
ANTELOPE VALLEY SIGNIFICANT ECOLOGICAL AREA

General

The Antelope Valley Significant Ecological Area (SEA) is located within the central portion of the Antelope Valley, primarily east of the cities of Palmdale and Lancaster, within a predominantly unincorporated area of Los Angeles County. The area includes the tributary creeks to Little Rock and Big Rock Creeks (partially within U.S. Forest Service land) downstream to the valley floor and northward across the historic floodplain zones to Rosamond, Buckhorn, and Rogers dry lakes on the Los Angeles/Kern County boundary. Delineation of the SEA boundary considered the importance of the Little Rock and Big Rock Creek watershed to the surface and subsurface hydrology of the Antelope Valley and interrelated dry lakes and wetland systems.

The desert-montane transect segment of the Antelope Valley SEA extends from the National Forest boundary above Piñon Hills northward across the valley floor to the aqueduct, and on the north side of the aqueduct to Black Butte, and then across approximately seven miles of open scrub formations to the southeastern slopes of Saddleback Butte. Most of the land within this segment is open and undeveloped, primarily vegetated with desert scrub and Joshua tree woodland formations. It provides a terrestrial linkage, rather significantly obstructed by the aqueduct, toward the northeastern portion of the main segment of the SEA.

The SEA supports many regional biological values. These values include: the watershed and upper tributary streams containing riparian woodlands, marshes and playa lakes; the upper portions of the two creeks have year-round water, providing breeding sites for amphibians, and permanent water resources for wildlife species along the north face of the San Gabriel range; open ponds and seasonal playa lakes providing essential foraging and wintering sites for migrating birds otherwise not found in the Mojave Desert; nesting sites exist for numerous sensitive bird species, including the federally threatened western snowy plover; the buttes and their sand sheet habitats representing unique habitats in the otherwise level desert floodplain, providing nesting, roosting, denning, and refuge sites, and perches for birds of prey; the desert riparian corridor providing shelter and open passage for mobile species moving within and between habitats along the gradient; desert riparian woodlands offering roosting and nesting opportunities for raptors and migratory songbirds; the ponds, seasonal playa lakes and dry lakes attracting huge numbers of migrating birds and supporting breeding populations of wading birds, shorebirds, and waterfowl; the portion of Little Rock Creek above Little Rock Reservoir is the only known Antelope Valley breeding locality for the endangered southwestern arroyo toad; and, the drainages providing the primary subterranean hydrological recharge for this portion of the Antelope Valley aquifer.

Description

The SEA was delineated to emphasize the importance of the Little Rock and Big Rock Creek watershed to the surface and subsurface hydrology of the Antelope Valley and to the dry lakes. The western portion of the SEA extends along the margin of Little Rock Creek wash and floodplain zone, while the eastern margin follows Big Rock Creek wash, includes the lower slope limits of several major buttes and the direct watershed basin for Rogers Dry Lake. The north-eastern portion of the SEA encompasses some agricultural cropland (some of which lies fallow) and dispersed rural residential, but the underlying hydrology of the washes remain intact through the entire SEA area.

The southernmost portions of the three “legs” of the SEA lie within the Angeles National Forest, and include the upper tributary watersheds for Big Rock Creek. These areas support the mixed conifer, multi-species oak formations common to the middle-elevation zones on the north face of the San Gabriel Mountain range. The creeks themselves are higher energy systems at those elevations, as they collect water from the surrounding terrain, and typically are lined with woodland formations of alder, willow, sycamore and cottonwood, at varying density and species composition. As the creeks drop down behind (north) the pressure ridges of the San Andreas fault zone they lose gradient and widen, with the vegetation becoming more sparse and less evenly distributed along the channel margins. Where the alluvial plains are wide and shallow, cottonwood-willow woodland and sycamore woodland formations often occur within the overall floodplain, on stable terraces or around oxbow flow zones.

North of the fault zone the creeks gradually widen and most of the flow is beneath the surface, except during high energy storms or in Spring (depending upon rainfall totals in the watersheds). Little Rock Creek is impounded by Little Rock Dam, then flows into a rocky stretch of desert scrub habitat, with sycamore and willow forming thin formations in the higher energy reaches, and dense stands of cottonwood on terraces where the alluvial plain widens. Where washes from both creeks cross the lowlands of the Antelope Valley, their channels support a variety of desert scrub formations within the alluvial plains. Overstory formations of cottonwood occur sporadically along the alignments, in places where the groundwater table is replaced or augmented by agricultural runoff. The surrounding upland formations are primarily desert scrubs, including creosote and chenopod scrubs, sand sheets (mostly around the buttes), and Joshua tree woodland. Intact Joshua tree woodland, with native substrates present, supports a relatively high diversity of annual wildflowers, reptiles and mammals. The Joshua trees also provide nest sites for many desert and migratory bird species.

Lovejoy, Alpine, Piute, Black and Saddleback Buttes, along with other, smaller unnamed buttes, form most of the topographical relief within the SEA. These areas offer different ecological conditions associated with rock shelter, perching sites, nesting sites, denning areas, wind protection and sand sheet accumulation areas. Local and migratory bat species roost and

reproduce in the caves and crevices of the butte formations. The higher buttes provide the only local nesting sites for owls and other birds of prey.

The open agricultural lands, active or fallow, support a diversity of wildlife species which essentially regard the fields and ditches as irrigated desert. Birds of prey frequently hunt over the open agricultural areas, including fallow fields; wide-ranging predators also find excellent hunting conditions in and around agricultural areas. A spectrum of local and migratory bat species feed aerially over the irrigated fields in Spring and Summer, when insect numbers are highest, and at least one sensitive bat species, the pallid bat, forages terrestrially in open scrub or ruderal desert habitats.

The northern portion of the SEA contains several unique habitat types, including mesquite bosque (threatened locally by lowering water tables), clay pan pools, vernal pools, alkali grasslands, alkali and freshwater marshes, and permanent ponds. Hundreds of bird species have been recorded from the pond and marsh habitats around the dry lakes, and numerous species nest on the playa margins or in the associated riparian habitats. The open creosote scrub and other xeric formations on the slopes surrounding the lake playas serve as important wintering areas for many raptor species, as well as large numbers of songbirds.

Vegetation

The SEA traverses the Antelope Valley from the San Gabriel Mountain foothills to the low elevations of the dry lake basins, and its expanse and considerable topographical relief is reflected in its relatively high floral and faunal diversity. The SEA includes playa lake, alkali marsh, alluvial fan scrub, a mosaic of xeric desert scrubs, Joshua tree woodland, desert riparian woodlands, juniper scrub, pinyon pine, chaparral and higher elevation mixed conifer, oak, and riparian communities. Transitional zones (ecotones) between these communities often contain unusual species compositions such as pinyon pine, juniper and Joshua trees together, or Joshua trees adjacent to cottonwood forest. Sensitive plant species occurring or potentially occurring within the SEA are discussed below in the Sensitive Biological Resources section of this document.

Plant communities within the SEA were classified using standard methodology and terminology. Most of the communities discussed correspond directly with those listed in Holland's Preliminary Descriptions of the Terrestrial Natural Communities of California (1986 and 1992 update); some communities are named based upon the dominant species within their boundaries and/or other commonly used terminology. Descriptions and general locations of the each plant community present within the SEA are given below.

Desert scrub a comprehensive term for a number of relatively low-stature, widely-

spaced formations of shrubs and subshrubs, commonly occurring on open, sandy soils where groundwater is inaccessible to all but a few deep-rooted species. Dominants include Great Basin sagebrush, antelope bush, creosote bush, several species of *Atriplex* (saltbush), rabbitbrush, cheesebush, sages, winterfat, and burrobrush, often with one or more perennial grasses (needlegrasses, sand drop-seed) interspersed. Formations dominated by saltbushes and other related taxa, which may be particularly common on alkaline soils, are sometimes called chenopod scrubs, in reference to the family Chenopodiaceae, which include most of the dominant species. Within the SEA, variations on this community often inter-grade with, or form understory within, juniper woodland and Joshua tree woodland. Variations are also found on lower slopes, around the buttes and on the adjacent valley floor. These formations also occur extensively within the desert-montane transect segment of the SEA.

Chaparral consists of broad-leafed or needle-leafed, sclerophyllous (hard-leafed), medium height to tall shrubs that form a dense cover on steep slopes, usually below 5,000 feet in Southern California. Dominant species found within this community include scrub oaks (several species), chamise, manzanita, wild lilac, toyon, and western mountain-mahogany. This plant community occupies internal slopes, particularly on north-facing exposures, within the higher elevations of the SEA; shrubs are frequently interspersed as understory formations within oak and conifer woodlands.

Grassland communities consist of low, herbaceous vegetation that are dominated by grasses. This community also harbors native forbs and bulbs as well as naturalized annual forbs. Only fragmentary representatives of native grasslands exist within the SEA, mostly sand drop-seed colonies on relatively less-disturbed sandy substrates around the buttes. Non-native grassland consists of dominant invasive annual grasses that are primarily of Mediterranean origin. Dominant species within this “community,” which is a ruderal formation and not a true habitat or community, include oats, bromes, foxtail chess and other grasses, wild mustards and other disturbance-favored “weedy” taxa. Non-native grasslands and other ruderal formations occur in small patches throughout the SEA and over much of the land left fallow from agriculture.

Southern willow scrub is a riparian community consisting of dense, broad-leafed, winter-deciduous riparian thickets occurring within and adjacent to seasonal or permanent water courses. The “scrub” formation generally is sub-mature— a state which often is maintained by frequent heavy over-flooding—and may attain woodland or forest stature if undisturbed for several decades. Dominant species of this community within the SEA are mulefat, sandbar and arroyo willow. Within the SEA this community primarily occurs along portions of the tributary drainages to Little Rock and Big Rock Creeks, but elements of it also may occur around the periphery of ponds and marshes.

Joshua tree woodland is an open formation dominated by Joshua tree, which usually is

the only arborescent species, and with numerous smaller shrub species interspersed. Shrub species commonly associated with Joshua tree woodland habitat include creosote bush, Great Basin sagebrush, California buckwheat, saltbush, horsebrush, desert almond, and antelope bush. Joshua tree woodland is present in varying densities and age formations over much of the less-disturbed uplands around the two primary washes, and throughout the desert- montane transect.

Juniper woodland is an open formation dominated by California juniper, often with an understory of desert scrub species, sometimes mixed with chaparral at middle elevations. This community is found on lower slopes in the San Andreas fault zone portion of the SEA, in places mixed with Joshua tree woodland and chaparral.

Mixed conifer-oak woodland formations typically have an overstory of oaks (canyon, interior live) intermixed with bigcone spruce, incense cedar, and yellow pine, of varying densities and compositions depending upon slope orientation, substrates, and fire history. Understory vegetation usually is dominated by chaparral species such as scrub oak, manzanita, and wild lilac. This community occurs only in canyons in the higher elevations of the SEA.

Southern cottonwood-willow riparian forest is a broad-leafed winter-deciduous habitat dominated by Fremont cottonwood, in places mixed with willow or western sycamore. Southern cottonwood-willow riparian forest (or woodland) occurs within the SEA along segments of Little Rock and Big Rock Creeks, and lines of trees around the periphery of irrigated sites, lakes and ponds.

Mesquite bosque consists of dense thickets of mesquite trees, usually found where groundwater resources are sufficient in quantity and depth to support the trees. There are remnant patches of this habitat throughout the northern portion of the SEA, but most of the trees have declined or died as water tables have been drawn down. Several large, healthy stands of this habitat persist around the southern perimeter of the dry lakes.

Freshwater marsh develops in areas of still or slow-moving permanent freshwater. This community is dominated by the perennial, emergent cattail, which may reach heights of seven feet and grow in such densities as to form a closed canopy. Bulrush may also occur or be dominant within freshwater marsh. This formation occurs only in scattered ponds and irrigation ditches through most of the SEA, but does form large, natural habitat areas at Piute Ponds and other pond sites around the dry lakes.

Alkali marsh is similar to the freshwater marsh described above but with more salt-tolerant plant species present. Species associated with this community include cattail, saltgrass, and common reed. Alkali marsh occurs in small segments along Amargosa Creek and other wetland areas scattered along the San Andreas Rift Zone.

Alluvial wash and alluvial fan sage scrub, sometimes also known as floodplain sage scrub, generally consist of a mixture of shrubs which colonize and persist within infrequently scoured and flooded terrain such as floodplains, alluvial plains, or along seasonal streams. The dominant shrub in most washes is scalebroom, but Great Basin sage brush, rabbitbrush, sweetbush, and chaparral yucca also may occur in the habitat type. This vegetation type is common throughout the alluvial plains and washes in the SEA.

Disturbed or barren areas 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, mustards, telegraph weed, Russian thistle, dock, yellow star thistle, Australian saltbush, and cocklebur. Disturbed areas occur throughout the SEA on fallow agricultural sites, around active agriculture and residential developments, along paved roads, fire breaks, dirt access roads, trails, and other similarly disturbed areas.

Wildlife

Wildlife within the SEA is moderately diverse and abundant, commensurate with the extensive acreage of natural open space and the relative diversity of habitat types. While a few wildlife species are entirely dependent upon a single vegetative community, the entire mosaic vegetation communities within the area and adjoining areas constitutes a continuum of functional ecosystems supporting a wider variety of wildlife species, both within the SEA boundaries and as a part of the regional ecosystem.

Analysis of invertebrates on any given site generally is limited by a lack of specific data; however, the size of the SEA and diversity of habitats present is considered sufficient to encompass healthy populations of a large number of invertebrate species, in excess of 1,000 terrestrial species. The wetlands and aquatic habitats within the SEA support diverse faunas of freshwater and alkaline pool arthropods, including native fairy shrimp, brine flies, and tiger beetles. Insect orders are particularly well-represented taxonomically, with moderate levels of species endemism including, Coleoptera, Diptera, Hymenoptera and nocturnal Lepidoptera.

Amphibians generally are not present within desert habitats except where surface hydrology persists throughout the year or breeding season; consequently, a limited number of species may be abundant in desert riparian areas. The moister woodland areas and canyon bottoms of the montane portions of the SEA support abundant populations of more common amphibians, and in Little Rock Creek, the southwestern arroyo toad. Several species of salamander also may be present within the mesic upper reaches of the creek drainages. Open desert scrub habitats generally support diverse reptile populations, and the overall herpetofauna of the SEA would include numerous lizard and snake species, along with southwestern pond turtle and California desert tortoise.

Bird diversity within the SEA is related to habitat opportunities for year-round residents, seasonal residents, and migrating raptors and song birds. Open xeric scrub hosts a suite of birds typical of such sites over a wide range of deserts, while the transition zones in the southern portion of the SEA would attract species with desert and montane habitat preferences. The most productive sites for birds are the riparian corridors and freshwater systems, which attract large numbers of migrants during Spring and Fall, and provide abundant cover and food resources for songbird breeding use. The desert riparian woodlands and rocky buttes provide nest sites for raptors, many of which forage widely over desert scrub and agricultural lands. The playa lakes and seasonal pools, along with the ponds near the dry lakes, attract large numbers of migrating shorebirds, waders and waterfowl, and provide important winter foraging and sheltering areas for waterfowl and birds of prey.

Wildlife Movement

The SEA extends from the National Forest to the playa lakes within Edwards AFB, encompassing the whole of the two largest drainages exiting the northern slope of the San Gabriel Mountain range, and its geographical features serve as a major habitat linkage and movement corridor for all wildlife species within its vicinity. Ecologically “generalist” species (mountain lion, black bear, bobcat, coyote, mule deer, gray fox, raccoon, etc.) have the ability to move across such vast areas and through changing habitat types. For such species, the SEA may serve as an important system for long-term inter-population genetic exchange. For smaller or less-mobile species, or taxa which are more narrowly restricted in their habitat needs, the SEA can serve as a broad linkage zone, in which individual movement can take place during seasonal or population dispersal. This provides essential genetic exchange within and between metapopulations. The two drainages, combined with the upland terrestrial desert-montane transect portion of the SEA, insure linkage values and direct movement zones for all of the wildlife species present within the Los Angeles County portion of the Antelope Valley.

Sensitive Biological Resources

Sensitive biological resources are habitats or individual species that are designated by federal, state, or local conservation agencies and organizations as endangered, threatened, or rare. This is due to the species’ declining or limited distribution or population sizes, usually resulting 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 indicates the habitat as well as plant and animal species known to exist, or potentially present within the SEA, that have been afforded special recognition.

Sensitive Plant Communities/Habitats

This report/description supports several habitat types considered sensitive by resource

agencies, namely the CDFG [California Natural Diversity Data Base (CNDDDB), 2000], because of their scarcity and support of a number of state and federally listed endangered, threatened, and rare vascular plants, as well as sensitive bird and reptile species. These communities include Joshua tree woodland, southern cottonwood-willow riparian forest, fresh-water marsh, alkali marsh, alluvial fan sage scrub, mesquite bosque, and southern willow scrub. These communities or closely related designations are considered highest-inventory priority communities by the CDFG, indicating that they are declining in acreage throughout their range due to land use changes.

Sensitive Species

Sensitive species include those listed, or candidates for listing by the USFWS, CDFG, and CNPS. These species include, but are not limited to, bank swallow, black tern, burrowing owl, white-faced ibis, willow flycatcher, loggerhead shrike, tri-colored blackbird, Townsend's big-eared bat, spotted bat, fringed myotis, long-ledged myotis, Mojave ground squirrel, and San Joaquin pocket mouse. In addition, the SEA includes locations of species observed, recorded in the CNDDDB, or reported in previous documentation as observed within or in the immediate vicinity of the SEA.

Ecological Transition Areas (ETAs)

Large areas designated as ETA characterize this SEA. Most of these ETAs are concentrated north of Avenue L and west of 140th Street where they are represented by large, contiguous agricultural fields that are both active and fallow. Similar conditions are also scattered throughout the remainder of the SEA, but are not nearly as prevalent.