

APPENDIX A

HISTORIC PLANT COMMUNITIES OF THE LOS ANGELES RIVER MASTER PLAN AREA

An important component of the Los Angeles River Master Plan is tree-planting, revegetation, and ecological restoration or enhancement of selected areas along the river. The plant communities appropriate for restoration and the native plant species appropriate for planting in each area depends heavily upon what the former plant communities were in that area. (In some places changes in hydrology or other conditions may mean that creation of native plant communities other than those that originally occurred are more feasible.)

Kuchler's 1977 map of potential natural vegetation of California (Kuchler 1977 in Barbour and Major 1988) shows the following plant communities within the drainage area of the Los Angeles River:

- coastal saltmarsh
- southern seashore community
- coastal sagebrush
- southern oak forest
- valley oak savanna
- riparian forest
- chaparral
- mixed hardwood forest
- Coulter pine forest
- southern Jeffrey pine forest
- southern yellow pine forest

Coastal saltmarsh and southern seashore community have been almost entirely eliminated. The only significant remnant of coastal salt marsh remain in the Los Angeles River drainage area is the Ballona wetlands in Playa del Rey. Historically, the Los Angeles River changed course frequently and alternated between the Ballona area and the Long Beach area as its point of entry into the Pacific (CDFG 1993).

The several pine and hardwood forest communities listed are generally found in the upper reaches of the watershed and not within the Master Plan area. Other important plant communities that once existed within the Master Plan area include: coastal sagebrush, more commonly known as coastal sage scrub, southern oak forest, more commonly called coast live oak forest, and other riparian forest types. Coastal sage scrub was once the most extensive plant community found within the Los Angeles basin; today its extent is drastically reduced through development. However, much of the Master Plan area outside of the river channel and levees was once coastal sage scrub. Coastal sage scrub species should be considered in planting plans outside the riparian corridor of the river proper.

Along the river itself various types of riparian forests were once extensive. Riparian forests are forests associated with rivers and creeks. The presence of water, at least seasonally, means that riparian vegetation may be very different in species composition and structure from adjacent vegetation outside the influence of that water. Species composition of riparian vegetation varies depending upon the amount of water, its seasonal distribution, and other physical factors. The force and extent of runoff

and flooding is also important; under some conditions vegetation is effectively removed periodically by flooding and some riparian plant species require special post-flood conditions to germinate.

Plant community composition and structure of lowland riparian areas differ from those of foothill and mountain canyons. However, within any given local area composition and structure is more closely correlated with topographic position in relation to stream flow. As a generalized schematic, three riparian zones can be recognized. The first zone, closest to the stream, is where the most active disturbance occurs and only species adapted to that disturbance are found, typically shrubby willows and white alder. A middle zone, subjected less frequently to flooding and disturbance but with a reliable water supply, is characterized by larger willow and cottonwood and sycamore trees with a well-developed understory of considerable plant diversity. The third, outer zone is found on higher terraces only occasionally subjected to flooding. In this area sycamores and oaks take advantage of high water tables adjacent to rivers and streams and grow to very large sizes (Faber 1989).

A number of riparian plant communities are commonly recognized along southern California streams. With only a few exceptions, riparian forest communities have largely been eliminated along the Los Angeles River. However, these communities set the context for any future restoration activities and provide a guide to native tree species appropriate for native tree planting. Following Holland's (1986) classification, riparian forest communities in the Los Angeles River drainage included:

- southern cottonwood-willow riparian forest (CNDDDB Element Code: 61330)
- southern coast live oak riparian forest (CNDDDB Element Code: 61310)
- southern willow scrub (CNDDDB Element Code: 63320)
- southern sycamore-alder riparian forest (CNDDDB Element Code: 62400)
- mule fat scrub (CNDDDB Element Code: 63310)

Southern sycamore-alder riparian forest probably did not occur within the Master Plan area as it is more characteristic of higher gradient systems of foothill and mountain canyons. Southern coast live oak riparian forest may have occurred but is currently extirpated. Coast live oak riparian forest typically occurs in a more upland position than southern cottonwood-willow riparian forest or southern willow scrub. As a consequence it has been eliminated where it may once have occurred adjacent to the river. In some San Fernando Valley sections of the river coast live oak trees may be appropriate for planting.

Riparian community types formerly present in the LA River Master Plan area include:

Southern Cottonwood-Willow Riparian Forest (CNDDDB Element Code 61330). Southern cottonwood-willow riparian forest is characterized by a tall, multilayered, open, canopy. The dominant species are broad-leafed and winter-deciduous—Fremont cottonwood (*Populus fremontii fremontii*), black cottonwood (*Populus balsamifera* ssp. *trichocarpa*) and several tree willows (*Salix* spp.). Found on sub-irrigated and frequently overflowed lands along rivers and streams. The dominant species germinate on flood-deposited sediments, leading to even-aged stands. Characteristic species, in addition to the cottonwoods, include black willow (*S. goodingii*), narrow-leaved willow (*S. exigua*), shining willow (*S. lucida* ssp. *lasiandra*), arroyo willow (*S. lasiolepis*), mulefat (*Baccharis salicifolia*), sycamore (*Platanus racemosa*), and blue elderberry (*Sambucus mexicana*). Understory species include hoary nettle (*Urtica dioica* ssp. *holosericea*),

mugwort (*Artemesia douglasiana*), and wild cucumber (*Marah macrocarpa*) (Holland 1986).

Southern Willow Scrub (CNDDDB Element Code 63320). The southern willow scrub community is a dense, broad-leafed, winter-deciduous thicket dominated by several species of willows, with scattered emergent cottonwoods and sycamores. The stands are typically too dense to allow much understory development. Characteristics found on loose, sandy, or fine-gravelly alluvium deposited near stream channels during flood flows. Species associated with this community include Fremont cottonwood, western sycamore, black willow, narrow-leaved willow, shining willow, and arrow weed (*Pluchea sericea*). This early seral community requires repeated flooding for continued establishment (Holland 1986).

Mulefat Scrub (CNDDDB 63310). Mulefat scrub occurs mainly within intermittently flooded stream courses in southern California. The vegetation is characterized by a low diversity assemblage of riparian shrubs dominated by mule fat (*Baccharis salicifolia*) and shrubby willows (2 to 4 meters tall). In much of California this is an early seral community maintained by frequent flooding; however in southern California it also found in riparian areas where the water supply is insufficient to support a larger-statured and more diverse riparian community. Mulefat scrub intergrades with fresh water marsh and southern willow scrub in more mesic areas and with upland scrub and non-native grassland communities in drier portions of drainages. Characteristic species are mulefat, narrow-leaved willow and arroyo willow. Understory species include hoary nettle (Holland 1986).

A unique plant community characteristic of alluvial washes is alluvial scrub. This community once occurred on alluvial washes, or bajadas, draining the San Gabriel Mountains. Development and flood-control projects have now virtually eliminated alluvial scrub communities within the Los Angeles River drainage area; Big Tujunga Wash above Hansen Dam contains the only significant remnants of this habitat near the Master Plan area. Below Hansen Dam this community has been extirpated through flood control efforts, mining, and urban development. Some areas with appropriate sandy and gravelly substrates still exist and thus some possibility for ecological restoration. Species from this community should be considered in native plant plantings within the Tujunga Wash portion of the Master Plan area. **Riversidean alluvial fan sage scrub (CNDDDB Element Code: 32720)** contains some of the same species as might be found in coastal sage scrub, and Holland (1986) considered alluvial scrub vegetation as a subtype of Riversidean sage scrub. However, the overall species composition and the presence of other distinctive species has led to the recognition of the unique nature of this community (Hanes et. al. 1989). Alluvial scrub vegetation was once widely distributed along the southern out-washes of the San Gabriel, San Bernardino, and San Jacinto mountains where bajadas formed a nearly continuous skirt along the base of these ranges. Alluvial scrub vegetation has become restricted to remnant patches along unaltered streams and outwashes. Industrial, agricultural, and residential developments and flood control projects have eliminated it from the rest of its former range. Alluvial scrub vegetation consists of an assortment of drought-deciduous subshrubs and large evergreen woody shrubs that are adapted to porous, low-fertility substrates, and to survival of intense, periodic flood and erosion. Representative species comprising alluvial scrub include scale-broom (*Lepidospartum*

squamatum), California buckwheat (*Eriogonum fasciculatum*), California sagebrush (*Artemisia californica*), lemonadeberry (*Rhus integrifolia*), laurel sumac (*Malosoma laurina*), thick-leaved yerba santa (*Eriodictyon crassifolium*), and Spanish bayonet (*Yucca whipplei*).

Valley oak savannas were once found in the western area of the river drainage, though they were more common to the west and north of the Los Angeles River drainage. Scattered valley oaks remain in the San Fernando Valley adjacent to the Chatsworth Reservoir basin and within the Sepulveda Basin but without their native plant understory.

Valley oak woodland (CNDDDB Element Code 71130). Valley oak (*Quercus lobata*) is usually the only tree species present in this open, savanna-like community. Understory is typically composed of grass and forb species, formerly native perennial bunch grasses and native annual forbs and bulb; today understories are primarily non-native annual grasses and forbs. This community is typically found in valley bottoms on well-drained alluvial soils (Holland 1986).

Flanking the slopes along the Los Angeles River floodplain in the Glendale Narrows area and along the southern flank of the San Fernando Valley are remnants of California walnut woodland.

California Walnut woodland (CNDDDB Element Code 71210). Typically an open-canopied woodland community dominated by California walnut (*Juglans californica*). Understory today consists primarily of non-native annual grasses and forbs. California walnut woodlands are typically found on relatively moist fine-textured soils of valley slopes and bottoms, as well in rocky outcrops. On drier, rockier sites often surrounded by coastal sage scrub; on more mesic sites intergrades with coast live oak communities (Holland 1986).