

## THE SITE SCALE

### Defining Plant Associations

Within the area of the sites selected at the local scale for oak revegetation efforts, those carrying out planting programs must determine what species to plant and precisely where. This section provides the means for making these determinations at the site scale.

A coast live oak woodland includes more than oak trees. A healthy oak woodland displays specific characteristics and qualities, unlike those where only one oak tree has been saved or where oaks have been used as street trees. True oak woodland communities are rich communities of plants, animals and microorganisms playing important roles in the water cycle, climatic patterns and other natural processes.

Preservation in the past has concentrated on saving individual trees, often beautiful old giants deemed "heritage trees." These trees are recognized as adding property value (from a real-estate perspective) and are sometimes even boxed and moved to new locations. Land use surrounding oak trees may change, leaving them isolated in agricultural fields or open lots. While these trees are beautiful and worth saving, they no longer are part of a functioning oak woodland.

In undisturbed situations, coast live oaks exist in close association with virtually all of the major plant communities of coastal southern California. The

distribution of oaks in relation to other species varies with elevation, aspect and topography as well as with location within the region.

The research team studied oak woodland plant associations in two areas, the Sunshine Canyon environs and the Malibu Creek watershed. The study section cuts across both east-west- and north-south-trending canyons. In Malibu Creek Canyon, the team did study sections in the lower, middle and upper areas of the watershed.

Appendix 3 provides discussion and illustrations showing these sections with all major species noted in detail. These sections show significant differences between associations present in the two areas and even between different parts of the same canyon.

### General Plant Associations

Despite the many differences among these study sections in the location of a particular species, there are consistent patterns that offer a useful framework for defining and planting oak woodland associations. The team's observations and reviews of literature on the subject suggest that these general patterns apply throughout southern California. We might consider them consistent themes for which each particular site provides many variations. The patterns can be grouped using topographic features: each one reflects a slightly different response of oak woodland communities as shown in Figure 11, opposite. As revealed in the criteria for the Oak Woodland Potential Model, areas within the inland



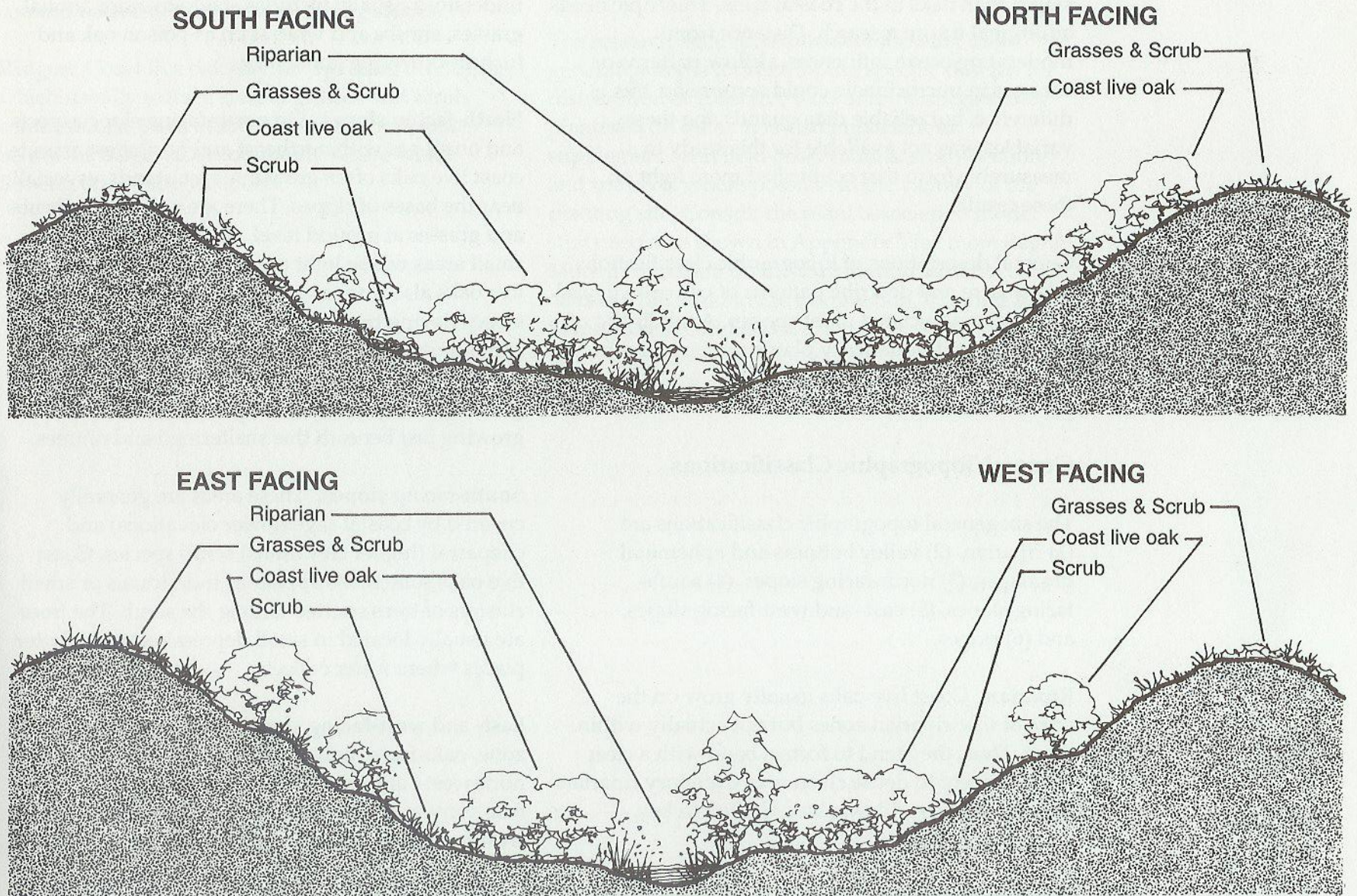


Figure 11: General Patterns of Oak Woodland Distribution in Southern California



zone show a different preference for west-trending slopes than oaks in the coastal zone. This topic needs additional future research. Distance from moderating ocean influences, airflow patterns or changes in microclimate could account for this difference, but reliable data quantifying these variables was not available for this study in a measurable form that could shed more light on these results.

General descriptions of topographic classifications follow here and describe patterns of oak growth and note major associated plant species. A full listing of overstory and understory plants can be found in Appendix 3.

### General Topographic Classifications

The six general topographic classifications are (1) riparian, (2) valley bottoms and ephemeral drainages, (3) north-facing slopes, (4) south-facing slopes, (5) east- and west-facing slopes, and (6) ridges.

**Riparian.** Coast live oaks usually grow on the edge of true riparian zones but not actually within them. Thus, they tend to form a band with a clear edge adjacent to dense clusters of overstory riparian species, such as willow, alder, California bay, and sycamore.

**Valley bottoms and ephemeral drainages.** Coast live oaks tend to grow in dense clusters on the floors of valleys outside the riparian zones and in

ephemeral drainages with intermittent streams. The understory usually includes shade-tolerant annual grasses, shrubs and vines such as poison oak and fuchsia-flowering gooseberry.

**North-facing slopes.** On north-facing slope aspects and on slopes with northeast and northwest aspects, coast live oaks often grow in dense stands, especially near the bases of slopes. There are only a few shrubs and grasses at ground level, usually growing in small areas where light penetrates the canopy. Coast live oaks also form associations near the tops of slopes having trees in the next higher plant community band. One such association includes coast live oak and bigcone Douglas fir. Here the fir grows on and just below ridgetops, with oaks growing just beneath this sheltering band of trees.

**South-facing slopes.** These areas are generally covered by coastal sage (lower elevations) and chaparral (higher elevations) scrub species. Coast live oaks sometimes appear as individuals or small clusters of trees spotted among the scrub. The trees are usually located in small depressions or in flatter places where water collects.

**East- and west-facing slopes.** Out of the coastal zone, oaks have higher densities on west-, northwest-, and southwest-facing aspects, especially near canyon bottoms. If found on upper portions of west-facing slopes, oaks are generally mixed with drier shrub communities, which sometimes predominate. In the coastal zone, west-facing slopes are generally covered by scrub communities. Coast live oaks may be spotted here and there singly or in



small clusters. Oaks and other tree species are more common on east- than on west-facing slopes.

**Ridges.** Coast live oaks are rarely found on ridges, which usually feature annual grasses and scrub communities. Oaks often cluster on slopes just below the ridge, most commonly where water flowing off the ridge collects.

## **Conclusion**

The research team recommends following these general patterns for developing specific designs for distribution of coast live oaks and the species to be planted with them. It is also important to supplement with field observations, study sections and transects where possible in the vicinity of the planting site. Consult the plant association model study sections shown in Appendix 3 for more detail. More information on the distribution patterns of oaks can be found in the next section, Planting and Management Guidelines.



# **OAK REVEGETATION STRATEGY**

## **for Los Angeles County**

### **Volume I • General Summary**

**Principal Investigators: John T. Lyle, Joan M. Safford**  
Department of Landscape Architecture  
California State Polytechnic University, Pomona

Sponsor: Browning-Ferris Industries, Inc.  
Principal Client: County of Los Angeles Fire Dept., Forestry Division

Graduate Assistants:  
Pedro Campos, Anne Dove, Devon Kohen, Steve Nawrath  
Ann Pietro, Sara Schultz, Lisa Skillet, Mark Williams

Special Consultants:  
Timothy Day, Arthur Jokela, Ralph Osterling

Published December, 1997

Browning-Ferris Industries would like to thank the Los Angeles Department of Regional Planning for the coordination of Oak Tree Permit #86312-5, and the assistance of the Director of Planning James E. Hartl AICP and Regional Planner Richard Frazier. Their efforts led to this report fulfilling one of the mitigation requirements for the permit.