

Oaks & Tree Shelters on Rangeland

Introduction

Oak woodlands are iconic emblems of the California countryside. The *Quercus* (oak) genus has been in California for approximately 50 million years. The majority of California's oak woodlands occur on private property, where they provide wildlife and fisheries habitat for more than 330 species of birds, mammals, reptiles and amphibians!



Photo courtesy of NRCS.

Benefits to Landowners

Oaks are a splendid symbol of our livelihoods and land. In addition to supporting wildlife, oaks provide the following benefits to landowners:

- Shade and shelter
- Soil protection/erosion control
- Increased property values
- Beautiful landscapes
- Food and fuel
- Recreational opportunities

Low Oak Regeneration

Oak regeneration can be simply defined as the reproductive cycle, whereby pollination leads to acorn production, germination and growth into seedlings that eventually mature into adult trees over time. Low oak regeneration has been observed for several species that are well-adapted and common to Central California, including **Blue Oak**, **Valley Oak** and **Coast Live Oak**. Specific concern focuses on their sapling numbers being too low to sustain the densities found in current mature stands. Unfortunately, factors suppressing their regeneration process are complex and not well understood. While browsing by cattle can be detrimental, recruitment of new trees has in some cases been poor even when livestock are absent. Other factors that can influence regeneration include:

- New competition from invasive, non-native, Mediterranean annuals;
- Increased populations of acorn and seedling eating wildlife such as rabbits, deer, gophers, ground squirrels, turkeys and feral pigs;
- Changes to insect and soil fauna composition;
- Disease.

➤ Get Involved!

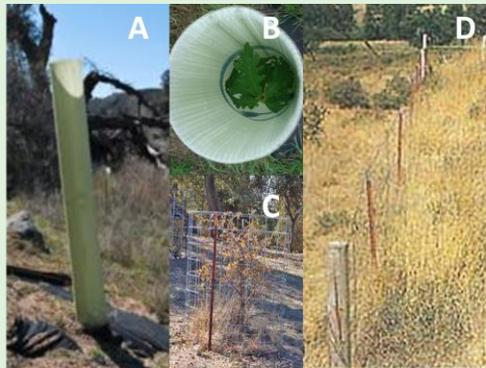
- Check your oak's health → Reference 3, p.9
- Talk to an Expert → http://ucanr.edu/sites/oak_range/

To Plant or Not to Plant?

Oaks are naturally slow growing and while a single mature tree can produce thousands of viable acorns in one year, crop size varies greatly on a yearly basis and acorns have their fair share of pests. Both germination and seedling establishment is critical to regeneration. Acorns can be collected, germinated and manually outplanted to boost the number of seedlings in a specific area. Planting involves a significant investment of labor, time and money because acorns must be collected, tested for viability, and either directly planted in the field or into pots, to be outplanted later. If you decide to plant acorns, take care to maintain the genetic integrity of nearby stands and keep in mind that success rates for planted acorns are often low without ongoing weed control and watering to help seedlings get established. Landowners can check around oak stands and brushpiles to see if seedlings are getting established. If so, by simply allowing natural germination processes to proceed you will support the recruitment of hardy, well-adapted individuals. Whether or not you decide to plant, keep in mind that seedlings will be exposed and vulnerable to animal browsing and competition from weeds.



Photo courtesy of
<http://www.plantphysprimer.com/pages/germination/>



Photos: **A)** A tree shelter, UCANR, http://ucanr.edu/sites/gsobinfo/Recovery/Oak_Propagation/; **B)** Top down view of tree shelter, USFWS, <http://www.fws.gov/north-east/climatechange/stories/gozero.html>; **C)** Protective fencing cage, UCANR, [http://californiaagriculture.ucanr.edu/landingpage.cfm?article=ca.v061n01p16&fulltext=yes](http://californiaagriculture.ucanr.edu/landingpage.cfm?article=ca.v061n01p16&fulltext=yes;); **D)** Protective fencing enclosure, UCANR, <http://ucce.ucdavis.edu/files/repository/calag/img4405p31.jpg>.

Protecting Seedlings and Saplings

Properly installed tree shelters exclude weeds and minimize browsing pressure, protecting seedlings until they grow tall and strong.

- **Cattle grazing damage is usually greatest in summer & early fall... Install prior to field browning for best results!**
- **Weeds compete with seedlings for nutrients and water... When installing tree shelters, pull out weeds growing immediately around the shelter!**
- **Encourage cattle activity away from regeneration areas... Place watering and feed stations away from seedlings and oak brushpiles!**

References

1. CalPIF (California Partners in Flight). 2002. Version 2.0. The oak woodland bird conservation plan: a strategy for protecting and managing oak woodland habitats and associated birds in California (S. Zack, lead author). Point Reyes Bird Observatory, Stinson Beach, CA. <http://www.prbo.org/calpif/plans.html>.
2. McCreary, Douglas. 2001. Regenerating rangeland oaks in California. UC Agriculture and Natural Resources Publication 21601e, Sierra Foothill Research & Extension Center.
3. McCreary, Douglas. 2011. Living among the oaks, a management guide for woodland owners and managers. UC Agriculture and Natural Resources Publication 21538, UC Oak Woodland Conservation Workgroup.
4. McCreary, Douglas. 1990. Blue oaks withstand drought. California Agriculture. Vol 44:2, p. 15-17.
5. NRCS. 2007. Indigenous Uses, management and restoration of oaks of the far eastern United States (M. Kat Anderson, lead author). USDA NRCS National Plant Data Center, NRCS Technical Note No.2.

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Photo courtesy of ANR, at <http://ucce.ucdavis.edu/files/repository/calag/img5904p219.jpg>