EXHIBIT D – BIOLOGICAL RESOURCES

As stated in the 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.

Introduction

To identify the plant and wildlife species that may occur in the vicinity of the proposed Project, SWCA consulted publicly available data sources, including:

- Topographical and aerial maps
- AGFD Online Environmental Review Tool (AGFD 2021a)
- *Biotic Communities: Southwestern United States and Northwestern Mexico* (Brown 1994)
- Regional checklists, reports, and publications (e.g., Brennan and Holycross 2006; eBird 2021; Hoffmeister 1986; iNaturalist 2021; Kesner and Marsh 2010)

In addition, an SWCA biologist with expertise in the biology of flora and fauna of the region surveyed the Project Area on May 25, 2021, although the fenced in portion comprising the existing generating station was not entered. All plants and wildlife observed in the Project Area were recorded during the survey.

Results

Ecological Setting

The Study Area is located within the Lower Colorado River Valley subdivision of the Sonoran Desertscrub Biotic Community (Brown 1994) with an elevational range of approximately 1,430 to 1,500 feet above mean sea level (amsl). The Project Area is located 0.3 mile east of SR 87/SR 287, 0.3 mile south of East Randolph Road, and 0.3 mile north of East Kleck Road. Land uses in the Study Area and vicinity include agriculture, residential, and industrial development. A UPRR track bisects the Study Area just west of the Project Area. The Florence Canal, Casa Grande Canal, and Salt-Gila Aqueduct (part of the CAP) run approximately north–south 0.2, 0.6, and 1.4 miles west of the Study Area, respectively. The Picacho Reservoir lies 3.3 miles south-southeast of the Project Area. Picacho Reservoir has a highly variable water level, with the lake being entirely dry in some years (Drowley 2021).

Vegetation

Much of the Project Area and Study Area consists of in-use agricultural fields, with a portion of the Study Area consisting of desertscrub with varying levels of disturbance. At the time of surveys, crops grown in the Project Area included cotton (*Gossypium* sp.).

Within the Project Area, desertscrub vegetation, grasses, forbs, and weeds grew in stringers outside of agricultural fields. One velvet mesquite (*Prosopis velutina*) individual was observed. Native species observed in and around the fields included burrobush (*Ambrosia dumosa*), carelessweed (*Amaranthus palmeri*), cheeseweed mallow (*Malva parviflora*), desertbroom (*Baccharis sarothroides*), lambsquarters (*Chenopodium album*), Mexican sprangletop (*Leptochloa fusca* ssp. *uninervia*), knotweed (*Polygonum* sp.), and turpentinebush (*Ericameria laricifolia*).

Nonnative species observed included Asian mustard (=Saharan mustard), Athel tamarisk (*Tamarix aphylla*), common sowthistle (*Sonchus oleraceous*), eucalyptus (*Eucalyptus* sp.) trees, Mediterranean grass (*Schismus* sp.), prickly Russian thistle (*Salsola tragus*), redstem stork's bill (*Erodium cicutarium*), saltcedar, and stinknet. Asian mustard, saltcedar, and stinknet are species listed as Arizona noxious weeds. The eucalyptus trees were landscaped plants along roads.

Bermudagrass and prickly Russian thistle were widespread and occurred commonly in the margins of the agricultural fields and on the sides of existing roads. There were landscaped trees, including tall eucalyptus trees, along roads within the Project Area.

No broadleaf deciduous riparian vegetation communities (i.e., communities containing willow [*Salix* sp.], cottonwood [*Populus* sp.], or ash [*Fraxinus* sp.], etc.), or potential bat roost sites (e.g., natural caves, mine features, abandoned buildings, or palm trees) were observed during surveys. Concrete-lined canals with flowing water were located in some portions of the Project Area, and small portions of fields were flooded with irrigation at the time of field survey.

Wildlife Species

Bird species observed in the portion of the Project Area visited in May 2021 included brown-headed cowbird (*Molothrus ater*), common raven (*Corvus corax*), curve-billed thrasher (*Toxostoma curvirostre*), Gambel's quail (*Callipepla gambelii*), great-tailed grackle (*Quiscalus mexicanus*), house finch (*Haemorhous mexicanus*), house sparrow (*Passer domesticus*), killdeer (*Charadrius vociferus*), mourning dove (*Zenaida macroura*), Say's phoebe (*Sayornis saya*), and western burrowing owl.

Other wildlife observed included desert cottontail (*Sylvilagus audubonii*) and American bullfrog (*Lithobates catesbeianus*), a nonnative species, which was observed dead near a concrete-lined canal.

Species that may occur in the Study Area are listed in Table D-1 (mammals), Table D-2 (birds), Table D-3 (reptiles), and Table D-4 (amphibians). Species were considered for their potential to occur as follows. A list of mammal species typical of Lower Colorado River Valley subdivision of the Sonoran Desertscrub biotic community evaluated for this report included mammals found in Table 4.1 in *Mammals of Arizona* (Hoffmeister 1986). Bird species evaluated in this report include those listed for Sonoran Desertscrub in Appendix II of *Biotic Communities Southwestern United States and Northwestern Mexico* (Brown 1994) and a list of Sonoran Desert Birds in iNaturalist (2021). Reptiles and amphibians evaluated in this report were taken from a list of commonly occurring species in the Lower Colorado River Valley subdivision of the Sonoran Desertscrub biotic community in Amphibians and Reptiles in Arizona (Brennan and Holycross 2006). Finally, fish species evaluated in this report were taken from the list of species in the CAP and Florence-Casa Grande Canals from the *Central Arizona Project Fish Monitoring Final Annual Report* (Kesner and Marsh 2010)

Some species from these lists of typical species overlap with special-status species evaluated in Exhibit C, and these species have been removed from consideration in Exhibit D because they have already been addressed (see Exhibit C). Occurrence records were obtained from the AGFD Online Environmental Review Tool (AGFD 2021a), *Mammals of Arizona* (Hoffmeister 1986), eBird (2021), and the *Breeding Bird Atlas* (Corman and Wise-Gervais 2005).

MAMMALS

Large mammal species would be rare in the Study Area because it is largely disturbed and is surrounded by agriculture, roads, and development. Small- and medium-sized terrestrial mammal species may occur. Bat species have the potential to disperse or migrate through or forage within the Study Area. No caves, mines, or adits occur in the Study Area that could serve as bat roosts. Although no palm trees, abandoned

buildings, or riparian vegetation was observed in the Project Area, these types of potential bat roosts could occur in the portions of the Study Area that were not surveyed.

Table D-1. Mammal Species that May Occur in the Study Area

Common Name (*Scientific Name*)	**Habitat**
Arizona pocket mouse (*Perognathus amplus*)	Desertscrub habitats.
Black-tailed jackrabbit (*Lepus californicus*)	Open habitat with scattered patches of shrubs, including plains, fields, and deserts.
Botta's pocket gopher (*Thomomys bottae*)	Extremely xeric locations, below 11,000 feet amsl with variable soils and ground cover ranging from open to grasslands. Occurs in roadsides, valleys, and mountain meadows.
Cactus mouse (*Peromyscus eremicus*)	Deserts and pinyon-juniper (*Pinus* spp.–*Juniperus* spp.), Occurs in rocky, sandy, or loamy soils. Found in rock heaps, stone walls, burrows, woodrat houses, and brush fences.
Coyote (*Canis latrans*)	All habitat types, including agricultural, urban, and suburban areas.
Desert cottontail (*Sylvilagus audubonii*)	Grasslands, brushlands, edges of foothill woodlands, willow thickets, and occasionally in cultivated fields or under buildings.
Desert kangaroo rat (*Dipodomys deserti*)	Low deserts, often sandy soil with sparse vegetation including alkali sink, shadscale scrub, and creosote bush.
Desert pocket mouse (*Chaetodipus penicillatus*)	Sparsely vegetated sandy desert floors.
Javelina (=collared peccary) (*Dicotyles tajacu*)	Deserts, shrublands, cities, and agricultural areas.
Merriam's kangaroo rat (*Dipodomys merriami*)	Low deserts in sparsely vegetated areas.
Round-tailed ground squirrel (*Xerospermophilus tereticaudus*)	Sonoran desertscrub, alkali sink and creosote bush communities, low flat areas and avoids rocky hills
Striped skunk (*Mephitis mephitis*)	Usually live in areas near water, including rivers, streams, and irrigated places. Live in natural cavities, burrows dug by other species, and human-made structures.
Western harvest mouse (*Reithrodontomys megalotis*)	A wide variety of habitats in places with adequate cover. Often live in areas with adequate grass cover, along streams, bottomlands, along fences, or around irrigated areas.
White-throated woodrat (*Neotoma albigula*)	Brushlands, rocky cliffs, creosote bush scrub, mesquite-yucca, and pinyon-juniper woodland.
Bat Species	
Big brown bat (*Eptesicus fuscus*)	Variable habitat, from ponderosa pine (*Pinus ponderosa*) forests, pinyon-juniper woodlands, the lower edge of spruce-fir (*Picea* spp.- *Abies* spp.) forests, and Lower Sonoran zones. Migratory; found throughout the state in summer, and in southern Arizona in the winter. Roosts in buildings, bridge joints, mines, hollow trees, and caves.
California leaf-nosed bat (*Macrotus californicus*)	Primarily found in Sonoran desertscrub; summer and winter range essentially the same; roosts in mines, caves, and rock shelters.
California myotis (*Myotis californicus*)	Desert ranges and flatlands; desertshrub-oak (*Quercus* spp.) to ponderosa pine zones. Migratory; winter distribution in southern Arizona, south of the Gila River. Roosts in crevices and cracks in canyon walls, caves and mine shafts, and under bark in trees or snags.
Pallid bat (*Antrozous pallidus*)	Many habitat types, including forests, canyons, open farmland, and deserts. Migratory; occurs throughout Arizona and in the southern part of the state in winter. Roosts in rock crevices, buildings, caves, and mines.

Source: Range or habitat information is from AGFD (2021a, 2021b); Hoffmeister (1986); NatureServe Explorer (2021).

*Observed during field reconnaissance

BIRDS

The Lower Colorado River Valley subdivision of the Sonoran Desertscrub biotic community generally consists of open, sparsely vegetated habitats that do not support a bird community as diverse as found in other subdivisions of Sonoran desertscrub (Brown 1994). Active agricultural fields can also support many bird species. Birds have potential to use the Study Area for their life-history needs (i.e., foraging, nesting, or perching). Waterfowl and other birds may use the existing and planned new evaporation ponds within the Project Area as loafing ponds—midday stops where birds rest before feeding or heading back to the roost. Other birds may be attracted to the water in the evaporation ponds, but not use the area for nesting, roosting, foraging, or reproduction. Birds that are likely to only be attracted to the existing and planned evaporation ponds, as well as those that are just dispersing or migrating through the Study Area are not included in the following table. Table D-2 lists the bird species that may occur in the Study Area.

Table D-2. Bird Species that May Occur in the Study Area

Common Name (*Scientific Name*)	**Habitat**
American kestrel (*Falco sparverius*)	A variety of habitats with open settings with scattered trees or other structures for perching. Year-round resident.
Anna's hummingbird (Calypte anna)	Occurs in chaparral, coastal scrub, oak savannas, and open woodland. Also common in urban and suburban settings.
Ash-throated flycatcher (*Myiarchus cinerascens*)	Dry scrub, open woodlands, and deserts. Cavity nester that breeds in this part of Arizona.
Black vulture (*Coragyps atratus*)	Occurs in a wide variety of habitats. Typically occurs in riparian woodlands and desertscrub where saguaros (*Carnegiea gigantea*) and tall trees occur. Also occurs in rural and agricultural fields, and prefers elevated perches including trees, saguaros, telephone poles, or transmission towers.
Brewer's blackbird (*Euphagus cyanocephalus*)	Often occurs near human habitation. Occurs in shrubby and busy areas near water, riparian woodland, cultivated lands, and marshes. Winters south of Mogollon Rim.
Brown-headed cowbird (*Molothrus ater*)	Often associated with human-modified, fragmented landscapes, and are attracted to feedlots, pastures, and fields. Occurs in a variety of habitats including desertscrub, agricultural lands, and residential areas. Migratory, present in Arizona spring–fall.
Cactus wren (*Campylorhynchus brunneicapillus*)	Associated with desertscrub communities. Although they are commonly associated with cholla (*Cylindropuntia* spp.), they occur in areas lacking cholla also. Can occur in dry, sparsely vegetated areas. Year-round resident.
Common raven* (*Corvus corax*)	Found in most habitat types, select open areas. Regularly encountered in rural, agricultural, and urbans settings. Year-round resident.
Cooper's hawk (*Accipiter cooperii*)	Occurs in woodlands, parks, neighborhoods, and fields, associated with trees.
European starling† (*Sturnus vulgaris*)	Occurs predominantly near human settlements, in rural, urban, and agricultural fields. Year-round resident.
Gambel's quail* (*Callipepla gambelii*)	Typically associated with brushy Sonoran Desert uplands and desert washes. Can also occur in residential areas and along the margins of cultivated lands. Year-round resident.
Great-tailed grackle* (*Quiscalus mexicanus*)	Occurs in partly open situations with scattered trees, around human habitation. Year-round resident.
Greater roadrunner (*Geococcyx californianus*)	Occurs in open, arid country with scattered shrubs, trees, or cacti. Also common in agricultural areas and urban and suburban settings. Year-round resident.
Harris hawk (Parabuteo unicinctus)	Semi-open desert lowlands; territories include tall perches (e.g., trees, power poles, or boulders) and access to water.
House finch* (*Carpodacus mexicanus*)	Occurs in arid scrub and brush, open woodland, oak-juniper, and pine-oak habitats, and towns and cultivated lands. Year-round resident.

Common Name (*Scientific Name*)	**Habitat**
House sparrow* † (*Passer domesticus*)	Introduced species that occurs abundantly in cities and towns. Occurs in feedlots, agricultural areas, and urban and rural communities. Year-round resident.
Inca dove (*Columbina inca*)	Open country, urban, and agricultural areas. Year-round resident.
Lesser goldfinch (*Spinus psaltria*)	Patchy open habitats, including thickets, weedy fields, woodland, scrubland, and farmlands.
Lesser nighthawk (*Chordeiles acutipennis*)	Found in arid lowlands, deserts, and agricultural areas. Nests on the ground, usually beneath a shrub but sometimes out in the open. Migratory, present in Arizona spring–fall.
Mourning dove* (*Zenaida macroura*)	Occurs in a wide variety of habitats, most regularly in desertscrub, shrubby grasslands, and open woodlands. Also found in rural and urban habitats.
Northern cardinal (*Cardinalis cardinalis*)	Dense shrubby areas including overgrown fields, backyards, mesquite, thickets, and ornamental landscaping.
Northern mockingbird (*Mimus polyglottos*)	Prefers open and partly open situations. Occurs in areas of scattered brush or trees to semidesert, and around towns and cultivated areas.
Phainopepla (*Phainopepla nitens*)	Occurs in Arizona during the breeding season. Desert washes, where they feed heavily on desert mistletoe berries.
Red-tailed hawk (*Buteo jamaicensis*)	Occurs in a wide variety of open habitats. Elevated perches are important. Year-round resident.
Red-winged blackbird (*Agelaius phoeniceus*)	Nests near water. During migration and wintering can also occur in cultivated lands, pastures, and prairies. May be year-round or migratory.
Rock pigeon† (*Columba livia*)	Introduced. Closely associated with human settlement, such as towns, parks, and agricultural areas. Year-round resident.
Swainson's hawk (*Buteo swainsoni*)	Occurs in open pine-oak woodland and cultivated lands. Migratory, breeds in Arizona.
Turkey vulture (*Cathartes aura*)	Widespread, and uses a variety of habitats. Commonly perch on rocky outcrops, cliffs, canyon walls, transmission towers, telephone poles, and tall trees. Migratory.
Waterfowl and occasional-use birds	Waterfowl and other birds may use the existing and planned new evaporation ponds within the Project Area as loafing ponds—midday stops where birds rest before feeding or heading back to the roost. Other birds may be attracted to the water in the evaporation ponds, but not use the area for nesting, roosting, foraging, or reproduction.
Western kingbird (*Tyrannus verticalis*)	Prefers open areas in many habitat types including desert, rural, and agricultural areas. Migratory.
White-crowned sparrow (*Zonotrichia leucophrys*)	Occurs in woodlands, shrubland, croplands, suburbs, old fields, and conifer woodlands.
White-winged dove (*Zenaida asiatica*)	Habitat generalist, including desertscrub, riparian, urban, and agricultural areas. Year-round resident.
Yellow-headed blackbird (*Xanthocephalus xanthocephalus*)	Breeds near freshwater marshes. In migration or winter, occurs in open cultivated lands, pastures, and fields. Wintering and migratory only in Project Area.

Source: Range or habitat information is from Corman and Wise-Gervais (2005); eBird (2021); NatureServe Explorer (2021).

*Observed in Project Area during field reconnaissance

†Nonnative species

REPTILES

The Lower Colorado River Valley subdivision of the Sonoran Desert biotic community is home to many reptile species (Brown 1994). Many species typical of this biotic community would be unlikely to occur in the agricultural fields or within the previously disturbed areas, due to a lack of vegetation or other habitat components, but could occur in the portions of the Study Area containing native vegetation. Table D-3 lists the reptile species that may occur in the Study Area.

Table D-3. Reptile Species that May Occur in the Study Area

Common Name (*Scientific Name*)	**Habitat**
Reptiles	
Coachwhip (*Coluber flagellum*)	Typically occurs in desertscrub and semidesert grasslands. Used a wide range of habitats including desert, prairie, scrubland, woodland, farmland, and creek valleys, generally in dry, open terrain.
Desert horned lizard (*Phrynosoma* [*Doliosaurus*] *platyrhinos*)	Occurs in desertscrub communities in flat, open areas with sparse vegetation. Can also be found on rocky bajadas and hillside.
Desert iguana (*Dipsosaurus dorsalis*)	Primarily in Mohave desertscrub and Lower Colorado River Subdivision of Sonoran desertscrub, and occasionally in Arizona Upland Subdivision of Sonoran desertscrub. Occurs on flatlands and gently sloping bajadas.
Desert nightsnake (*Hypsiglena chlorophaea*)	Ranges from flat, open sandy deserts to steep, rocky, and wooded slopes.
Gophersnake (*Pituophis catenifer*)	Found in biotic communities up to Alpine Tundra. Occurs in deserts, forests, and coastal grasslands.
Long-nosed snake (*Rhinocheilus lecontei*)	Occurs in deserts, dry prairies, arid river valleys, thornbrush, and shrubland.
Mojave rattlesnake (*Crotalus scutulatus*)	Occurs in desertscrub and semidesert grasslands. Found in upland desert and lower mountain slopes, barren desert, grassland, open woodland, and scrublands. Most often occurs with creosote bush, paloverde, mesquite, or cacti.
Sidewinder (*Crotalus cerastes*)	Typically occurs in flat, open desert with sandy or loamy soils.
Tiger whiptail (*Aspidoscelis tigris*)	Occurs in a wide variety of habitats including creosote bush flats, sandy wash, canyons, and hillsides. Found in desertscrub, semidesert grasslands, and lower reaches of chaparral.
Zebra-tailed lizard (*Callisaurus draconoides*)	Primarily in desertscrub. Occurs in flatlands and broad, sandy washes.
Western banded gecko (*Coleonyx variegatus*)	Ranges from dry creosote flats to rugged, rocky slopes to barren high desert plateaus.

Range or habitat information is from AGFD (2021a, 2021b); Brennan (2021); NatureServe Explorer (2021).

AMPHIBIANS

There are no perennial water sources within the Study Area. One amphibian species, the nonnative American bullfrog, was observed during the May 2021 field visit. The individual was found dead near a concrete irrigation canal within the Project Area. Additional amphibian species have the potential to occur within the Study Area in any location that accumulates water, including concrete irrigation canals, roadside puddles or depressions following monsoon rains, or within agricultural fields during flood irrigation. Amphibians could also occur in mud cracks, mammal burrows, or structures within the Study Area to avoid desiccation. Table D-4 lists the amphibian species that may occur in the Study Area.

Table D-4. Amphibian Species that May Occur in the Study Area

Common Name (*Scientific Name*)	**Habitat**
Amphibians	
Couch's spadefoot (*Scaphiopus couchii*)	In the United States, found in arid and semi-arid shrublands, shortgrass plains, mesquite savanna, creosote bush desert, thorn forest, and cultivated areas. Individuals are typically buried underground except during and for a short time following monsoon rains.

Range or habitat information is from AGFD (2021a); Brennan (2021); NatureServe Explorer (2021).

FISH SPECIES

There is no perennial aquatic habitat in or near the Study Area. The nearest perennial water is the Picacho Reservoir located approximately 3.3 miles south-southeast of the Project Area. However, introduced fish have the potential to occur within the Study Area in the concrete-lined canals. Many of these fish represent invasive species that have been released or sportfish that have been stocked into waterways connected to the canals. No native fish species would be expected to occur.

The CAP canal and the Florence-Casa Grande Canal have the potential to be supplying water to agricultural portions of the Project Area through diversion into the concrete-lined canals. Fish from the larger canals could be swept into the concrete-lined canals; however, these canals are unlikely to constitute suitable habitat for any of these species that would support long-term life-history functions (e.g., foraging, reproduction). Both the Florence-Casa Grande Canal and the CAP canal are known to carry fish, though none of the fish caught in a 2005–2009 study were native to the Gila River basin (Kesner and Marsh 2010). The following fish were observed in the Florence-Casa Grande Canal and the CAP canal during the 2005–2009 study (Kesner and Marsh 2010): bluegill (*Lepomis macrochirus*), channel catfish (*Ictalurus punctatus*), common carp (*Cyprinus carpio*), flathead catfish (*Pylodictis olivaris*), grass carp (*Ctenopharyngodon idella*), green sunfish (*Lepomis cyanellus*), mosquitofish (*Gambusia affinis*), redear sunfish (*Lepomis microlophus*), red shiner (*Cyprinella lutrensis*), striped bass (*Morone saxatilis*), smallmouth bass (*Micropterus dolomieu*), and threadfin shad (*Dorosoma petenense*).

Summary of Potential Effects

Plant Species

The construction footprint for the Project Area outside of the existing Coolidge Generating Station site is approximately 100 acres. Some or all of the vegetation within the Project Area is expected to be removed during Project construction activities. This relatively small area is entirely previously disturbed by agricultural uses and other development, and the loss of vegetation in the Project Area would not result in impacts to the Lower Colorado River Valley subdivision of the Sonoran desertscrub biotic community native vegetation community at the landscape level. In addition, construction and operation of the Project would result in an increase of emissions including fugitive dust, VOCs, CO, oxides of nitrogen, particulate matter, SO_2, and CO_2 (see Exhibit B for details). The Project would comply with the air permit issued by the Pinal County Air Quality Control District, which will include provisions to ensure that the Project will not cause or contribute to a violation of the NAAQS. Therefore, impacts to plant species would be minor. The likelihood and severity of these impacts from air emissions would decrease with increasing distance from the Project Area.

Mammal Species

Project construction activities could cause death or injury to terrestrial mammals that may not be able to flee from heavy equipment or vehicular traffic, with a higher likelihood of these impacts for individuals of species that are small, nocturnal, or fossorial. Project construction could cause behavior changes, as individuals would be expected to flee from an increase of noise, vibration, and human presence within the project vicinity. Individuals would be expected to flee or hide, depending on the species' life history, which could increase depredation, decrease foraging success, reduce reproductive success, and result in loss of fitness for that individual from increased metabolic output. Project construction activities would be temporary. The loss and degradation of mammal habitat from short-and long-term Project activities would be negligible as the Project Area is relatively small, contains little vegetation, and is entirely disturbed. Similarly, because the Study Area is largely disturbed and contains in-use agricultural fields and is

surrounded by agriculture, roads, and development, any loss of vegetation from construction activities would not contribute meaningfully to habitat fragmentation for mammals or decrease connectivity from between habitats.

Project activities at night would increase light pollution and human presence in the Study Area and would impact bat activity patterns. The increase of nighttime lighting in the Project Area has the potential to attract insects, which could have minor beneficial impacts to some bat species as their food source increased. However, some bat species would likely shift their foraging activities away from construction and additional light. However, these negative impacts would likely be minor because foraging habitat for insectivorous species occurs outside of the Study Area. Some roosting habitat may occur in the Survey Area outside of the Project Area, and contracting qualified biologists to inspect any palm trees or large riparian or ornamental trees or abandoned buildings would reduce the potential for bat disturbance. Insectivorous bat species would lose a small area of habitat as many species have the potential to forage over the Study Area, which contains water and therefore likely abundant insect populations. However, the loss of habitat in the Study Area is unlikely to have population-level impacts to any bat species because the area of disturbance is relatively small compared with the available habitat outside of the Study Area.

The Project would comply with the air permit issued by the Pinal County Air Quality Control District, which will include provisions to ensure that the Project will not cause or contribute to a violation of the NAAQS, which include protections to minimize damage to animals.

Impacts to mammals would not be expected to arise from water quality within the existing or new evaporation ponds, as these features are fenced and mammals would not be expected to use these ponds.

Bird Species

Birds, including raptors, can collide with powerlines, resulting in injury or death (APLIC 2012). Birds that are large-bodied, are fast flyers, have large wing spans, or that have low maneuverability (e.g., many wading birds or waterfowl) or birds that show certain behaviors (e.g., flocking, flying at altitudes at or below powerline height, or birds that nest or forage in close proximity to powerlines) have a higher risk of impacts from powerline collisions (APLIC 2012). Birds generally avoid collision with powerlines when they are perceived by the bird, and therefore collision risk is lower in areas where multiple transmission lines are co-located or transmission lines are placed near other infrastructure (APLIC 2012).

Powerlines can also cause electrocution when a bird is able to touch both energized and grounded electrical components at the same time, which is generally more common in birds with large wing spans, birds that use power poles for their life history activities (e.g., perching, foraging, roosting, or nesting), or in situations where electrical configurations include closely spaced energized and grounded components that area easily spanned by birds (APLIC 2006).

High-voltage lines require spacing between those components that cannot be spanned even by very large birds so that electrocution risk is precluded almost entirely (APLIC 2006). Studies have shown that no waterfowl collisions occurred where distances from powerlines to bird-use areas were more than 1 mile (1.6 kilometers) (APLIC 2012). The two nearest birding hotspots—Goree's Pond (within the Study Area 1.5 miles southeast of the Project Area) and Goldman Dairy Sludge Ponds (0.3 mile south of Study Area) are both associated with human-constructed evaporation ponds (eBird 2021). Each of these hotspots had a high bird diversity, including native and nonnative songbirds, raptors, and waterfowl. However, in most cases, these species were attracted by water and would not reside permanently at or near these ponds owing to lack of habitat required for life history needs, including foraging, breeding, perching, or escaping predation. The existing evaporation ponds would be expected to similarly attract wildlife, particularly birds since they can easily get around fenced components, as would the proposed new

evaporation ponds. Monitoring of the existing evaporation ponds has resulted in no observed negative impacts to wildlife. The water contained in the new evaporation ponds would be similar to that of the existing ponds. At the existing ponds, SRP has had no bird deaths. SRP will continue monitoring the existing ponds, will monitor the proposed new ponds, and will take appropriate actions to remain in compliance with the MBTA. New infrastructure associated with the Project may increase the risk of collision. However, these ponds are small and would attract smaller numbers of waterfowl than areas with more water, such as the nearby Picacho Reservoir. Therefore, the increase in collision risk would be relatively small. There is potential for impacts to nests including death or injury of eggs or nestlings or nest failure from construction disturbance.

Potential impacts resulting from behavioral changes arising from increased noise, vibration, or human presence would be the same as those described for terrestrial mammals. Potential impacts from the loss, degradation, and fragmentation of bird habitat from Project activities would be the same as those described for terrestrial mammals.

The Project would comply with the air permit issued by the Pinal County Air Quality Control District, which will include provisions to ensure that the Project will not cause or contribute to a violation of the NAAQS, which include protections to minimize damage to animals. Because birds can easily circumvent fencing and may use the evaporation ponds for loafing or resting, negative impacts could occur to birds from water pollutants. However, these impacts would likely be extremely minor as monitoring of the existing evaporation ponds has resulted in no observed negative impacts to wildlife, with no bird deaths. SRP will continue monitoring the existing ponds, will monitor the proposed new ponds, and will take appropriate actions to remain in compliance with the MBTA.

Reptile Species

Potential impacts to reptiles including death, injury, or impacts arising from behavior changes would be similar to those described for terrestrial mammals. Fossorial reptiles, reptiles that are inactive due to heat or cold, and small reptiles would have a higher chance of injury or death compared with those individuals that are more mobile. Potential impacts from the loss, degradation, and fragmentation of reptile habitat from Project activities would be the same as those described for terrestrial mammals.

The Project would comply with the air permit issued by the Pinal County Air Quality Control District, which will include provisions to ensure that the Project will not cause or contribute to a violation of the NAAQS, which include protections to minimize damage to animals. Impacts to reptiles would not be expected to arise from water quality within the existing or new evaporation ponds, as these features are fenced and reptiles would not be expected to use these ponds.

Amphibian Species

Potential impacts to amphibians including death, injury, or impacts arising from behavior changes would be similar to those described for terrestrial mammals. Potential impacts from the loss, degradation, and fragmentation of amphibian habitat from Project activities would be the same as those described for terrestrial mammals.

The Project would comply with the air permit issued by the Pinal County Air Quality Control District, which will include provisions to ensure that the Project will not cause or contribute to a violation of the NAAQS, which include protections to minimize damage to animals. Amphibians attracted to the evaporation ponds (existing and new) at the Project may experience death or reduced health from any pollutants that occur there. However, because these ponds are small and localized, impacts would not rise to population-level impacts.

Fish Species

While Project activities could increase the risk of injury or death to any individual fish occurring in the concrete-lined irrigation canals during construction, most or all introduced fish in the canals would likely end up dying in the absence of construction from lack of food, depredation, desiccation, or by being swept into agricultural areas during crop irrigation. The Project would not contribute to the loss of habitat or any population impacts because these sportfish and introduced fish have only been accidentally swept into the canals within the Study Area and would not occur there otherwise. The Project would comply with the air permit issued by the Pinal County Air Quality Control District, which will include provisions to ensure that the Project will not cause or contribute to a violation of the NAAQS, which include protections to minimize damage to animals. Fish would not experience impacts related to water quality in the evaporation ponds because they do not occur there.

Mitigation Measures

The following mitigation measures reduce risk of animal injury or spread of invasive species. For mitigation measures specific to special-status species, please see Exhibit C.

- To minimize risks to birds, the new transmission lines will be constructed following industry-suggested practices aimed at reducing avian collisions and electrocutions (APLIC 2006, 2012). If avian-line interactions become an issue, SRP will move quickly to evaluate the issue and craft a solution using appropriate measures. Therefore, potential impacts to migratory birds and their populations would be minimized.
- Preconstruction surveys for nesting birds will be conducted by qualified biologists if vegetation-clearing activities would occur during bird nesting season (generally March–September and January–June for raptors).
- To minimize the introduction and spread of invasive species and noxious weeds, standard best management practices (BMPs) will be used during construction. These BMPs can include measures such as washing equipment prior to and following mobilization to the Project Area.

Conclusion

Much of the Study Area occurs within previously disturbed areas, developed areas, and active agricultural fields. Existing roads and railroads occur adjacent to and within the Study Area. Existing transmission lines and solar generation facilities occur in the immediate vicinity of the Project. The plant diversity is lower and the structure less complex within the Project Area than in typical undisturbed desert areas. Similarly, fewer wildlife species would be expected to occur in the disturbed, developed, and in-use agricultural areas than would be expected in native desert habitat. However, the irrigation canals likely draw animals from surrounding areas owing to the increase of water or prey species, and some wildlife species are specifically attracted to agricultural fields owing to the open space or higher moisture.

Because the Project would disturb a relatively small area and both native vegetation and agricultural fields occur outside of the Study Area, impacts to general plants and wildlife would be minimal and restricted to individuals. At a landscape level, the Project would not significantly reduce the amount of native desertscrub vegetation available for wildlife use, increase habitat fragmentation, or impact any likely wildlife dispersal or migration corridor. Therefore, the Project may impact individuals (both wildlife and plant) but would be unlikely to have impacts at the population level for any species.

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