

## **EXHIBIT D BIOLOGICAL RESOURCES**

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As stated in Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

“List the fish, wildlife, plant life and associated forms of life in the vicinity of the proposed site or route and describe the effects, if any, the proposed facilities will have thereon.”

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Exhibit D includes a summary of biological resources, as well as the potential impacts the proposed and alternative routes and switchyard/substations may have on biological resources.

### **BIOLOGICAL RESOURCES**

#### **Introduction**

This section provides a general description of the existing environment with respect to vegetation and wildlife, and the impacts the proposed project may potentially have on these resources in the project study area and in conjunction with the project alternatives. The initial review covered a regional study area (Exhibit B-2), which was subsequently refined and reduced to the two-mile project study area buffer around the project alternatives (project study area; Exhibit A-1). The information provided herein includes the results of a literature search, secondary data collection from the USFWS and AZGFD Internet website sources, and a review of the Priority Vulnerable Species contained in the Pima County Sonoran Desert Conservation Plan. Modeled habitat for these species, which is available from Pima County, was reviewed for this analysis.

The current USFWS list for Pima County, Arizona, includes 16 federally listed species that currently receive protection under the ESA and 7 species that are Candidate species for ESA listing as threatened or endangered; the USFWS list also includes 2 species that are conservation agreement species, and 2 formerly listed species (USFWS 2011). The USFWS list of current and formerly listed federal species for Pima County, Arizona, is located in tables D-1 through D-3. The AZGFD sensitive species list for Pima County was also reviewed for species that may potentially occur within the project study area.

#### **Wildlife**

##### **Mammals**

Mammals that potentially occur in the project study area include 78 species, and are identified in Table D-1. Twenty three of these species have some special status, 12 of which are bats (see Exhibit C – Areas of Biological Wealth). Three federally listed endangered species, the jaguar, ocelot, and the lesser long-nosed bat, are among these 23 special-status species.

The potential for jaguars or ocelots occurring within the project study area is very low. However, suitable, mostly contiguous habitat for these species is present along a chain of sky island mountain ranges from northern Mexico through the Patagonia Mountains, and includes the Santa Rita Mountains (McCain and Childs 2008). Development of the proposed project will result in

only minor potential habitat fragmentation, and will be unlikely to impact the potential for movement of jaguars or ocelots in the region. Presence of the lesser long-nosed bat has recently been confirmed during a 2009 survey for the species conducted by Westland Resources for the Rosemont mine operations project (Westland Resources 2009a).

Clearing of vegetation for access roads and at pole sites may have minor impacts on bats. Impacts on insectivorous bats may include loss of small quantities of invertebrates that could be used as prey. There will be removal of some agaves (*Agave* spp.) that may be used as forage by nectar-feeding bats. Due to the small quantities of these resources that will be affected, minimal effects to bat species are anticipated. Bats occurring in the project study area primarily use abandoned mines, cliffs, caves, or talus for roosting sites. Due to safety and structural concerns, such areas are normally avoided during construction. No impacts to bat roosting habitat are anticipated from development of this project. Transmission line structures, conductors and static wires present a relatively small collision hazard for bats when compared with effects to birds. Most bat collisions with these structures appear to be associated with migrating animals, when they may not be using their echolocating capabilities.

Ground-disturbing activities, including clearing of vegetation for access roads and at pole sites, could impact burrowing mammals or their young. Individual animals and small quantities of suitable habitat may be lost. However, the small acreage of ground disturbance associated with the proposed project will likely not adversely affect mammal populations in the area, and the project is not likely to result in substantial habitat fragmentation for any mammalian species. Clearing of vegetation may impact small mammals by removing cover, making them more susceptible to predation, while poles may provide hunting perches for raptors that could have impacts on small mammals.

## **Birds**

Birds that potentially occur in the project study area include 139 species (Table D-2); 20 of these species have some special status.

Ground disturbance and vegetation removal for access roads and at pole sites may potentially impact individual birds, their eggs, or young. These activities can also remove insect prey and seeds used by birds, may also remove nesting habitat on the ground or in vegetation, and reduce cover provided by vegetation. Preconstruction clearance for nesting birds will mitigate for potential loss of birds, their eggs, or young and because acreage of disturbance is relatively small, impacts are not considered substantial for any bird species occurring in the project study area.

There are no identified avian flyways that are known to occur within the project study area. Transmission lines and support structures are known to present collision and electrocution hazards for birds. In order to minimize potential impacts, project elements will incorporate current Avian Power Line Interaction Committee (2006) recommendations into project design.

## **Amphibians and Reptiles**

Eleven species of amphibians and 51 species of reptiles potentially occur in the project study area (Table D-3). Among these, 4 amphibians and 8 reptile species have special status. The only federally listed species is the Chiricahua leopard frog, a federally listed threatened species. The Chiricahua leopard frog was recently confirmed as occurring within the project study area (Westland Resources 2008, 2009b). The Sonoran Desert tortoise is a federal candidate species for listing as threatened or endangered.

Ground disturbance and vegetation removal for access roads and at pole sites may potentially impact individual reptiles, their eggs, or young. Many reptiles and some amphibians sequester themselves underground or among vegetation and are particularly susceptible to ground clearing construction activities. These animals are also susceptible to vehicular traffic on access roads and may become trapped in construction excavations.

Aquatic habitat in the project study area is limited to several earthen livestock tanks, a few springs, and seasonal flowing waters in canyons such as Box Canyon. Potential impacts to aquatic amphibians and reptiles would primarily be associated with degradation or loss of aquatic habitat. The proposed project will avoid earthen livestock tanks, and best management practices for spill prevention and erosion protection will be applied to minimize potential for impacts to aquatic habitats. The proposed project will span Box Canyon, minimizing any potential for impacts.

## **Fish**

No native fish species occur in the project study area. There will be no impacts to any native fish species that will result from development of the proposed project.

## **Vegetation**

Five distinct vegetation communities are present within the project study area, including the Lower Colorado River and Arizona Upland Subdivisions of Sonoran Desertscrub, Semidesert Grassland, Encinal Oak Community, and Xeroriparian Scrub. However, the project study area primarily contains Arizona Upland Subdivision, Semidesert Grassland, and Encinal Oak Communities.

Well-defined Xeroriparian Scrub is only present as a small area of the Santa Cruz River floodplain northwest of the proposed Toro Switchyard. Lower Colorado River Subdivision Sonoran Desertscrub is limited to a small area contiguous with the Xeroriparian Scrub and extends no more than approximately 1 mile on either side of the segment of the river supporting Xeroriparian Scrub. Neither of these vegetation communities will be crossed by any project alternative.

Arizona Upland Sonoran Desert is present in the northwestern portion of the project study area on the lower bajada on the west flank of the Santa Rita Mountains. As the elevation begins to rise in the southeastern portion of the project study area, Arizona Upland Sonoran Desert gives way to Semidesert Grassland. Encinal Oak Community is present at middle elevations in the

Santa Rita Mountains in the eastern portion of the project study area. The majority of the project study area in the valley, west of the Santa Rita Mountains, has seen many years of livestock grazing; vegetation over most of the area tends to be sparse, with creosote bush (*Larrea tridentata*), species of cholla (*Cylindropuntia* spp.), and other cacti being common at lower elevations. Saguaro cacti (*Carnegiea gigantea*) are present, but are nowhere common. Introduced or invasive plants associated with livestock grazing that occur in varying density include Lehmann lovegrass (*Eragrostis lehmanniana*), which is locally common, and snakeweed (*Gutierrezia* spp.).

Tree species are mostly limited to blue paloverde (*Parkinsonia florida*) and low-stature velvet mesquite (*Prosopis velutina*), both of which are more abundant along xeric desert washes. Mesquite trees here do not get large, as the water table is well below their reach, and they are supported only by rainfall. Farther to the southeast, with an increase in elevation, vegetation becomes more dense scrub habitat within a depauperate Semidesert Grassland that supports abundant catclaws (*Acacia greggii* and *Mimosa aculeaticarpa*). The abundance of catclaws is to some degree also a result of long-term livestock grazing.

Portions of the project that occur higher in the foothills of the Santa Rita Mountains, where terrain is steeper, support a healthier grassland community. Grasslands eventually become ecotonal with the Encinal Oak community, as elevation increases. A few elements of Madrean Evergreen Woodland (junipers, *Juniperus* spp. and piñon pine, *Pinus edulis*) are present on some of the highest points in the project study area, but are not common enough to be considered as constituting an established community.

There will be minimal impacts to all three of the vegetation communities crossed by the proposed project. None of these communities is rare or unique in the area, and the amount of habitat lost will not significantly affect any of the vegetation communities. Thirty-three sensitive plant species were identified as potentially occurring within the project study area, only the Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*) is a federally listed (endangered) species (Exhibit C). The presence of Pima pineapple cacti was documented during surveys conducted specifically for the species for the Rosemont water pipeline and 138kV transmission alignments that will support the Rosemont mine operations project (Westland Resources 2009c, 2010). Potential impacts to this species are addressed in Exhibit C.

Two paniculate agave species—the Palmer and Huachuca agaves—are present and important habitat foraging elements for the two nectarivorous bat species that occur in Arizona, the lesser long-nosed and Mexican long-tongued bats. Some agaves will be lost during project construction, but the numbers of plants involved represent only a very small fraction of a percent of the plants available. Therefore, impacts from the removal of the relatively small amount of agaves will likely be insubstantial for any wildlife species.

## **POTENTIAL IMPACTS ASSOCIATED WITH ALTERNATIVES**

### **Preferred Route and Alternative Route 1**

Potential impacts of the Preferred Route may include the loss of vegetation; disturbance impacts to wildlife and their habitat during construction, operation, and maintenance; and post

construction colonization by non-native invasive plants. Some impacts are anticipated to modeled habitat for Sonoran Desert Conservation Plan priority vulnerable species for most of the Preferred Route from the proposed Toro Switchyard to the Rosemont Substation. Co-locating the transmission line with the Rosemont water pipeline alignment to the Rosemont Substation for the majority of its length will minimize the extent of new disturbance, especially with a shared access road.

Alternative Route 1 from the proposed Toro Switchyard to the Rosemont Substation will likely have similar but slightly higher impacts than the Preferred Route. Alternative Route 1 incorporates links 130, 135, and 95, instead of Link 105 and Link 155 in the Preferred Route. Potential impacts associated with vegetation and modeled habitat for Sonoran Desert Conservation Plan priority vulnerable species are higher on links 130, 135, and 95, due to the need for a new access road. Application of best management practices will help minimize impacts from new road construction.

### **Alternative Route 2 and Alternative Route 3**

Potential impacts of Alternative Route 2 may include the loss of vegetation during construction and disturbance impacts to wildlife and their habitat during construction and maintenance. Clearing activities may impact modeled habitat for Sonoran Desert Conservation Plan priority vulnerable species and provide disturbed ground suitable for colonization by non-native invasive plants. Similar to the Preferred Route, links 105 and 155 would be co-located with the Rosemont water pipeline and links 30 and 110 would be consolidated with the existing 46kV transmission line. Alternative Route 2 would, however, result in greater levels of disturbance due to the required upgrading or development of access roads along links 30, 110, and a portion of 120. In addition, Link 120 is likely to impact some of the SRER long-term photo monitoring points.

Alternative Route 3 incorporates links 130, 135, and 95, instead of Link 105 and Link 155 as in Alternative Route 2. Links 30 and 110 would be consolidated with the existing 46kV transmission line. Again, the need for new access roads for links 130, 135, and 95 will potentially result in higher levels of disturbance and potential impacts to vegetation and modeled habitat for Sonoran Desert Conservation Plan priority vulnerable species than the Preferred Route and Alternative Route 2.

### **Alternative Route 4**

Due to vegetation sensitivity, need for new access, and difficulty of construction in hilly, undulating terrain, levels of disturbance and impacts will be higher along some portions of Alternative Route 4 in comparison with the other alternatives. Impacts potentially occurring during construction and maintenance activities on Alternative Route 4 may include the loss of vegetation during construction and disturbance impacts to wildlife and their habitat, including modeled habitat for Sonoran Desert Conservation Plan priority vulnerable species, during construction and maintenance. Ground disturbance activities may provide habitat suitable for colonization by non-native invasive plants. Due to a required upgrading of access roads and levels of disturbance, impacts along links 30 and 110, and the first 3 miles of Link 150 are likely to be higher than the other alternatives. The section of Link 150 between mileposts 3.0 and 5.9 passes through Box Canyon. Potential impacts in this segment are potentially higher due to the

presence of vegetation and wildlife habitat sensitivities including riparian and upland habitats of juniper, oak, and grassland agave plant communities, however the canyon will be spanned. Impacts associated with Link 160 are likely to be higher in sections that require new access and lower where the link follows an existing road (FR 231). Links 190 and 210 connecting to the Rosemont Substation on the Rosemont operations site are likely to have low impacts due to the level of existing impact that will be present by the time the line is built.

<b>Table D-1. Mammal Species with Potential to Occur in the Project Study Area</b>			
<b>Common Name</b>	<b>Latin Name</b>	<b>Habitat</b>	<b>Potential</b>
Cockrum's desert Shrew	<i>Notiosorex cockrumi</i>	Rare semi-desert endemic of southeastern Arizona Madrean mountains; broadleaf riparian habitats among sacaton.	M
Desert shrew	<i>Notiosorex crawfordi</i>	Any area with ample ground cover, including plant debris, trash, lumber, etc.	H
California leaf-nosed bat	<i>Macrotus californicus</i>	Roosts in caves or mines in low elevation desert habitats.	L
Mexican long-tongued bat	<i>Choeronycteris mexicana</i>	Found in canyons of mixed oak-conifer forests or in Semidesert Grassland habitats in mountain ranges surrounded by desert. Roost sites usually near water and riparian vegetation. Roosts in caves, mines, buildings, and wide rock crevices.	P
Lesser long-nosed bat	<i>Leptonycteris yerbabuena</i>	Desertscrub or grassland habitat to lower oak elevations where agaves and/or saguaros are present as food sources.	P
Yuma myotis	<i>Myotis yumanensis</i>	Highly restricted to areas where available roosts are near open water habitat for foraging.	VL
Cave myotis	<i>Myotis velifer</i>	Roosts in mines and caves at lower elevations within a couple miles of water.	P
Long-legged myotis	<i>Myotis volans</i>	Resident of ponderosa pine or other coniferous forest habitats. Roost in trees, rock crevices, and buildings.	L
Fringed myotis	<i>Myotis thysanodes</i>	Found from chaparral to ponderosa pine, but most commonly in oak woodland from which they forage out into a variety of other habitats.	P
California myotis	<i>Myotis californicus</i>	Roost in crevices and cracks of canyon walls, sometimes in caves or mine shafts; forages over desertscrub and up into the oaks and along lower edge of coniferous forest.	M
Small-footed myotis	<i>Myotis ciliolabrum</i>	Roosts in crevices in cliffs, rock piles, embankments, and caves.	M
Silver-haired bat	<i>Lasionycteris noctivagans</i>	Primarily forages over montane meadows in coniferous forests, but occur at lower elevations in the mountains of southeastern Arizona in winter.	VL
Western pipistrelle	<i>Pipistrellus hesperus</i>	Hunts along canyons, stream beds, and water holes from desertscrub to pine forests, but never far from rocky canyon walls, cliffs, or rocky outcrops where they roost in narrow 1-inch vertical crevices.	H
Big brown bat	<i>Eptesicus fuscus</i>	Wooded areas, desertscrub.	M
Western red bat	<i>Lasiurus blossevillii</i>	1,900 to 7,200 feet elevation in broad-leaf deciduous riparian forests and woodlands; summer resident. Mostly solitary, roosting in dense foliage in trees and sometimes in leafy shrubs or herbs from a few to 40 feet above ground.	VL

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<b>Common Name</b>	<b>Latin Name</b>	<b>Habitat</b>	<b>Potential</b>
Hoary bat	<i>Lasiurus cinereus</i>	Records of the species in Arizona indicate that they occur primarily in areas that support suitable roost trees. The project area is within the winter range of the species.	VL
Spotted bat	<i>Euderma maculatum</i>	Roost in bedrock crevices, cracks, and caves over a wide elevation range in Arizona.	L
Allen's big-eared bat	<i>Idionycteris phyllotis</i>	Mostly occurs in montane forested areas associated with cliffs, boulder piles, mines, or caves used as roosts.	M
Pale Townsend's big-eared bat	<i>Corynorhinus townsendii pallescens</i>	Found in caves or mine tunnels during the day, and may rest in abandoned buildings at night. Ranges from desertscrub, oak woodland, and piñon-juniper up to coniferous forest elevations.	P
Pallid bat	<i>Antrozous pallidus</i>	Inhabits desertscrub with caves, mines, cliffs, bridges, or other structures suitable for roosts.	H
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>	Desertscrub and foothills with mines, caves, bridges, or old buildings.	H
Pocketed free-tailed bat	<i>Nyctinomops femorosaccus</i>	Rocky cliffs and slopes of southern deserts in Arizona; also uses man-made shelters such as space beneath roofing tiles on buildings.	M
Big free-tailed bat	<i>Nyctinomops macrotis</i>	Occurs in a variety of habitats including Sonoran Desertscrub, piñon-juniper, ponderosa pine, and Douglas fir. Roosts in rocky cliffs with crevices and fissures.	L
Western bonneted bat	<i>Eumops perotis californicus</i>	Roosts in crevices and shallow caves in cliffs.	VL
Underwood's bonneted bat	<i>Eumops underwoodii</i>	Uses rock crevices and hollow trees for roosts. Occurs from low desert habitat up to oak-pine woodland elevations; commonly forages near a water source.	VL
Eastern cottontail	<i>Sylvilagus floridanus</i>	Chaparral or piñon-juniper woodland.	H
Desert cottontail	<i>Sylvilagus audubonii</i>	Desertscrub or semidesert grassland.	H
Black-tailed jackrabbit	<i>Lepus californicus</i>	Desertscrub or other areas with open ground cover.	H
Antelope jackrabbit	<i>Lepus alleni</i>	Desertscrub and Semidesert Grassland, often in areas of dense mesquite and limited grass ground cover.	P
Cliff chipmunk	<i>Eutamias dorsalis</i>	Scrub to pine and fir elevations wherever large rocks or cliffs occur. The species does not occur in the northeastern portion of Arizona, or in the low deserts of the southwestern part of the state.	L
Harris' antelope squirrel	<i>Ammospermophilus harrisi</i>	Occurs in brushy habitats, typically in saltbush or creosote bush-bursage, in low deserts, and generally in areas where soils are rocky.	H
Rock squirrel	<i>Spermophilus variegatus</i>	Rocky canyons and boulder-strewn slopes.	H
Spotted ground squirrel	<i>Spermophilus spilosoma</i>	Occurs in a variety of habitats in Arizona from deserts to mountain meadows. In southern Arizona often associated with mesquite and acacia.	M

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<b>Common Name</b>	<b>Latin Name</b>	<b>Habitat</b>	<b>Potential</b>
Round-tailed ground squirrel	<i>Spermophilus tereticaudus</i>	Creosote bush and saltbush desert with fine, deep soils in which extensive burrows are constructed.	H
Botta's pocket gopher	<i>Thomomys bottae</i>	Occurs in a wide variety of habitats; any area with soil suitable for digging burrows.	H
Arizona pocket mouse	<i>Perognathus amplus</i>	Mostly in Mojave and Sonoran Desertscrub habitats and up into lower juniper elevations.	M
Silky pocket mouse	<i>Perognathus flavus</i>	In southern Arizona the silky pocket mouse mostly occurs in plains and desert grassland areas including mesquite, grasses, and Russian thistle up to Mexican pine-oak woodland elevations.	M
Rock pocket mouse	<i>Chaetodipus intermedius</i>	Common in dry rocky terrain.	H
Bailey's pocket mouse	<i>Perognathus baileyi</i>	Flats and adjacent slopes in deserts south of the Mogollon Rim.	H
Desert pocket mouse	<i>Chaetodipus penicillatus</i>	Sandy areas of desertscrub or grassland with sparse vegetation including areas of creosote bush, mesquite, palo verde, or yucca.	H
Hispid pocket mouse	<i>Perognathus hispidus</i>	Found in desert grasslands where the grasses are moderately high and dense but not especially thick, and soils are rocky but loose. Typical vegetation may include a mixture of yucca, ocotillo, mesquite, prickly pear, or agave.	H
Ord's kangaroo rat	<i>Dipodomys ordii</i>	A variety of habitats at or below piñon-juniper elevation.	H
Banner-tailed kangaroo rat	<i>Dipodomys spectabilis</i>	Prefers grassy areas, often between 3,500 and 4,000 feet elevation with catclaw, mesquite, and <i>Opuntia</i> species.	P
Merriam's kangaroo rat	<i>Dipodomys merriami</i>	Sandy areas of desertscrub often associated with mesquite and creosote bush.	H
Plains harvest mouse	<i>Reithrodontomys montanus</i>	Desertscrub or chaparral.	L
Western harvest mouse	<i>Reithrodontomys megalotis</i>	Cool grassy meadows to dry tumbleweed and cocklebur fields, from weedy patches in coniferous forests to flats with cacti, mesquite, or sagebrush.	H
Fulvous harvest mouse	<i>Reithrodontomys fulvescens</i>	Found on grassy slopes and alluvial fans, usually where there are scattered oaks or other deciduous trees. In some places, they are closely associated with yellow-nosed cotton rat.	M
Cactus mouse	<i>Peromyscus eremicus</i>	Low desert habitats among cacti, creosote bush, wood piles, rocks and rocky slopes, and in chaparral and on sandy flats.	H
Merriam's mouse	<i>Peromyscus merriami</i>	Heavy forest-like stands of mesquite or mesquite and saltbush bottomlands.	P
Deer mouse	<i>Peromyscus maniculatus</i>	Coniferous or riparian woodland, desertscrub, often adjacent to canals or along intermittent creeks.	M
White-footed mouse	<i>Peromyscus leucopus</i>	Areas of thick vegetation, often along riparian habitats.	L
Brush mouse	<i>Peromyscus boylii</i>	Occurs in a variety of habitats that contain rocks and heavy brush; commonly along stream courses.	M

<b>Table D-1. Mammal Species with Potential to Occur in the Project Study Area</b>			
<b>Common Name</b>	<b>Latin Name</b>	<b>Habitat</b>	<b>Potential</b>
Southern grasshopper mouse	<i>Onychomys torridus</i>	Desertscrub or Semidesert Grassland with compact soils.	H
Northern pygmy mouse	<i>Baiomys taylori</i>	Grassland habitats; particularly along drainages.	L
Arizona cotton rat	<i>Sigmodon arizonae</i>	Sometimes occurs in desert areas, usually characterized by mesquite and tumbleweeds with a small amount of grass. Other less arid places include canals and banks of small streams supporting weeds and brush. They also occupy rocky grass slopes in oak habitat.	L
Fulvous cotton rat	<i>Sigmodon fulviventer</i>	Occurs in a variety of habitats that support thick grasses or weedy vegetation; more common in middle elevation habitats.	L
Yellow-nosed cotton rat	<i>Sigmodon ochrognathus</i>	Inhabits grassy, rocky slopes of the oak belt between 3,000 and 8,000 feet elevation where the grass coverage is usually sparse, and the presence of beargrass, agave, or yucca dispersed through the grass provides adequate refuge and nest sites.	H
White-throated wood rat	<i>Neotoma albigula</i>	All habitats below the conifer belt where cholla and prickly pears are abundant. Favor rocky areas that provide nest cavities that can be protected with cactus parts.	H
House mouse	<i>Mus musculus</i>	Cultivated fields in or at the edges of towns, and in ruderal (roadside) areas.	L
Coyote	<i>Canis latrans</i>	Cosmopolitan, low desert to spruce forest elevations.	P
Kit fox	<i>Vulpes macrotis</i>	Low deserts where friable soils suitable for burrow construction are present.	L
Gray fox	<i>Urocyon cinereoargenteus</i>	Open desertscrub, chaparral, or lower elevation woodland, occasionally in ponderosa pine or Douglas fir.	H
Black bear	<i>Ursus americanus</i>	Associated with mountains in Arizona. Also use riparian corridors; may use semidesert grasslands, encinal woodlands, or montane conifer forests.	P
Raccoon	<i>Procyon lotor</i>	Riparian or wetland habitats.	P
White-nosed coati	<i>Nasua narica</i>	Usually near a water source in woodlands, canyons, and riparian habitats; rocky habitats, caves, mines, or hollow trees may be used for den areas.	M
Ringtail	<i>Bassariscus astutus</i>	Inhabits rocky canyons where boulders, cliffs, caves, and mines provide den habitat.	H
Badger	<i>Taxidea taxus</i>	Found on alluvial fans and flats around desert mountains, also found in open desert where soils are suitable for burrow construction.	H
Western spotted skunk	<i>Spilogale gracilis</i>	Low and middle elevations, often in rocky areas or around human habitation.	M
Hooded skunk	<i>Mephitis macroura</i>	Poorly known, most specimens are from Arizona Upland Subdivision and grasslands. Seem to prefer rocky slopes, arroyos, and cliff bases, and riparian areas consisting of large washes and rivers.	M

<b>Table D-1. Mammal Species with Potential to Occur in the Project Study Area</b>			
<b>Common Name</b>	<b>Latin Name</b>	<b>Habitat</b>	<b>Potential</b>
Striped skunk	<i>Mephitis mephitis</i>	Occupies similar habitat as that of hooded skunk.	L
Hog-nosed skunk	<i>Conepatus mesoleucus</i>	A variety of habitats are occupied, from desert grassland upslope into coniferous forest.	L
Jaguar	<i>Panthera onca</i>	Occurs through a wide range of habitats up to subalpine conifer forest.	VL
Ocelot	<i>Leopardus (Felis) pardalis</i>	Partly cleared forests, second growth woodland, and abandoned cultivated areas reverted to brush	VL
Mountain lion	<i>Puma concolor</i>	Usually inhabits mountainous, forested areas, but also uses desertscrub and semidesert grassland habitats.	H
Bobcat	<i>Lynx rufus</i>	Rocky upland areas interspersed with open desert, grassland, or woodland.	P
Collared peccary	<i>Pecari tajacu</i>	Desertscrub, especially along drainages with dense vegetation cover.	P
Mule deer	<i>Odocoileus hemionus</i>	Upland desert, chaparral, oak woodland, or pine forest.	P
White-tailed deer	<i>Odocoileus virginianus</i>	Woodland communities of evergreen oak or mixed oak-juniper-piñon. In areas where both deer species occur in close proximity, the white-tailed deer generally occupies higher elevations.	L
Potential for occurrence: P = Present H = High M = Moderate L = Low VL = Very Low References: Adams 2003; Hinman and Snow 2003; Hoffmeister 1986; Olding and Cockrum 1977.			

<b>Table D-2. Bird Species with Potential to Occur in the Project Study Area</b>			
<b>Common Name</b>	<b>Latin Name</b>	<b>Habitat</b>	<b>Relative Abundance/ Status</b>
Turkey vulture	<i>Cathartes aura</i>	Open country, agricultural areas.	C/S
Black vulture	<i>Coragyps atratus</i>	Open country and near human developments where they scavenge at landfills.	R/R
White-tailed kite	<i>Elanus leucurus</i>	Flat or gently rolling open terrain with a few scattered trees or tall shrubby plants; often associated with a nearby water source.	R/R
Northern harrier	<i>Circus cyaneus</i>	Agricultural areas, grasslands, and low brushy country.	U/W
Golden eagle	<i>Aquila chrysaetos</i>	Open country, and desert and barren areas, especially in hilly terrain.	U/R
Sharp-shinned hawk	<i>Accipiter striatus</i>	Forest and forest edges.	U/W
Cooper's hawk	<i>Accipiter cooperii</i>	Broken woodland, streamside habitats, and urban areas.	U/R
Harris hawk	<i>Parabuteo unicinctus</i>	Sonoran Desert, semi-arid woodland, and brushlands.	U/R

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<b>Common Name</b>	<b>Latin Name</b>	<b>Habitat</b>	<b>Relative Abundance/ Status</b>
Zone-tailed hawk	<i>Buteo albonotatus</i>	Mountainous terrain typically associated with water courses.	P/S
Red-tailed hawk	<i>Buteo jamaicensis</i>	Occurs over a wider variety of habitats.	C/R
Swainson's hawk	<i>Buteo swainsoni</i>	Primarily Semidesert Grassland, often intermixed with desertscrub.	U/S
Ferruginous hawk	<i>Buteo regalis</i>	Open country, primarily prairie, plains, sagebrush, or badlands.	R/S
American kestrel	<i>Falco sparverius</i>	Open country, cities.	C/R
Merlin	<i>Falco columbarius</i>	Open to semi-open habitats; grasslands in winter.	U/W
Prairie falcon	<i>Falco mexicanus</i>	Dry open country, grasslands.	U/R
Peregrine falcon	<i>Falco peregrinus</i>	Cliffs near wetlands; bridges and tall buildings in cities.	U/R
Gould's wild turkey	<i>Meleagris gallopavo mexicana</i>	Open grassy savannah with a variety of oaks; chaparral; stunted piñon-juniper woodland.	U/R
Gambel's quail	<i>Callipepla gambelii</i>	Desert scrublands and thickets.	C/R
Scaled quail	<i>Callipepla squamata</i>	Semi-desertscrub and grasslands of mesas and bajadas above 3,000 feet.	U/R
Band-tailed pigeon	<i>Columba fasciata</i>	Oak or oak-conifer woodlands.	R/S
Rock pigeon	<i>Columba livia</i>	Urban and rural agricultural areas.	R/R
Mourning dove	<i>Zenaida macroura</i>	Wide variety of habitats.	A/R
White-winged dove	<i>Zenaida asiatica</i>	Saguaro – palo verde desert, thick mesquite, riparian woodland, or mature citrus groves.	C/S
Common ground dove	<i>Columbina passerina</i>	Open shrubby habitats.	U/R
Greater roadrunner	<i>Geococcyx californianus</i>	Scrub desert and mesquite groves; less common in chaparral and oak woodland.	C/R
Barn owl	<i>Tyto alba</i>	Open desert, grasslands, and farmlands. Nests in dark cavities in cliffs, trees, mines, or embankments.	U/R
Great-horned owl	<i>Bubo virginianus</i>	Common in a wide variety of habitats.	P/R
Western screech owl	<i>Megascops kennicottii</i>	Open woodlands, streamside groves, deserts, and suburban areas.	C/R
Whiskered screech owl	<i>Megascops trichopsis</i>	Madrean oak woodland habitats; foothills and canyons of lower elevations in the mountains.	U/R
Flammulated owl	<i>Otus flammeolus</i>	Oak and pine woodlands.	R/S
Cactus ferruginous pygmy-owl	<i>Glaucidium brasilianum cactorum</i>	Sonoran Desertscrub and Semidesert Grassland; occasionally in riparian woodland or suburban developments retaining adequate habitat elements.	R/R
Elf owl	<i>Micrathene whitneyi</i>	Desert lowlands and canyons.	U/S

**Table D-2. Bird Species with Potential to Occur in the Project Study Area**

<b>Common Name</b>	<b>Latin Name</b>	<b>Habitat</b>	<b>Relative Abundance/ Status</b>
Burrowing owl	<i>Athene cunicularia</i>	Areas of sparse vegetation with colonial burrowing rodents; open country, agricultural areas, golf courses, and airports, and other urban habitats.	U/R
Lesser nighthawk	<i>Chordeiles acutipennis</i>	Dry, open country, scrubland, desert.	U/S
Common nighthawk	<i>Chordeiles minor</i>	Woodlands, suburbs, and towns.	R/S
Whip-poor will	<i>Caprimulgus vociferous</i>	Wooded canyons.	U/S
Buff-collared nightjar	<i>Caprimulgus ridgwayi</i>	Dry, thickly vegetated canyons.	U/S
Common poorwill	<i>Phalaenoptilus nuttallii</i>	Brushy or open country; along roads.	C/S
White-throated swift	<i>Aeronautes saxatalis</i>	Mountain canyons and cliffs.	C/R
Violet-crowned hummingbird	<i>Amazilia violiceps</i>	Montane and riparian habitats.	R/S
Broad-billed hummingbird	<i>Cynanthus latirostris</i>	Desert canyons, foothills, and low elevation woodlands.	U/S
Black-chinned hummingbird	<i>Archilochus alexandri</i>	Lowlands and low mountain areas.	C/S
Costa's hummingbird	<i>Calypte costae</i>	Desert washes, dry chaparral.	C/S
Anna's hummingbird	<i>Calypte anna</i>	Mountains and deserts.	C/R
Broad-tailed hummingbird	<i>Selasphorus platycercus</i>	Montane habitats.	R/S
Rufous hummingbird	<i>Selasphorus rufus</i>	Brushy slopes, thickets.	U/M
Gila woodpecker	<i>Melanerpes uropygialis</i>	Desertscrub and saguaro cactus forests.	C/R
Northern flicker	<i>Colaptes auratus</i>	Open woodlands, lowlands in winter.	U/R
Gilded flicker	<i>Colaptes chrysoides</i>	Low desert woodlands; saguaro forest.	U/R
Ladder-backed woodpecker	<i>Picoides scalaris</i>	Dry brushlands, mesquite and cactus country, towns and rural areas.	C/R
Western wood-pewee	<i>Contopus sordidulus</i>	Open woodlands.	U/S
Gray flycatcher	<i>Empidonax wrightii</i>	Dry habitats.	U/M
Northern beardless-tyrannulet	<i>Camptostoma imberbe</i>	Lowland riparian woodland and adjacent scrub.	U/S
Northern buff-breasted flycatcher	<i>Empidonax fulvifrons pygmaeus</i>	Open pine or riparian habitats with sycamores.	R/S

**Table D-2. Bird Species with Potential to Occur in the Project Study Area**

<b>Common Name</b>	<b>Latin Name</b>	<b>Habitat</b>	<b>Relative Abundance/ Status</b>
Black phoebe	<i>Sayornis nigricans</i>	Woodland, parks, suburbs near water.	U/R
Say's phoebe	<i>Sayornis saya</i>	Dry, open areas, canyons, cliffs.	U/R
Vermilion flycatcher	<i>Pyrocephalus rubinus</i>	Streamside wooded and shrubby areas; around ponds.	U/R
Brown-crested flycatcher	<i>Myiarchus tyrannulus</i>	Saguaro desert and wooded areas along streams.	U/S
Ash-throated flycatcher	<i>Myiarchus cinerascens</i>	Wide variety of lowland to mid-elevation habitats.	C/S
Cassin's kingbird	<i>Tyrannus vociferans</i>	Varied habitats.	U/S
Western kingbird	<i>Tyrannus verticalis</i>	Dry, open lowlands.	U/S
Loggerhead shrike	<i>Lanius ludovicianus</i>	Open or brushy areas.	U/R
Bell's vireo	<i>Vireo bellii</i>	Riparian areas in grassland and desertscrub, especially in mesquite trees.	U/S
Gray vireo	<i>Vireo vicinior</i>	Chaparral or dry scrub or shrubby areas.	U/M
Plumbeous vireo	<i>Vireo plumbeus</i>	Variety of wooded habitats.	R/S
Warbling vireo	<i>Vireo gilvus</i>	Deciduous woods.	U/M
Western scrub jay	<i>Aphelocoma californica</i>	Lower elevation woodlands.	U/R
Mexican jay	<i>Aphelocoma ultramarina</i>	Pine-oak canyons.	C/R
Chihuahuan raven	<i>Corvus cryptoleucus</i>	Desertscrub and Semidesert Grassland habitats.	U/R
Common raven	<i>Corvus corax</i>	Mountains, deserts.	C/R
Horned lark	<i>Eremophila alpestris</i>	Dirt fields, gravel ridges, grasslands.	C/R
Purple martin	<i>Progne subis</i>	Open country, rural areas, often near water; saguaro cavity nester.	U/S
Violet-green swallow	<i>Tachycineta thalassina</i>	Variety of wooded habitats; riparian corridors.	U/M
Bank swallow	<i>Riparia riparia</i>	Riverbanks, highway cuts, and other embankment habitats.	U/M
Cliff swallow	<i>Petrochelidon pyrrhonota</i>	Lakesides, streams, and ponds. Also cliffs, and canals; nests on buildings, under nearby bridges, and other overhangs.	C/S
Northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>	Nests in riverbanks, culverts, and bridges.	U/S
Barn swallow	<i>Hirundo rustica</i>	Nests under bridges, culverts, and on buildings.	U/S
Bridled titmouse	<i>Baeolophus wollweberi</i>	Oak, juniper, and sycamore riparian habitats.	U/R
Verdin	<i>Auriparus flaviceps</i>	Sonoran Desertscrub, mesquite bosques, riparian woodland.	C/R

**Table D-2. Bird Species with Potential to Occur in the Project Study Area**

<b>Common Name</b>	<b>Latin Name</b>	<b>Habitat</b>	<b>Relative Abundance/ Status</b>
Bushtit	<i>Psaltriparus minimus</i>	Woodlands and chaparral.	U/R
House wren	<i>Troglodytes aedon</i>	Thickets and scrub of open woodland, rural areas, and urban parks.	U/R
Bewick's wren	<i>Thryomanes bewickii</i>	Brushy slopes, piñon-juniper, live oak, and mesquite associations.	U/R
Cactus wren	<i>Campylorhynchus brunneicapillus</i>	Desertscrub habitats, especially with cholla cactus; nests in chollas or other spiny desert vegetation.	C/R
Rock wren	<i>Salpinctes obsoletus</i>	Semi-arid, scrubby and rocky canyons and hillside habitats.	C/R
Canyon wren	<i>Catherpes mexicanus</i>	Cliffs and rocky canyon habitats; often near water.	C/R
Ruby-crowned kinglet	<i>Regulus calendula</i>	Thickets and woodland habitats.	U/W
Blue-gray gnatcatcher	<i>Polioptila caerulea</i>	Brushy thickets and chaparral.	U/S
Black-capped gnatcatcher	<i>Polioptila nigriceps</i>	Brushy, riparian woodland.	R/S
Black-tailed gnatcatcher	<i>Polioptila melanura</i>	Desertscrub, especially along washes.	U/R
Western bluebird	<i>Sialia mexicana</i>	Open pine, deciduous and mixed woodland, and riparian woodland.	U/W
Hermit thrush	<i>Catharus guttatus</i>	Thickets and mixed woodland habitats.	U/S
Northern mockingbird	<i>Mimus polyglottos</i>	Variety of habitats up to oak-juniper zone.	C/R
Bendire's thrasher	<i>Toxostoma bendirei</i>	Thickets, brushy desert, open farmlands and grasslands.	U/R
Curve-billed thrasher	<i>Toxostoma curvirostre</i>	Semi-arid brushlands and canyons; commonly associated with cholla cacti.	C/R
Crissal thrasher	<i>Toxostoma crissale</i>	Among mesquites and other dense vegetation along drainages.	R/R
European starling	<i>Sturnus vulgaris</i>	Habitat generalist; including urban areas.	U/R
Phainopepla	<i>Phainopepla nitens</i>	Riparian areas, chaparral, and desertscrub, especially in trees with mistletoe, a primary food source.	C/R
Orange-crowned warbler	<i>Vermivora celata</i>	Open woodlands and forest edges; thickets.	U/W
Virginia's warbler	<i>Vermivora virginiae</i>	Riparian corridors during migration.	U/S
Nashville warbler	<i>Vermivora ruficapilla</i>	Desert flats and washes in winter in migration.	U/M
Lucy's warbler	<i>Vermivora luciae</i>	Mesquite bosque or deciduous riparian habitats.	U/S
Yellow-rumped warbler	<i>Dendroica coronata</i>	Conifer forests; widespread in lowlands in winter.	U/W
Black-throated gray warbler	<i>Dendroica nigrescens</i>	Woodlands, brushlands, and chaparral.	R/S

**Table D-2. Bird Species with Potential to Occur in the Project Study Area**

<b>Common Name</b>	<b>Latin Name</b>	<b>Habitat</b>	<b>Relative Abundance/ Status</b>
Yellow warbler	<i>Dendroica petechia</i>	Open woodlands, gardens.	R/M
MacGillivray's warbler	<i>Oporornis tolmiei</i>	Dense undergrowth.	U/M
Wilson's warbler	<i>Wilsonia pusilla</i>	Dense streamside vegetation; woodlands.	U/M
Common yellowthroat	<i>Geothlypis trichas</i>	Grassy fields and in shrubbery.	U/M
Western tanager	<i>Piranga ludoviciana</i>	Coniferous forest; occasionally low deserts during migration.	U/M
Green-tailed towhee	<i>Pipilo chlorurus</i>	Dense brush; towns in winter.	U/M
Canyon towhee	<i>Pipilo fuscus</i>	Dry foothills and brushy desert canyons.	C/R
Abert's towhee	<i>Pipilo aberti</i>	Desert woodland, dense riparian vegetation, suburban areas.	U/R
Spotted towhee	<i>Pipilo maculatus</i>	Brushy shrublands or woodlands.	U/S
Rufous-winged sparrow	<i>Aimophila carpalis</i>	Valley desert grasslands among shrubs and cacti.	U/R
Rufous-crowned sparrow	<i>Aimophila ruficeps</i>	Rocky, brushy hillsides.	C/R
Brewer's sparrow	<i>Spizella breweri</i>	Brushy desertscrub habitat.	C/M
Lark Sparrow	<i>Chondestes grammacus</i>	Open habitats with scattered bushes and trees.	U/R
Black-chinned sparrow	<i>Spizella atrogularis</i>	Arid brushy slopes of foothills and mountains.	U/W
Black-throated sparrow	<i>Amphispiza bilineata</i>	Sonoran Desertscrub, mesquite grassland.	C/R
Baird's sparrow	<i>Ammodramus bairdii</i>	Grassland habitats above 4,000 feet.	R/W
Lark bunting	<i>Calamospiza melanocorys</i>	Dry plains and prairies.	U/W
Savannah sparrow	<i>Passerculus sandwichensis</i>	Variety of open habitats, grasslands, and wetlands.	U/W
Lincoln's sparrow	<i>Melospiza lincolnii</i>	Brushy thickets.	R/W
Vesper sparrow	<i>Poocetes gramineus</i>	Dry grasslands, clearings.	U/W
Song sparrow	<i>Melospiza melodia</i>	Brush, particularly associated with drainages.	U/R
White-crowned sparrow	<i>Zonotrichia leucophrys</i>	Woodlands, roadside vegetation.	CW
Black-headed grosbeak	<i>Pheucticus melanocephalus</i>	Open woodlands.	U/S
Northern cardinal	<i>Cardinalis cardinalis</i>	Along riparian habitats.	U/R
Pyrrhuloxia	<i>Cardinalis sinuatus</i>	Brushy areas; mesquite woodlands.	U/R

<b>Table D-2. Bird Species with Potential to Occur in the Project Study Area</b>			
<b>Common Name</b>	<b>Latin Name</b>	<b>Habitat</b>	<b>Relative Abundance/ Status</b>
Indigo bunting	<i>Passerina cyanea</i>	Open woodlands and woodland edges.	R/S
Lazuli bunting	<i>Passerina amoena</i>	Open woodland and chaparral; also brushy areas near water.	R/M
Varied bunting	<i>Passerina versicolor</i>	Low elevation bushy canyons and desert washes.	U/S
Eastern meadowlark	<i>Sturnella magna</i>	Fields and meadows.	U/R
Western meadowlark	<i>Sturnella neglecta</i>	Grasslands and cultivated fields.	U/R
Brown-headed cowbird	<i>Molothrus ater</i>	Farmlands, suburbs, and woodlands.	U/R
Bronzed cowbird	<i>Molothrus aeneus</i>	Open, brushy areas, or wooded mountain canyons.	U/S
Scott's oriole	<i>Icterus parisorum</i>	Arid and semi-arid habitats.	U/S
House finch	<i>Carpodacus mexicanus</i>	Riparian and suburban areas, farmland, desert.	C/R
Lesser goldfinch	<i>Carduelis psaltria</i>	Open areas with scattered trees, second growth; and around human habitations.	C/R
House sparrow	<i>Passer domesticus</i>	Cultivated areas, around human habitations, and edges of vegetated habitats.	U/R
Relative abundance: P = Present A = Abundant C = Common U = Uncommon R = Rare Status: R = Resident S = Summer W = Winter visitor M = Migration spring and/or fall References: Corman and Wise-Gervais 2005; Ehrlich et al. 1988; Glinski 1998; NGS 2002; Wheeler 2003.			

<b>Table D-3. Amphibian and Reptile Species with Potential to Occur in the Project Study Area</b>			
<b>Common Name</b>	<b>Latin Name</b>	<b>Habitat</b>	<b>Potential</b>
Tiger salamander	<i>Ambystoma tigrinum</i>	Typically occurs at grassland or higher elevations; requires seasonal water source for breeding.	VL
Couch's spadefoot	<i>Scaphiopus couchii</i>	Areas of low rainfall, including mesquite and creosote bush desert.	P
Mexican spadefoot	<i>Spea multiplicata</i>	Occurs from Arizona Upland Desertscrub up to Petran Montane Conifer forest.	M

**Table D-3. Amphibian and Reptile Species with Potential to Occur in the Project Study Area**

<b>Common Name</b>	<b>Latin Name</b>	<b>Habitat</b>	<b>Potential</b>
Red-spotted toad	<i>Bufo punctatus</i>	Desert streams and oases, open grassland and scrubland, oak woodland, rocky canyons, and arroyos. Uses crevices among rocks for shelter, breeds in rain pools, reservoirs, and temporary pools of intermittent streams.	P
Great Plains toad	<i>Bufo cognatus</i>	Occurs in low valleys from Lower Colorado River Desertscrub up to grassland elevations at temporary pools, ditches, and livestock tanks.	M
Sonoran Desert toad	<i>Bufo alvarius</i>	Temporary pool; often occurs far from water.	P
Great Plains narrow-mouthed toad	<i>Gastrophryne olivacea</i>	Occurs at a variety of water sources from Lower Colorado River Desertscrub up to Madrean Evergreen Woodland.	VL
Western barking frog	<i>Eleutherodactylus augusti cactorum</i>	Madrean evergreen woodland.	VL
Canyon treefrog	<i>Hyla arenicolor</i>	Rocky areas along or in streams; occasionally far from water; Arizona Upland Desertscrub up to Petran Montane Conifer Forest.	P
Lowland leopard frog	<i>Lithobates yavapaiensis</i>	Inhabits desert, grassland, and oak and oak-pine woodland. Usually stays close to water.	L
Chiricahua leopard frog	<i>Lithobates chiricahuensis</i>	Dependent on permanent natural or manmade waters, primarily in oak and mixed oak-pine woodlands, between 1,200 and 4,000 feet elevation in southeastern Arizona/Sierra Madre Mountains and 3,500 and 8,000 feet elevation in central and eastern Arizona and adjacent mountains in New Mexico.	P
Desert box turtle	<i>Terrapene ornata luteola</i>	Primarily found within Semidesert Grassland and Chihuahuan Desertscrub communities in low valleys, plains, and bajadas. In Arizona found primarily between 3,000 and 6,500 feet.	M
Sonora mud turtle	<i>Kinosternon sonoriense sonoriense</i>	Ponds and streams.	M
Sonoran Desert tortoise	<i>Gopherus agassizii</i>	Rocky habitats of low hills in Sonoran Desertscrub habitat.	H
Eastern collared lizard	<i>Crotaphytus collaris</i>	Sparsely vegetated open terrain from desertscrub to piñon-juniper elevations.	M
Long-nosed leopard lizard	<i>Gambelia wislizenii</i>	Found in flatland habitats with sparse vegetation below 6,000 feet.	M
Zebra-tailed lizard	<i>Callisaurus draconoides</i>	Commonly occurs on flat, open terrain with sandy, gravelly soils; along washes, on areas of desert pavement or on dunes.	H

**Table D-3. Amphibian and Reptile Species with Potential to Occur in the Project Study Area**

<b>Common Name</b>	<b>Latin Name</b>	<b>Habitat</b>	<b>Potential</b>
Greater earless lizard	<i>Cophosaurus texanus</i>	Occurs at middle elevations where cactus, mesquite, ocotillo, creosote bush, and paloverde grow. Associated with sandy, gravelly soils of flats, washes, and intermittent stream bottoms where plants are sparse and there are open areas for running. Occasionally found on rocky hillsides.	H
Common lesser earless lizard	<i>Holbrookia maculata</i>	Prefers areas of sandy soils from valley flats, through semidesert grassland, and up to woodland elevations.	M
Ornate tree lizard	<i>Urosaurus ornatus</i>	Generally a lizard of trees and rocky areas from deserts up to conifer forest; sometimes occurs in treeless areas.	H
Common side-blotched lizard	<i>Uta stansburiana</i>	Arid or semi-arid regions with sand, rock, hardpan, or loam with grass, shrubs, and scattered trees; often found along sandy washes.	H
Southwestern fence lizard	<i>Sceloporus cowlesi</i>	Occurs in a variety of habitats between semidesert grassland and montane conifer forest elevations.	H
Desert spiny lizard	<i>Sceloporus magister</i>	Arid and semi-arid regions on plains and lower slopes of mountains, found in Joshua tree, creosote bush, and shad-scale deserts, mesquite-yucca grassland, juniper and mesquite woodland, subtropical thornscrub, and along rivers grown to willows and cottonwoods.	H
Clark's spiny lizard	<i>Sceloporus clarkii</i>	Occurs primarily in oak and oak-pine woodlands; lower along riparian corridors.	H
Regal horned lizard	<i>Phrynosoma solare</i>	Frequents rocky and gravelly habitats of arid and semi-arid plains, hills, and lower slopes of mountains. Much of its range is in succulent plant habitat of upland desert. Plants present may include cactus, mesquite, and creosote bush. Seldom found on sandy flats.	H
Greater short-horned lizard	<i>Phrynosoma hernandesi</i>	Primarily a higher elevation species that occurs in a wide variety of habitats including Semidesert and Plains grasslands, sagebrush, and evergreen forest.	H
Sonoran spotted whiptail	<i>Aspidozelis sonorae</i>	Occurs from desertscrub through Semidesert Grassland up to Petran Montane Conifer Woodland.	M
Desert grassland whiptail	<i>Aspidozelis uniparens</i>	Generally found on plains and gentle foothill slopes; occasionally in areas with scant cover of grasses and herbs, but more commonly where mesquite and yucca are present.	M
Giant spotted whiptail	<i>Aspidozelis burti stictogrammus</i>	Usually in canyons and drainages in mountainous terrain; also low valley riparian corridors. Primarily occupies Semidesert Grassland and Madrean Evergreen Woodland.	H

**Table D-3. Amphibian and Reptile Species with Potential to Occur in the Project Study Area**

<b>Common Name</b>	<b>Latin Name</b>	<b>Habitat</b>	<b>Potential</b>
Tiger whiptail	<i>Aspidoscelis tigris</i>	Inhabits deserts and semi-arid habitats, usually where plants are sparse. Also found in woodlands, among streamside growth, and in the warmer, drier parts of forests.	H
Great Plains skink	<i>Plestiodon obsoletus</i>	Occurs in moist habitats from creosote bush to pine-oak woodland elevations.	M
Madrean alligator lizard	<i>Elgaria kingi</i>	Uses a variety of habitats: broadleaf riparian corridors, Semidesert Grassland, Interior Chaparral, woodlands, and Petran Montane Conifer Forest. Often found in moist areas with loose ground cover such as fallen leaves, pine needles, and other dead plant materials.	P
Western banded gecko	<i>Coleonyx variegatus</i>	Occurs in a wide variety of arid habitats from dune areas to rocky hillsides in desertscrub habitat.	H
Gila monster	<i>Heloderma suspectum</i>	Chiefly inhabits shrubby, grassy, and succulent desert; occasionally enters oak woodland. Found in canyon bottoms or arroyos with permanent or intermittent streams, where it digs burrows or uses those of other animals.	M
Western thread snake	<i>Leptotyphlops humilis</i>	Desertscrub and brush covered hillsides with loose soils.	M
Sonoran coral snake	<i>Micruroides euryxanthus</i>	Occurs from Sonoran Desertscrub to Semidesert Grassland habitats.	L
Variable sand snake	<i>Chilomeniscus stramineus</i>	Inhabits areas with fine to coarse sand and leaf litter; primarily a resident of Arizona Upland Desertscrub, but may occur above or below this habitat along drainages.	L
Groundsnake	<i>Sonora semiannulata</i>	Wide range of arid and semi-arid habitats with sparse to dense vegetation in loose soil with some subsurface moisture.	L
Smith's black-headed snake	<i>Tantilla hobartsmithi</i>	Arizona Upland Desertscrub to Great Basin Conifer Woodland habitats.	M
Ring-necked snake	<i>Diadophis punctatus</i>	Madrean evergreen woodland.	P
Nightsnake	<i>Hypsiglena chlorophaea</i>	Wide range of habitats, including deserts, grassland, chaparral, woodlands, and mountain meadows.	M
Western lyresnake	<i>Trimorphodon biscutatus</i>	Occurs in rocky areas of lowlands, mesas, and lower mountain slopes; also in rockless areas. Found in a variety of vegetative communities, including creosote bush, desert grasslands, chaparral, piñon-juniper, and oaks.	M
Gophersnake	<i>Pituophis catenifer</i>	Open areas in a variety of habitats, including desertscrub, grassland, chaparral, woodlands, and coniferous forest.	H

**Table D-3. Amphibian and Reptile Species with Potential to Occur in the Project Study Area**

<b>Common Name</b>	<b>Latin Name</b>	<b>Habitat</b>	<b>Potential</b>
Glossy snake	<i>Arizona elegans</i>	Below 6,000 feet in sparsely vegetated woodland, chaparral, grassland, or desertscrub with loose soils.	H
Spotted leaf-nosed snake	<i>Phyllorhynchus decurtatus</i>	Alluvial soils and bajadas in Sonoran Desert habitat.	M
Saddled leaf-nosed snake	<i>Phyllorhynchus browni</i>	Occurs on bajadas or alluvial soils in Arizona Upland Desertscrub, but sometimes on flats of Lower Colorado River subdivision.	M
Eastern patch-nosed snake	<i>Salvadora grahamiae</i>	Occurs in Interior Chaparral, Great Basin Conifer Woodland, and Madrean Evergreen Woodland habitats.	L
Western patch-nosed snake	<i>Salvadora hexalepis</i>	Washes, bajadas, and hills in desertscrub up to Great Basin conifer woodland.	H
Green rat snake	<i>Senticolis triaspis intermedia</i>	Rocky slopes or associated with riparian habitats in Madrean evergreen woodland.	M
Sonoran whipsnake	<i>Masticophis bilineatus</i>	Found in Arizona Upland Desertscrub habitat, Semidesert Grassland, Interior Chaparral, Madrean Evergreen Woodland, and Great Basin Conifer Woodland. Often found on sunny, brushy slopes.	H
Coachwhip	<i>Masticophis flagellum</i>	Sparsely vegetated areas from low desert to juniper woodland.	H
Long-nosed snake	<i>Rhinocheilus lecontei</i>	Desertscrub, prairie, and tropical woodland to 5,500 feet.	M
Common kingsnake	<i>Lampropeltis getula</i>	Wide variety of habitats, including desert, grassland, chaparral, woodlands, and coniferous forests.	M
Sonoran mountain kingsnake	<i>Lampropeltis pyromelana</i>	Occurs in rocky habitat with abundant leaf litter and a vegetation canopy from Interior Chaparral up to Petran Montane Conifer Forest elevations.	L
Black-necked gartersnake	<i>Thamnophis cyrtopsis</i>	Upper deserts to lower Petran Montane Conifer Forest.	P
Checkered gartersnake	<i>Thamnophis marcianus</i>	Lower Colorado River Desertscrub up to Semidesert Grassland; associated with livestock tanks and other water developments associated with agriculture.	M
Western diamond-backed rattlesnake	<i>Crotalus atrox</i>	Wide range of habitats below 7,000 feet, including desertscrub, Semidesert Grassland, chaparral, woodlands, and open pine forest.	P
Mojave rattlesnake	<i>Crotalus scutulatus</i>	Mostly in upland desert and lower mountain slopes, desertscrub, semidesert grassland, juniper woodland; areas with scattered shrubby vegetation, including creosote bush and mesquite.	H

**Table D-3. Amphibian and Reptile Species with Potential to Occur in the Project Study Area**

<b>Common Name</b>	<b>Latin Name</b>	<b>Habitat</b>	<b>Potential</b>
Black-tailed rattlesnake	<i>Crotalus molossus</i>	Found in a wide variety of habitats, from Sonoran Desertscrub to the lower reaches of Petran Subalpine Conifer Forest. Woodlands appear to be favored habitat. Rarely found below flats in hilly or mountainous terrain.	H
Tiger rattlesnake	<i>Crotalus tigris</i>	Occurs on slopes or washes in rocky mountains or foothills and occasionally desert flatlands, but normally within a mile of foothills, mountains, or rocky habitat. Inhabits upland Sonoran and Chihuahuan Desertscrub, chaparral or Madrean evergreen woodlands.	H
Rock rattlesnake	<i>Crotalus lepidus</i>	Rocky canyons and foothills from chaparral up to Petran Montane Conifer Forest.	P
Arizona ridge-nosed rattlesnake	<i>Crotalus willardi willardi</i>	Heavily wooded canyons in Madrean evergreen woodland of Petran Montane Conifer Forest; sometimes lower.	L
Potential for occurrence: P = Present H = High M = Moderate L = Low VL = Very Low References: Brennan and Holycross 2006; Jones and Lovich 2009; Stebbins 2003.			

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