

10. Joshua Tree Woodlands SEA

Location

General

The Joshua Tree Woodlands Significant Ecological Area (SEA) is located in the western portion of the Antelope Valley west and northwest of the Antelope Valley California Poppy Reserve in an unincorporated area of the County. This SEA encompasses many of the remaining old-growth stands of Joshua trees (*Yucca brevifolia*) on the west side of the Antelope Valley. Joshua tree woodland is a complex biological community of the gradual slopes of higher elevation desert areas that once covered much of this part of the Antelope Valley around the Antelope Wash. Joshua trees only occur within the Mojave Desert, and the County population is the western extreme location for the species.

Because Joshua trees live in areas that are easily developed for residences and agriculture, this habitat has become very fragmented in the County. The SEA consists of eight separate units, seven of which are in close proximity to each other between the Kern-Los Angeles County line to the north, and the California Aqueduct and Fairmont Butte to the south. The eighth unit is in an arroyo on the north side of the principal western ridgeline of Liebre Mountain, which is near the furthest western extent of Joshua tree woodland in Southern California. This woodland is located partially within the Angeles National Forest, and east and adjacent to the Interstate-5. The eighth unit is bordered on three sides by the San Andreas SEA.

All of the SEA except unit 8 is designated as the Antelope Valley Globally Important Bird Area (IBA) by the California Audubon. This part of the Antelope Valley is very important as a resource area that supports spring and fall migration of birds, from the small passerines to the larger raptors, such as the state-threatened Swainson's hawk (*Buteo swainsoni*) and turkey vultures (*Cathartes aura*). The Joshua tree woodland is a very important resource to these migrations by supplying perches and food for these animals on their journeys. The SEA is near the San Andreas SEA, the Antelope Valley California Poppy Reserve, the Arthur B. Ripley Desert Woodland State Park, and the County George F. Bones Desert Pines Wildlife Reserve; however, many of these areas are not contiguous with one another nor with the SEA. Unit 2 of the SEA includes much of the Arthur B. Ripley Desert Woodland State Park. Unit 8 of the SEA is contiguous with the San Andreas SEA.

Fragmentation is a concern because the Joshua trees depend on a small moth for reproduction. Only two species of moth can successfully pollinate Joshua trees, and in the SEA, there is only the yucca moth (*Tegeticula synthetica*). The moth may have limited dispersal abilities, and the Joshua trees cannot reproduce from seeds without pollination from this particular moth. Cross pollination is regarded as essential to a species' genetic diversity, which is essential to adaptation to environmental change.

The Joshua trees in the seven units have the growth form of the lower elevation woodlands of the flatter areas, and somewhat spaced from one another and less clumped. The Joshua trees in the eighth unit have a growth form that is more common in the hilly areas, where the individuals sprout from connected rhizomes and are clumped. Many times, these clumps are clones, with individuals all sharing the same genetic identity.

The SEA is located at least partially in each of the following United States Geological Survey (USGS) 7.5' California Quadrangles: Neenach School, Fairmont Butte, Black Mountain, and Lebec.

General Boundary and Resources Description

The SEA is composed of eight units. The overall boundaries are as follows: The western boundary for units 1-7 terminates at 220th Street West (the border between Ranges 15W and 16W). The eastern boundary is 145th Street West. The northern boundary is on Avenue A at the Kern-Los Angeles County line. The southern boundary straddles the California Aqueduct, touches the Los Angeles Aqueduct, and is approximately on Avenue F. The southernmost area is located close to the foothills of the western San Gabriel Mountains.

Unit 1: The northernmost unit is bounded by Avenue A on the Kern-Los Angeles County line on the north between 200th Street West and approximately on 218th Street West. It extends irregularly to the south along a desert wash contour, about a 0.7 mile at its greatest extent. The current southern boundary is determined by agricultural clearing. This unit has a Joshua tree woodland with many shrub components of the biological community intact, including a floor covered by the wildflower goldfields (*Lasthenia glabrata*) in the spring.

Unit 2: Another unit is located between Avenue C to the north and Avenue F to the south (straddling part of State Route-138 on Avenue D and part of Lancaster Road on Avenue E), and east to west from about 200th Street to about 220th Street West. Clearance in various parcel units accounts for this unit's irregular shape. Agricultural clearing on both sides of the Antelope Wash has separated this unit from unit 1 to the north. The intervening area is a broad wash plain with rich alluvial soils. The former agricultural fields may now become fields of photovoltaic panels to generate renewable energy. This unit has a southern square mile that straddles the California Aqueduct and touches the Los Angeles Aqueduct at the base of the San Gabriel Mountains. In the northern area, this unit has old-growth Joshua tree woodlands on a rocky ridge that grades into stands of Joshua trees and woodland that includes California junipers (*Juniperus californica*) in flatter areas toward the south. The southern and eastern parts of this unit overlap with much of the Arthur B. Ripley Desert Woodland State Park. The California Aqueduct is open in this area and is an important resource for bird migration along the desert slopes of the western San Gabriel Mountains, particularly waterfowl. The Los Angeles Aqueduct is generally in concrete pipe for most of its extent, and in this area, is covered by a berm and road. A colony of burrowing owls (*Athene cunicularia*), which is a state species of special concern, was discovered during surveys for an adjacent photovoltaic panel development, and probably other colonies or individuals of the owl live within this unit.

Unit 3: Another unit is located between Avenue D to the north and Avenue E to the south, and between 190th Street and 195th Street West. It is on the broad outwash alluvial area of Kings Canyon and adjacent drainages. This outwash area is somewhat blocked by the aqueducts, but both aqueducts are provided with underpass channels for outflow of the canyons onto the desert floor. The SEA includes a central cleared area that is regenerating the Joshua tree woodland and a residence with less than 40 acres cleared. The area next to Avenue D that has been cleared of Joshua trees is not included.

Unit 4: The square mile between Avenue C and Avenue D, and between 180th Street and 190th Street West has a good stand of Joshua tree and juniper woodland. This is also in the Kings Canyon alluvial wash area. There is a known area of Joshua tree regeneration to the east that is not included in the SEA.

Unit 5: The quarter square mile between Avenue C-5 and Avenue E, and between 180th Street and 185th Street West, is also on the Kings Canyon alluvial wash area and has a good stand of Joshua tree and juniper woodland.

Units 6: An area of a little over one-eighth square mile is located at the corners of both units 4 and 5. It is between Avenues D and E and between 180th Street and what would be 174th Street West. This is also in the Kings Canyon alluvial wash area and has a good stand of Joshua tree and juniper

woodland.

Unit 7: A large irregular unit is located roughly between Avenue B, Avenue C5, 145th Street and 180th Street West. It has an extensive area of Joshua tree-juniper woodland that grades into stands of Joshua trees towards the east. There is a known area of Joshua tree regeneration in former agricultural fields between 160th Street West and 170th Street West that is not included in the SEA. The alluvial wash in the SEA is a combined area of outflow from Kings Canyon, unnamed canyons, and Broad Canyon.

Unit 8: The eighth unit is in an arroyo on the north side of the principal western ridgeline of Liebre Mountain, which is near the furthest western extent of Joshua tree woodland in Southern California. This woodland is located partially within the Angeles National Forest. It is east and adjacent to the Interstate-5. The eighth unit is bordered on three sides by the San Andreas SEA. This woodland has the clonal growth that is typical of Joshua trees in hilly areas.

The SEA is located primarily on the western Antelope Valley floor between the Tehachapi Mountains and the western San Gabriel Mountains. The topography of the SEA is extremely flat with the land sloping less than 200 feet in approximately five miles. The location and orientation of the SEA represents a matrix of remnant stands of Joshua tree woodland among a patchwork of disturbed areas. Nearly all of the land within the SEA is undisturbed and vegetated. Most of the land surrounding the SEA is disturbed by agricultural use, and also has some scattered rural residences. The SEA is entirely within the unincorporated area of the County.

Vegetation

Vegetation within the SEA is limited to a few communities with relatively few species. However, the dominant community, the Joshua tree woodland, is in good condition throughout most of the SEA and includes many mature stands. Plant species observed or recorded in previous documentation within the SEA are indicated in the *Comprehensive Floral & Faunal Compendium of the Los Angeles County SEAs*. Sensitive plant species occurring or potentially occurring within the SEA are discussed in the Sensitive Biological Resources section.

Descriptions and general locations of the each plant community present within the SEA, including desert scrub, non-native grassland, Joshua tree woodland, juniper woodland, and disturbed are given below.

Desert Scrub: A moderately tall, fairly open shrubland with several species contributing to the canopy. Dominants often include Great Basin sagebrush, antelope bush, saltbush, and/or rabbitbrush, with several perennial grasses dispersed between the shrubs. Within the SEA, this community intergrades with Joshua tree woodlands.

Corresponding MCV communities:

- *Artemisia tridentata* (big sagebrush) Shrubland Alliance
- *Acacia greggii* (catclaw acacia thorn scrub) Shrubland Alliance
- *Ericameria nauseosa* (rubber rabbitbrush scrub) Shrubland Alliance
- *Eriogonum fasciculatum* (California buckwheat scrub) Shrubland Alliance
- *Ephedra californica* (California joint fir scrub) Shrubland Alliance
- *Yucca brevifolia* (Joshua tree woodland) Woodland Alliance
- *Grayia spinosa* (spiny hop sage scrub) Shrubland Alliance
- *Gutierrezia sarothrae* (broom snake weed scrub) Provisional Shrubland Alliance
- *Purshia tridentata* (bitter bush scrub) Shrubland Alliance

Grassland Communities: Consist of low, herbaceous vegetation that are dominated by grasses, but generally also harbor native forbs and bulbs, as well as naturalized annual forbs. Grasslands within the SEA consist of non-native grasslands alone. Non-native grassland consists of dominant invasive annual grasses that are primarily of Mediterranean origin. Dominant species found within this community include slender oats, wild oat (*Avena fatua*), ripgut brome (*Bromus diandrus*), red brome (*Bromus madritensis* ssp. *rubens*), goldentop (*Lamarckia aurea*), *Schismus*, and wild mustard. Non-native grasslands are located in small patches that interming with Joshua tree woodland throughout the SEA.

Corresponding MCV communities:

- *Avena (barbata, fatua)* (wild oats grasslands) Semi-Natural Herbaceous Stands
- *Brassica (nigra)* and other Mustards (upland mustards) Semi-Natural Herbaceous Stands
- *Bromus (diandrus,hordeaceus)-Brachypodium distachyon* (annual brome grasslands) Semi-Natural Herbaceous Stands
- *Bromus rubens-Schismus (arabicus, barbatus)* ([*Bromus madritensis* ssp. *rubens*] red brome or Mediterranean grass grasslands) Semi-Natural Herbaceous Stands
- *Centaurea (solstitialis, melitensis)* (yellow star-thistle fields) Semi-Natural Herbaceous Stands

Joshua Tree Woodland: An open woodland with Joshua tree (*Yucca brevifolia*), usually as the only arborescent species with numerous smaller shrub species interspersed between. Shrub species include Great Basin sagebrush, antelope bush, saltbush, rabbit brush, and creosote bush. Joshua tree woodland occupies approximately 95 percent of the SEA.

Corresponding MCV communities:

- *Yucca brevifolia* (Joshua tree woodland) Woodland Alliance

Juniper Woodland: An open woodland dominated by California juniper (*Juniperus californicus*), with an understory that is typical of desert scrub. This community is dominant in a few areas within the SEA, but is usually loosely scattered within the Joshua tree woodland.

Corresponding MCV communities:

- *Juniperus californica* (California juniper woodland) Woodland Alliance

Disturbed or Barren Areas: Areas that either completely lack vegetation or are dominated by ruderal species. Ruderal vegetation typically found within the SEA includes non-native grasses and “weedy” herbaceous species, native and non-native, including doveweed (*Croton setigerus*), mustards, telegraph weed (*Heterotheca grandiflora*), Russian-thistle (*Salsola tragus*), dock (*Rumex* spp.), yellow star-thistle (*Centaurea solstitialis*), Australian saltbush (*Atriplex semibaccata*), and cocklebur (*Xanthium strumarium*). Disturbed areas occur throughout the SEA around active agriculture and residential developments, along paved roads, dirt access roads, and other similarly disturbed areas.

Corresponding MCV communities:

None at this time.

Wildlife

Wildlife populations within the SEA reflect somewhat lower diversity and abundance for the habitat types present due to the small size of the SEA areas, the homogeneity of the topography and habitat, and influences of edge effect from surrounding agricultural land uses. An assessment of invertebrate populations is made difficult due to the lack of data, but the SEA is sure to include more

common species in fair numbers. Amphibian populations are generally scarce in desert communities and no riparian habitat is available within the SEA. Many essential reptilian habitat characteristics such as open habitats that allow free movement and high visibility and small mammal burrows for cover and escape from predators and extreme weather are present within the SEA. These characteristics, as well as the availability of fallen and decomposing woody material, are likely to support a wide variety of reptilian species. The viviparous desert night lizard (*Xantusia vigilis*) occurs almost exclusively in association with Joshua tree debris and debris of other desert floor yuccas.

The scrubland, woodland, and grassland habitats in the SEA provide foraging and cover habitat for year-round resident and seasonal resident song birds. In addition, the SEA encompasses abundant raptor foraging, perching, and nesting habitat. The combination of these resources provide for a diversity of bird species.

Mammal populations are suggested to also reflect the generally disturbed environs influencing this SEA. Small mammals are expected to be uneven in their diversity with more adaptive species and introduced European species being in high numbers compared to others. Medium sized mammal populations are expected to exhibit the same characteristics. Large mammals are largely absent on a resident basis.

All wildlife species previously recorded, as well as those expected to occur, within the SEA are indicated in the *Comprehensive Floral & Faunal Compendium of the Los Angeles County SEAs*. Sensitive wildlife species occurring or potentially occurring within the SEA are discussed in the Sensitive Biological Resources section.

Wildlife Movement

Wildlife movement within the SEA is possibly limited to local movement, but large-scale movement across the Antelope Valley floor is probably much facilitated by the Joshua tree habitat as island-like stepping stones. Typically in burned-over areas, animal paths tend to orient toward the Joshua tree habitat. Birds, and possibly bats, and other aerial organisms that use the migration corridor along the desert side of the San Gabriel Mountains probably use the woodland in the SEA for resting and feeding. Animals foraging within the SEA are unlikely to occur in concentrated numbers due to the heterogeneity of the topography and habitat of the SEA. However, local movement to and from the different SEA areas, as well as to and from the San Gabriel Mountains and the Tehachapi Mountains may be restricted due to the disturbed nature of the Antelope Valley floor. Wildlife movement is likely to converge in areas where movement is still possible, which produces concentrated movement areas or "bottlenecks."

Sensitive Biological Resources

Sensitive biological resources are habitats or individual species that have special recognition by federal, state, or local conservation agencies and organizations as endangered, threatened, and/or rare. This is due to the species' declining or limited population sizes, which usually results from habitat loss. Watch lists of such resources are maintained by the California Department of Fish and Game (CDFG), the United States Fish and Wildlife Service (USFWS), and special groups, such as the California Native Plant Society (CNPS). The following sections indicate the habitats as well as plant and animal species present, or potentially present within the SEA, which have been accorded special recognition.

Sensitive Plant Communities and Habitats

The SEA supports several habitat types considered sensitive by resource agencies. These are inventoried by California Department of Fish and Game (CDFG) in the California Natural Diversity Database (CNDDDB) [2011]. The CNDDDB includes state and federally-listed endangered, threatened,

and rare vascular plants, as well as several sensitive vertebrate species. These include California joint fir scrub, Joshua tree woodland, spiny hop sage scrub, broom snake weed scrub, and bitter bush scrub. These communities, or closely related designations, are considered high priority communities by the CDFG, which indicates that they are experiencing a decline throughout their range. The array and composition of these communities has been discussed in the Vegetation section.

In addition, CDFG is concerned with the status of California juniper woodland within the Antelope Valley, and this community is therefore considered sensitive within the County.

Sensitive Plant Species

The statuses of rare plants are hierarchically categorized by the CNPS using a rank and decimal system. The initial category level of Rare Plant Rank is indicated by the ranks 1A (presumed extinct in California), 1B (rare or endangered in California and elsewhere), 2 (rare or endangered in California but more common elsewhere), 3 (more information needed, a review list), and 4 (limited distribution). In cases where the CNPS has further identified the specific threat to the species, a decimal or Threat Code is added: .1 (seriously endangered in California), .2 (fairly endangered in California), or .3 (not very endangered in California).

The following special-status plant taxa have been reported or have the potential to occur within the SEA, based on known habitat requirements and geographic range information:

- Peirson's morning-glory (*Calystegia peirsonii*) RPR 4.2
- Clokey's cryptantha (*Cryptantha clokeyi*) RPR 1B.2
- Short joint beavertail (*Opuntia basilaris* var. *brachyclada*) RPR 1B.2

Sensitive Animal Species

The following special-status animal species are reported or are likely to be present within the SEA based on habitat requirements and known range attributes:

- Coast horned lizard (*Phrynosoma blainvillii*) BLMS, FSS, SSC
- Tricolored blackbird (*Agelaius tricolor*) BCC, BLMS, SSC, USBC, AWL, ABC
- Burrowing owl (*Athene cunicularia*) BCC, BLMS, SSC
- Ferruginous hawk (*Buteo regalis*) BCC, BLMS, CDFG Watch List, AWL, LAA
- Swainson's hawk (*Buteo swainsoni*) BCC, FSS, ST, USBC, AWL, ABC
- Mountain plover (*Charadrius montanus*) BCC, SSC, USBC, AWL, ABC
- Merlin (*Falco columbarius*) CDFG Watch List
- Prairie falcon (*Falco mexicanus*) BCC, CDFG Watch List, LAA
- American peregrine falcon (*Falco peregrinus anatum*) BCC, FSS, SE, CDF, CDFG Fully Protected, AWL, ABC
- California condor (*Gymnogyps californianus*) FE, SE, CDF, CDFG Fully Protected, USBC, AWL, ABC
- Loggerhead shrike (*Lanius ludovicianus*) BCC, SSC, LAA
- Le Conte's thrasher (*Toxostoma lecontei*) BCC, BLMS, SSC, USBC, AWL, ABC, LAA
- Hoary bat (*Lasiurus cinereus*) WBWG Medium
- Tehachapi pocket mouse (*Perognathus alticolus inexpectatus*) FSS, SSC
- American badger (*Taxidea taxus*) SSC

Ecological Transition Areas (ETAs)

There are no ETAs designated within this SEA.

Regional Biological Value

The SEA meets several SEA designation criteria and supports many regional biological values. Each criterion and how it is met described below.

CRITERIA ANALYSIS OF THE JOSHUA TREE WOODLANDS SEA

	Criterion	Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Not Met	Although there are several listed species that occur within the SEA, this criterion is not met due to the lack of known core population areas.
B)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	The SEA contains large patches of undisturbed Joshua tree woodland habitat, which has become increasingly rare in the region.
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution	Met	As stated above, Joshua tree woodlands have become rare in the region, and are even more rare in the County.
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	The habitat within the SEA has been studied for how it may serve as a concentrated breeding, feeding, resting, or migrating ground for any species. Some cross-desert migratory routes depend, in part, on the cover and habitat of the Joshua tree woodland. The units 1-7 of the SEA on the Antelope Valley floor are in a globally IBA, known as a bird migration route. The Joshua tree woodland is an important component of resources that supports this migration.
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	Due to the scarcity of Joshua tree woodland, specimens of the quality found in the SEA are important to science and have become living laboratories. The SEA contains the most westerly extent of this habitat type.
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Met	The Joshua tree woodland contained within the SEA is an excellent example of this community type.

In conclusion, the area is an SEA because it contains: B-C) Joshua tree woodland, a rare community both regionally and within the County; D) habitat important to breeding, feeding, and migration; E)

the geographic limit of Joshua tree woodland; and F) an excellent undisturbed example of Joshua tree woodland.

10. Joshua Tree Woodlands SEA Sources

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