

**EXHIBIT D**  
**BIOLOGICAL RESOURCES**

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As stated in Arizona Administrative Code 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.*

**Methods**

Prior to conducting the desktop and field analysis, the ecology and habitat requirements of various species that could occur in the county were researched. A qualified biologist conducted the on-ground field reconnaissance evaluating the Project Study Area (PSA) and nearby areas. The PSA is defined as the entire proposed overhead segment and new RS-28 Substation as well as all areas within a 1,000-foot buffer of these Project components. The information was used to evaluate the potential effects of the High-Tech Interconnect Project (HIP or Project) implementation on biological resources within the vicinity of the Project.

The analysis determined that overall habitat quality, plant diversity, and density are extremely low. The PSA contains no native habitat types. Vegetation is comprised mostly of disturbed urban habitat (e.g., existing roads, railroad tracks, residential housing, business centers, graded fields), existing and remnant agriculture, and landscape plants that are associated with roadways and residential areas. Most of the lands within the PSA were historically used for agriculture and most have been converted for residential and commercial uses, with the exception of several remaining agricultural fields on Gila River Indian Community land.

**Exhibit D-1** contains **Tables D-1, D-2, D-3, and D-4** which include lists of common plant life, mammals, birds, reptiles and amphibians potentially present in Maricopa County and within the vicinity of the PSA.

**Vegetation**

The PSA is located within Maricopa County. The Project traverses industrial areas, is adjacent to or within commercial and residential areas, including disturbed roadways, transmission line rights-of-way (ROW) and the Union Pacific Railroad (UPRR) ROW, and also parallels several active and remnant agricultural areas. There are several urban man-made lakes within the vicinity of the PSA. Elevations range from 1,178 to 1,225 feet; the PSA does not contain any native habitats. Vegetation communities found within the PSA are described below, and **Table D-1 in Exhibit D-1** lists some native species that could be found within some of the disturbed habitats in the PSA and Maricopa County.

*Disturbed Urban Habitat*

The PSA contains graded areas, transmission lines, roadways, and a railroad track that bisect or run between residential, agricultural, industrial, and commercial areas. The areas within road, transmission line corridors, and railroad ROWs have been disturbed by initial construction and on-going maintenance activities. Residential, commercial and industrial developments, and roadside

landscaping exist within and adjacent to the corridor. Several urban lakes are located within residential areas in the vicinity of the PSA. There are scattered and isolated native plants and landscaped plants along the roads, including blue palo verde (*Cercidium floridum*) and honey mesquite (*Prosopis glandulosa*), as well as non-native decorative and shade trees, tamarisk (*Tamarix ramosissima*) and other non-native grasses and shrubs.

The Project segments and the RS-28 Substation where construction activities would occur are within these disturbed urban habitats, running along existing roads, transmission lines and disturbed areas associated with the Intel Ocotillo Campus and disturbed areas associated with the Schrader Substation and an Salt River Project Agricultural Improvement and Power District (SRP) owned parcel on the east side of the existing Schrader Substation.

#### Agriculture – Active

There are no active agricultural areas within Project segments and the RS-28 Substation where construction activities will occur. The larger PSA supports small isolated areas of active agricultural lands to the west of Old Price Road on the Gila River Indian Community land, most of which are growing alfalfa or are currently fallow. Irrigation canals and head ditches are common. These lands have been used for agriculture for many years and are mostly surrounded by residential and commercial areas.

#### Agriculture – Remnant

There are no remnant agricultural areas within Project segments and the RS-28 Substation where construction activities will occur. The larger PSA supports small isolated areas of remnant agricultural lands that have not been farmed recently but remain highly disturbed. Vegetation is scattered and common species include Russian thistle (*Salsola tragus*), halogeton (*Halogeton glomeratus*), Mediterranean grass (*Schismus arabicus* and *S. barbatus*), red brome (*Bromus madritensis* ssp. *rubens*), fiddleneck (*Amsinckia* spp.), and plantago (*Plantago* spp.).

### **Wildlife**

Wildlife resources within the PSA are predominantly associated with agricultural land, disturbed or landscaped habitats, and urban lakes. Species occurrence, abundance, and distribution are strongly influenced by the presence of surface water, topography, and habitat types within and surrounding the PSA.

Several common species of birds were observed in the PSA while conducting the field reconnaissance survey including turkey vulture (*Cathartes aura*), mourning dove (*Zenaida macroura*), white-winged dove (*Zenaida asiatica*), snowy egret (*Egretta thula*), horned lark (*Eremophila alpestris*), northern mockingbird (*Mimus polyglottos*), red-winged blackbird (*Agelaius phoeniceus*), great-tailed grackle (*Quiscalus mexicanus*), and killdeer (*Charadrius vociferus*). Other wildlife observed included desert cottontail (*Sylvilagus auduboni*) and round-tailed ground squirrel (*Xerospermophilus tereticaudus*).

**Tables D-2, D-3, and D-4 in Exhibit D-1** present lists of common mammals, birds, reptiles, and amphibians that may occur or that have been observed within Maricopa County in habitats similar to those in the PSA. Some of the species are also listed in **Exhibit C** as Wildlife of Special

Concern; although there is a potential for these species to occur, field verification shows that it is unlikely.

### ***Mammals***

Most mammalian species likely to be present are small, inconspicuous, largely nocturnal species of rodents and bats. Desert-adapted rodents include pocket mice and kangaroo rats and several species of bats could be present. Medium-sized mammals that could be found in the PSA include desert cottontail, black-tailed jackrabbits (*Lepus californicus*), coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), bobcat (*Felis rufus*), and badger (*Taxidea taxus*). Large mammals are not expected to occur. **Table D-2** in **Exhibit D-1** presents a more comprehensive list of mammalian species that may occur within the PSA and Maricopa County.

### ***Birds***

Most bird species likely to be present are associated with agricultural and urbanized land uses. The majority of the birds present during any given season are small songbirds and raptors like the mourning dove and red-tailed hawk (*Buteo jamaicensis*) (**Table D-3** in **Exhibit D-1**). However, numerous species of water birds such as the double-crested cormorant (*Phalacrocorax auritus*), neotropic cormorant (*Nannopterum brasilianum*), green heron (*Butorides virescens*), great blue heron (*Ardea herodias*), and western grebe (*Aechmophorous occidentalis*) have also been observed in the area because they are attracted to the urban lakes, canals, and ditches that are within and near the PSA.

### ***Amphibians and Reptiles***

Relatively undisturbed desert habitats represent the best habitat for reptiles, although some species could be found in agricultural or other disturbed areas. Water resources are very limited in the PSA as are reptiles and amphibians. **Table D-4** in **Exhibit D-1** presents a list of amphibian and reptilian species that could be present in the vicinity of the PSA and in Maricopa County.

### ***Invasive Weed Species and Noxious Weeds***

Non-native, weedy, and crop species typically dominate remnant agricultural lands and other disturbed and unmaintained areas. It is possible that invasive weed species and/or noxious weeds are present in disturbed areas, but none were detected during reconnaissance surveys. Common weed species in the PSA that are not included in the state's noxious weed list include filaree (*Erodium cicutarium*) and Russian thistle (*Salsola tragus*).

### **Potential Effects**

The following sections address the potential effects from development of the Project components to the biological resources that are likely to occur within the PSA.

## **Routes**

### **Existing Henshaw Substation to Intel**

#### **General Vegetation**

##### *Direct Impacts*

The existing Henshaw Substation to Intel segment (node H1 to H2) would parallel the existing Old Price Road and 69 kilovolt (kV) transmission lines for its entire length, approximately 2.74 miles. The existing 69 kV transmission lines will be underbuilt on the proposed 230 kV line, resulting in less poles overall. The transmission line would be built entirely within the disturbed ROWs and the construction areas contain little to no vegetation. This route segment would result in temporary impacts from pads, access roads, and pulling/tensioning sites within the ROW along approximately 2.74 miles of disturbed urban habitat. The Project would permanently impact only those highly disturbed areas associated with pole locations. With implementation of SRP's proposed measures described in **Exhibit C, Table C-2**, there would be no expected change in species composition and no impact to vegetation communities at the actual pole locations as a result of construction or operation due to the lack of vegetation within construction areas. Therefore, this segment would have no direct impact on vegetation communities within the Project area or the PSA.

##### *Indirect Impacts*

No native vegetation communities exist within the area to be disturbed by construction activities associated with this route; only disturbed urban habitats associated with the existing industrial campus and transmission line and road ROWs exist along this route. Therefore, no indirect impacts to vegetation are anticipated.

##### *Cumulative Impacts*

Agricultural, residential, commercial and industrial development, along with its associated roads and infrastructure, have converted and degraded areas of natural vegetation (wildlife habitat) in the PSA. This segment would permanently impact a very small area within an existing transmission ROW and the majority of the Project-related impacts would be temporary and short-term in nature. Therefore, this segment would result in a negligible cumulative impact on vegetation.

#### **Invasive Weed Species and Noxious Weeds**

The spread of invasive weed species and/or noxious weeds is not likely to occur as a result of construction due to the lack of noxious weeds observed during field reconnaissance and the lack of vegetation of any kind. The entire segment is located within existing transmission line and road ROWs.

To minimize the potential spread of invasive weed species into the PSA, all heavy equipment from other geographic areas utilized during construction would be washed prior to arrival on site. This would ensure that weed seed from a different area is not transported into the PSA.

## **General Wildlife**

### *Direct Impacts*

This segment would result in the temporary and permanent disturbance of very low quality wildlife habitat (disturbed urban habitat) along approximately 2.74 miles of an existing transmission ROW in the PSA. Construction-related impacts would be temporary and short-term and may include the temporary loss of habitat and displacement of resident wildlife species along the segment, possible injury or death of small burrowing reptiles or mammals during ground-disturbing activities, temporary impacts on wildlife movement, and noise-related disturbance. With implementation of SRP's proposed measures (**Exhibit C, Table C-2**), direct impacts on wildlife associated with the segment would be short-term and minor. Operation of the facilities would include periodic maintenance activities along existing disturbed areas; because of this, direct impacts to wildlife are expected to be very minimal.

### *Indirect Impacts*

During operation of the line, there would be fewer poles than currently exist within the 69 kV transmission line ROW. This would result in fewer potential roosting sites for raptors; there would not be an increase in predation rates as a result of the construction of the new line.

### *Cumulative Impacts*

Agricultural development, housing and industrial development, road development, and other related infrastructure has converted and degraded areas of natural vegetation (wildlife habitat) in the PSA. This segment would permanently impact a very small area and the majority of the Project-related impacts would be temporary and short-term in nature. Therefore, this segment would result in a negligible cumulative impact on wildlife.

## **Birds**

Existing nests could be encountered on existing transmission line poles and in trees within the vicinity of this route. If construction occurs during the breeding season (approximately February 1 to August 31), a pre-construction nest survey would be conducted 30 days prior to construction by a qualified biologist and active nests would be avoided or removed before becoming active. If active nests cannot be avoided, onsite personnel will contact the SRP Avian Protection Program for steps to take to ensure the nesting birds are protected. Therefore, there would be no impacts to active nests.

The new line could create a slight collision risk to birds. However, due to the fact that the new line is being built along an existing transmission line ROW, the degraded nature of the habitats within and adjacent to the proposed ROW, the amount of industrial, residential, and commercial development in the PSA, and the lack of high-quality foraging and migration areas in the PSA, this risk would be low and would represent a minor adverse impact on bird species. Although the new 230 kV line would be slightly taller than the existing 69 kV line, resident bird species are likely accustomed to the existing line and collision risk would be minimal. If avian line interactions become an issue, SRP will move quickly to evaluate the issue and craft a solution using appropriate measures.

## **New RS-28 Substation**

### **General Vegetation**

#### *Direct Impacts*

This segment would result in temporary impacts from construction of the new RS-28 Substation on approximately 23 acres of disturbed urban habitat. Approximately half of this area is within previously disturbed urban lands within the fenceline of the existing industrial campus; the other half is within previously graded agricultural fields. The Project would permanently impact all areas within the 23-acre area; however, this entire area is covered by disturbed urban habitats. Therefore, this segment would only have a direct impact on disturbed urban habitats; no natural habitats or vegetation would be disturbed.

#### *Indirect Impacts*

No native vegetation communities exist within the area to be disturbed by construction activities associated with the new RS-28 Substation; only disturbed urban habitats associated with the existing industrial campus and graded fields exist within this area. Therefore, no indirect impacts to vegetation are anticipated.

#### *Cumulative Impacts*

Agricultural and industrial development, along with its associated roads and infrastructure, have converted and degraded vegetation communities (wildlife habitat) in the PSA. The RS-28 Substation would permanently impact a relatively small area (23 acres of disturbed urban habitat). Therefore, this segment would result in a negligible cumulative impact on vegetation.

### **Invasive Weed Species and Noxious Weeds**

The spread of invasive weed species and/or noxious weeds is not likely to occur as a result of construction due to the lack of noxious weeds observed during field reconnaissance and the lack of vegetation of any kind. The segment is located within existing disturbed industrial development and graded fields.

To minimize the potential spread of invasive weed species into the PSA, all heavy equipment from other geographic areas utilized during construction would be washed prior to arrival on site. This would ensure that weed seed from a different area is not transported into the PSA.

### **General Wildlife**

#### *Direct Impacts*

The RS-28 Substation would result in the temporary and permanent disturbance of very low quality wildlife habitat (disturbed urban areas) within approximately 23 acres in the PSA. Construction-related impacts would include the displacement of resident wildlife species within the substation area, possible injury or death of small burrowing reptiles or mammals during ground-disturbing activities, impacts on wildlife movement, and noise-related disturbance. With implementation of SRP's proposed measures (**Exhibit C, Table C-2**), direct impacts on wildlife associated with the segment would be minor. Operation of the facilities would include periodic maintenance activities

in existing disturbed areas; because of this, direct impacts to wildlife are expected to be very minimal.

#### *Indirect Impacts*

During operation of the RS-28 Substation, there could be a potential for increased raptor roost sites on substation infrastructure within the substation area, but this is unlikely because of the level of disturbance and activity in the substation area and in the vicinity and because of the lack of prey and food base in the area. There would not be an increase in predation rates as a result of the construction of the new substation. Therefore, there would be no indirect impacts associated with the RS-28 Substation.

#### *Cumulative Impacts*

Industrial development, road development, and other related infrastructure has converted and degraded areas of natural vegetation (wildlife habitat) in the PSA. This area would permanently impact a relatively small area. Therefore, this segment would result in a negligible cumulative impact on wildlife.

### **Birds**

There is no breeding habitat within the construction area, therefore a pre-construction nest survey would not be required. There would be no impacts to active nests. The RS-28 Substation infrastructure would be constructed following industry practices aimed at reducing avian electrocutions, thereby significantly reducing electrocution risk to raptors and other birds.

The presence of irrigation infrastructure in the existing agricultural fields and the presence of urban lakes in the vicinity of the PSA may attract waterfowl and shorebirds. In certain circumstances, this could increase the potential for avian-line interactions for birds making localized movements between water features and roost sites. However, the substation is located approximately 1,500 feet from the nearest lake, therefore the RS-28 Substation poses no collision risk.

### **Schrader Overhead Transition Corridor**

This corridor includes a small area to the west of the existing Schrader Substation and to the east of the UPRR. These overhead transmission poles and transition structures would be built entirely within disturbed urban habitats associated with the Schrader Substation, existing transmission lines, and the disturbed vacant parcel. This area is located between residential housing areas and urban areas.

### **General Vegetation**

#### *Direct Impacts*

This segment would result in temporary impacts to disturbed urban habitat. The Project would permanently impact only those highly disturbed areas associated with pole locations. With implementation of SRP's proposed measures described in **Exhibit C, Table C-2**, there would be no expected change in species composition at the actual pole locations as a result of construction

or operation. Therefore, this segment would only have a direct impact on disturbed urban habitats; no natural habitats or vegetation would be disturbed.

#### *Indirect Impacts*

No native vegetation communities exist within the area to be disturbed by construction activities associated with this route; only disturbed urban habitats associated with the Schrader Substation and the vacant disturbed parcel exist within this area. Therefore, no indirect impacts to vegetation are anticipated.

#### *Cumulative Impacts*

Residential, commercial and industrial development, along with its associated roads and infrastructure and the UPRR, has converted and degraded areas of natural vegetation (wildlife habitat) in the PSA. This segment would permanently impact a very small area and the majority of the Project-related impacts would be temporary and short-term in nature. Therefore, this segment would result in a negligible cumulative impact on vegetation.

### **Invasive Weed Species and Noxious Weeds**

The spread of invasive weed species and/or noxious weeds is not likely to occur as a result of construction due to the lack of noxious weeds observed during field reconnaissance and the lack of vegetation of any kind. The segment is located within disturbed areas.

To minimize the potential spread of invasive weed species into the PSA, all heavy equipment from other geographic areas utilized during construction would be washed prior to arrival on site. This would ensure that weed seed from a different area is not transported into the PSA.

### **General Wildlife**

#### *Direct Impacts*

This segment would result in the temporary and permanent disturbance of very low quality wildlife habitat (disturbed urban habitat). Construction-related impacts would be temporary and short-term and may include the displacement of resident wildlife species along the route, possible injury or death of small burrowing reptiles or mammals during ground-disturbing activities, temporary impacts on wildlife movement, and noise-related disturbance. With implementation of SRP's proposed measures (**Exhibit C, Table C-2**), direct impacts on wildlife associated with the segment would be short-term and minor. Operation of the facilities would include periodic maintenance activities along existing disturbed areas; because the area is already so highly disturbed by existing activities, direct impacts to wildlife are expected to be very minimal.

#### *Indirect Impacts*

During operation of the line, there could be a potential for a very slight increase in raptor roost sites on poles which can increase predation rates on certain prey species. Due to the short length of the new line in this area, very few new poles are expected to be added. This impact is expected to be minimal due to plentiful perching sites in the surrounding urban environment.



*Cumulative Impacts*

Housing and industrial development, road and railroad development, and other related infrastructure has converted and degraded areas of natural vegetation (wildlife habitat) in the PSA. This segment would permanently impact a very small area and the majority of the Project-related impacts would be temporary and short-term in nature. Therefore, this segment would result in a negligible cumulative impact on wildlife.

**Birds**

Existing nests could be encountered on existing transmission line poles and in trees within the vicinity of this route. If construction occurs during the breeding season (approximately February 1 to August 31), a pre-construction nest survey would be conducted 30 days prior to construction by a qualified biologist and active nests would be avoided or removed before they become active. If active nests cannot be avoided, onsite personnel will contact the SRP Avian Protection Program for steps to take to ensure the nesting birds are protected. Therefore, there would be no impacts to active nests.

There is a man-made urban lake located between 250 and 500 feet south of the corridor that could attract water birds such as neotropical cormorants. These water birds may fly through the Project area and could collide with overhead transmission lines when visibility is limited due to environmental conditions like dust or rain. However, due to the very short length of overhead lines, the existence of other infrastructure associated with the Schrader Substation and existing transmission lines, the degraded nature of the habitats within and adjacent to the proposed ROW, and the amount of industrial, residential, and commercial development in the PSA, this risk would be low and would represent a minor adverse impact on these species. To minimize risk to birds, the lines would be constructed following industry suggested practices aimed at reducing avian collisions and electrocutions (APLIC 2006 and 2012). If avian line interactions become an issue, SRP will move quickly to evaluate the issue and craft a solution using appropriate measures.

## References

Avian Power Line Interaction Committee (APLIC). 2006. Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006. Edison Electric Institute and Avian Power Line Interaction Committee. Washington D.C.

(APLIC). 2012. *Reducing Avian Collisions with Power Lines: The State of the Art in 2012*. Edison Electric Institute and Avian Power Line Interaction Committee. Washington D.C.

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Hoffmeister, D.F. 1986. Mammals of Arizona. University of Arizona Press.

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**EXHIBIT D-1**  
**BIOLOGICAL RESOURCES TABLES**

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| <b>Table D-1</b><br><b>Common Plant Species</b><br><b>Potential Occurrence in Isolated Disturbed/Native Habitats in the Vicinity of the PSA<sup>1</sup></b> |  |                                       |
|---|--|---------------------------------------|
| <b>Common Name</b>  | <b>Scientific Name</b>                   | <b>Ecosystem</b>                      |
| Triangleleaf bursage  | <i>Ambrosia deltoidea</i>                | Sonoran Desertscrub, Sonoran Riparian |
| White bursage   | <i>Ambrosia dumosa</i>                   | Sonoran Desertscrub                   |
| Fiddlehead  | <i>Amsinckia intermedia</i>              | Sonoran Riparian                      |
| Fiddleneck  | <i>Amsinckia spp.</i>                    | Sonoran Desertscrub, Disturbed        |
| Purple three-awn  | <i>Aristida purpurea</i>                 | Sonoran Desertscrub                   |
| Four-wing saltbush  | <i>Atriplex canescens</i>                | Sonoran Desertscrub                   |
| All scale   | <i>Atriplex polycarpa</i>                | Sonoran Desertscrub                   |
| Red brome   | <i>Bromus madritensis ssp. rubens</i>    | Sonoran Desertscrub, Disturbed        |
| Blue palo verde   | <i>Cercidium floridum</i>                | Sonoran Desertscrub, Sonoran Riparian |
| Datura  | <i>Datura stramonium</i>                 | Sonoran Riparian                      |
| Englemann's hedgehog cactus   | <i>Echinocereus englemannii</i>          | Sonoran Desertscrub                   |
| Brittlebush   | <i>Encelia farinosa</i>                  | Sonoran Desertscrub, Sonoran Riparian |
| Skeletonweed  | <i>Eriogonum deflexum</i>                | Sonoran Desertscrub                   |
| Filaree   | <i>Erodium cicutarium</i>                | Sonoran Desertscrub, Disturbed        |
| Barrel cactus   | <i>Ferocactus wislizenii</i>             | Sonoran Desertscrub                   |
| Ocotillo  | <i>Fouquieria splendens</i>              | Sonoran Desertscrub                   |
| Halogeton   | <i>Halogeton glomeratus</i>              | Sonoran Desertscrub, Disturbed        |
| Rhatany   | <i>Krameria parviflora</i>               | Sonoran Desertscrub, Sonoran Riparian |
| Creosote bush   | <i>Larrea tridentata</i>                 | Sonoran Desertscrub, Sonoran Riparian |
| Wolfberry   | <i>Lycium spp.</i>                       | Sonoran Desertscrub, Sonoran Riparian |
| Little fishhook cactus  | <i>Mammillaria thornberi</i>             | Sonoran Desertscrub                   |
| Teddybear cholla  | <i>Opuntia bigelovii</i>                 | Sonoran Desertscrub                   |
| Prickly pear cactus   | <i>Opuntia engelmannii</i>               | Sonoran Desertscrub                   |
| Jumping cholla  | <i>Opuntia fulgida</i>                   | Sonoran Desertscrub                   |
| Desert mistletoe  | <i>Phoradendron californicum</i>         | Sonoran Desertscrub                   |
| Plantago  | <i>Plantago spp.</i>                     | Sonoran Desertscrub, Disturbed        |
| Galleta grass   | <i>Pleuraphis jamesii</i>                | Sonoran Desertscrub, Sonoran Riparian |
| Mesquite  | <i>Prosopis spp.</i>                     | Sonoran Riparian                      |
| Bladdersage   | <i>Salazaria mexicana</i>                | Sonoran Desertscrub                   |
| Russian thistle   | <i>Salsola tragus</i>                    | Sonoran Desertscrub, Sonoran Riparian |
| London rocket   | <i>Sisymbrium irio</i>                   | Sonoran Desertscrub, Sonoran Riparian |
| Globe mallow  | <i>Sphaeralcea spp.</i>                  | Sonoran Desertscrub, Sonoran Riparian |
| Mediterranean grass   | <i>Schismus arabicus and S. barbatus</i> | Sonoran Desertscrub, Disturbed        |
| <sup>1</sup> Brown 1994   |  |                                       |

**Table D-2**  
**Mammal Species**  
**Potential Occurrence in the Vicinity of the PSA<sup>1</sup>**

| <b>Common Name</b>         | <b>Scientific Name</b>            |
|----------------------------|-----------------------------------|
| Harris' antelope squirrel  | <i>Ammospermophilus harrisi</i>   |
| Pallid bat                 | <i>Antrozous pallidus</i>         |
| Ringtail                   | <i>Bassariscus astutus</i>        |
| Coyote                     | <i>Canis latrans</i>              |
| Mexican long-tongued bat   | <i>Choeronycteris mexicana</i>    |
| Desert kangaroo rat        | <i>Dipodomys deserti</i>          |
| Merriam's kangaroo rat     | <i>Dipodomys merriami</i>         |
| Big brown bat              | <i>Eptesicus fuscus</i>           |
| Spotted bat                | <i>Euderma maculatum</i>          |
| Western mastiff bat        | <i>Eumops perotis</i>             |
| Mountain lion              | <i>Felis concolor</i>             |
| Bobcat                     | <i>Felis rufus</i>                |
| Red bat                    | <i>Lasiurus borealis</i>          |
| Hoary bat                  | <i>Lasiurus cinereus</i>          |
| Southern yellow bat        | <i>Lasiurus ega xanthinus</i>     |
| Mexican long-nosed bat     | <i>Leptonycteris nivalis</i>      |
| Black-tailed jackrabbit    | <i>Lepus californicus</i>         |
| Hooded skunk               | <i>Mephitis macroura</i>          |
| Striped skunk              | <i>Mephitis mephitis</i>          |
| California myotis          | <i>Myotis californicus</i>        |
| Fringed myotis             | <i>Myotis thysanodes</i>          |
| Cave myotis                | <i>Myotis velifer</i>             |
| Yuma myotis                | <i>Myotis yumanensis</i>          |
| White-throated woodrat     | <i>Neotoma albigula</i>           |
| Desert wood rat            | <i>Neotoma lepida</i>             |
| Desert shrew               | <i>Notiosorex crawfordi</i>       |
| Desert Mule deer           | <i>Odocoileus hemionus crooki</i> |
| Muskrat                    | <i>Ondatra zibethicus</i>         |
| Southern grasshopper mouse | <i>Onychomys torridus</i>         |
| Collared peccary           | <i>Pecari tajacu</i>              |
| Arizona pocket mouse       | <i>Perognathus amplus</i>         |
| Bailey's pocket mouse      | <i>Perognathus baileyi</i>        |
| Long-tailed pocket mouse   | <i>Perognathus formosus</i>       |
| Rock pocket mouse          | <i>Perognathus intermedius</i>    |
| Little pocket gopher       | <i>Perognathus longimembris</i>   |
| Desert pocket mouse        | <i>Perognathus penicillatus</i>   |
| Brush mouse                | <i>Peromyscus boylii</i>          |

**Table D-2**  
**Mammal Species**  
**Potential Occurrence in the Vicinity of the PSA<sup>1</sup>**

| Common Name   | Scientific Name                      |
|---|--------------------------------------|
| Cactus mouse  | <i>Peromyscus eremicus</i>           |
| Deer mouse  | <i>Peromyscus maniculatus</i>        |
| Western pipistrelle   | <i>Pipistrellus Hesperus</i>         |
| Townsend's big-eared bat  | <i>Plecotus townsendii</i>           |
| Raccoon   | <i>Procyon lotor</i>                 |
| Western harvest mouse   | <i>Reithrodontomys megalotis</i>     |
| Arizona gray squirrel   | <i>Sciurus arizonensis</i>           |
| Arizona cotton rat  | <i>Sigmodon arizonae</i>             |
| Rock squirrel   | <i>Spermophilus variegatus</i>       |
| Western spotted skunk   | <i>Spilogale gracilis</i>            |
| Desert cottontail   | <i>Sylvilagus audubonii</i>          |
| American free-tailed bat  | <i>Tadarida brasiliensis</i>         |
| Pocketed free-tailed bat  | <i>Tadarida femorosacca</i>          |
| Big free-tailed bat   | <i>Tadarida macrotis</i>             |
| Badger  | <i>Taxidae taxus</i>                 |
| Botta's pocket gopher   | <i>Thomomys bottae</i>               |
| Gray fox  | <i>Urocyon cinereoargenteus</i>      |
| Kit fox   | <i>Vulpes macrotis</i>               |
| Round-tailed ground squirrel  | <i>Xerospermophilus tereticaudus</i> |
| <sup>1</sup> D.F. Hoffmeister. 1986 . Mammals of Arizona. University of Arizona Press |                                      |

**Table D-3**  
**Bird Species**  
**Potential Occurrence in the Vicinity of the PSA<sup>1</sup>**

| Common Name                  | Scientific Name                        |
|------------------------------|--|
| Cooper's hawk                | <i>Accipiter cooperii</i>              |
| Sharp-shinned hawk           | <i>Accipiter striatus</i>              |
| Western Grebe                | <i>Aechmophorous occidentalis</i>      |
| Red-winged blackbird         | <i>Agelaius phoeniceus</i>             |
| Sage sparrow                 | <i>Amphispiza belli</i>                |
| Black-throated sparrow       | <i>Amphispiza bilineata</i>            |
| Cinnamon teal                | <i>Anas cyanoptera</i>                 |
| Mallard                      | <i>Anas platyrhynchos</i>              |
| Black-chinned hummingbird    | <i>Archilochus alexandri</i>           |
| Great egret                  | <i>Ardea alba</i>                      |
| Great blue heron             | <i>Ardea herodias</i>                  |
| Verdin                       | <i>Auriparus flaviceps</i>             |
| Cedar waxwing                | <i>Bombycilla cedrorum</i>             |
| Great horned owl             | <i>Bubo virginianus</i>                |
| Cattle egret                 | <i>Bubulcus ibis</i>                   |
| Zone-tailed hawk             | <i>Buteo albonotatus</i>               |
| Red-tailed hawk              | <i>Buteo jamaicensis</i>               |
| Ferruginous hawk             | <i>Buteo regalis</i>                   |
| Swainson's hawk              | <i>Buteo swainsoni</i>                 |
| Green heron                  | <i>Butorides virescens</i>             |
| Lark bunting                 | <i>Calamospiza melanocorys</i>         |
| Gambel's quail               | <i>Callipepla gambelii</i>             |
| Anna's hummingbird           | <i>Calypete anna</i>                   |
| Costa's hummingbird          | <i>Calypete costae</i>                 |
| Cactus wren                  | <i>Campylorhynchus brunneicapillus</i> |
| Northern cardinal            | <i>Cardinalis cardinalis</i>           |
| Pyrrhuloxia                  | <i>Cardinalis sinuatus</i>             |
| Lesser goldfinch             | <i>Carduelis psaltria</i>              |
| House finch                  | <i>Carpodacus mexicanus</i>            |
| Turkey vulture               | <i>Cathartes aura</i>                  |
| Killdeer                     | <i>Charadrius vociferus</i>            |
| Lark sparrow                 | <i>Chondestes grammacus</i>            |
| Lesser nighthawk             | <i>Chordeiles acutipennis</i>          |
| Northern harrier             | <i>Circus cyaneus</i>                  |
| Red-shafted northern flicker | <i>Colaptes cafer</i>                  |
| Gilded flicker               | <i>Colaptes chrysoides</i>             |
| Rock dove                    | <i>Columba livia</i>                   |
| Inca dove                    | <i>Columbina inca</i>                  |

**Table D-3**  
**Bird Species**  
**Potential Occurrence in the Vicinity of the PSA<sup>1</sup>**

| <b>Common Name</b>          | <b>Scientific Name</b>         |
|-----------------------------|--------------------------------|
| Common ground-dove          | <i>Columbina passerine</i>     |
| Western wood-pewee          | <i>Contopus sordidulus</i>     |
| Common raven                | <i>Corvus corax</i>            |
| Yellow-rumped warbler       | <i>Dendroica coronata</i>      |
| Black-throated gray warbler | <i>Dendroica nigrescens</i>    |
| Yellow warbler              | <i>Dendroica petechia</i>      |
| Snowy egret                 | <i>Egretta thula</i>           |
| Pacific-slope flycatcher    | <i>Empidonax difficilis</i>    |
| Dusky flycatcher            | <i>Empidonax oberholster</i>   |
| Cordilleran flycatcher      | <i>Empidonax occidentalis</i>  |
| Gray flycatcher             | <i>Empidonax wrightii</i>      |
| Horned lark                 | <i>Eremophila alpestris</i>    |
| Brewer's blackbird          | <i>Euphagus cyanocephalus</i>  |
| American kestrel            | <i>Falco sparverius</i>        |
| American coot               | <i>Fulica americana</i>        |
| Common moorhen              | <i>Gallinula chloropus</i>     |
| Greater roadrunner          | <i>Geococcyx californianus</i> |
| Blue grosbeak               | <i>Guiraca carulea</i>         |
| Cliff swallow               | <i>Hirundo pyrrhonota</i>      |
| Barn swallow                | <i>Hirundo rustica</i>         |
| Northern oriole             | <i>Icterus bullockii</i>       |
| Hooded oriole               | <i>Icterus cucullatus</i>      |
| Bullock's oriole            | <i>Icterus galbula</i>         |
| Dark-eyed junco             | <i>Junco hyemalis</i>          |
| Loggerhead shrike           | <i>Lanius ludovicianus</i>     |
| Gila woodpecker             | <i>Melanerpes uropygialis</i>  |
| Lincoln's sparrow           | <i>Melospiza lincolnii</i>     |
| Song sparrow                | <i>Melospiza melodia</i>       |
| Elf owl                     | <i>Micrathene whitneyi</i>     |
| Northern mockingbird        | <i>Mimus polyglottos</i>       |
| Bronzed cowbird             | <i>Molothrus aeneus</i>        |
| Brown-headed cowbird        | <i>Molothrus ater</i>          |
| Ash-throated flycatcher     | <i>Myiarchus cinerascens</i>   |
| Brown-crested flycatcher    | <i>Myiarchus tyrannulus</i>    |
| Black-crowned night-heron   | <i>Nycticorax nycticorax</i>   |
| MacGillivray's warbler      | <i>Oporornis tolmiei</i>       |
| Sage thrasher               | <i>Oreoscoptes montanus</i>    |
| Western screech owl         | <i>Otus kennicottii</i>        |



**Table D-3**  
**Bird Species**  
**Potential Occurrence in the Vicinity of the PSA<sup>1</sup>**

| <b>Common Name</b>            | <b>Scientific Name</b>            |
|-------------------------------|-----------------------------------|
| Harris' hawk                  | <i>Parabuteo unicinctus</i>       |
| House sparrow                 | <i>Passer domesticus</i>          |
| Phainopepla                   | <i>Phainopepla nitens</i>         |
| Double-crested cormorant      | <i>Phalacrocorax auritus</i>      |
| Common poorwill               | <i>Phalaenoptilus nuttallii</i>   |
| Black-headed grosbeak         | <i>Pheucticus melanocephalus</i>  |
| Ladder-backed woodpecker      | <i>Picoides scalaris</i>          |
| Abert's towhee                | <i>Pipilo aberti</i>              |
| Green-tailed towhee           | <i>Pipilo chlorurus</i>           |
| Spotted towhee                | <i>Pipilo erythrophthalmus</i>    |
| Canyon towhee                 | <i>Pipilo fuscus</i>              |
| Western tanager               | <i>Piranga ludoviciana</i>        |
| Pied-billed grebe             | <i>Podilymbus podiceps</i>        |
| Blue-gray gnatcatcher         | <i>Polioptila caerulea</i>        |
| Black-tailed gnatcatcher      | <i>Polioptila melanura</i>        |
| Vesper sparrow                | <i>Pooecetes gramineus</i>        |
| Vermillion flycatcher         | <i>Pyrocephalus rubinus</i>       |
| Great-tailed grackle          | <i>Quiscalus mexicanus</i>        |
| Ruby-crowned kinglet          | <i>Regulus calendula</i>          |
| Rock wren                     | <i>Salpinctes obsoletus</i>       |
| Black phoebe                  | <i>Sayornis nigricans</i>         |
| Say's phoebe                  | <i>Sayornis saya</i>              |
| Rufus hummingbird             | <i>Selasphorus rufus</i>          |
| Western bluebird              | <i>Sialia mexicana</i>            |
| Brewer's sparrow              | <i>Spizella breweri</i>           |
| Chipping sparrow              | <i>Spizella passerine</i>         |
| Northern rough-winged swallow | <i>Stelgidopteryx serripennis</i> |
| Western meadowlark            | <i>Sturnella neglecta</i>         |
| European starling             | <i>Sturnus vulgaris</i>           |
| Tree swallow                  | <i>Tachycineta bicolor</i>        |
| Violet-green swallow          | <i>Tachycineta thalassina</i>     |
| Bewick's wren                 | <i>Thryomanes bewickii</i>        |
| Bendire's thrasher            | <i>Toxostoma bendirei</i>         |
| Curve-billed thrasher         | <i>Toxostoma curvirostre</i>      |
| House wren                    | <i>Troglodytes aedon</i>          |
| American robin                | <i>Turdus migratorius</i>         |
| Western kingbird              | <i>Tyrannus verticalis</i>        |
| Barn owl                      | <i>Tyto alba</i>                  |

| <b>Table D-3</b><br><b>Bird Species</b><br><b>Potential Occurrence in the Vicinity of the PSA<sup>1</sup></b> |                               |
|---|-------------------------------|
| <b>Common Name</b>  | <b>Scientific Name</b>        |
| Orange-crowned warbler  | <i>Vermivora celata</i>       |
| Lucy's warbler  | <i>Vermivora luciae</i>       |
| Nashville warbler   | <i>Vermivora ruficapilla</i>  |
| Virginia's warbler  | <i>Vermivora virginiae</i>    |
| Bell's vireo  | <i>Vireo bellii</i>           |
| Warbling vireo  | <i>Vireo gilvus</i>           |
| Wilson's warbler  | <i>Wilsonia pusilla</i>       |
| White-winged dove   | <i>Zenaida asiatica</i>       |
| Mourning dove   | <i>Zenaida macroura</i>       |
| White-crowned sparrow   | <i>Zonotrichia leucophrys</i> |
| <sup>1</sup> Corman and Wise-Gervais 2005   |                               |

**Table D-4**  
**Reptile and Amphibian Species**  
**Potential Occurrence in the Vicinity of the PSA<sup>1</sup>**

| <b>Common Name</b>              | <b>Scientific Name</b>                    |
|---------------------------------|---|
| Arizona glossy snake            | <i>Arizona elegans noctivaga</i>          |
| Sonoran desert toad             | <i>Bufo alvarius</i>                      |
| Great plains toad               | <i>Bufo cognatus</i>                      |
| Red-spotted toad                | <i>Bufo punctatus</i>                     |
| Zebra tail lizard               | <i>Callisaurus draconoides</i>            |
| Banded sand snake               | <i>Chilomeniscus cinctus</i>              |
| Western shovel-nosed snake      | <i>Chionactis occipitalis</i>             |
| Gila spotted whiptail           | <i>Cnemidophorus flagellicaudus</i>       |
| Western whiptail                | <i>Cnemidophorus tigris</i>               |
| Desert banded gecko             | <i>Coleonyx variegatus variegatus</i>     |
| Western diamondback rattlesnake | <i>Crotalus atrox</i>                     |
| Sonoran sidewinder              | <i>Crotalus cerastes cercobombus</i>      |
| Speckled rattlesnake            | <i>Crotalus mitchellii pyrrhus</i>        |
| Black-tailed rattlesnake        | <i>Crotalus molossus</i>                  |
| Mojave rattlesnake              | <i>Crotalus scutulatus</i>                |
| Arizona black rattlesnake       | <i>Crotalus viridis cerberus</i>          |
| Common collared lizard          | <i>Crotaphytus collaris</i>               |
| Western collared lizard         | <i>Crotaphytus collaris baileyi</i>       |
| Desert iguana                   | <i>Dipsosaurus dorsalis</i>               |
| Large spotted leopard lizard    | <i>Gambelia wislizenii wislizenii</i>     |
| Desert tortoise                 | <i>Gopherus agassizii</i>                 |
| Gila monster                    | <i>Heloderma suspectum</i>                |
| Canyon tree frog                | <i>Hyla arenicolor</i>                    |
| Night snake                     | <i>Hypsiglena torquata</i>                |
| Sonoran mud turtle              | <i>Kinosternon sonoriense</i>             |
| Common kingsnake                | <i>Lampropeltis getula</i>                |
| Western blind snake             | <i>Leptotyphlops humilis</i>              |
| Rosy boa                        | <i>Lichanura trivirgata</i>               |
| Red coachwhip                   | <i>Masticophis flagellum piceus</i>       |
| Arizona coral snake             | <i>Micruroides euryxanthus</i>            |
| Desert horned lizard            | <i>Phrynosoma platyrhinos</i>             |
| Desert horned lizard            | <i>Phrynosoma platyrhinos calidiarum</i>  |
| Regal horned lizard             | <i>Phrynosoma solare</i>                  |
| Saddled leaf-nosed snake        | <i>Phyllorhynchus browni</i>              |
| Western leaf-nosed snake        | <i>Phyllorhynchus decurtatus perkinsi</i> |
| Sonoran gopher snake            | <i>Pituophis melanoleucus affinis</i>     |
| Bullfrog                        | <i>Rana catesbeiana</i>                   |
| Western long-nosed snake        | <i>Rhinocheilus lecontei lecontei</i>     |

**Table D-4**  
**Reptile and Amphibian Species**  
**Potential Occurrence in the Vicinity of the PSA<sup>1</sup>**

| <b>Common Name</b>         | <b>Scientific Name</b>               |
|----------------------------|--------------------------------------|
| Western patch-nosed snake  | <i>Salvadora hexalepis</i>           |
| Western chuckwalla         | <i>Sauromalus obesus obesus</i>      |
| Couch spadefoot            | <i>Scaphiopus couchi</i>             |
| Western spadefoot          | <i>Scaphiopus hammondi</i>           |
| Southern spadefoot         | <i>Scaphiopus multiplicatus</i>      |
| Sonoran spiny lizard       | <i>Sceloporus magister magister</i>  |
| Yellow-backed spiny lizard | <i>Sceloporus magister uniformis</i> |
| Ground snake               | <i>Sonora semiannulata</i>           |
| SW black-headed snake      | <i>Tantilla hobartsmithi</i>         |
| Lyre snake                 | <i>Trimorphodon biscutatus</i>       |
| Spiny softshell            | <i>Trionyx spiniferus</i>            |
| Arizona brush lizard       | <i>Urosaurus graciosus shannoni</i>  |
| Tree lizard                | <i>Urosaurus ornatus</i>             |
| Side-blotched lizard       | <i>Uta stansburiana</i>              |
| <sup>1</sup> Stebbins 1985 |                                      |