

Oak Savanna Habitat Restoration Underway

By Karen Leslie Swirsky and Tim Thomas

In California, native landscape restoration is a fairly new idea. In many cases the landscapes proposed for restoration are so little studied that knowledge of ecosystems operation, species composition, and cyclic events can only be inferred. Facts have been lost forever to development, grazing, cultivation, and other manipulations such as fire suppression.

An example of a quickly disappearing native California landscape is the valley oak savanna. This ecosystem occurs on rich valley bottoms and foothills that also are extremely attractive for agriculture and development. Valley oaks (*Quercus lobata*) are endemic to California, ranging from Mount Shasta to the Santa Monica Mountains.

This is a familiar landscape: majestic oaks up to 30 meters tall and at least twice as wide in canopy, surrounded by seas of meter-high grasses. It is a landscape in real danger of disappearing. Even where development does not remove habitat, the valley oak is largely non-regenerative throughout most of its range.

The major component of the savanna is the grasslands. Native grasses are believed to be composed of largely perennial bunchgrasses and have been replaced over the last century by European grazing-adapted grasses introduced by cattle and sheep ranchers.

The Santa Monica Mountains National Recreation Area includes valley oak savanna at the southern limit of its occurrence, and here a valley oak savanna habitat rehabilitation project has been established. This project takes two directions. The first is a comparison of three valley oak savanna sites. Each site has a different level of disturbance, ranging from severe to moderate. No undisturbed valley oak savannas remain in the Santa

Monica Mountains. These three sites are being mapped for vegetation, for comparison between sites and to future mappings.

The second part of the project is to conduct experiments of restoration methods on study plots located on the most severely disturbed site. The problem is how to encourage native grasses, forbs, shrubs, and trees while discouraging the non-natives. A technique may satisfy some of the experimental requirements while violating others. For example, burning is a logical choice for grassland manipulation, having been proven in the field; but a fire will kill valley oak seedlings. Various management approaches will be attempted in a permutation grid. Within each experimental plot, several "gardening" methods will be used, such as planting nursery propagated grass and oak seedlings, fertilizing, mulching, and excluding animals.

Since this is initially a short-term project, the major applied goals are efforts to determine which management techniques have the best first year results in establishing grassland patterns, and to define the questions for future research. For example: What are the conditions most conducive to healthy valley oak savanna? How much space is required for habitat maintenance? What is the natural density of valley oaks within the savanna? What is the natural seedling mortality for valley oaks? What role does fire play in this ecosystem?

This project will supply information for valley oak savanna requirements, for the management of existing but ailing preserves, and for the establishment of new ones.

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