

VEGETATION ASSOCIATION:

ALLUVIAL SCRUB

MAPPED SUBASSOCIATIONS:

Alluvial Scrub, Disturbed Alluvial Scrub

DATA CHARACTERIZATION

All of the large patches of well-developed alluvial scrub referenced in the published literature are within the MSHCP database. Mapping errors for this vegetation should be low because its distinctive structure is interpretable readily and accurately from aerial photographs. Additional studies regarding the effects of reduced flooding intensity within the stands within larger more urbanized floodplains are necessary to determine whether adaptive management techniques are necessary and sufficient to sustain alluvial scrub in its present or past form.

BIOGEOGRAPHY

Large stands of well developed Riversidian alluvial scrub occur from inland Los Angeles to San Bernardino and Riverside counties. Examples of these occur in Big Tujunga Wash, San Gabriel River, San Antonio Creek, Cucamonga Creek, San Sevaine/Etiwanda/Day Creeks, Cajon/Lytle Creeks, and portions of the San Antonio, Santa Ana, and San Jacinto Rivers (Hanes *et. al.* 1989). Less well developed stands of alluvial scrub supporting only the early successional forms of the vegetation occur along smaller drainages throughout Western Riverside County to northern San Diego County along isolated portions of the Santa Margarita River. A different association of alluvial scrub indicated by broom baccharis (*Baccharis sarothroides*) is distributed in portions of San Diego County and northern Baja California (Smith 1996).

RANGE AND DISTRIBUTION WITHIN WESTERN RIVERSIDE COUNTY

Alluvial scrub occurs throughout many drainages in the western Riverside Plan Area and comprises approximately 0.6 percent (8,216 acres) of the Plan Area. Large acreages of the vegetation occur on the Santa Ana River near Lake Evans in the City of Riverside, along the San Gorgonio River and tributaries near Banning, on the San Jacinto River from the National Forest to the Soboba Indian Reservation, near Temecula along Temecula Creek, the Aguanga area, Bautista Creek south of Hemet, and near Murrieta and Glen Ivy in the Temescal Valley.



VEGETATION CHARACTERISTICS

Alluvial scrub is a Mediterranean shrubland type that occurs in washes and on gently sloping alluvial fans. Alluvial scrub is made up predominantly of drought-deciduous soft-leaved shrubs, but with significant cover of larger perennial species typically found in chaparral (Kirkpatrick and Hutchinson 1977). This vegetation type is distinctive because of the co-occurrence of evergreen shrubs, drought-deciduous shrubs, riparian species, and upland annual species in close proximity to one another (Hanes *et al.* 1989). Because alluvial scrub is physiognomically intermediate between chaparral and coastal sage scrub, it shares many of the same species. The only dominant species that has a strong fidelity to alluvial scrub is scalebroom (*Lepidospartum squamatum*) (Smith 1980). Scalebroom generally is regarded as an indicator of Riversidian alluvial scrub (Smith 1980; Hanes *et al.* 1989).

Perennial species diversity in alluvial scrub has been measured along different aged stands in the San Gabriel River, revealing higher diversity of perennial species in more mature stands on terraces above the immediate flood channel (Smith 1980). The annual species component of species diversity of scalebroom-dominated alluvial scrub has not been quantitatively studied, but a similar vegetation type in San Diego County (Diegan alluvial scrub vegetation) revealed significantly higher native species richness and diversity than in neighboring disturbed and undisturbed Diegan coastal sage scrub (Smith 1996). Higher diversity in Diegan alluvial scrub was related to a greater diversity of microhabitats that supported greater numbers of evergreen shrub and annual herbaceous species.

SPECIES COMPOSITION

In addition to scalebroom, alluvial scrub typically is composed of white sage (*Salvia apiana*), redberry (*Rhamnus crocea*), flat-top buckwheat (*Eriogonum fasciculatum*), our lord's candle (*Yucca whipplei*), California croton (*Croton californicus*), cholla (*Opuntia* spp.), tarragon (*Artemisia dracunculus*), yerba santa (*Eriodictyon* spp.), mule fat (*Baccharis salicifolia*), and mountain-mahogany (*Cercocarpus betuloides*) (Hanes *et al.* 1989; Smith 1980). Annual species composition has not been studied but is probably similar to that found in understories of neighboring shrubland vegetation. Two sensitive annual species are endemic to alluvial scrub vegetation in the Plan Area: slender-horned spineflower (*Dodecahema leptocerus*), and Santa Ana River woolly-star (*Eriastrum densifolium* ssp. *sanctorum*).

PHYSICAL ENVIRONMENT

Alluvial scrub is found on recent or actively alluviating surfaces that experience infrequent but severe flood events (Hanes *et. al.* 1989). Typical settings include drainages and outwash fans on the coastal side of the southern California peninsular range. Alluvial scrub typically is found on coarse-particled Riverwash soils near the flood channels or in areas that are frequently inundated, and upon deeper and more fine textured Soboba soils at higher elevations on floodplain terraces (Smith 1980; Hanes *et. al.* 1989). Soils supporting alluvial scrub drain rapidly, have slow runoff, and contain low amounts of organic matter. These drainages typically do not support extensive hydrophytic (*i.e.*, wetland) vegetation because of the scarcity of surface water for much of the year.

ECOSYSTEM PROCESSES

The spatial distribution and species composition of alluvial scrub largely is determined by the dynamic geomorphic processes within floodplains and upon outwashing alluvial fans. Several different seral stages of alluvial scrub have been identified based on flooding frequency and distance from the floodplain channel (Smith 1980; Hanes *et. al.* 1989). Floodplain landforms that flood less frequently support a more physiognomically diverse array of plants, while areas flooded more frequently support early successional perennial and annual species (Kirkpatrick and Hutchinson 1980; Smith 1980; Hanes *et. al.* 1989). Smith (1980) estimated that three aged stands were present at roughly 10, 20, 30, and 50 years old along the San Gabriel River. The 10 and 30 year old stands had developed since large-scale flooding in 1969 and 1938 respectively. Since there has not been catastrophic flooding since 1969, the 40-50 aged upper terrace stands presently are approximately 60-70 years old. With increasing urbanization, flood control projects, and associated changes in the frequency and intensity of flooding in many of the watersheds supporting alluvial scrub, it may be necessary to simulate periodic flooding to sustain the age class structure typical of diverse alluvial vegetation.

The role of fire in the development and maintenance of alluvial scrub vegetation is unknown. Because the species composition of alluvial scrub vegetation largely is made up of fire adapted plants fire may play a role in reducing older aged stands and promoting the growth of younger individuals and annual species similar to upland coastal sage scrub and chaparral systems. Fire is probably less important and less likely in younger-aged stands that are frequently flooded because of the lack of fuel load and open nature of the vegetation.

More research is needed to determine the flooding frequency and intensity needed to sustain alluvial scrub vegetation in its present or previous undisturbed forms.



THREATS

Threats to alluvial scrub vegetation include changes to the flooding regime caused by flood control, irrigation and upstream residential and commercial development projects; urban edge effects; pollution from residential and industrial runoff; and off-highway vehicle use.

LITERATURE CITED

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