

Vegetation and Wildlife

Affected Environment

Reclamation biologists conducted an inventory of study area lands April 19–23, 2004, to collect reconnaissance-level data on vegetation, habitat quality, and general wildlife use (**Biological Inventory of the Coachella Canal Area Appendix**). The following types of surveys were conducted:

- Plant community classification, with emphasis on documenting sand habitat and dominant, subdominant, and invasive plant species
- Habitat quality assessment with focus on disturbance factors
- Area searches for breeding and migrating birds
- Acoustical bat surveys using Anabat detectors within selected habitats
- General wildlife assessment

Vegetation

The Coachella Valley is located within the Yuma Desert portion of the northwestern Sonoran Desert. The valley is composed of creosote bush and other plant communities typical of the lower elevations of the desert southwest. Because of the arid environment, vegetation cover in desert plant communities is generally 10 percent or less of the total land surface (Crosswhite and Crosswhite, 1982). Study area lands include a variety of general plant community types and more specific vegetation series based on classifications of Sawyer and Keeler-Wolf (1995). (See table 5.5 and **map 5.3, Coachella Canal Area Dominant Vegetation.**)

Table 5.5 – Plant communities and associated vegetation series classifications found in biological inventory parcels in the Coachella Valley

Major plant community	Vegetation series	Biological inventory parcel
Sonoran creosote bush scrub	Creosote bush-shrub Creosote bush-white bursage shrub	1, 2, 4, 6-9, 12-14, 20, 22, 25, 27, 29, and 30.
Desert saltbush scrub	Four-wing saltbush shrub	1, 2, 3, 15, 16, 17, 22, 24, 26, 27, and 32
Dry desert wash woodland	Blue palo verde-ironwood-smoke tree Tamarisk Catclaw acacia shrub	1-3, 5, 8, 9, 12, 14-16, 20, 22, and 24-27
Desert aeolian sand fields	Mesquite hummocks Stabilized and partially stabilized sand fields Ephemeral desert sand fields	4, 7, 17, 26, 27, 30, 31, 34, and 37
Sonoran cottonwood-willow riparian forest	Fremont cottonwood	26 and 27

Much of the study area has been altered by varying degrees of disturbance, including OHV use, illegal dumping, canal and access road construction, drought, and invasive plant species. Much of the area adjacent to and outside of the Coachella Canal berms on the uphill side has been affected by blockage of surface flow from the alluvial fans. These blockages have resulted in periodic ponding and sedimentation, resulting in barren areas or areas dominated by invasive plants, including salt cedar.

Sonoran Creosote Bush Scrub Creosote bush scrub is the most abundant and extensive vegetation community in the desert southwest. The community is dominated by creosote bush (*Larrea tridentata*) and covers much of the bajadas (broad, gently sloping alluvial fans) and lower-gradient desert slopes; the greatest development occurs on coarse, well-drained soil with lower salinity. In the Salton Basin, creosote bush scrub occurs in the areas between the higher rocky hillsides and the lower desert saltbush community. Many species of herbaceous annual plants may flower in late winter/early spring if winter rains are sufficient. Some

Coachella Canal Area Dominant Vegetation

August 2006

LEGEND



City Boundary

Land Ownership

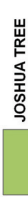


Bureau of Reclamation

Vegetation



DESERT SCRUB



JOSHUA TREE



MIXED CHAPPARRAL



URBAN-AGRICULTURE

This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

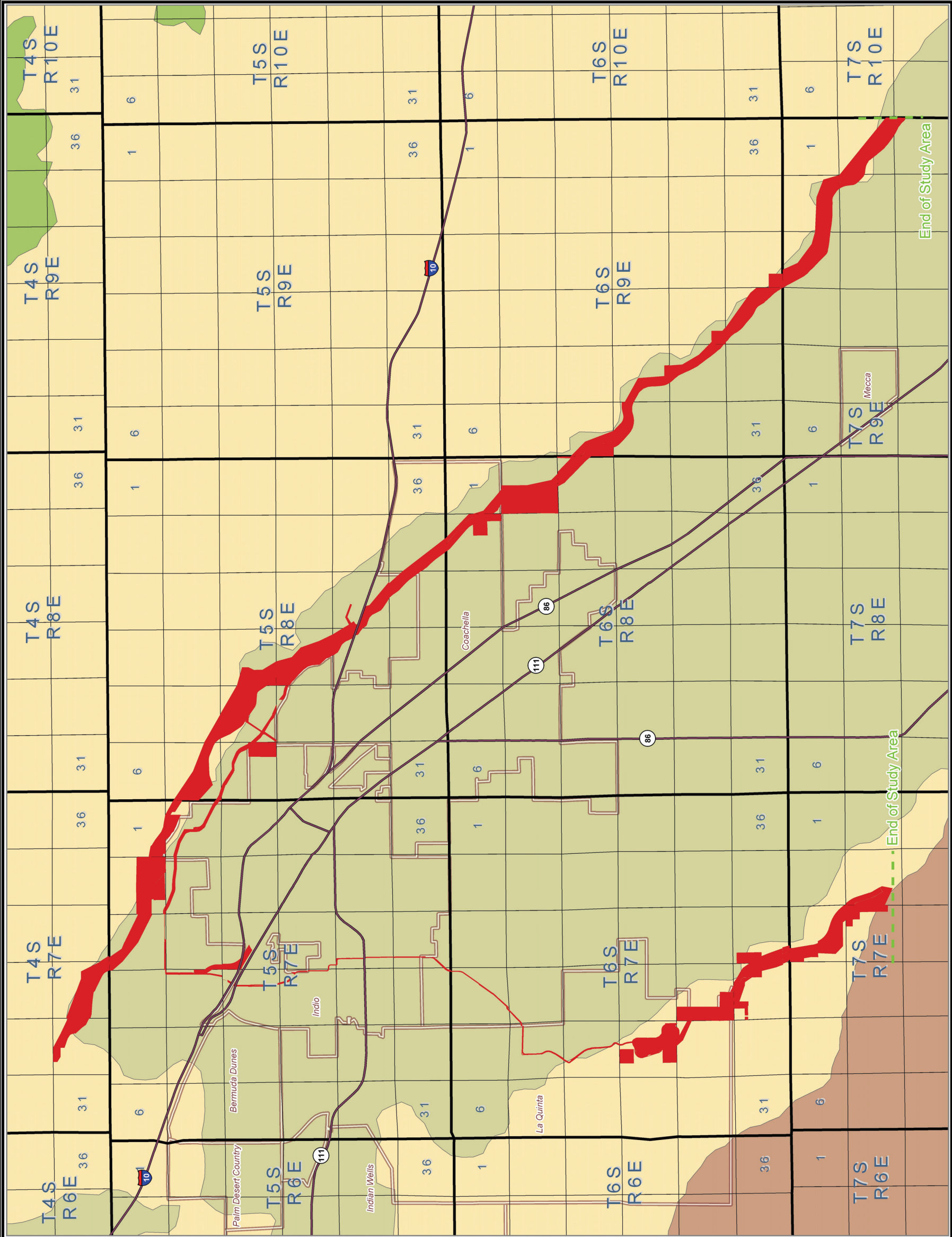
Map 5.3



0 1 2 3 Miles

RECLAMATION
Managing Water in the West

Produced by the Bureau of Reclamation
Remote Sensing and GIS Group
Denver Technical Service Center - Denver, CO



of the lower portions of Reclamation's parcels are in the transition zone near the Coachella Valley floor between the Sonoran creosote bush scrub and the desert saltbush scrub.

Special status species associated with this vegetation type are Peninsular bighorn sheep, Palm Springs ground squirrel, Palm Springs pocket mouse, desert tortoise, burrowing owl, Coachella giant sand treader cricket, Coachella Valley grasshopper, Casey's June beetle, Coachella Valley milkvetch, triple ribbed milkvetch, Mecca aster, and Orocopia sage.

Desert Saltbush Scrub Saltbush scrub occupies habitats that are generally moist, with a sandy loam soil, and relatively high soil salinity. Once common in the study area, this community now occurs only in small patches at the lower elevations and often intergrades with the Sonoran creosote bush scrub.

Special status species associated with this community are flat-tailed horned lizard, Le Conte's thrasher, crissal thrasher, and Coachella Valley grasshopper. This community may be used during migration by riparian birds.

Dry Desert Wash Woodland The dry desert wash woodland plant community is interspersed throughout the other plant communities within drainage courses. Because of intermittent flooding and higher ground water, this community has denser, taller, and more diverse vegetation, as well as more abundant and diverse wildlife. Because washes often transect large expanses of desert through a variety of plant communities and have more diverse wildlife forage and cover vegetation, they can serve as movement corridors.

Desert Aeolian Sand Fields Most of the wind-deposited sands are stabilized or partially stabilized desert sand fields. On these fields, sand accumulates on flats or slopes in non-dune deposits; and sand becomes at least partially anchored by vegetation. They most often occur on the toes of alluvial fans and bajadas (BLM, 2001). Sand fields are areas of great management concern in the Coachella Valley because many associated endemic federally listed and other special status species occur in these areas. The section on special status species discusses these species.

Another class of sand habitat is the mesquite hummocks found on Reclamation properties adjacent to the Indio Hills. These areas have large clumps of honey mesquite shrubs, which may form hummocks over sand dunes and sand fields. These areas are associated with high soil moisture, springs, and nearby faults. Changes in soil moisture and water table declines may have affected the ecological integrity of hummocks. The remaining mesquite hummocks have been highly fragmented and have reduced the mesquite reproduction and vegetative cover (Coachella Valley Associations of Governments, 2004). An extensive area of mesquite hummocks was within parcels 26 and 27; a small mesquite hummock was in parcel 31 and 34; and a severely degraded one was found in parcel 37.

Most areas with sand that were inventoried were affected by OHV use and invasive plant species, especially Russian thistle or tumbleweed (*Salsola tragus*).

Sand habitats have been reduced in extent and degraded by OHV use, introduction of invasive plants, and adjacent urban and agricultural developments. Another major threat is the alteration of the upwind sand sources, as well as disruption of the sediment-delivery systems that sustain sand features (Griffiths et al., 2002). Sand is initially transported from mountain areas by streams during episodic floods and then blown and deposited during periodic wind events. Developments on alluvial fans and stream channels have reduced the fluvial sediment reaching depositional areas upwind of the sand fields. Roads and housing developments have also altered sand movement patterns.

Sonoran Cottonwood-Willow Riparian Forest This community consists of mostly broad-leaved streamside trees up to 60 feet tall, dominated by Fremont cottonwood (*Populus fremontii*) with dense understories of willow (*Salix*) and tamarisk, bordering streams or surrounding isolated springs and seeps. A small, isolated stand (oasis) was found in Reclamation's parcels 26 and 27. (See **photograph 5.3**.) One stand was supported by surface water flowing from irrigation returns from an adjacent vineyard; the other was supported by leakage from a large water tank.



Photograph 5.3 – Cottonwood-willow oasis provides stopover habitat for neotropical migrant landbirds in biological inventory parcel 27.

General Habitat Quality Categorizations of Reclamation’s Parcels

As a result of Reclamation’s biological inventory in the Coachella Valley, parcels were categorized according to habitat quality, potential for special status species, occurrence of sand habitat, degree of disturbance, connectivity to adjacent habitat, and fragmentation. (See table 5.6 and map 5.4, Coachella Canal Area Biological Survey Parcels.)

Table 5.6 – Habitat categorization of Reclamation’s biological inventory and RMP parcels

Special habitat and habitat quality categorization	Biological inventory parcels (RMP parcels)
Stabilized sand fields and other sand formations	4, 7, 17, 26, 27, 30, 32, 37 (G, H, K, I, M, R)
Mesquite hummocks	26, 27, 31, 34, 37 (J, K, M)
Cottonwood-willow oases	26, 27
Peninsular bighorn sheep habitat and disturbance buffers	1, 2, 4, 5, 6, 7, 8, 9 (O, P, R, S, T)
Relatively undisturbed desert shrub and dry wash woodland habitat with connectivity to adjacent habitat	1, 2, 4, 5, 6, 8, 9, 29, 31, 35, (I, O, P, R, S, T)
Mostly disturbed habitat and/or fragmented and isolated from adjacent habitat	3, 7 (part), 18, 19, 21, 24, 28, 30, 33, 34, 36, 38 (D, E, F, H, Q)
Parcels on east side of Coachella Valley bordering the Coachella Canal with varying degree of disturbance. Isolated strips west of canal are heavily disturbed and fragmented; strips east of the canal have some undisturbed desert shrub habitat connected with pristine desert habitat; habitat just outside of levee toes disturbed by ponding, sedimentation, and invasive plants.	12-17, 20, 22, 23, 25, 26, 27 (B, C)

The key factor reducing habitat quality of Reclamation parcels is land clearing for roads, gravel mines, borrow areas, canal right-of-ways, and other developments. Secondly, parcels that still support desert scrub vegetation and/or sand deposits have reduced habitat value if they are isolated from continuous desert habitat and surrounded by developments, including agriculture and urban (habitat fragmentation). For example, on the west side of the Coachella Valley, small, isolated tracks of desert habitat lie between the Coachella Canal and adjacent agricultural fields. Another factor reducing habitat quality is OHV use, which has created many miles of unauthorized roads that dissect much of Reclamation’s parcels, increase erosion, destroy native vegetation, and trample wildlife and their burrows.

Wildlife

Much of the Coachella Valley’s wildlife is small, nocturnal, cryptically colored, (i.e., camouflaged), and seeks shelter below ground during the heat of the day. As



Photograph 5.4 – View of Santa Rosa Mountains with Reclamation lands in foreground (parcel T and biological inventory parcel 9). This photo represents relatively undisturbed, unfragmented desert shrub habitat which occurs on several Reclamation parcels throughout the western side of Coachella Valley. The endangered Peninsular bighorn sheep normally occupies the steeper habitat but occasionally ranges into the lower alluvial fans.

a result, to many, the desert shrub habitats may appear harsh, desolate, with no wildlife in sight. However, a careful observer will find evidence of many animals, such as foxes, coyotes, rabbits, lizards, snakes, beetles and other wildlife, providing evidence that the desert has a diverse wildlife community, including several species found nowhere else on Earth. (See **photograph 5.4.**)

Mammals During Reclamation’s biological inventory of study area lands, mammals and their signs were directly observed throughout most of the parcels. The most common large mammal on most parcels was the coyote. Signs of burrowing rodents and rabbits also were common. Numerous bat species were detected during nocturnal surveys. An understanding of the species that are found in the desert shrub communities is essential to the development of a sound resource management plan that protects and enhances this habitat.

Many species of mammals have adaptations for the hot, arid desert environment, such as nocturnal activity, low water requirements, adaptations for sand, or ability to reflect solar radiation. These include kit foxes (*Vulpes macrotis*), kangaroo rats (*Dipodomys*), pocket mice (*Perognathus*), cactus mouse (*Peromyscus eremicus*), and antelope ground squirrel (*Ammospermophilus leucurus*).

Coachella Canal Area Biological Survey Parcels

August 2006

LEGEND

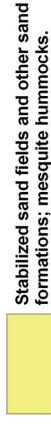


City Boundary

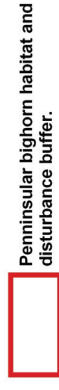


Biological Survey Parcel

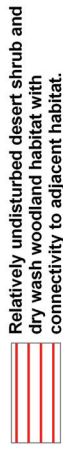
Parcel ID



Stabilized sand fields and other sand formations; mesquite hummocks.



Peninsular bighorn habitat and disturbance buffer.



Relatively undisturbed desert shrub and dry wash woodland habitat with connectivity to adjacent habitat.



Parcels on east side of Coachella Canal bordering the Coachella Canal with varying degree of disturbance. Isolated strips west of canal are heavily disturbed and fragmented; strips east of the canal have some undisturbed desert shrub habitat connected with pristine desert shrub habitat just outside of levee toes disturbed by ponding, sedimentation, and invasive plants.



Mostly disturbed habitat and/or fragmented and isolated from adjacent habitat.



Cottonwood-willow oasis, Saltcedar "shelterbelt."

This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

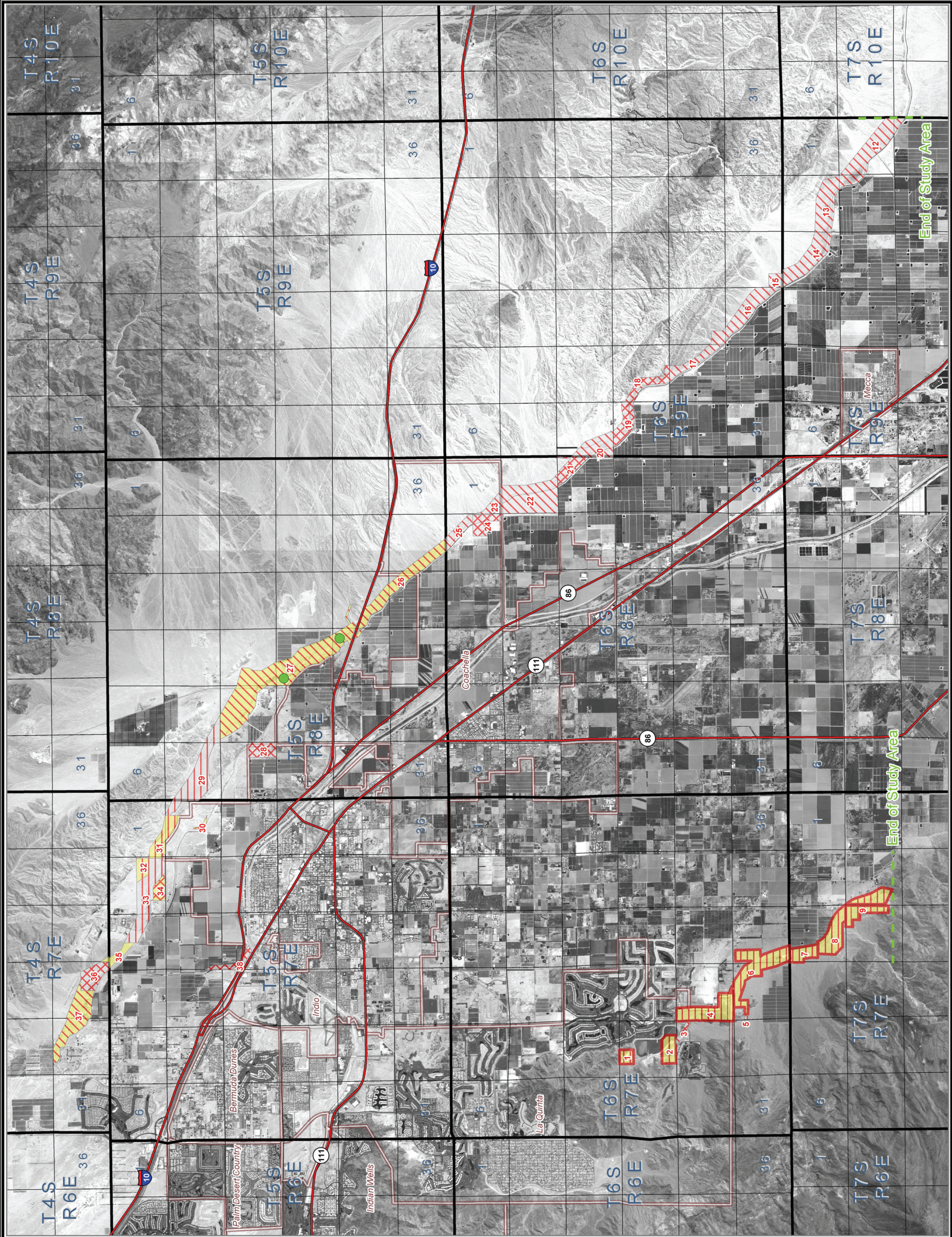
Map 5.4



0 1 2 3
Miles

RECLAMATION
Managing Water in the West

Produced by the Bureau of Reclamation
Remote Sensing and GIS Group
Denver Technical Service Center - Denver, CO



Bats During Reclamation’s biological inventory in April and September 2004 (**Appendix: Biological Inventory of the Coachella Canal Area**), at least 15 bat species were detected (table 5.7). The greatest bat species diversity at any one site was in parcel 8 in April 2004 and parcel 9 (west) in September 2004; 10 species were observed at each site. The greatest bat activity in terms of number of bat passes per hour was observed at Cahuilla Lake (23.5 passes per hour) and parcel 7 (14.1 passes per hour). For comparison, during September at the Coachella Preserve, 8 species were detected, with total bat activity of 14.5 passes per hour. The most numerous bats were consistently western pipistrelle at all survey sites. The rare spotted bat was detected at three survey sites, including Lake Cahuilla, and in parcels 8 and 9.

Table 5.7 – Bat species detected on study lands during biological inventory in 2004

Common name	Latin name
Pallid bat	<i>Antrozous pallus</i>
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>
Big brown bat	<i>Eptesicus fuscus</i>
Spotted bat	<i>Euderma maculatum</i>
Hoary bat	<i>Lasiurus cinereus</i>
Western yellow bat	<i>Lasiurus xanthinus</i>
California myotis	<i>Myotis californicus</i>
Western small-footed myotis	<i>Myotis ciliolabrum</i>
Little brown myotis	<i>Myotis lucifugus</i>
Cave myotis	<i>Myotis velifer</i>
Yuma myotis	<i>Myotis yumanensis</i>
Pocket free-tailed bat	<i>Nyctinomops femorosaccus</i>
Big free-tailed bat	<i>Nyctinomops macrotis</i>
Western pipistrelle	<i>Pipistrellus hesperus</i>
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>

Birds During Reclamation’s biological inventory in April 2004, a total of 56 bird species were observed, including 27 species of neotropical migrant landbirds (**attachment D**). Because this survey was conducted during the early spring migration, many of the bird species are assumed to be migrating birds and winter residents.

The density of breeding bird species can be quite low in deserts. Typical Sonoran Desert sites generally have fewer than 25 breeding bird species (MacMahon, 1992). In the most austere sites, such as a creosote bush flat, there may be only a single breeding species, the black-throated sparrow (*Amphispiza bilineata*). As one ascends bajada, the vegetation becomes increasingly complex, and the number of species likewise increases, especially where there are taller plants, such as blue palo verde. On the lower parts of bajadas and on valley plains, there may be no

birds or just one for every 3 acres of land. Many other birds are associated with the arid desert habitat, including Gambel's quail, greater roadrunner, mourning dove, verdins, black-tailed gnatcatchers, common raven, turkey vulture, loggerhead shrike, and red-tailed hawk.

Throughout the desert southwest, the densest and most abundant breeding and migrating birds are found in riparian areas supporting the Sonoran cottonwood-willow riparian forest plant community. Examples of breeding birds dependant on riparian areas include summer tanager, yellow-breasted chat, Abert's towhee, Bullock's oriole, common yellowthroat, and several others. The only riparian area on Reclamation lands are two small oases associated with irrigation return flows and leakage from a water tank. These stands are too small to support a large number of breeding riparian obligates. However, these oases serve as resting habitat for a great variety of migrating neotropical migrant landbirds.

Reptiles and Amphibians Lizards, snakes, and toads are abundant and diverse in the Sonoran Desert, occupying a wide range of habitats and niches including arboreal, rock dwelling, detritus dwelling, digging, sand swimming, burrowing, insectivorous, carnivorous, herbivorous, diurnal, nocturnal (Crosswhite and Crosswhite, 1982).

Adaptations for Extreme Heat and Aridity Desert lizards and snakes have developed a number of adaptations to regulate body temperature (thermoregulation). For example, they are active during midday in spring and fall but active during early morning and late afternoon in summer. The common kingsnake (*Lampropeltis getulus*) and the pine-gopher snake (*Pituophis melanoleucus*) are diurnal snakes that shift to nocturnal activity during hot weather.

In contrast, several diurnal lizard species have adaptations to maintain relatively lower and uniform body temperatures. Additionally, some desert reptiles, such as the desert iguana (*Dipsosaurus dorsalis*), can tolerate quite high body temperatures. This lizard lives in the expansive sandy flats and hummocks characteristic of the creosote woodlands.

During periods of environmental stress such as prolonged drought, desert amphibians spend long periods of inactivity in burrows, often in those dug by rodents or other mammals. An example is the western spadefoot (*Scaphiopus hammondi*) which can be numerous where soil conditions favor burrowing. Deep burrows provide microhabitat with moderate temperatures and humidity. This species becomes active during wet periods and breeds in temporary pools that may dry up soon after the rains end.

Sand Swimming: Adaptations for Loose, Windblown Sand Certain desert species have specializations for living in loose, windblown sand. Sand lizards, including the Coachella Valley fringe-toed lizard (*Uma inornata*) and zebra-tailed lizard (*Callisaurus draconoides*), are superbly adapted for swimming and breathing in

loose sand (MacMahon, 1992). Sand swimming is a strategy used to avoid capture or to avoid extreme temperatures by rapidly burrowing into the sand.

Two snake species present in the Coachella Valley are also highly specialized for sand swimming. The western shovel-nosed snake (*Chionactis occipitalis*) has a small shovel-shaped head, valved nostrils, flattened belly, and smooth scales which allow this burrower to move quickly through sand. The spotted leaf-nosed snake (*Phyllorhynchus decurtatus*) also is an adept burrower in sandy creosote bush desert.

In addition to the sand swimmers, other diurnal lizards present in the Coachella Valley include the desert horned lizard (*Phrynosoma platyrinos*) and the flat-tailed horned lizard (*Phrynosoma mcallii*). These species freeze if danger approaches when they are out in the open, relying on their camouflage for safety. This strategy, however, does not work well as a defense against vehicles. OHV use is a significant source of mortality for these species.

Many other reptiles live in the Coachella Valley, including chuckwalla (*Sauromalus obesus*), side-blotched lizard (*Uta stansburiana*), western whiptail, (*Cnemidophorus tigris*), the desert spiny lizard (*Sceloporus magister*), long-tailed leopard lizard (*Crotophytus wislizenii*), and long-tailed brush lizard (*Urosaurus graciosus*). Species of snakes are glossy snake (*Arizona elegans*), western blind snake (*Leptotyphlops humilis*), western long-nosed snake (*Rhinocheilus lecontei*), coachwhip (*Masticophis flagellum*), western patch-nosed snake (*Salvadora hexalepis*), night snake (*Hypsiglena torquata*), western diamondback rattlesnake (*Crotalus atrox*), and the Colorado desert sidewinder (*Crotalus cerastes*).

Threats to the Vegetation and Wildlife of Coachella Valley Desert Region

Although the native species of the Sonoran Desert are well adapted to its extreme conditions and generally form robust communities, the Sonoran Desert is also vulnerable to physical disturbance and biological invasion. Since the end of World War II, the “sunbelt area” of the Southwest has experienced the largest immigration in human history (Nabhan and Holdsworth, 1999). In 1990, the Sonoran Desert ecoregion contained 6.9 million residents, nearly double the population in 1970. The population is expected to reach 12 million by 2020. Under such human growth pressure, the threats to Sonoran Desert biodiversity reported by Nabhan and Holdsworth (1999) likely will become more severe. Conversion of natural habitat to urban, suburban, industrial, and agricultural uses has and likely will continue to result in extensive habitat loss. Increasing recreational use of the desert is resulting in habitat damage and declines in some species. Additionally, the spread of invasive plants and animals threaten the viability of both terrestrial and riverine/riparian systems alike.

Recent observations in the Coachella Valley indicate that most parcels are disturbed and fragmented by dumping trash and numerous unauthorized roads. These roads are a source of mortality to sand swimming lizards and snakes, which

burrow into the shallow top layers of soil and can be crushed, as well as flat-tailed horned lizards and desert horned lizards, which rely on camouflage.

Environmental Consequences

Reclamation would continue to conduct site-specific NEPA compliance with appropriate mitigation for any proposed land uses and developments. The discussion of impacts is programmatic in nature.

Potential borrow pit/stockpile sites would be retained within parcels B-R on the east side of the Coachella Valley adjacent to the Coachella Canal. When these sites are used, excavation of borrow material could result in net loss of vegetation and displacement/mortality of wildlife in creosote bush shrub, desert saltbush scrub, and/or dry desert wash woodland habitats. Some of these sites are within previously disturbed habitat from canal construction and unregulated OHV use (parcels D, E, F, H, and K). Mitigation would replace lost habitat values. Alternatives B, C, and D would include early initiation of NEPA compliance for those sites that may have borrow activities in short-notice emergency situations.

Open space recreation would be provided in portions of parcels A, B, C, D, E, F, K, R, S, and T, which could result in relatively minor disturbances to vegetation and wildlife (compared to developed recreation facilities and trails). However, the degree and extent of disturbance could increase with the anticipated increasing population growth and demand for recreation.

All the action alternatives would include the initiation of a comprehensive weed control program and rehabilitation of infested habitat, which would greatly benefit vegetation and wildlife.

Alternative A

Under the No Action Alternative, Reclamation lands would be managed and considered for development on a case-by-case basis, as under current conditions. Although environmental compliance would be conducted for each development action, this alternative could result in sporadic land use planning with an incremental loss and continued degradation of vegetation and wildlife habitat. Because of lower levels of coordinated long-term planning and possible delays or deficiencies in protection of higher value habitats, such habitats more likely would degrade into lower value as a result of increasing recreational use and development in light of increasing population growth and development pressure.

Unregulated OHV use and illegal dumping would continue and probably increase. Without an overall strategy for protecting intact and higher value habitat blocks, fragmentation, degradation, and wildlife mortality would increase.

This alternative would not include a comprehensive weed control program. The invasion and spread of noxious weeds would continue to affect native vegetation and wildlife.

The current level of agency coordination would continue. Fewer opportunities would exist to cooperatively develop and implement habitat and wildlife inventory and management projects with other agencies.

Alternative B

The comprehensive land use strategy proposed for this alternative would emphasize protection and restoration of vegetation and wildlife habitats. Developments that would adversely affect habitat would be discouraged. Future land use authorizations would be limited to those that benefit vegetation and wildlife. Land uses that may affect vegetation and wildlife would be phased out, if feasible. Greater agency coordination with CDFG would occur through development of an inventory, monitoring, and protection plan for vegetation and wildlife habitat.

Fewer adverse effects resulting from recreational OHV use would occur than under the No Action Alternative because OHV use would be eliminated, except for emergency situations. Areas with degraded habitat and reduced vegetation cover caused by unauthorized OHV use would be closed and rehabilitated. The proposed interpretive program would attempt to educate the recreational public about the unique plants and wildlife and ways to avoid direct impacts by OHVs, illegal dumping, and other activities.

Alternative C

The comprehensive land use strategy proposed for this alternative would emphasize recreation, community, and commercial development. Although protection would be given to special habitats where feasible, vegetation and wildlife habitat in those locations where developments and access roads occur would be adversely affected. Reclamation would conduct NEPA and ESA compliance for all developments, and mitigation would offset any impacts to special habitats, as outlined in “Environmental Commitments.”

Because OHV use would be restricted to designated areas, habitat would be better protected than under the No Action Alternative. Interpretive signs designed to educate the public on ways to avoid direct impacts would be used. However, some areas could experience habitat degradation from continued or increased OHV use in designated areas. Mortality to wildlife could occur in OHV areas, especially to those species that rely on freezing and blending into the environment rather than fleeing oncoming vehicles.

Instead of occurring on open space, recreation would occur or could be expanded on developed sites in portions of parcels A, B, C, D, E, F, K, R, S, and T. As a

result, net loss of vegetation and wildlife habitat value could occur in creosote bush shrub, desert saltbush shrub, and/or dry desert wash woodland habitats. Portions of some of these sites are currently used or may be used for borrow pits, while some are within previously disturbed habitat from canal construction and unregulated OHV use. Expansion of recreation developments in parcels O-T could affect some undisturbed desert habitat. NEPA compliance would be completed before implementing actions that could affect vegetation and wildlife. Mitigation would avoid critical areas and would replace lost habitat values.

Alternative D

The comprehensive land use strategy proposed for this alternative would be similar to that for Alternative A, along with limited development of recreation opportunities and facilities. In addition, protection and restoration of vegetation and wildlife habitats would be a priority, while developments and land use authorizations that could affect habitat would be discouraged. Agency coordination with CDFG and the Service would be enhanced through development of an inventory, monitoring, and protection plan for vegetation and wildlife habitat.

Recreation developments could include construction of a limited number of multi-use trails using criteria to ensure that vegetation and wildlife are minimally affected. If more passive types of recreation in parcels E, K, R, and portions of S and T are encouraged from qualified recreation partners, minor disturbances to vegetation and wildlife could be greater.

Eliminating OHV use, except for emergency situations, would benefit vegetation and habitat. Areas with degraded habitat and reduced vegetation cover resulting from unauthorized OHV use would be closed and rehabilitated. Interpretive programs implemented by qualified partners would attempt to educate the recreational public about the unique plants and wildlife and ways to avoid direct impacts by OHVs, illegal dumping, and other activities.

As under all other alternatives, borrow pits could be established in parcels with varying degrees of impacts to vegetation and wildlife. This alternative would provide a higher level of stabilization techniques to ensure that offsite impacts are avoided. In addition, unused or abandoned sites would be reclaimed and restored to natural habitat conditions.

Mitigation

See “Special Status Species.”

Residual Impacts

No residual impacts have been identified.

Special Status Species

Affected Environment

In compliance with the Endangered Species Act of 1973, as amended, Reclamation consulted with the U.S. Fish and Wildlife Service to obtain a list of Federal special status species that may occur within the study area (**attachment A**). These species, along with California special status species and species covered in the CVMSHCP/NCCP (Coachella Valley Associations of Governments, 2004) are listed in table 5.8 with their status and remarks on their habitat and potential for occurrence on Project lands.

Table 5.8 – Special status species on Coachella Valley Area lands

FE – Federal endangered; FT – Federal threatened; SE – State endangered; ST – State threatened; CSC – State species of special concern; SFP – State fully protected; R – Species of local concern in the CVMSHCP/NCCP and former Federal Candidate species and U.S. Fish and Wildlife Service species of concern.

Species	Status	Potential for occurrence/location
Plants		
Mecca aster <i>Xylorhiza cognata</i>	R	Unlikely. Sandy washes and deep mountain canyons. Reclamation lands too low in elevation and outside deep canyon habitat.
Coachella Valley milkvetch <i>Astragalus lentiginosus</i> var. <i>cochellae</i>	FE	Likely. Sand flats. In sand deposited by wind and washes.
Triple-ribbed milkvetch <i>Astragalus tricarinatus</i>	FE	Unlikely. Canyon slopes and bottoms in gravely and sandy soil. Reclamation lands too low in elevation and outside deep canyon habitat.
Peirson's milkvetch <i>Astragalus magdalenae</i> var. <i>peirsonii</i>	FT	Unlikely. Occurs on sand dunes in the Algodones Dunes system of Imperial County.
Orocopia sage <i>Salvia greatae</i>	R	Likely. Gravely and rocky soils on alluvial fans on east side of valley near Mecca Hills.
Little San Bernardino Mountains gilia <i>Linanthus maculatus</i>	R	Unlikely. In loose sand in mountain washes between 500-4000 feet elevation. Reclamation lands too low in elevation.
Invertebrates – Insects		
Coachella Valley giant sand-treader cricket <i>Macrobaenetes valgum</i>	R	Possible. In active sand dunes and hummocks. Sand formations on Reclamation parcels are mostly stabilized sand fields. Most potential in Reclamation's Mesquite Hummocks.
Coachella Valley Jerusalem cricket <i>Stenopelmatus cahuilensis</i>	R	Unlikely. In active and stabilized sand dunes and fields. Limited to moist soil conditions and known only in the northwest portion of Coachella Valley, west of Palm Springs.

Coachella Canal Area
Resource Management Plan/
Environmental Assessment

Table 5.8 – Special status species on Coachella Valley Area lands (continued)

Species	Status	Potential for occurrence/location
Fish		
Desert pupfish <i>Cyprinodon macularis</i>	FE	Unlikely. Restricted to San Sebastian Marsh, San Felipe Creek, Salt Creek, and in irrigation canals and drains near the Salton Sea; ponds at Palm Canyon, the Anza-Borrego Desert State Park, the Coachella Valley Preserve, and Oasis Spring.
Razorback sucker <i>Xyrauchen taxanus</i>	FE	Unlikely. Not found in the Cochella Valley; only in the Colorado River; however, believed to be in the Coachella Canal and Lake Cahuilla but not verified.
Amphibians		
Arroyo southwestern toad <i>Bufo californicus</i>	FE/CSC	Unlikely. In running streams in canyons. Reclamation lands outside canyons with running streams.
Reptiles		
Desert tortoise <i>Gopherus agassizii</i>	FT/ST	Unlikely. Eastern rim of Coachella Valley above 2000 feet in alluvial fans, washes and rocky slopes. Reclamation lands too low in elevation.
Flat-tailed horned lizard <i>Phrynosoma mcallii</i>	CSC	Likely. Sand flats, gravelly flats and desert pavement within creosote shrub communities below 800 feet elevation
Coachella Valley fringe-toed lizard <i>Uma inornata</i>	FT/SE/ SFP	Possible. Active or minimally stabilized dunes and hummocks with adjacent scattered vegetation.
Birds		
Yuma clapper rail <i>Rallus longirostris yumanensis</i>	FE	Unlikely. Found only in wetlands near the Salton Sea in the Whitewater River, delta and drains, Salt Creek, and the Dos Palmas Marsh
Burrowing owl <i>Athene cunicularia</i>	CSC	Likely. Open desert county, edges of agricultural fields and canal banks.
Southwestern willow flycatcher <i>Empidonax traillii extimus</i>	FE/SE	Possible during migration. Dense riparian vegetation near water. The small riparian oasis in Reclamation's parcel is probably too small to support breeding birds.
Crissal thrasher <i>Toxostoma crissale</i>	CSC	Possible. Mesquite hummocks and saltbush shrub.
Le Conte's thrasher <i>Toxostoma lecontei</i>	SCS	Possible. Sparsely vegetated desert flats, dunes, alluvial fans with saltbush and cholla cactus.
Least Bell's Vireo <i>Vireo bellii pusillus</i>	FE/SE	Possible during migration in dense riparian vegetation and mesquite. The small riparian oasis in Reclamation's parcel is probably too small to support breeding birds.

Table 5.8 – Special status species on Coachella Valley Area lands (continued)

Species	Status	Potential for occurrence/location
Birds (continued)		
Gray vireo <i>Vireo vicinior</i>	SCS	Possible during migration in riparian vegetation, mesquite, and desert washes. Breeds in pinyon-juniper and chaparral habitat.
Yellow warbler <i>Dendroica petechia brewsteri</i>	SCS	Possible during migration in dense riparian vegetation and mesquite. The small riparian oasis in Reclamation's parcel is probably too small to support breeding birds.
Yellow-breasted chat <i>Icteria virens</i>	SCS	Possible during migration in dense riparian vegetation and mesquite. The small riparian oasis in Reclamation's parcel is probably too small to support breeding birds.
Summer tanager <i>Piranga rubra</i>	R	Possible during migration in dense riparian vegetation and mesquite. The small riparian oasis in Reclamation's parcel is probably too small to support breeding birds.
Mammals		
Southern yellow bat <i>Lasiurus ega</i>	R	Possible. Roosts in fan palm oasis and untrimmed planted palms. Forages over entire area, especially near water sources.
Palm Springs round-tailed ground squirrel <i>Spermophilus tereticaudus chlorus</i>	CSC	Possible. Mesquite hummocks and sand fields with large shrubs.
Palm Springs pocket Mouse <i>Perognathus longimembris bangsi</i>	CSC	Likely. Sandy soils, moderately sloping desert scrub.
Peninsular bighorn sheep <i>Ovis Canadensis nelsoni</i>	FE/ST/ SFP	Likely on or near steep slopes at base of Santa Rosa Mountains at Toro Canyon and near Lake Cahuilla.

The following section discusses habitat association, life history, and threats to those species listed in table 5.8 that could occur on Reclamation lands. Much of the information comes from the CVMSHCP/NCCP (Coachella Valley Associations of Governments, 2004). Several species were eliminated from further evaluation because their distribution or habitat does not range into Reclamation parcels in the Coachella Valley. These include Mecca aster, triple-ribbed milkvetch, Pierson's milkvetch, little San Bernardino Mountain gilia, Coachella Valley Jerusalem cricket, desert pupfish, razorback sucker, arroyo southwestern toad, desert tortoise, and Yuma clapper rail.