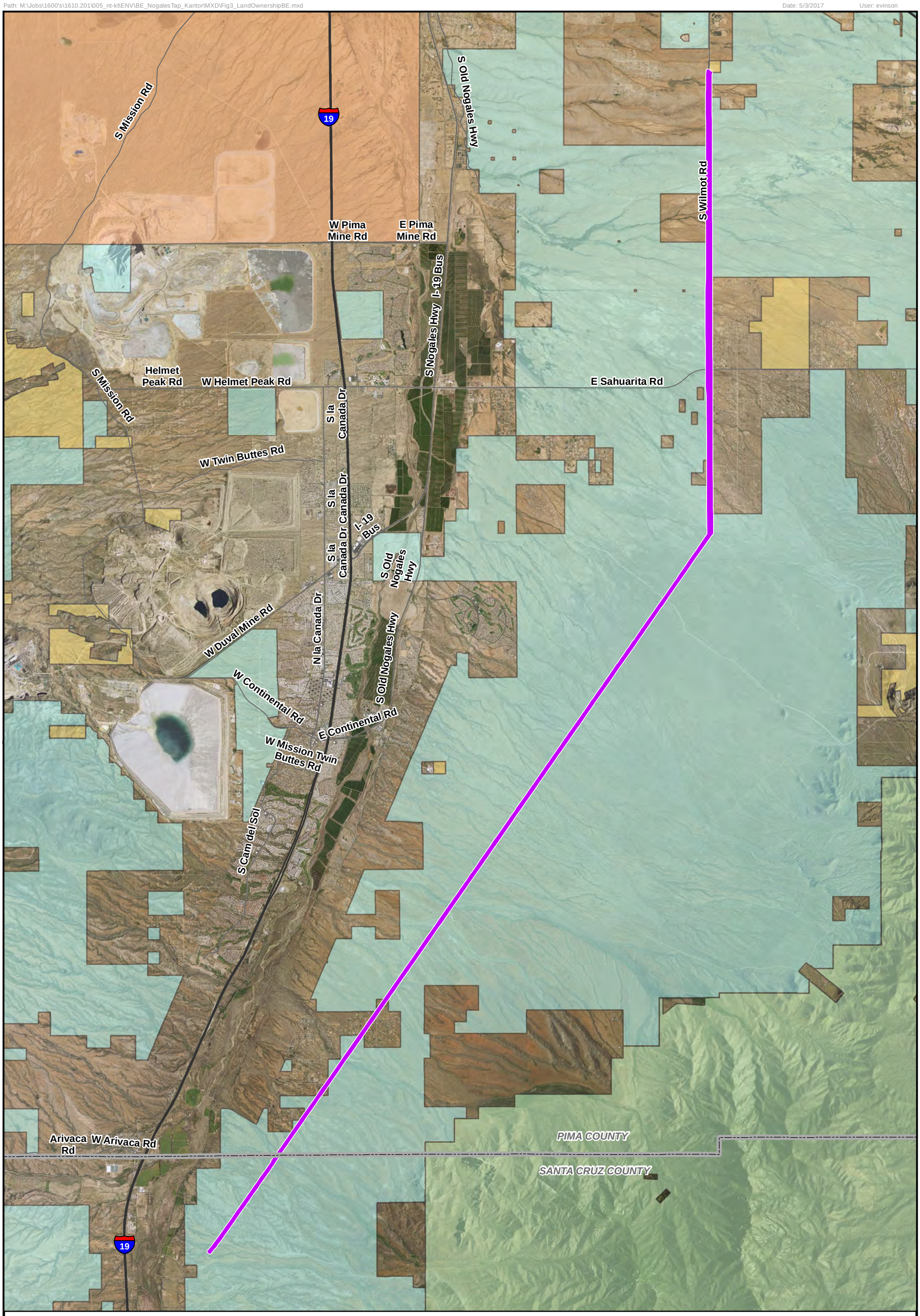
Project Area

WestLand Resources

TUCSON ELECTRIC POWER CO.
Biological Evaluation of the
Nogales Tap - Kantor 138kV
Transmission Line Project

AERIAL OVERVIEW
Figure 2

Path: M:\Jobs\1600's\1610.201\005_nt-kt\ENV\BE_NogalesTap_Kantor\MXD\Fig3_LandOwnershipBE.mxd Date: 5/3/2017 User: evinson



Project area within portions of:
T16-20S, R13-15E,
Pima and Santa Cruz Counties, Arizona,
Data Source: ALRIS Arizona Roads
Image Source: 2015 USDA NAIP Orthophoto

N

0 5,000 10,000 Feet

0 1,500 3,000 Meters

WestLand Resources

Legend

- Project Area

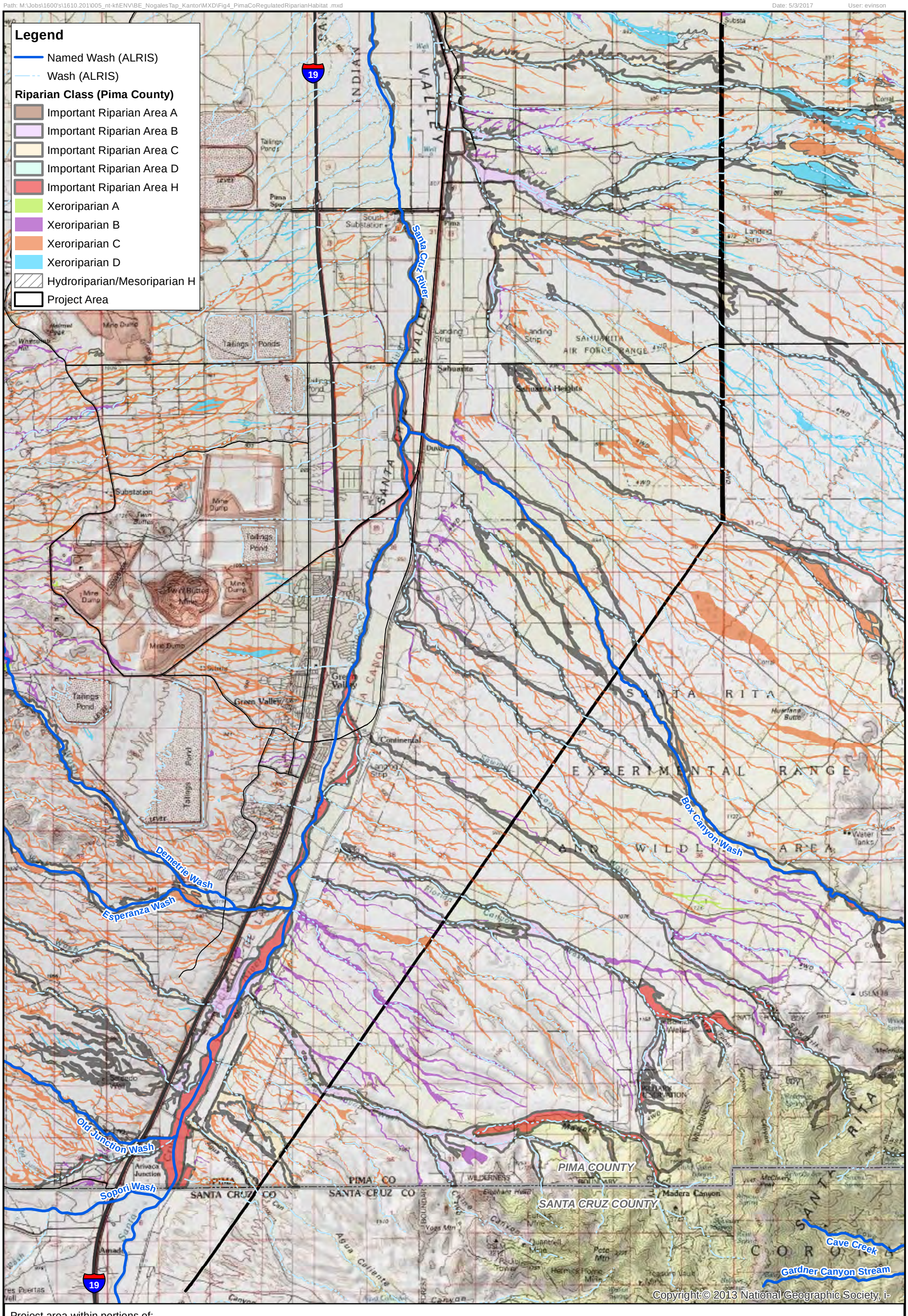
AZ BLM Surface Management

- Bureau of Land Management (BLM)
- Indian Lands
- Private Land (No Color)
- State Trust Land
- US Forest Service (USFS)

TUCSON ELECTRIC POWER CO.
Biological Evaluation of the
Nogales Tap - Kantor 138kV
Transmission Line Project

LAND OWNERSHIP
Figure 3

Path: M:\Jobs\1600's\1610.201\005_nt-kt\ENV\BE_NogalesTap_Kantor\MXD\Fig4_PimaCoRegulatedRiparianHabitat .mxd Date: 5/3/2017 User: evinson



Project area within portions of:
T16-20S, R13-15E,
Pima and Santa Cruz Counties, Arizona,
Data Source: ALRIS and Pima County GIS,
Riparian Classifications, 2005 FC2 data layer
ArcGIS Online USA Topo Maps

N

0 4,600 9,200 Feet

0 1,500 3,000 Meters

WestLand Resources

TUCSON ELECTRIC POWER CO.

Biological Evaluation of the
Nogales Tap - Kantor 138kV
Transmission Line Project

AERIAL OVERVIEW
Figure 4

APPENDIX A

USFWS IPaC
Online Query

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arizona Ecological Services Field Office
9828 North 31st Ave
#c3
Phoenix, AZ 85051-2517
Phone: (602) 242-0210 Fax: (602) 242-2513
http://www.fws.gov/southwest/es/arizona/
http://www.fws.gov/southwest/es/EndangeredSpecies_Main.html

In Reply Refer To: April 12, 2017
Consultation Code: 02EAAZ00-2017-SLI-0559
Event Code: 02EAAZ00-2017-E-01194
Project Name: Nogales Tap to Kantor

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The Fish and Wildlife Service (Service) is providing this list under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). The list you have generated identifies threatened, endangered, proposed, and candidate species, and designated and proposed critical habitat, that may occur within one or more delineated United States Geological Survey 7.5 minute quadrangles with which your project polygon intersects. Each quadrangle covers, at minimum, 49 square miles. Please refer to the species information links found at http://www.fws.gov/southwest/es/arizona/Docs_Species.htm or http://www.fws.gov/southwest/es/arizona/Documents/MiscDocs/AZSpeciesReference.pdf for a quick reference, to determine if suitable habitat for the species on your list occurs in your project area.

The purpose of the Act is to provide a means whereby threatened and endangered species and the habitats upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of Federal trust resources and to determine whether projects may affect federally listed species and/or designated critical habitat. A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If the Federal action agency determines that listed species or critical habitat may be affected by a federally funded, permitted or authorized activity, the agency must consult with us pursuant to 50 CFR 402. Note that a "may affect" determination includes effects that may not be adverse and that may be beneficial, insignificant, or discountable. An effect exists even if only one individual or habitat segment may be affected. The effects analysis should include the entire action area, which often extends well outside the project boundary or "footprint" (e.g., downstream). If the Federal action agency determines that the action may jeopardize a proposed species or adversely modify proposed critical habitat, the agency must enter into a section 7 conference. The agency may choose to confer with us on an action that may affect proposed species or critical habitat.

Candidate species are those for which there is sufficient information to support a proposal for listing. Although candidate species have no legal protection under the Act, we recommend that they be considered in the planning process in the event they become proposed or listed prior to project completion. More information on the regulations (50 CFR 402) and procedures for section 7 consultation, including the role of permit or license applicants, can be found in our Endangered Species Consultation Handbook at: http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF.

In addition to species listed under the Act, we advise you to consider species protected under the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712) and the Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668 et seq.). Both laws prohibit the take of covered species. The list of MBTA-protected birds is in 50 CFR 10.13 (for an alphabetical list see https://www.fws.gov/birds/management/managed-species/migratory-bird-treaty-act-protected-species.php. The Service's Division of Migratory Birds is the lead for consultations under these laws (Southwest Regional Office phone number: 505/248-7882). For more information regarding the MBTA, BGEPA, and permitting processes, please visit the following web site: http://www.fws.gov/migratorybirds/mbpermits.html. Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g. cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/southwest/es/arizona/CellTower.htm

Although bald eagles (Haliaeetus leucocephalus) are no longer listed under the Act, they are protected under both the BGEPA and the MBTA. If a bald eagle nest occurs in or near the proposed project area, our office should be contacted. An evaluation must be performed to determine whether the project is likely to disturb nesting bald eagles (see http://www.fws.gov/southeast/es/baldeagle/) and the Division of Migratory Birds consulted if necessary. The National Bald Eagle Management Guidelines provide recommendations to minimize potential project impacts to bald eagles (see http://www.fws.gov/midwest/eagle/pdf/NationalBaldEagleManagementGuidelines.pdf).

Activities that involve streams and/or wetlands are regulated by the U.S. Army Corps of Engineers (Corps). We recommend that you contact the Corps to determine their interest in proposed projects in these areas. For activities within a National Wildlife Refuge, we recommend that you contact refuge staff for specific information about refuge resources.

If your action is on Indian land or has implications for off-reservation tribal interests, we

encourage you to contact the tribe(s) and the Bureau of Indian Affairs (BIA) to discuss potential tribal concerns, and to invite any affected tribe and the BIA to participate in the section 7 consultation. In keeping with our tribal trust responsibility, we will notify tribes that may be affected by proposed actions when section 7 consultation is initiated. For more information, please contact our tribal coordinator, John Nystedt, at (928) 556-2160 or John_Nystedt@fws.gov .

The State of Arizona protects some species not protected by Federal law. We recommend you contact the Arizona Game and Fish Department (AGFD) for animals and Arizona Department of Agriculture for plants to determine if species protected by or of concern to the State may occur in your action area. The AGFD has an Environmental Review On-Line Tool that can be accessed at http://www.azgfd.gov/hgis/. We also recommend that you coordinate with the AGFD regarding your project.

For additional communications regarding this project, please refer to the consultation Tracking Number in the header of this letter. We appreciate your concern for threatened and endangered species. If we may be of further assistance, please contact Brenda Smith at 928/556-2157 for projects in Northern Arizona, our general Phoenix number (602/242-0210) for central Arizona, or Jean Calhoun at 520/670-6150 (x223) for projects in southern Arizona.

Sincerely,

/s/

Steven L. Spangle

Field Supervisor

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Arizona Ecological Services Field Office
9828 North 31st Ave
#c3
Phoenix, AZ 85051-2517
(602) 242-0210

Project Summary

Consultation Code: 02EAAZ00-2017-SLI-0559

Event Code: 02EAAZ00-2017-E-01194

Project Name: Nogales Tap to Kantor

Project Type: TRANSMISSION LINE

Project Description: upgrades to existing power line

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/31.875105961540378N110.89013979695972W

Counties: Pima, AZ | Santa Cruz, AZ

Endangered Species Act Species

There is a total of 12 threatened, endangered, or candidate species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
Jaguar *(Panthera onca)* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3944	Endangered
Lesser Long-nosed Bat *(Leptonycteris curasoae yerbabuenae)* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3245	Endangered
Ocelot *(Leopardus (=Felis) pardalis)* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4474	Endangered
Sonoran Pronghorn *(Antilocapra americana sonoriensis)* Population: U.S.A. (AZ), Mexico No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4750	Experimental Population, Non-Essential

Birds

NAME	STATUS
California Least Tern *(Sterna antillarum browni)* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered
Mexican Spotted Owl *(Strix occidentalis lucida)* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8196	Threatened
Southwestern Willow Flycatcher *(Empidonax traillii extimus)* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered
Yellow-billed Cuckoo *(Coccyzus americanus)* Population: Western U.S. DPS There is a **proposed** critical habitat for this species. Your location is outside the proposed critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS
Northern Mexican Gartersnake *(Thamnophis eques megalops)* There is a **proposed** critical habitat for this species. Your location is outside the proposed critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7655	Threatened
Sonoyta Mud Turtle *(Kinosternon sonoriense longifemorale)* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7276	Proposed Endangered

Amphibians

NAME	STATUS
Chiricahua Leopard Frog *(Rana chiricahuensis)* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1516	Threatened

Flowering Plants

NAME	STATUS
Pima Pineapple Cactus *(Coryphantha scheeri var. robustispina)* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4919	Endangered

Critical habitats

There are no critical habitats within your project area.

APPENDIX B

AGFD HDMS
Online Query

Arizona Environmental Online Review Tool Report

Arizona Game and Fish Department Mission
To conserve Arizona's diverse wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations.

Project Name:
NT to Kantor

User Project Number:
1610.201

Project Description:
Nogales Tap to Kantor

Project Type:
Energy Storage/Production/Transfer, Energy Transfer, power line/electric (maintenance to existing)

Contact Person:
Janet Fox

Organization:
WestLand Resources Inc.

On Behalf Of:
CONSULTING

Project ID:
HGIS-05247

Please review the entire report for project type and/or species recommendations for the location information entered. Please retain a copy for future reference.

Disclaimer:

1. This Environmental Review is based on the project study area that was entered. The report must be updated if the project study area, location, or the type of project changes.
2. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area. This review is also not intended to replace environmental consultation (including federal consultation under the Endangered Species Act), land use permitting, or the Departments review of site-specific projects.
3. The Departments Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. HDMS data contains information about species occurrences that have actually been reported to the Department. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. HabiMap Arizona data, specifically Species of Greatest Conservation Need (SGCN) under our State Wildlife Action Plan (SWAP) and Species of Economic and Recreational Importance (SERI), represent potential species distribution models for the State of Arizona which are subject to ongoing change, modification and refinement. The status of a wildlife resource can change quickly, and the availability of new data will necessitate a refined assessment.

Locations Accuracy Disclaimer:
Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Report is solely responsible for the project location and thus the correctness of the Project Review Report content.

Recommendations Disclaimer:

1. The Department is interested in the conservation of all fish and wildlife resources, including those species listed in this report and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.
2. Recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation).
3. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project. These recommendations are preliminary in scope, designed to provide early considerations on all species of wildlife.
4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals.
5. Further coordination with the Department requires the submittal of this Environmental Review Report with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locality information (including site map). Once AGFD had received the information, please allow 30 days for completion of project reviews. Send requests to:
   Project Evaluation Program, Habitat Branch
   Arizona Game and Fish Department
   5000 West Carefree Highway
   Phoenix, Arizona 85086-5000
   Phone Number: (623) 236-7600
   Fax Number: (623) 236-7366
   Or
   PEP@azgfd.gov
6. Coordination may also be necessary under the National Environmental Policy Act (NEPA) and/or Endangered Species Act (ESA). Site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected agencies

NT to Kantor

Aerial Image Basemap With Locator Map

Project Boundary

Buffered Project Boundary

Project Size (acres): 491.30

Lat/Long (DD): 31.8600 / -110.9025

County(s): Pima; Santa Cruz

AGFD Region(s): Tucson

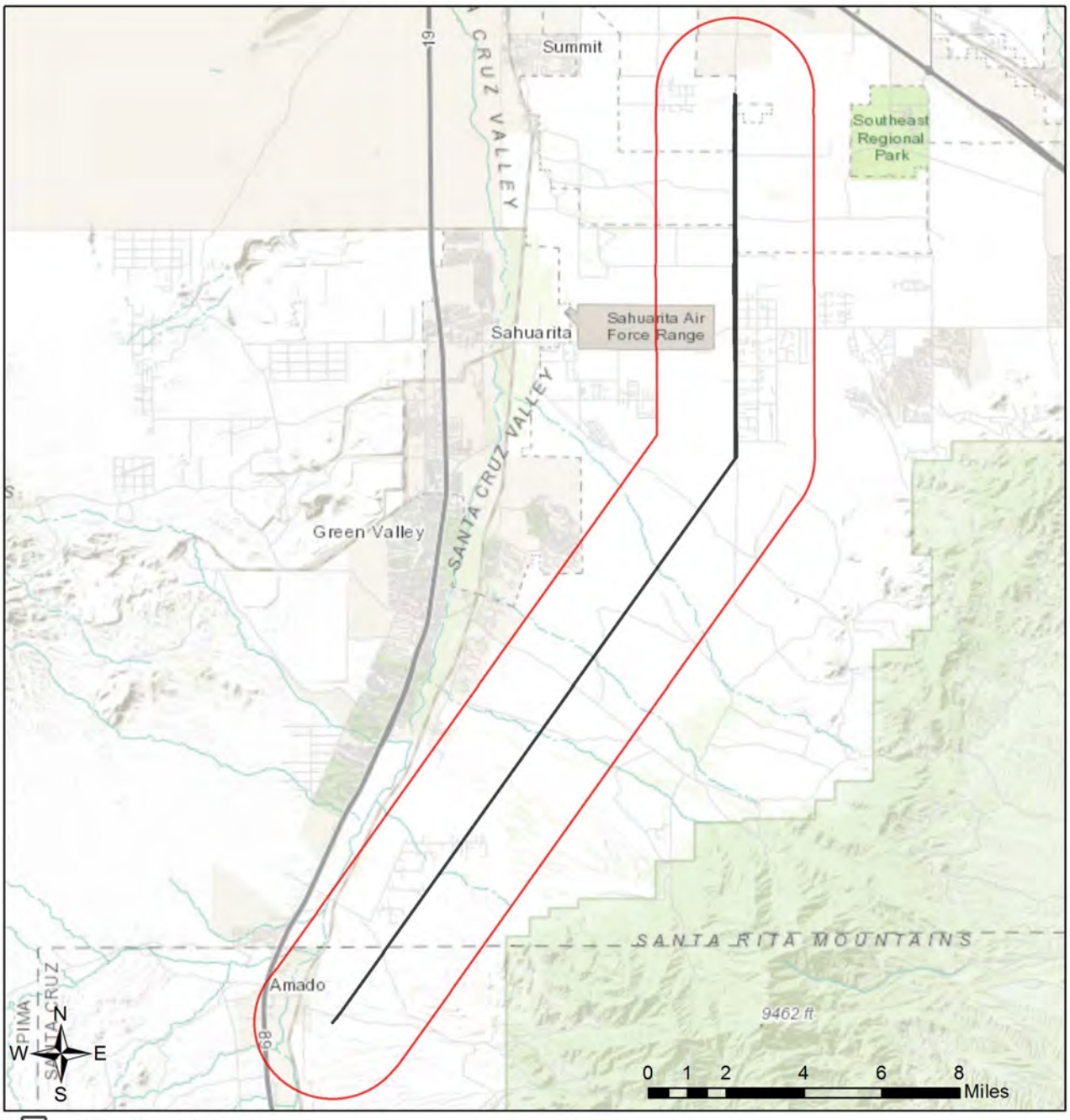
Township/Range(s): T16S, R14E; T16S, R15E; T17S, R15E +

USGS Quad(s): TUCSON SE; CORONA DE TUCSON +

Service Layer Credits: Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong),

NT to Kantor

Web Map As Submitted By User



Project Boundary

Buffered Project Boundary

Project Size (acres): 491.30

Lat/Long (DD): 31.8600 / -110.9025

County(s): Pima; Santa Cruz

AGFD Region(s): Tucson

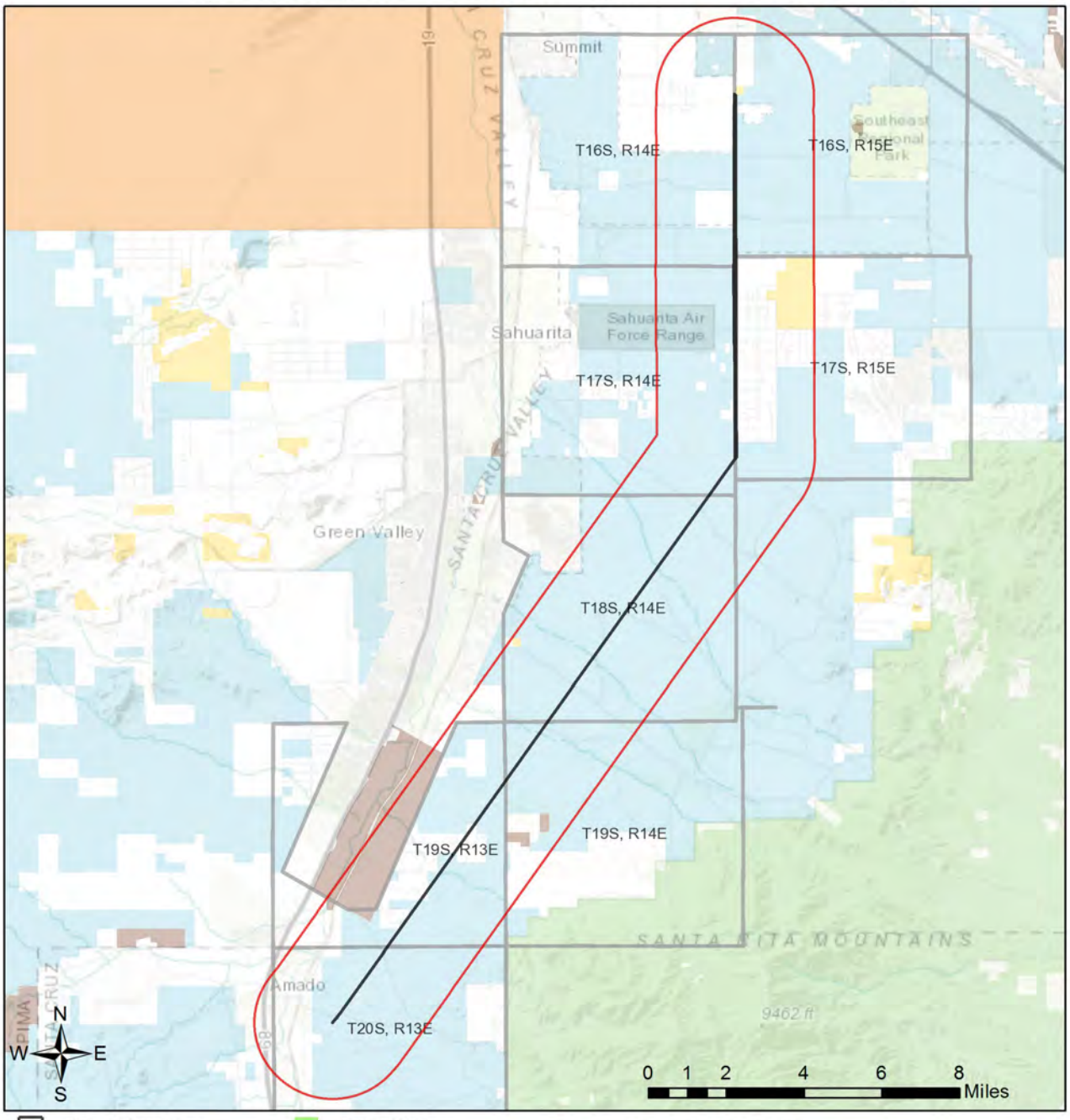
Township/Range(s): T16S, R14E; T16S, R15E; T17S, R15E +

USGS Quad(s): TUCSON SE; CORONA DE TUCSON +

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

NT to Kantor

Topo Basemap With Township/Ranges and Land Ownership



- Project Boundary
- Buffered Project Boundary
- Township/Ranges
- AZ Game and Fish Dept.
- BLM
- BOR
- Indian Res.
- Military
- Mixed/Other
- National Park/Mon.
- Private
- State and Regional Parks
- State Trust
- US Forest Service
- Wildlife Area/Refuge

Project Size (acres): 491.30

Lat/Long (DD): 31.8600 / -110.9025

County(s): Pima; Santa Cruz

AGFD Region(s): Tucson

Township/Range(s): T16S, R14E; T16S, R15E; T17S, R15E +

USGS Quad(s): TUCSON SE; CORONA DE TUCSON +

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Special Status Species and Special Areas Documented within 2 Miles of Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Aquila chrysaetos	Golden Eagle	BGA		S		1B
CH for Panthera onca	Jaguar Designated Critical Habitat					
Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S			1A
Coryphantha scheeri var. robustispina	Pima Pineapple Cactus	LE			HS	
Echinocereus fasciculatus	Magenta-flower Hedgehog-cactus				SR	
Gastrophryne olivacea	Western Narrow-mouthed Toad			S		1C
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S			1A
Leptonycteris curasoae yerbabuenae	Lesser Long-nosed Bat	LE				1A
Opuntia versicolor	Stag-horn Cholla				SR	
Santa Rita - Sierrita Linkage Design	Wildlife Corridor					
Santa Rita - Tumacacori Linkage Design	Wildlife Corridor					
Terrapene ornata luteola	Desert Box Turtle			S		1A
Tumamoca macdougalii	Tumamoc Globeberry		S	S	SR	
Upper Santa Cruz River IBA						

Note: Status code definitions can be found at https://www.azgfd.com/wildlife/planning/wildlifeguidelines/statusdefinitions/
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Species of Greatest Conservation Need
Predicted within Project Vicinity based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Agosia chrysogaster	Longfin Dace	SC		S		1B
Aix sponsa	Wood Duck					1B
Amazilia violiceps	Violet-crowned Hummingbird		S			1B
Ammodramus savannarum ammolegus	Arizona grasshopper sparrow		S	S		1B
Ammodramus savannarum perpallidus	Western Grasshopper Sparrow					1B
Ammospermophilus harrisii	Harris' Antelope Squirrel					1B
Amphispiza quinquestriata	Five-striped Sparrow					1B
Anthus spragueii	Sprague's Pipit	SC				1A
Antrostomus ridgwayi	Buff-collared Nightjar		S			1B
Aquila chrysaetos	Golden Eagle			S		1B
Aspidoscelis stictogramma	Giant Spotted Whiptail	SC	S			1B
Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S		1B
Botaurus lentiginosus	American Bittern					1B
Buteo regalis	Ferruginous Hawk	SC		S		1B
Catostomus clarkii	Desert Sucker	SC	S	S		1B

Species of Greatest Conservation Need
Predicted within Project Vicinity based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Catostomus insignis	Sonora Sucker	SC	S	S		1B
Chilomeniscus stramineus	Variable Sandsnake					1B
Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S			1A
Colaptes chrysoides	Gilded Flicker			S		1B
Coluber bilineatus	Sonoran Whipsnake					1B
Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S		1B
Craugastor augusti	Barking Frog					1B
Crotalus lepidus	Rock Rattlesnake					1A
Crotalus tigris	Tiger Rattlesnake					1B
Crotalus willardi	Ridge-nosed Rattlesnake	PS				1A
Cynanthus latirostris	Broad-billed Hummingbird		S			1B
Cynomys ludovicianus	Black-tailed Prairie Dog	CCA		S		1A
Dipodomys spectabilis	Banner-tailed Kangaroo Rat			S		1B
Euderma maculatum	Spotted Bat	SC	S	S		1B
Eugenes fulgens	Magnificent Hummingbird					1B
Eumops perotis californicus	Greater Western Bonneted Bat	SC		S		1B
Eumops underwoodi	Underwood's Bonneted Bat	SC				1B
Falco peregrinus anatum	American Peregrine Falcon	SC	S	S		1A
Glaucidium brasilianum cactorum	Cactus Ferruginous Pygmy-owl	SC	S	S		1B
Glaucidium gnoma gnoma	Mountain Pygmy-owl					1B
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S			1A
Haliaeetus leucocephalus	Bald Eagle	SC	S	S		1A
Heloderma suspectum	Gila Monster					1A
Hypsiglena sp. nov.	Hooded Nightsnake					1B
Incilius alvarius	Sonoran Desert Toad					1B
Kinosternon sonoriense sonoriense	Desert Mud Turtle			S		1B
Lampornis clemenciae	Blue-throated Hummingbird					1B
Lasiurus blossevillii	Western Red Bat		S			1B
Lasiurus xanthinus	Western Yellow Bat		S			1B
Leopardus pardalis	Ocelot	LE				1A
Leptonycteris curasoae yerbabuenae	Lesser Long-nosed Bat	LE				1A
Lepus alleni	Antelope Jackrabbit					1B
Lithobates chiricahuensis	Chiricahua Leopard Frog	LT				1A
Lithobates tarahumarae	Tarahumara Frog	SC	S			1A
Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		1A
Macrotus californicus	California Leaf-nosed Bat	SC		S		1B
Megascops trichopsis	Whiskered Screech-owl		S			1B
Melanerpes uropygialis	Gila Woodpecker					1B

Species of Greatest Conservation Need
Predicted within Project Vicinity based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Melospiza lincolnii	Lincoln's Sparrow					1B
Melozone aberti	Abert's Towhee		S			1B
Micruroides euryxanthus	Sonoran Coralsnake					1B
Myiarchus tuberculifer	Dusky-capped Flycatcher					1B
Myiodynastes luteiventris	Sulphur-bellied Flycatcher		S			1B
Myotis occultus	Arizona Myotis	SC		S		1B
Myotis velifer	Cave Myotis	SC		S		1B
Myotis yumanensis	Yuma Myotis	SC				1B
Notiosorex cockrumi	Cockrum's Desert Shrew					1B
Nyctinomops femorosaccus	Pocketed Free-tailed Bat					1B
Odocoileus virginianus	White-tailed Deer					1B
Pachyramphus aglaiae	Rose-throated Becard		S			1B
Panthera onca	Jaguar	LE				1A
Passerculus sandwichensis	Savannah Sparrow					1B
Peucaea botterii arizonae	Arizona Botteri's Sparrow			S		1B
Peucaea carpalis	Rufous-winged Sparrow					1B
Phrynosoma solare	Regal Horned Lizard					1B
Phyllorhynchus browni	Saddled Leaf-nosed Snake					1B
Picoides arizonae	Arizona Woodpecker		S			1B
Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE				1A
Polioptila nigriceps	Black-capped Gnatcatcher					1B
Progne subis hesperia	Desert Purple Martin			S		1B
Sceloporus slevini	Slevin's Bunchgrass Lizard		S	S		1B
Sciurus arizonensis	Arizona Gray Squirrel					1B
Senticolis triaspis	Green Ratsnake		S			1B
Setophaga petechia	Yellow Warbler					1B
Sialia sialis fulva	Azure Bluebird					1B
Sonorella eremita	San Xavier Talussnail	CCA				1A
Strix occidentalis lucida	Mexican Spotted Owl	LT				1A
Tadarida brasiliensis	Brazilian Free-tailed Bat					1B
Tantilla wilcoxi	Chihuahuan Black-headed Snake		S			1B
Tantilla yaquia	Yaqui Black-headed Snake		S			1B
Terrapene ornata	Ornate Box Turtle					1A
Thomomys umbrinus intermedius	Southern Pocket Gopher					1B
Troglodytes pacificus	Pacific Wren					1B
Trogon elegans	Elegant Trogon		S			1B
Tyrannus crassirostris	Thick-billed Kingbird		S			1B
Vireo bellii arizonae	Arizona Bell's Vireo					1B

Species of Greatest Conservation Need
Predicted within Project Vicinity based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Vulpes macrotis	Kit Fox	No Status				1B

Species of Economic and Recreation Importance Predicted within Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Callipepla gambelii	Gambel's Quail					
Callipepla squamata	Scaled Quail					1C
Odocoileus hemionus	Mule Deer					
Odocoileus virginianus	White-tailed Deer					1B
Patagioenas fasciata	Band-tailed Pigeon					1C
Pecari tajacu	Javelina					
Puma concolor	Mountain Lion					
Zenaida asiatica	White-winged Dove					
Zenaida macroura	Mourning Dove					

Project Type: Energy Storage/Production/Transfer, Energy Transfer, power line/electric (maintenance to existing)

Project Type Recommendations:

Minimize potential introduction or spread of exotic invasive species. Invasive species can be plants, animals (exotic snails), and other organisms (e.g., microbes), which may cause alteration to ecological functions or compete with or prey upon native species and can cause social impacts (e.g., livestock forage reduction, increase wildfire risk). The terms noxious weed or invasive plants are often used interchangeably. Precautions should be taken to wash all equipment utilized in the project activities before leaving the site. Arizona has noxious weed regulations (Arizona Revised Statutes, Rules R3-4-244 and R3-4-245). See Arizona Department of Agriculture website for restricted plants, https://agriculture.az.gov/. Additionally, the U.S. Department of Agriculture has information regarding pest and invasive plant control methods including: pesticide, herbicide, biological control agents, and mechanical control, http://www.usda.gov/wps/portal/usdahome. The Department regulates the importation, purchasing, and transportation of wildlife and fish (Restricted Live Wildlife), please refer to the hunting regulations for further information https://www.azgfd.com/hunting/regulations.

Follow manufacturer's recommended application guidelines for all chemical treatments. The U.S. Fish and Wildlife Service, Region 2, Environmental Contaminants Program has a reference document that serves as their regional pesticide recommendations for protecting wildlife and fisheries resources, titled "Recommended Protection Measures for Pesticide Applications in Region 2 of the USFWS", http://www.fws.gov/southwest/es/arizona/Documents/ECReports/RPMPA_2007.pdf. The Department recommends that direct or indirect impacts to sensitive species and their forage base from the application of chemical pesticides or herbicides be considered carefully.

For any powerlines built, proper design and construction of the transmission line is necessary to prevent or minimize risk of electrocution of raptors, owls, vultures, and golden or bald eagles, which are protected under state and federal laws. Limit project activities during the breeding season for birds, generally May through late August, depending on species in the local area (raptors breed in early February through May). Conduct avian surveys to determine bird species that may be utilizing the area and develop a plan to avoid disturbance during the nesting season. For underground powerlines, trenches should be covered or back-filled as soon as possible. Incorporate escape ramps in ditches or fencing along the perimeter to deter small mammals and herptefauna (snakes, lizards, tortoise) from entering ditches. In addition, indirect affects to wildlife due to construction (timing of activity, clearing of rights-of-way, associated bridges and culverts, affects to wetlands, fences) should also be considered and mitigated.

Based on the project type entered, coordination with U.S. Fish and Wildlife Service (Migratory Bird Treaty Act) may be required (http://www.fws.gov/southwest/es/arizona/).

Vegetation restoration projects (including treatments of invasive or exotic species) should have a completed site-evaluation plan (identifying environmental conditions necessary to re-establish native vegetation), a revegetation plan (species, density, method of establishment), a short and long-term monitoring plan, including adaptive management guidelines to address needs for replacement vegetation.

Project Location and/or Species Recommendations:

HDMS records indicate that one or more native plants listed on the Arizona Native Plant Law and Antiquities Act have been documented within the vicinity of your project area. Please contact:
Arizona Department of Agriculture
1688 W Adams St.
Phoenix, AZ 85007
Phone: 602.542.4373
https://agriculture.az.gov/environmental-services/np1

HDMS records indicate that one or more listed, proposed, or candidate species or Critical Habitat (Designated or Proposed) have been documented in the vicinity of your project. The Endangered Species Act (ESA) gives the US Fish and Wildlife Service (USFWS) regulatory authority over all federally listed species. Please contact USFWS Ecological Services Offices at http://www.fws.gov/southwest/es/arizona/ or:

Phoenix Main Office
2321 W. Royal Palm Rd, Suite 103
Phoenix, AZ 85021
Phone: 602-242-0210
Fax: 602-242-2513

Tucson Sub-Office
201 N. Bonita Suite 141
Tucson, AZ 85745
Phone: 520-670-6144
Fax: 520-670-6155

Flagstaff Sub-Office
SW Forest Science Complex
2500 S. Pine Knoll Dr.
Flagstaff, AZ 86001
Phone: 928-556-2157
Fax: 928-556-2121

HDMS records indicate that Sonoran Desert Tortoise have been documented within the vicinity of your project area. Please review the Tortoise Handling Guidelines found at: https://www.azgfd.com/wildlife/nongamemanagement/tortoise/

HDMS records indicate that Lesser Long-nosed Bats have been documented within the vicinity of your project area. Please review the Lesser Long-nosed Bat Management Guidelines at: https://www.azgfd.com/PortalImages/files/wildlife/planningFor/wildlifeFriendlyGuidelines/FINALlecuyeHabitatGdln.pdf

The analysis has detected one or more Important Bird Areas within your project vicinity. Please see http://aziba.org/?page_id=38 for details about the Important Bird Area(s) identified in the report.

Analysis indicates that your project is located in the vicinity of an identified wildlife habitat linkage corridor. Project planning and implementation efforts should focus on maintaining adequate opportunities for wildlife permeability. For information pertaining to the linkage assessment and wildlife species that may be affected, please refer to: http://www.corridordesign.org/arizona. Please contact your local Arizona Game and Fish Department Regional Office for specific project recommendations: https://www.azgfd.com/Agency/Offices.