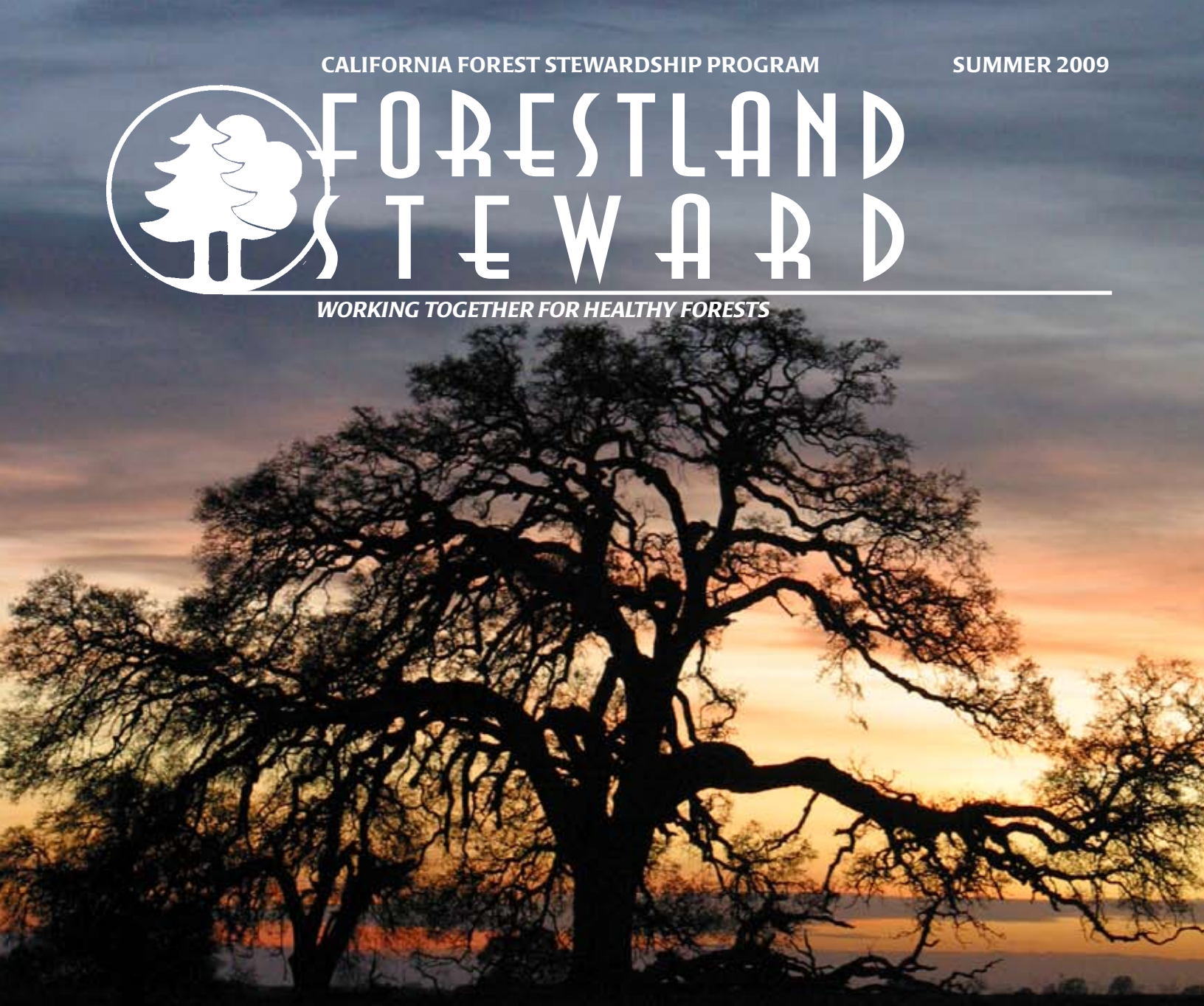
CALIFORNIA FOREST STEWARDSHIP PROGRAM SUMMER 2009

FORESTLAND STEWARD

WORKING TOGETHER FOR HEALTHY FORESTS



Inside

Photo © Kasey Foley

We Californians love our oaks. Oak woodlands include some of the most beautiful forestlands in the state. There are 20 species of native oaks found throughout California on approximately 20 million acres in widely different areas: the central valley, lower foothills, mixed coniferous zone and coastal mountains.

Not only are oak woodlands beautiful, they are surprisingly productive communities. More than 330 species of animals use oak habitats for some part of the year. Oaks are found in extremely diverse habitats; about 50 habitat types have been identified.

What do you need to know to best manage the oaks on your property? What can you do to enhance oak communities for all their inhabitants?

This issue has background information about oaks and oak ecosystems to help you make informed management decisions and give you ideas on how to find ways to meet your personal goals for your property while maximizing the benefits for the ecosystem.

As with almost all natural habitats in California, oak woodlands currently face a number of threats and uncertainties. These include concerns about poor regeneration, competition from invasive species, native and introduced pests, habitat loss, changes in land use, threats from fire, and climate changes.

Read on for an overview of key issues in oak management, then follow up with some of the excellent references for more details on the topics most relevant to you.

FORESTLAND STEWARD

Forestland Steward is a joint project of the CA Dept of Forestry and Fire Protection (CAL FIRE), Placer County Resource Conservation District, UC Cooperative Extension, and USDA Forest Service to provide information on the stewardship of private forestlands in California.

California Forest Stewardship Program
P.O. Box 944246
Sacramento, CA 94244
(916) 653-8286
Fax (916) 653-8957
ceres.ca.gov/foreststeward

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Placer Co. RCD

Rule #1: protect the roots

What makes an oak tick? To better manage your oak woodlands you'll need some understanding of oak biology and the communities in which they live. That, plus your own observations and good judgment, will help give you the tools to make good management decisions.

Young oaks are more flexible than older ones. While young oaks can generally adapt and survive under a variety of conditions, mature oaks are extremely sensitive to change and can be weakened or killed by any number of activities.

This is because of their elaborate root system, developed over decades, that transports moisture and nutrients and provides structural support for the growing tree. Any activity that damages the roots can compromise a mature tree.

The root system begins in the acorn. Most of an acorn's energy goes into the fast-growing tap root that probes deep underground to seek reliable moisture. Tap root growth continues for the first few years after which the tree's resources can finally go into above-ground and leaf growth.

Lateral roots have a different job. They spread out horizontally in the top 2 or 3 feet of soil and provide structural support for the tree. They also have fine roots that absorb moisture and nutrients. As the oak matures, it sends out deep vertical roots from the laterals which find deeper soil moisture as well as add stability.

With all of these roots in place the mature oak becomes quite set in its ways. Any activity (e.g., grading, filling, trenching, paving) that removes roots, compacts the soil, or changes moisture availability may affect the permeability of the soil and the tree's ability to exchange gas and moisture, and thus harm the tree. Poor drainage can smother roots and promote fungi that cause crown and root rot.

When choosing species to plant near oaks, remember that oaks are adapted to California's hot dry summers and cannot tolerate excess moisture during the dry season. Plant only drought-tolerant plants that require no summer water, and even those should be no closer than 6 feet from the base of the tree. Do not plant any vegetation that needs summer irrigation—those plants have thick roots that can inhibit the oak's air and water exchange. Any irrigation should be done outside of the Root Protection Zone (RPZ), an area about 1.5 times larger than the dripline.

Many of the precautions to protect oaks are actually ways to protect the root system. Keep this in mind as you make decisions to care for your property and trees.

—for a more detailed discussion of these and other important considerations for oaks, see *Care of California's Native Oaks* from the California Oak Foundation, *http://www.californiaoaks.org/ExtAssets/CareOfCAsNativeOaks.pdf.*

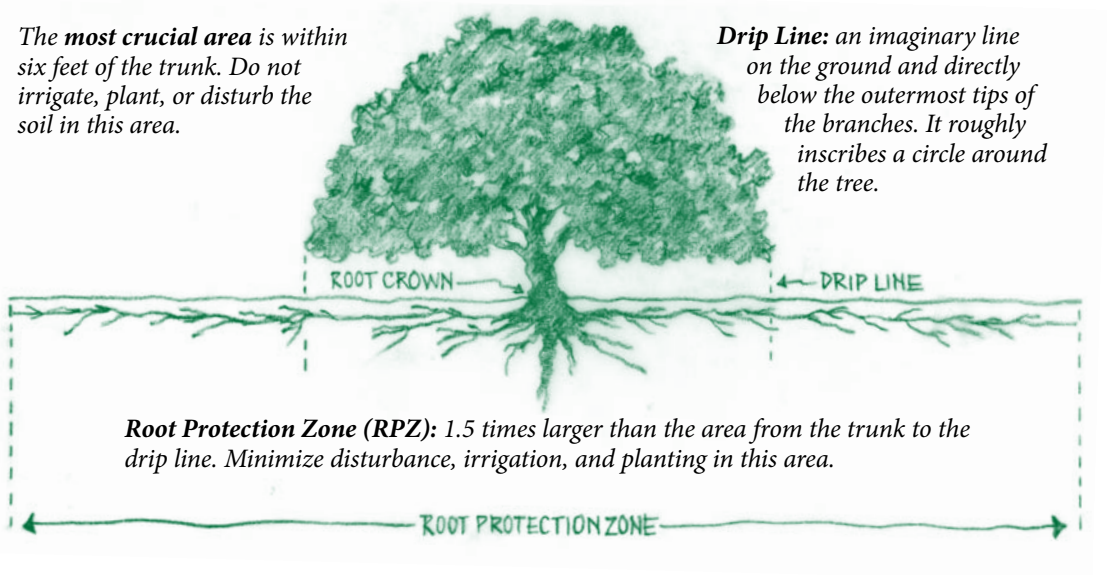

Illustration reprinted with permission from the California Oak Foundation

Wildlife and oaks need one another

As a landowner, you make many management choices that inevitably affect nearby wildlife. Decisions regarding how you use the land, how it is landscaped, the number of domestic animals, and even the size and number of buildings, all affect the habitats that wildlife use. The choices you make control how much wildlife are invited onto your land or into your living area, how close they are encouraged to come, and how likely they are to stay. As in all management, your choices involve compromise, and only you can decide which compromises are to be made on your property.

—from *Wildlife Among the Oaks*

Oaks Support Wildlife

Oak habitats are among the most productive ecosystems in California. They support diverse communities of wildlife, invertebrates, and plants, plus fungi and bacteria. All are necessary for a sustainable woodland ecosystem. As you make your management decisions, it is important to recognize the interdependence of all parts of the community as the choices you make will undoubtedly affect other parts of the ecosystem.

Oak trees provide food and shelter to many animals including deer, bear, squirrels, turkeys, pigs, jays, and acorn woodpeckers. Older decadent trees and dead snags provide homes to cavity-nesting birds. Downed logs shelter amphibians and reptiles. Insects live in the bark of trees where they provide food for many species of birds and bats.

Wildlife Support Oaks

On the other hand, oaks depend on services from wildlife, most importantly, animals that disperse and plant acorns. Many animals, including scrub jays, magpies, and western gray squirrels, store acorns in the ground but don't retrieve them all. These abandoned acorns can germinate and become trees.

In addition, there is evidence to suggest that small mammals may help mycorrhyzal fungi, which enhance oak uptake of nutrients, attach to young oak tree roots. Burrowing animals, mammals, worms, and other invertebrates are critical for soil development and aeration.

Many of the interactions among species are poorly understood. Until we know more it is best to try to retain and protect all elements of the oak community.

(left) Tupper Ansel Blake/USFWS
(above) Gary Kramer/USFWS

Acorn woodpeckers store their cache of acorns in granary trees. Try to protect granary trees on your property, especially those with the most holes. You can also help support acorn woodpeckers and many other wildlife species by retaining the trees that produce the most acorns.

Communities within communities

Hidden in plain sight on oak trees are miniature communities of insects, little gall communities that will fascinate and astound you.

The first thing you need to know is that galls don't hurt oaks. The galls are actually made by the oak in response to chemicals secreted by tiny wasps when they lay their eggs. These chemicals induce the tree to form tumor-like galls that house and feed the growing larvae.

Galls come in all sizes, shapes, and colors. There are even jumping galls. More than 150 species of wasps lay their eggs on specific species of oak and on specific parts of the tree.

But that's not the end of the story. Other insects have figured out that galls contain food and shelter, and so a community is born. Some of these other insects eat the gall or other material. Others are parasitoids that lay eggs inside; these hatch and feed on the growing larva. The tiny insect that ultimately emerges from the gall is not necessarily the gall maker. Over 90 species of insects have been found associated with just one species of gall wasp!

Spend some time looking at galls—some as big as apples, others that look like stars or chocolate kisses. Open one up to see the little larva or keep it in a jar to see what emerges. If the gall has a hole you're too late—the inhabitant, whoever it was, has flown.

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Grazing animals and oaks

The important thing to remember is that oaks should not be watered in the summer.

Oak woodlands are widely used for livestock grazing, which has been identified as a factor in the poor regeneration of some species of oaks. Here are some management techniques that can help minimize the negative effects.

Animal Management

Watch for signs of animal damage. When large numbers of animals congregate under trees they can cause excessive soil compaction, expose the root crown at the base of the trunk, or expose surface roots.

Also, watch for excessive chewing on the tree trunk. Animals can kill a tree by girdling it.

Possible solutions:

- Do not graze pastures in the summer when seedlings are most attractive to livestock
- Reduce numbers of stock to graze moderately
- Alternate pastures in use
- Install fences, exclosures, and other protective devices to keep animals out of sensitive areas
- Protect seedlings until they are 6.5 feet tall
- Place attractants (salt, supplements, rubbing posts, water) away from oaks

Simple management techniques can help minimize livestock damage to oaks.
Photo: Beatrice F. Howitt © California Academy of Sciences

Pasture Management

The important thing to remember here is that oaks should not be watered in the summer. If you irrigate your pasture try the following:

Possible solutions:

- Apply water outside of the oak root zone only
- Adjust watering schedules to infrequent but long periods
- Always try to keep the base of the tree dry
- Make sure that the area beneath the oak canopy does not become wet from leaky water lines, valves, holding tanks, or animals splashing in troughs

—from *Living Among the Oaks*

Firewood cutting need not harm wildlife

Features that might seem useless to us, such as snags and fallen logs, are some of the most important habitat elements to a variety of wildlife.

You can cut firewood and still maintain healthy wildlife habitat using a few thoughtful precautions.

The following are some considerations and guidelines for developing a wildlife-compatible firewood harvesting plan:

- **Monitor acorn production.** Acorn production differs greatly between trees and between years. Monitor trees for at least two years and mark those that produce the most acorns. Protect those trees during firewood harvesting.
- **Leave seedlings and saplings.** When cutting, leave seedlings and saplings to ensure replacement. For sustained yield never remove more wood than can be added by growth. If regeneration is not adequate to maintain the woodland at a given level, either do not cut or supplement natural regeneration with planting.
- **Wildlife depend on oak snags.** Features that might seem useless to us, such as snags and fallen logs, are some of the most important habitat elements to a variety of wildlife. Many kinds of wildlife depend on oak snags for food and shelter. In fact, it may be better to leave a snag and cut a living tree instead (though not one that is a prolific acorn producer). Leave some fallen wood on the ground for amphibians and other species.
- **Construct brush piles.** Wildlife cover is usually reduced by firewood cutting. To compensate for this loss use branches of cut trees to construct brush piles for cover. The piles will be used by quail, other small birds, and small mammals for raising young, and for shelter from predators and winter weather.
- **Maintain habitat corridors**. Corridors will enable wildlife to move between blocks of habitat. Especially important are those that connect feeding and watering areas.
- **Protect riparian zones.** Zones of vegetation along water courses are especially valuable to wildlife. These riparian zones provide an unusual diversity of food and cover resources. Be very selective in cutting in riparian areas.
- **Maintain a mixed-species and uneven-aged woodland** for aesthetic and wildlife values, and to ensure regeneration.

—from *Wildlife Among the Oaks*

Fire in the oaks: friend and foe

Fire is as much a part of an oak's environment as water. However the fire regime they evolved with has been severely altered by humans. Native Americans set frequent low-intensity fires to manage woodland habitats for multiple purposes. European settlers used fire to create and maintain rangeland. And in the last several decades fire has been largely excluded from the landscape.

Photo: Barbara Barnes, San Diego Wildfires Ed Project

Even when the aboveground portion of the tree is killed, most oaks can produce sprouts to replace the trunk. It is a good practice to wait at least a year after a fire before removing trees to make sure they are truly dead.

Fire suppression policies that limited the frequency of fires have created some unforeseen problems. Instead of periodic low-intensity fires that cleared out organic debris, we've seen a build-up of understory material resulting in higher intensity fires that can cause more harm to trees and residents. There are currently attempts to bring fire back into the ecosystem, but this is complicated by topography, weather/burning conditions, and existing stand density. Foresters are still learning how best to use fire to accomplish the goals of fuels reduction and improved forest health.

Friend

Oaks can readily survive low- and moderate-intensity fires. They will often regrow leaves lost to fire and even recover from a blackened trunk. In the event that the living (cambium) layer is killed, oaks have another survival strategy: they sprout. Sprouting is a very efficient way to regenerate trunks. Sprouts grow faster and more successfully than acorns because they have underground roots already in place to provide water and nutrients to the growing tree.

Fire can actually help oaks regenerate by eliminating competing vegetation and creating a favorable seedbed for acorns. In addition, fire may reduce habitat that attracts herbivores, giving the seedlings some relief from grazing pressures.

Fire also plays a cleansing role. It can destroy diseased trees and insect pests such as those that attack acorns on the ground.

Fire in the oak woodland impacts wildlife in various ways depending on the type of fire, its intensity, timing, extent, the weather conditions at the time, fuel loads and moisture, and other factors. Most fires burn in a mosaic pattern with different intensities and effects on the landscape. This helps create a diverse habitat with a variety of plants and habitats for different wildlife.

Many wildlife species can survive fire. Birds can fly away, burrowing animals go underground, and mammals outrun most fires. After the fire wildlife will return to those areas with appropriate habitat.

Foe

Wildland fires may have other, more negative, effects on the ecosystem. Foremost is the potential for erosion from burnt landscapes. Sediment washed down from barren slopes can reduce water quality and may cause dangerous mudslides.

Very hot fires can change the soil chemistry, causing it to be hydrophobic, or water repellent. This increases runoff, and can persist for years.

There is also the danger that fire will promote the growth of noxious weeds that are adapted to grow quickly in newly-burned soil.

Fire suppression activities can also cause problems. Bulldozer lines can increase erosion and open up access to an area. Equipment and personnel have the potential to spread noxious weeds and the fungus responsible for Sudden Oak Death. These concerns can be addressed by taking proper precautions and sanitizing equipment.

Final Comment

On the whole, fires are beneficial and necessary to oak woodlands. In order to coexist with fire, residents should do what they can to reduce the negative consequences of fires. This includes good planning choices in siting homes and buildings, using fire safe building materials, and modifying vegetation around structures.

—see *Fire in California's Oak Woodlands*

Make your property firesafe

- Thin and prune vegetation within 100 feet or more of structures
- Remove ladder fuels so surface fires cannot easily burn into tree canopies
- Use fire-resistant building materials during construction (non-combustible roofing, etc.)
- Plant fire-resistant, drought tolerant plants
- Store firewood away from buildings
- Develop water sources (e.g., water storage tanks) that can be tapped into during fires

Improve wildlife habitat on severely burned landscapes

- Build and install nest boxes
- Retain some large dead and down woody material for amphibians and reptiles
- Retain some standing dead trees for cavity nesters (as long as they don't pose a safety hazard)
- Provide clean water in shallow containers for animals moving through property
- Add native plants to the landscape

—adapted from *Fire in California's Oak Woodlands*

Oak restoration: stewards to the rescue

Summary for Growing Oaks

- Collect acorns in the fall
- Store acorns for one month in a sealed plastic bag in the refrigerator
- Lay acorns on their sides and plant one-inch deep in the soil
- Keep the area around the planting free of weeds
- Water several times during the summer
- Use screen cages or other tree shelters to protect young seedlings from animals

There is a lot of concern about the long-term survival of oak ecosystems. They face numerous threats. In some areas some species of oaks are just not regenerating well, while in others existing trees are being lost to habitat changes. One way to reverse this trend is by planting oaks.

There are many ways to plant an oak tree. We offer some suggestions here and there are more in the references cited at the end of the article. Feel free to experiment and find your own way.

Acorns or Seedlings?

Acorns are there for the taking, they're free and easy to plant. On the other hand, seedlings have a head start and may be more successful in some areas. You can buy oak seedlings at private nurseries. (The State nursery at Magalia sometimes carries valley oak and blue oak seedlings but is currently sold out.)

It is important to use acorns or seedlings from a local source as close to the planting site as possible, both in distance and physical characteristics. Local sources are more adapted to the planting environment, and therefore are expected to be more successful.

Collecting Acorns

Pick acorns in the early fall when they are just beginning to turn brown and starting to drop. You can collect acorns from trees or from the ground, but collecting directly from the trees is best since those on the ground quickly dry out or become infested. Handpick the acorns or knock them down with poles or sticks onto tarps spread on the ground. The biggest acorns are often the best.

Test acorns by submerging them in water. Acorns collected from the ground should be soaked for several hours. Discard any floaters as these may be dried out or insect damaged. Remove any acorns that are cracked, have holes, or any other problems.

Acorns sprout readily, even while in storage. If the radicle (white tip) is long, trim it to 1/2 inch before planting.

Storing Acorns

Remove the acorn caps by twisting; they should come off easily. Pack into resealable plastic bags that are labeled with the date, species, and collection location. Use small- to medium-sized bags to limit the number of acorns stored together. Refrigerate the bags until planting. The cold storage accomplishes two main objectives: it slows metabolic activity and promotes germination. Store as cold as possible but above freezing. Check acorns occasionally for molds; if molds develop rinse the acorns and put them back in the refrigerator. If the mold is extensive discard the acorns.

Acorns cannot be stored for more than a few months and should be planted in the growing season following collection.

Planting Acorns

Acorns can be planted from early November until March after the first rains have soaked the soil. It is better to plant earlier in the season than later. By February or March the soil may be dry and the acorns will need to be irrigated. Early planting also maximizes root development before the dry season and reduces risks from premature germination.

Observe the growing pattern of oaks in the area. Where are they found and how are they distributed? Oaks are more often found on north-facing slopes which are moister than south-facing slopes. Rock outcrops and steep slopes present natural barriers to grazing animals which may provide successful planting sites. Try to mimic the patterns you see in nature.

Choose a site that is sunny, has loose well-drained soil, and is fairly weed-free. Avoid areas with evidence of gopher or squirrel activity.

Dig a hole several inches down then partially refill the hole with loose soil, tamped firm. The deeper the hole, the easier it will be for the new root to penetrate. Plant the acorn on its side about one inch below the soil surface. If the acorn has a white tip (radicle), make a hole in the soil and position the acorn with the radicle pointing down in the hole. If the radicle is long, cut off all but 1/2 inch and plant.

Planting Seedlings

Seedlings should be transplanted in the late winter or early spring before extensive root development occurs. The hole should be twice as wide as the container. Wet thoroughly and carefully remove the root ball. Prune the roots to allow them to go in the hole without

Black plastic is anchored in place around a newly planted acorn. The plastic will keep moisture in and exclude competing vegetation.

bending, (prune the same amount of foliage after transplanting). Set the root ball in the hole with the crown at the level of the soil surface. Fill with soil, tamp, and soak.

Care of Growing Seedlings

Acorns are an important food source for many types of animals so expect some competition. Acorns will be dug up and seedlings nibbled. If this is a concern you may want to take some protective measures. There are numerous types of tree shelters and screens that can protect the seedling from hungry animals above and below ground.

Nearby vegetation can compete for soil moisture to the detriment of your seedling. You can avoid that by removing vegetation in a 2-foot radius around the plants. Mulch, including hay, bark, chips, or black plastic, will help conserve moisture and eliminate competitors.

Irrigation is optional depending on when your acorns were planted and the weather. Two or three deep summer waterings (3 to 4 gallons per seedling) each year for the first few years can help your seedling survive. After that it should be able to withstand the dry summer conditions on its own.

Be aware that not all your plants will survive. Even with protection and irrigation a 60 to 70 percent survival is considered good.

For More Information

- *How to collect, store, and plant acorns http://www.californiaoaks.org/ExtAssets/HowToAcorns'07.pdf*
- *How to grow California oaks* (single copies free on request: *ihrmp@nature.berkeley.edu)*
- *Living among the oaks http://danr.ucop.edu/ihrmp/LivingAmongTheOaks.pdf*
- *Regenerating rangeland oaks in California* by Douglas McCreary. 62-page manual available for $10 at *http://www.californiaoaks.org/html/merch2.html*

There are numerous ways to protect your acorns and seedlings from hungry animals. Experiment or talk to others to find what works best for you.

Integrated Hardwood Range Management Program (IHRMP) Publications:

Living among the oaks

Wildlife among the oaks: A management guide for landowners

Regenerating rangeland oaks in California

Fire in California's oak woodlands

How to grow California oaks

Harvesting firewood for sustained yield on oak rangelands

Guidelines for managing California's hardwood rangelands

Small-parcel landowners's Guide to woodland management

http://danr.ucop.edu/ihrmp/oakpubs.html

Websites:

IHRMP *http://danr.ucop.edu/ihrmp*

California Oak Foundation *http://www.californiaoaks.org/*

Oak Mortality Task Force *http://www.suddenoakdeath.org*

Sudden Oak Death still killing trees

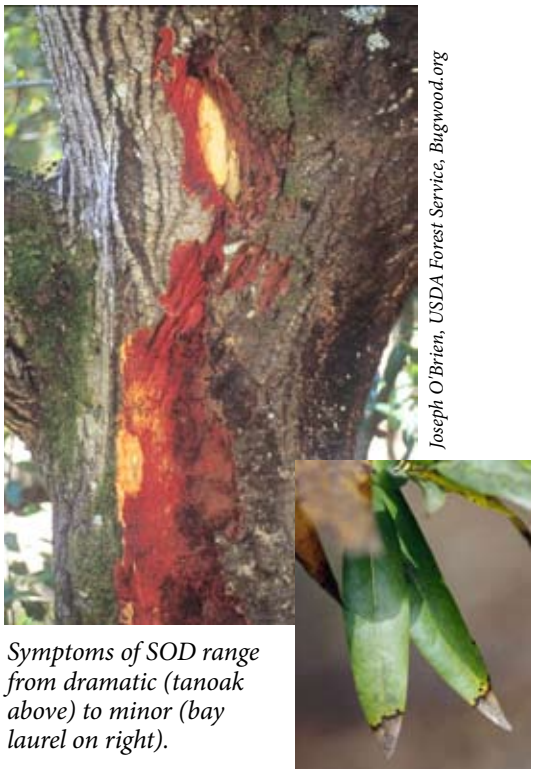
Mature oaks tend to be healthy and are able to withstand most native pests. However, a few non-native newcomers are causing concern.

Sudden Oak Death (SOD) is one of those threats. First noticed in the mid-1990s, it was so named because seemingly healthy trees suddenly turned brown and died.

We now know that SOD is caused by the fungus *Phytopthora ramorum,* and what appeared to be a sudden death was actually the last stage in a prolonged infection by the fungus.

Sudden Oak Death affects dozens of species of plants, but many of these merely act as hosts and have mild to no symptoms. Other plants are more susceptible to the pathogen, including common trees such as tanoak, coast live oak, California black oak, and canyon live oak.

The disease has been found in 14 counties along the coast in northern and central California. The fungus currently appears to be restricted to cool, moist environments.



Joseph O'Brien, USDA Forest Service, Bugwood.org

Symptoms of SOD range from dramatic (tanoak above) to minor (bay laurel on right).

Symptoms and Diagnosis

The only way to be sure that a plant is infected with SOD is to do laboratory analysis of its tissue. If you think you have a case of SOD, contact your local County Agricultural Commissioner for information.

Zone of Infection

The 14 infested counties are under State and Federal quarantine restrictions which require a permit to move susceptible plant material outside of the regulated area. For more information, contact your local CAL FIRE office or County Agricultural Commissioner.

Concerns About Sudden Oak Death

- Tree loss may change the visual landscape
- Loss of susceptible species can change the composition of the forest and profoundly change the ecosystem
- More dead and dying trees can increase risk of wildfire
- Hazard trees can fall on people or property
- Loss of oaks can impact wildlife that depend on them
- Tree loss can increase erosion and result in degraded water quality

—for the latest information on Sudden Oak Death go to the Oak Mortality Task Force website at *www.suddenoakdeath.org/*

Look-alike Diseases

Wetwood. Wetwood, a bacterial infection due to injury, causes bleeding in the trunk and large branches of oaks. The bleeding is watery, foul smelling, and usually copious while SOD is sticky and spotty.

Hypoxylon. This fungus looks like dark balls and grows on dead wood. Hypoxylon is found in the later stages of SOD but can appear on the trunks of trees that are dead or dying from any number of causes.

California oakworm. The oakworm caterpillar can cause heavy defoliation of coast live oaks. Although the tree may look dead or dying, tree twigs and buds are alive and caterpillars will be visible. Infested trees usually releaf in the spring.

Foliar host look-alike symptoms. Foliar hosts can be damaged by the sun or other fungi, causing symptoms similar to *Phytophthora ramorum* on leaves. Other hosts lose their leaves in the summer or display browning foliage during droughts.

Counties Infected with Sudden Oak Death (SOD)

The following counties are under State and Federal quarantine for SOD:

Alameda
Contra Costa
Humboldt
Lake
Marin
Mendocino
Monterey
Napa
San Francisco
San Mateo
Santa Clara
Santa Cruz
Solano
Sonoma
Curry County, OR

Best Management Practices (BMPs)

Best Management Practices (BMPs) have been developed for the following activities and user groups:

- Landscapers and Gardeners
- Christmas Tree Growers
- Forestry
- Recreational Users
- Collecting in Forests
- Arborists
- Homeowners Guide
- Firefighters
- Tribal Plant Gatherers

—*http://www.suddenoakdeath.org/html/best_management_practices.html*

New oak pest found in San Diego County

Gold-spotted oak borer adult and larvae

Photos: Tom Coleman, USDA Forest Service

The gold-spotted oak borer has been found in coast live oaks, black oaks, and canyon live oaks in San Diego County. These tree species extend throughout California so there is great concern that this insect could spread.

Larvae are the damaging life stage of the gold-spotted oak borer. They bore under bark into the living (cambium) layer of the trunk, branches, and roots. Feeding galleries can be found from the base of the tree up to the larger branches.

Symptoms include twig dieback, crown thinning, bark staining, and D-shaped exit holes. Look for extensive black regions or red blistering with sap oozing from under the bark.

Control techniques: Do not transport logs and firewood from the infested area. Remove dead and/or dying trees to reduce localized populations, then tarp the wood with thick clear plastic sheeting or expose it to direct sunlight to kill larvae and pupae. Chipping wood into 2.5 cm pieces, lop and scatter, piling and burning, and debarking logs, can also kill the beetle. Use of insecticides is being explored.

—see *Tree Note 31 http://ceres.ca.gov/foreststeward/pdf/treenote31.pdf*

Larval galleries found on the sapwood.

Oak health check

Check for tree growth

- Tree size is not a good indicator of growth. Oaks on steep, less-watered sites may be smaller but still healthy.
- Twig growth for the season can vary from 3 to 24 inches or more in length. If twig growth is less each year, the tree may be declining.
- Look for growth cracks on a tree's trunk. Cracks appear as widening fissures on existing bark. Tissue in the cracks should be bright green or pink when scratched. Loose bark indicates dead tissue and a diseased condition.

Check for pests and stress

- Watch for disease or insect infestations indicated by leaf loss, changes in leaf color, twig die-back, sooty foliage and branches, or other significant changes in appearance.
- Watch for unusual leaf drop during the early summer, particularly among the older leaves. This can be an indication of drought stress, nutrient deficiencies, or other root zone problems.
- Watch for twig and branch die-back from the ends of branches. This can be an indication of disease, root loss, and/or root zone problems.
- Watch for emergence of clumps of honey-colored mushrooms at or near the base of a tree in the fall and early winter. These are often accompanied by a white fan-like fungal growth between the bark and sapwood. These are symptoms of oak root fungus, *Armillaria melea*.
- Watch for mistletoe, a parasitic broad-leaved shrub that grows in the branches of many oaks.
- Watch for other changes in tree appearance that may indicate declining health.

Check for structural weakness

- Watch for developing structural weaknesses caused by mistletoe, heavy foliage, or poor branch structure. Tight V-shaped branch crotches, long horizontal limbs, extensive decay in branches, and cracks developing in crotches are all indications of weak branch structure. Have tree pruned or support branches to prevent further breakage.

Check for poor drainage

- Standing water should not be evident within a tree's root zone.
- Building, landscaping, or other activities near oaks should not increase water in the root zone during the summer.

Check the root crown condition

Dig carefully at the base of the tree:

- A characteristic root flare should be obvious. If not, the trunk has been buried and soil should be excavated to the original grade.
- Bright pink, green, or dark red bark tissue is healthy. Dark yellow or brown tissue underneath the bark indicates disease.
- Large decay pockets at the root crown or in the buttress roots may indicate a dangerous condition.

— from *Living Among the Oaks: A Management Guide for Landowners*

Resources

Forest Management Activity Plans *identify forest resources, management actions, and conservation practices to help the landowners meet their objectives, maintain production, meet regulatory requirements, and enhance soil, water, air, plants, fish, and wildlife resources.*

Integrated Pest Management Plans *identify steps to manage and monitor pests, maximize efficiencies in the use of pesticides, and look for opportunities to utilize less harmful chemicals while sustaining or improving soil, water, air, plants, fish, and wildlife resources.*

Program to go statewide in October

Pilot will assist landowners in developing their forest management plans

Thanks to the new farm bill, NRCS (Natural Resources Conservation Service) is partnering with CAL FIRE (California Department of Forestry and Fire Protection) to provide financial and technical assistance to landowners who want to develop a Forest Management Activity Plan or Integrated Pest Management (IPM) Plan.

Under this program Registered Professional Foresters (RPFs) will work with landowners using California Forest Improvement Program (CFIP). NRCS will be using the same general cost share payments (75%) used by CFIP.

Foresters who have worked with CAL FIRE under the CFIP program have the basic training to meet NRCS standards and specifications for developing Forest Management Plans. These RPFs can work directly with CAL FIRE Forestry Assistance Specialists (FAS) to provide technical planning to landowners.

The RPF will be selected and paid by the landowner. The Forest Management Plan, once approved by the landowner, will be reviewed and approved by CAL FIRE and NRCS.

If this all sounds very complicated, know that a pilot program is currently underway in Mendocino, Sonoma, Napa, Santa Cruz, Monterey, Trinity, and Shasta counties under the NRCS Environmental Quantity Incentive Program (EQIP) to work out the bugs.

The program will go statewide in October with a special emphasis on fire and the central Sierras. Workshop(s) on forest management planning and practice expectations will be held in the fall with CAL FIRE, NRCS, and Coop Extension to answer questions about the program.

According to Stephen Smith, "the hardest part for the landowner is to get through the sign-up process." While there are many personal financial questions, all information is strictly confidential.

For more information contact Stephen Smith, District Conservationist, NRCS, (707) 468-9223 x112 or Jill Butler, Forestry Assistance Specialist (FAS), CAL FIRE, (707) 576-2935.

Technical Assistance

Many agencies are available to provide technical assistance, referrals, information, education, land management plan assistance, and advice.

California Stewardship Helpline
1-800-738-TREE; ncsaf@mcn.org

California Dept of Forestry & Fire Protection
Forest Landowner Assistance Programs
Jeffrey Calvert
916-653-8286; jeff.calvert@fire.ca.gov

Forestry Assistance Specialists
Guy Anderson (Mariposa/Madera/Merced)
209-966-3622 x218
Jan Bray (Amador) 530-647-5212
Herb Bunt (Redding) 530-528-5108
Jill Butler (Santa Rosa) 707-576-2935
Ed Crans (Placer/Yuba/Nevada)
530-889-0111 x128
Brook Darley (Tehama/Glenn) 530-528-5199
Mary Huggins (S. Lake Tahoe) 530-541-1989
Patrick McDaniel (El Dorado) 530-647-5288
Dale Meese (Plumas) 530-283-1792
Alan Peters (Calav/Tuol) 209-754-2709
Jim Robbins (Fortuna) 707-726-1258
Tom Sandelin (Fresno/King) 559-243-4136

California Association of RCDs
916-447-7237; staff@carcd.org

California Dept of Fish & Game
Tina Bartlett
916-653-9834; tbartlett@dfg.ca.gov

U.C. Cooperative Extension Advisors/Specialists
Mike DeLasaux, Plumas-Sierra counties
530-283-6125; mjdelasaux@ucdavis.edu
Greg Giusti, Mendocino-Lake counties
707-463-4495; gagiusti@ucdavis.edu
Susie Kocher,
530-542-2571; skocher@nature.berkeley.edu
Gary Nakamura, Natural Resources Advisor
530-224-4902; nakamura@nature.berkeley.edu
Bill Stewart
510-643-3130, stewart@nature.berkeley.edu
Yana Valachovic, Humboldt-Del Norte counties
707-445-7351; yvala@ucdavis.edu

USDA Forest Service
Jim Geiger
530-752-6834; jgeiger@fs.fed.us

Calendar

July 17, 2009; 5:00–9:00 pm
Caring for the Future: Lower Feather River/ Honcut Creek Watershed
Location: Southside Community Center, 2959 Lower Wyandotte in Oroville
Contact: Mel & Mary Thompson, (530) 532-4226 mmsierrafarms@oroville.com
Cost: free
Information: Speakers, displays, youth activities, prizes, food by Palermo 4-H Club. Learn about your watershed, saving your home from wildfire, more.

July 28, 2009; 10:00 am - 4:00 pm
The Forest Carbon Market: Addressing Current Needs and Future Expectations
Location: 111 East Commercial St., Willits
Audience: Landowners (100+ ac), foresters, others
Contact: Jessica Neff, PLT, (415) 561-0700 x39
Topics: Forest carbon projects, current market for carbon, CA's carbon registry.
Cost: $25 includes lunch. Register by July 24.
Website: http://cemendocino.ucdavis.edu

August 4–6
California Board of Forestry Meeting
Location: Sacramento
Contact: 916 653-8007
Website: http://www.bof.fire.ca.gov/

September 1–3
California Board of Forestry Meeting
Location: Sacramento
Contact: 916 653-8007
Website: http://www.bof.fire.ca.gov/

September 11–12
Forest Stewardship Workshop
Location: Plumas County
Contact: Mike De Lasaux, 530.283.6125 or mjdelasaux@ucdavis.edu

October 6–8
California Board of Forestry Meeting
Location: Sacramento
Contact: 916 653-8007
Website: http://www.bof.fire.ca.gov/

October 13–15, 2009
New Economic Times: Managing Dollars & Sense
Location: South Lake Tahoe
Sponsor: CA-Nevada-Hawaii Forest Fire Council
Website: http://www.cnhfire.org/

Last summer's "Living with Fire" issue has been reprinted. If you would like copies, contact the Placer RCD at 530-885-3046 x119 or pcrcd@sbcglobal.net .

COMING: More Forest Steward Workshops

September-October-November—Dates TBD

- Road Management Workshops in El Dorado and Tuolumne counties
- Forest Stewardship Workshop in Tuolumne County

Check the UC Cooperative Extension website for more information: http://groups.ucanr.org/Forest/

Submit an application for the Western Wildland Urban Interface Grant Program

Communities in the Wildlife Urban Interface (WUI) can moderate the threat of catastrophic fire through improving prevention and suppression, reducing hazardous fuels, restoring fire-adapted ecosystems, and promoting community assistance.

State Fire Assistance (SFA) funding is awarded through a competitive process with emphasis on hazard fuel reduction, information and education, and community and homeowner action to assist communities in managing the unique hazards around them.

The deadline to submit your application directly to your local CAL FIRE Unit is August 5, 2009. Please group or combine projects whenever possible. For instructions and the application form, go to http://www.firesafecouncil.org/articles.cfm?article=345.

How can Forestland Steward newsletter serve you?

I'd like to see more information on _____

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My suggestions are _____

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❑ Add me to the mailing list / ❑ Change my address:

Name_____

Organization_____

Address_____

City, Zip_____ Phone_____

e-mail _____

❑ To save on printing costs and paper, we encourage you to get the internet version of Forestland Steward. Check here for an email copy of each issue instead of a hard copy.

Fill out this box and send it to CAL FIRE, Forestry Assistance, P.O. Box 944246, Sacramento, CA 94244-2460. Fax: (916) 653-8957; email: jeff.calvert@fire.ca.gov
For address changes, please send this box or contact Jeff Calvert via e-mail, standard mail, or fax…be sure to reference Forestland Steward newsletter.

CAL FIRE & Placer County RCD
Forest Stewardship Program
c/o P.O. Box 162644
Sacramento, CA 95816

ADDRESS SERVICE REQUESTED

Protection Strategies for Working in Your Forest

Oh my aching back, leg, elbow...

Got your summer projects lined up? They'll likely include cutting, trimming, clearing, stacking, and pruning. Clearly you must depend on your body for all of these tasks.

It often takes both brains and brawn to accomplish landownership objectives. A simple yet universal truth in protecting your body from injury is the adage, "an ounce of prevention is worth a pound of cure."

Common nuisance pain patterns during physical work include spine strain, elbow and shoulder tendonitis, and knee overuse. Often landowners have pre-existing pain patterns that interfere with their outdoor activities.

What prevention and protection strategies will keep you going? Optimal body mechanics are the key. Think before you act. Ask yourself, "How can I best position my body for strength and minimize exertional repetitive strain?"

Athletes use a concept called core body mechanics. It uses a wide foot position for a stable base from which to work. There is no better way to protect the spine from stress than positioning your body with the hips, legs, and feet shoulder-width apart and keeping the low back slightly arched.

Avoid rounded, forward-flexed low back posturing when working. Lumbar disc pressures (with risk of herniation) increase 50 percent with a rounded, bent low back posture versus a neutral spine position with a slightly arched back.

Optimal body mechanics also means facing directly toward your reaching, lifting, and pulling-type project. Never twist your spine as you work. Instead, turn and twist through your legs and feet.

Protect your shoulders by not holding overhead positions for more than a few seconds at a time. Overhead arm work creates a crowding and impingement effect to the shoulder anatomy.

Protect your elbow and forearm by taking frequent rest breaks to avoid muscle tendon overuse. Using a saw requires a firm hand grip, which stresses the muscle-tendon attachment at the elbow. Just as tennis players can overuse these muscles, so can sawing or any repeated tool use. Stretch your forearm muscles after every 10 to 20 minutes of laborious strain. With the elbow locked out straight and fingers turned away from your body, use your opposite hand to pull your wrist and hand back toward your body. Hold this stretch 10 seconds and repeat five times. This relieves the work tension on the muscle tendon unit at the elbow.

The knee joint is easily aggravated with kneeling and squatting work positions. When possible, sit on a stump or bucket to alleviate knee stress. Kneel on a soft surface hitting the upper leg just below the knee cap (use of the high tibia bone is much preferred over kneeling directly on the knee cap). The knee cap joint surface is much more sensitive to your weight than the tough shin bone surface. Avoid high-speed twisting and jerking of your knees. Instead, turn through your feet with wide leg position to help leverage powerful leg muscles do the work, not the knee joint itself.

Active rest is also a concept used during straining sports. Most micro-trauma overuse injuries occur from repetition. Take frequent breaks by moving to other close proximity projects that don't involve the same body stress. Go from arm dominant work to leg dominant tasks and prevent overuse.

Take time to enjoy the fresh air, your accomplished tasks, and your forest stewardship activities.

— by *Bob Deppen, Physical Therapist,* reprinted with permission from *Pennsylvania Forest Leaves*