

CANYON LIVE OAK

Quercus chrysolepis Liebm.

Plant Symbol = QUCH2

Contributed by: Santa Barbara Botanic Garden &
USDA NRCS National Plant Data Center



© J.S. Peterson
J.S. Peterson
USDA NRCS NPDC
@ PLANTS

Uses

Erosion: Canyon live oaks contribute to reducing soil loss on steep slopes,

Wildlife: Canyon live oak habitat is critical to a diversity of insects, birds, and mammals. Their acorns are an important food source to birds, rodents, and deer.

Other uses: Pioneers for manufacturing implements such as wagon wheels and axles prized the dense hard wood of canyon live oak. It was also used to make wedges or hammerheads for splitting redwood railroad ties.

Status

Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status, such as, state noxious status, and wetland indicator values.

Description

General: Canyon live oak is an evergreen tree with a rounded, dense crown, growing from 6 to 20 m tall. It also may be a low shrub in dry, open habitats. The mature bark is gray and scaly. Like all oaks, it is

monoecious and wind-pollinated. Leaves are oblong to elliptic, 2 to 3 cm long, flat, firm, with entire to toothed margins. Although dark green and shiny above, their lower surfaces are paler, grayish, and covered with a yellow "felt." Like all oaks, it is monoecious and wind-pollinated. Acorn cups are composed of thick, tubercled scales. The one-seeded nuts are 2 to 6 cm long, oblong to elliptic, and mature in less than 2 years. On average, trees have high acorn production once every 2 to 3 years. Flowering takes place from March to May. Fruits mature between August and October.

Distribution

Canyon live oak occurs in the mountains of southern Oregon, California, eastward to Arizona and New Mexico. For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

Adaptation

Canyon live oak often occurs on moderate to steep slopes and is a common element in the mixed evergreen and conifer forests of California, ranging in elevation from 200 to 2700 m. It also is somewhat resistant to sporadic fires, often re-sprouting from the base or re-establishing from seedlings.

Establishment

Like most oaks, it has an obligate relationship with mycorrhizal fungi, which provide critical moisture and nutrients. Seedlings and saplings are shade tolerant and often occur under the canopy of older trees.

Propagation by seed: Oak seeds do not store well and consequently seeds should be planted soon after maturity. Nuts are considered ripe when they separate freely from the acorn cap and fall from the tree. Care should be taken to collect local fruits, because they may be adapted to local environmental conditions. Viable nuts are green to brown and have unblemished walls. Nuts with discoloration, sticky exudates, or small holes caused by insect larvae should be discarded.

Direct Seeding: Seeds may be planted at the beginning of the winter. Once a site is chosen, prepare holes that are 10 inches in diameter and 4 to 5 inches deep. One gram of a slow-release fertilizer should be placed in the bottom and covered by a small amount of soil. Place 6 to 10 acorns in each

hole at a depth of 1 to 2 inches. Rodents or birds should use temporary enclosures to minimize herbivory. A simple enclosure can be constructed from a 1-quart plastic dairy container with the bottom removed and a metal screen attached. Near the end of the first season, seedlings should be thinned to 2 or 3 per hole and to 1 seedling by the second season. Supplemental watering may be necessary if a drought of 6 weeks or more occurs during the spring.

Container Planting: Seeds may be planted in one-gallon containers, using well-drained potting soil that includes slow-release fertilizer. Tapered plastic planting tubes, with a volume of 10 cubic inches, also may be used. Seeds should be planted 1 to 2 inches deep and the soil kept moist. Seedlings should be transplanted as soon as the first true leaves mature. Planting holes should be at least twice as wide and deep as the container. Seedlings may require watering every 2 to 3 weeks during the first season. Care should be taken to weed and mulch around young plants until they are 6 to 10 inches tall.

Management

General: Canyon live oak is not perceived as declining throughout much of its natural range. Significant loss of habitat is unlikely since this species occurs primarily on mountain slopes and canyons on public lands. Nevertheless, where fuel loads are high, fire may cause local extirpation. However, regeneration by seeds appears to be one of the highest reported for western oaks.

Cultivars, Improved and Selected Materials (and area of origin)

It is best to plant species from your local area, adapted to the specific site conditions where the plants are to be grown. Contact your local Natural Resources Conservation Service (formerly Soil Conservation Service) office for more information. Look in the phone book under "United States Government." The Natural Resources Conservation Service will be listed under the subheading "Department of Agriculture."

References

Bleier, C. 1993. *A planner's guide for oak woodlands*. University of California Press, Berkeley, California. 94 p.

Griffin, J. 1977. *Oak woodland*. Pages 383-415. IN M. Barbour and J. Major (eds.). *Terrestrial vegetation of California*. Wiley Interscience, New York, New York.

Pavlik, B.M., P.C. Muick, S. Johnson, & M. Popper 1991. *Oaks of California*. Cachuma Press and the California Oak Foundation, Los Olivos, California. 184 p.

Schettler, S. & M. Smith 1980. *Nursery propagation of California oaks*. Pages 242-245. IN T. Plumb (ed.). *Proceedings of the symposium on the ecology, management, and utilization of California oaks*. USDA, Forest Service, Pacific Southwest Forest and Range Experiment Station. Technical Report 44.

Prepared By

Dieter Wilken & Julie Burgher
Santa Barbara Botanic Garden, Santa Barbara, California

Species Coordinator

Dieter Wilken
Santa Barbara Botanic Garden, Santa Barbara, California
Email: dwilken@sbbg.org

Edited 18jan01 jsp; 13feb03 ahv; 060809 jsp

For more information about this and other plants, please contact your local NRCS field office or Conservation District, and visit the PLANTS Web site <<http://plants.usda.gov>> or the Plant Materials Program Web site <<http://Plant-Materials.nrcs.usda.gov>>

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice or TDD). USDA is an equal opportunity provider and employer.

Read about [Civil Rights at the Natural Resources Conservation Service](#).