



# FORESTLAND STEWARDSHIP

WORKING TOGETHER FOR HEALTHY FORESTS

## First steps out of a perilous situation

As the fire season heats up in Southern California, everyone is on alert. After the catastrophic wildfires last year, people are paying attention, agencies are working together, and money is available. While the situation continues to be dire, there is the feeling that we've turned a corner...we're making progress.

### The problem

This year's fire season started 45 days earlier than normal due to lack of precipitation for a fifth straight year, along with increasing temperatures and already dry fuels. It could be a wild season, potentially staggering in scope.

The huge bark beetle problem in Southern California is actually part of a larger picture of poor forest health. The old pine forests of the San Bernardino/Lake Arrowhead area have been weakened by air pollution since the 1950s, and exposed to drought for seven out of the last eight years. In addition, the forests are sadly overcrowded; instead of the 40–100 trees per acre expected in a natural environment, there are on average 400 trees per acre, causing intense competition for water and nutrients as well as more fuel to burn.

Bark beetles, which thrive on weakened trees, have exploded to epidemic numbers over the last few years. And the area affected continues to expand. The bark beetle infestation grew by 100,000 trees in six months of 2003. Out of an estimated 35.1 million trees in San



Bernardino and Riverside counties, 12.7 million, or one third, are now dead of bark beetle damage. These dead trees just add more tinder to the already volatile forest.

In a natural forest setting repeated fires, beetle infestation, and other natural factors would have reduced the tree population to lower levels. However, this is no longer possible. The large human residential populations living in the Southern California forests have

*continued next page*

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## FORESTLAND STEWARD

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## First steps *(continued from page 1)*

changed the equation. It is no longer a forest but rather an urban environment in a forest setting. Fire cannot be allowed. And without its natural controls, the only alternative is that the forest be highly managed to compensate for loss of its natural controls.

Right now, the best solution for decreasing the risk of wildland fire appears to be to take out the dead trees before they burn. But removing trees is expensive, and the number of trees that need to be disposed of is overwhelming.

While trees are generally considered a valuable product, the forest products industry in Southern California has been largely nonexistent. The nearest mill is in Terra Bella, over 200 miles from Lake Arrowhead in San Bernardino and nearly 300 miles from Julian in San Diego County. Additionally, the bark beetles introduce a fungus into pine, causing blue stain which lowers the value of the wood. High transportation costs combined with low value reduces the ability of many of these dead trees to "pay their way out of the woods." Costs exceed revenue.

## Finding solutions

What is being done about this exceedingly complex situation? Quite a lot.

The Governor's Blue Ribbon Fire Commission was established to review the 2003 Southern California fires and to find ways to promote a fire safe environment in the wildland urban interface. The 47 Commission members recently came up with more than 50 recommendations in five areas:

1. jurisdictional and operational barriers
2. training
3. interstate/regional mutual aid systems
4. local building, planning, and land use regulations; brush clearance and fuel modification
5. communications interoperability, information technology, and public outreach

Federal, state, and local agencies are now in the process of implementing these recommendations, starting with the easy ones and beginning dialogue to deal with long term issues.

In response to the recommendations, CDF has increased its resources in Riverside, San Bernardino, and San Diego Counties. A fourth firefighter has been hired for each of 53 engines, firefighters are being hired and trained for 10 refurbished engines, four additional handcrews are being staffed, and a helicopter was leased to

San Diego. In addition, CDF has revised its aircraft cutoff-time policy, allowing new flexibility for pilots. Fuels management projects are ongoing in Southern California and CDF is working on funding for a Sierra Fuels Management Program.

Until recently, limited disposal options have included chipping cut trees at the local landfill or burning them in a high-efficiency burner. Now, new enterprises are coming in to take advantage of the surplus wood. Chips are being used for energy and landscaping. Some of the wood, especially high value species like incense-cedar, is going to mills as far away as Oregon.

In addition, new mills have opened up. Two smaller mills are producing pallet stock for Mexico. New markets are being developed.

On the national forest, trees are being removed strategically, with the goal of creating fuel breaks around communities.

The utility companies are clearing dead trees that threaten power lines.

On private lands, the recommendation is to remove most dead trees because they constitute a hazard from falling as well as fire. The NRCS (Natural Resource Conservation Service) recently received \$120 million, some of which can assist landowners in San Bernardino, Riverside, and San Diego counties with tree removal. The local MASTs (Mountain Area Safety Taskforce) in San Bernardino and Riverside, and the FAST (Forest Area Safety Taskforce) in San Diego, are working to identify and prioritize projects for funding.

What can private landowners do? Stay informed and involved. Although progress is being made, this problem is a big one. It isn't going to go away any time soon.

Lest those from other areas feel left out of the action in Southern California, note that these troubles appear to be moving up into the Sierra Nevada where dense, crowded tree conditions also exist. The lessons learned in Southern California should also be heeded there.

*For more information, contact county offices in Riverside, San Bernardino, and San Diego; your local CDF unit; or go to the MAST website at <http://www.calmast.org/mast/public/index.html>. You can link to the Governor's Blue Ribbon Fire Commission at <http://www.fire.ca.gov> for the full report with its findings and recommendations.*

# Recommendations for reforestation

## Frequently Asked Questions

### Do I need to reforest?

Even with the death of trees on your land, you may still have enough or even too many trees. Trees, like all plants, need space to grow. Trees that are too close together have to compete for water, nutrients, and light, and are less able to resist harmful insects and disease.

### How do I know if I have enough trees?

Trees should be allowed to grow throughout their lives with their limbs just touching the limbs of adjacent trees. This generally means that mature trees need to be 18–24 feet from adjacent mature trees. Small trees and seedlings must be planted with room to grow to maturity.

### Do I need to thin out some trees before planting new ones?

If the trees on your property are closer than 20–25 feet apart, you will need to thin some trees before planting new ones. This may be desirable if you are left primarily with oak species and would like to replace them with pine or other native species.

You do not necessarily need to thin all at once; you can accomplish this over the course of a couple of years while new trees are being established. Remember though, some species, such as pine, will do best in partial to full sun.

### I think I need to replant...how many trees should I plant?

The best recommendation is to plant to the spacing specifications above. However, you may want to initially plant closer to allow for any mortality that might occur while the trees are young and then thin to the desired spacing in 5 to 10 years.

### Okay, I'm ready to plant...what kind of trees should I plant?

Trees native to the area will be best suited for the climate and soils. Additionally, despite the recent beetle outbreak, they will be the most resistant to all native pests and diseases. Check with CDF for a list of trees and their sites.

It is best to replant trees grown from seeds collected in your area and within 1,000 feet elevation of your location. When this is not possible, use trees grown from seed collected in areas that most closely match your temperature and moisture regimes.

### What is the difference between bare root seedlings, containerized seedlings, and potted trees?

Bare root seedlings are grown for 1–2 years in the ground at the nursery and then removed from the soil so the roots are exposed. They require cool, moist storage to insure survival.

Containerized stock is grown in small tubes and shipped in the containers in which they are grown. These are less sensitive to the need for cool storage conditions than the bare rootstock.

Potted trees are grown in containers larger than the containerized stock. They have generally been growing more than 2 years and are more expensive than bare root or container stock. Do not purchase a tree that is root bound (roots growing in circles inside the pot), as the roots may not develop normally after planting.

### How do I plant the trees I have selected?

Clear an area two feet square of all competing vegetation and organic material such as pine needles, leaves, grass, etc.

Place bare root seedlings so the root collar (the soil line when it was growing at the nursery) is at ground level and let the roots hang freely into the hole without touching the bottom. For containerized seedlings, dig a hole deep enough that the soil of the root ball touches the bottom and the top is level with the ground.

Pack dirt firmly. Do not leave air spaces or loose dirt as this will cause the soil to dry out. Avoid filling the hole with organic material; it will have the same effect as air spaces.

Form a dirt berm on the downhill side of the tree to help to capture and hold water.

Native tree seedlings should not need support from tree stakes. It is normal for them to bend under snow the first several years.

### Should I water the tree and, if so, how often and how much?

Your tree will only need water for the first year or two except in drought years, when supplemental watering may be needed.

Trees do best with heavy, infrequent watering. Let the water soak in to a depth of 12–18 inches once every 3–6 weeks depending on soil moisture.

—from CDF's *Our Future Forests: Reforestation Recommendations for San Bernardino Mountain Communities*



## Seasonal Stewardship

# Quick fixes and pre-fire planning

### Inexpensive quick fixes

- Keep plants in and around your home free from debris that can burn.
- Cut any branches within 6 feet of your roof.
- Create islands of vegetation so that fire does not have a path to your house.
- Don't use a lot of landscaping bark and mulch—this can cause smoldering embers.
- Cut or graze annual grasses before they dry.
- Do not store firewood and other combustibles within 6 feet of your house, especially under decks.
- Keep barbecue propane tanks as far away from the house as possible.
- Clean gutters regularly or cover them with metal screening.
- Make sure you have an approved spark arrester on each chimney.
- Metallic screens provide protection to windows from radiant energy from fires and some protection against wind-blown debris.

### Prepare for fire

- Precut covers for soffit and frieze-block vents, first floor windows, and glass doors.
- Make a list of places where water is or can be stored.
- Make a list of items to assemble in the event of an evacuation.
- Survey the attic to see how well you can inspect it to locate embers during a fire.
- Make sure you have a carrier for your pets.
- Consider purchasing a self-powered water pump that could be used for hoses and yard sprinklers.
- Make sure you have a wet mop or burlap bags to use for putting out fire brands.
- Store 2 ladders—one for attic access, one for roof access.

—from the UCFPL Homeowners's Survival Guide, available at <http://www.ucfpl.ucop.edu/HOSrvGde.htm>



## Operate your equipment the right way

Each year, CDF responds to nearly 1500 fires started by people using equipment the wrong way. Lawnmowers, weedeaters, chainsaws, grinders, welders, tractors, and trimmers can all spark a wildland fire.

- Do your clearance before 10 am, not in the heat of the day or when the wind is blowing.
- Lawn mowers are designed to mow lawns. Never use lawn mowers in dry vegetation. Use a weed trimmer to cut down dry weeds and grass.
- Remove rocks in the area before you begin operating any equipment. A grass or weed hidden rock is enough to start a fire when struck by a metal blade.
- In wildland areas, spark arresters are required on all portable gasoline powered equipment (tractors, harvesters, chainsaws,

weedeaters, and mowers).

- Keep the exhaust system, spark arresters and mower in proper working order and free of carbon buildup. Use the recommended grade of fuel and don't top off.
- Keep the engine free of oil and dust, and keep the mower free of flammable materials.
- In wildland areas, a permit may be required for grinding and welding operations. Be sure to have 10 feet of clearance, a 46" round point shovel, and a backpump water-type fire extinguisher ready to use.
- Hot exhaust pipes and mufflers can start fires you won't even see until it's too late. Don't pull off into dry grass or brush.
- Keep a cell phone nearby and call 911 immediately in case of a fire.

# The vulnerable parts of your house

Protecting homes from wildfire is best achieved by combining fire-resistant construction materials and design with vegetation management techniques (defensible space).

Wood usually degrades due to either moisture or fire. There may be conflicts between the two, for example, vents that keep an attic dry can also provide ready access to wildfire. While you want to do everything possible to exclude fire from entering your house, it's important to keep in mind that vents have an essential purpose too. It's a balancing act. Your decisions depend on where you live and what threats you are most concerned about.

## Roof

Combustible roofs, such as untreated wood shingles and shakes, are a major fire risk. You can find out what your roofing type is and its fire rating (A, B, C, or unrated) from a roofing contractor or from your house construction permit. Type A roofs are the most fire resistant. There are many attractive alternative roofing materials available these days such as concrete, mineral shakes, stone coated steel, clay, and asphalt shingles (*see photos to the right*).

## Windows

Windows are one of the most vulnerable parts of the house to fire entry. High heat from a fire can fracture glass, as can flying debris. Untempered glass will fracture starting at the edge and moving inward. There are also reports of ignition of materials inside the house, such as drapes, from heat radiation through windows, (although heat high enough to ignite materials behind the glass would probably break the window first).

Remove any combustibles from beneath first-floor windows; low-growing plants under windows is safest. Protect the windows by using shutters to act as a barrier or modify the windows by installing tempered glass.

Single pane glass should be replaced with double glazed, especially on the first floor on the side of the house from which a fire would most logically approach. Tempered glass is less vulnerable to breakage during wildfires. Use of a double pane (insulating glass unit) is very helpful, whether or not the glass itself is tempered.

## Vents

There are many types of vents located in your home, including in soffits, roofs ("eyebrow" vents), tops of roofs (ridge vents), top ends of walls (gable vents), and crawl spaces. Of these the soffit vents, including frieze block vents (the round or notched vents for cathedral ceilings), are most vulnerable to fire. The commonly used soffit materials are totally inadequate for preventing a fire from entering the eaves. Your soffits should be either a noncombustible material, such as a fiber cement product, or 3/4" plywood without joints over the surface area.

Do not block vents without having additional adequate vents added. Building code requires a minimum venting that is barely adequate for most houses. Reducing the vents can potentially lead to serious decay from condensation in the attic area.

Consider advice from a contractor about your options and, above all, be sure that there are no large plants at the ground line directly below soffit vents.

## Decks

Decks can be another flammable area of the house. A ground fire can come up below the deck or burning brands can drop on top. There are many different decking choices; you'll want to select a type that will be most effective for the fire conditions you're most concerned about. In studies done by the UC Forest Products Lab on decking materials, nothing did better than redwood, although some materials were comparable. For a summary of deck tests, go to [http://www.ucfpl.ucop.edu/ER\\_WD/Decks.pdf](http://www.ucfpl.ucop.edu/ER_WD/Decks.pdf).

## Siding

Most sidings are combustible, therefore it is important to make sure there is nothing to burn at the base, that there are no openings in the siding where fire brands could enter, and that the siding is thick enough (3/4") that it is unlikely to burn through into the wall cavity. Stucco is an exception; it is noncombustible. Stucco walls are fine as long as the stucco is about 7/8" thick and has sheathing beneath it.

—adapted from information provided by the University of California Forest Products Laboratory. <http://www.ucfpl.ucop.edu/>.

## Examples of firesafe roofs



Concrete roof



Mineral Shake



Stone Coated Steel



Clay



Asphalt Shingle

—photos from "Could This Happen to You?" brochure from the Committee for Firesafe Roofing

## Reforestation

# Grow your own: collecting seeds

The first step in reforestation is to have seeds or seedlings to plant. You can often buy what you need from nurseries, but if you have unique trees, are concerned that adequate seeds or nursery stock won't be available for your needs, or want to learn how it is done, you may want to consider gathering your own seeds.

The trees that will do best on a site are those adapted to the specific conditions of soil, elevation, climate, etc. found there. That generally means you should plant stock from seeds gathered nearby. When choosing the trees from which to collect, make sure they grow in similar conditions to where you want to plant. It is important to choose trees that are healthy, tall, and straight; you are selecting the best genes for your future forest.

Besides picking cones from a standing tree, you can gather freshly fallen cones, gather cones from cut trees, or steal them from squirrels.

### Don't let cone season pass you by

Cone season lasts only a few weeks so you have to know when to collect. The trick is to harvest cones when the seeds are mature, but before they are released from the cone.

Start checking cones from potential collection trees around June 1 in the lower elevations. Expect later ripening times as you go up in elevation or north in latitude.

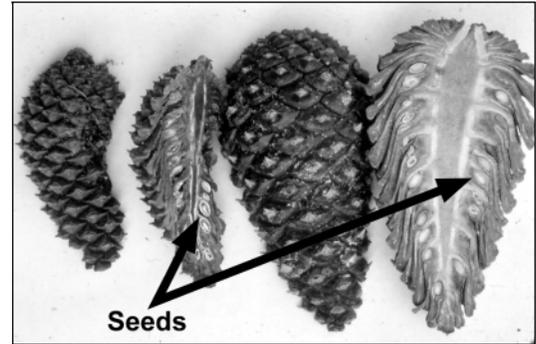
While color change accompanies cone ripening, the best way to tell if cones are ripe is to cut into some samples. Look for seed embryos that fill 90% or more of the cavity, with firm white material around the embryo.

### Gathering and storing cones

Collecting is a dangerous business and should be done by professional pickers using special climbing gear.

Collect cones from the upper third of the tree as those are usually the most vigorous. Besides picking, other ways to get cones include gathering freshly fallen cones, gathering cones

from freshly cut trees, or stealing them from squirrels. However, the latter can be a problem as squirrel caches are often moldy.



To check seed status, cut cones of Douglas-fir, pine, hemlock, and spruce through middle; cut cones of true firs off-center; and cut cones of incense-cedar widthwise below the center. Photo courtesy Raising Forest Tree Seedlings at Home.

Put cones in burlap or nylon screen bags, filled about halfway to allow the cones to expand as they dry. The bags should be treated gently, not dropped or tossed around.

Label each bag with the pertinent information: date, species, location, elevation, etc. This step is extremely important for your records.

Stacks should be stored in a dry, well-ventilated environment; often sacks are placed on open racks or hung from rafters. Separate the sacks to allow air to circulate and check often for mold. If this becomes a problem, rearrange the sacks to improve air circulation.

Cones with mature seeds will take a few days to dry while green cones may take weeks or months. Some fire pines, such as lodgepole and knobcone, need heat to open and so will require special treatments.

### Getting the seeds out

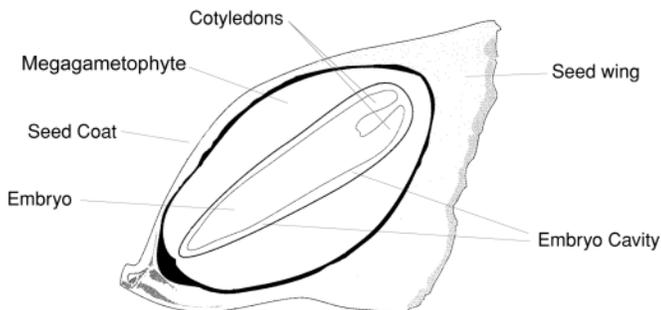
Retrieving the seeds is a multi-step process. Fancy equipment can make the tasks easier but is not necessary.

The first step is to get the seeds out of the cones. As cones dry, they open and release their seeds but you may need to help this along; dry the cones in a warm area or use a small fan.

Next, separate the seeds from the cones and debris. This is done with screened boxes that allow the seeds to fall through while the larger debris remains. Screen again with a smaller mesh that retains the seeds while passing smaller particles through.

De-winging is the removal of the seed's

Cross-section of a mature seed. Both the embryo and megagametophyte (storage tissue) should be white and firm like a coconut. The embryo should fill at least 90% of the cavity. Illustration courtesy Raising Forest Tree Seedlings at Home.



wings. Fill a cloth sack 1/4 full with seeds and knead it gently for a few minutes to detach the wings. Incense-cedar has tight wings that can be left on the seeds. After de-winging, pass seeds through a screen to get rid of smaller debris.

Finally, separate the good seeds from the bad by winnowing or fanning. This can be done with a small fan or even the wind if you lack fancy seed-cleaning equipment. Pour seeds slowly in front of a small fan, where they separate out according to weight. Heavier, sound seeds will come down near the base of the fan, while hollow seeds, wings, and light impurities will blow farther. Examine seeds to determine at what distance the hollow seeds fall and discard them. It will probably take several passes to separate seeds out to the desired purity.

### Store it

Storing seeds correctly is vital for healthy plantings. Since seeds need to have a low moisture content for optimal storage, further drying is necessary.

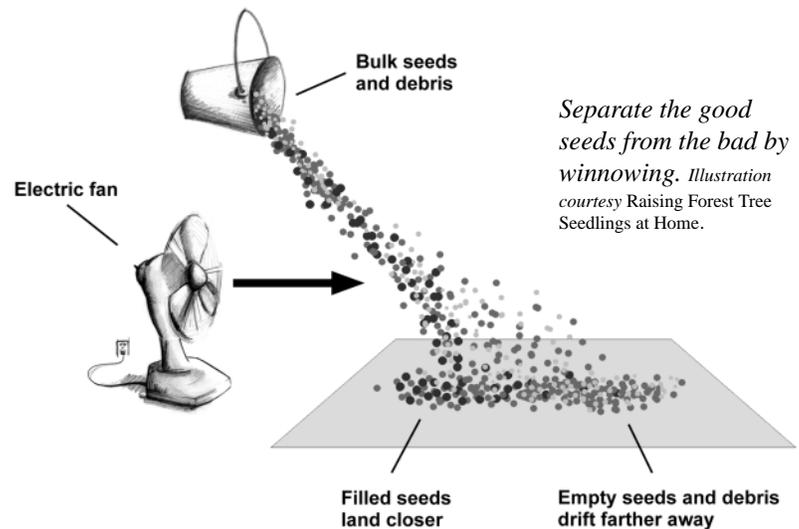
Air dry clean seeds in shallow trays for 2 to 4 weeks before storing. Stir them occasionally to prevent uneven drying. When they are adequately dried, put the seeds in an airtight container and label it with all the necessary information. It is best to freeze seeds at 0–5° F; storing at room temperature quickly reduces viability. While frozen seeds may survive for 10 years or more, you can store seeds temporarily (for a few weeks) in the refrigerator (less than 40° F) in an airtight container.

### Pre-treatments

Most trees need to go through a period of dormancy before they can sprout, or germinate. Dormant seeds require a winter period of cold and wet before they can grow (some species need warm, moist conditions first). This “winter” period can be measured in days, weeks, or months, depending on species.

In forestry, this cold period is called “stratification” because of the technique used to simulate winter. There are now a number of different stratification techniques available.

A continuing concern in all steps of seed collection is the danger of mold or other diseases, also known as damping-off. In some cases you may wish to treat seeds with a hydrogen peroxide or bleach solution. If seeds begin to mold during stratification, they should be rinsed thoroughly in running water and rehung in a



Separate the good seeds from the bad by winnowing. Illustration courtesy Raising Forest Tree Seedlings at Home.

clean plastic bag. This may need to be done several times.

If seeds begin to sprout, remove them from stratification and spread them out to dry. This will slow the germination process.

After stratification, remove seeds from the refrigerator and soak them in running water for 24 hours. This gives the seeds the water they need to germinate.

### Testing the seeds

You can perform a germination test to see how viable your seeds are. After stratification, rinse the seeds for 24 hours. Non-stratified seeds should be rinsed for 48 hours.

Divide the test seeds into 4 groups of 25–100 seeds/group. Stack paper towels 1/8 to 1/4 inch thick, moisten completely, then drain off excess water. Spread seeds over the paper towel and place it into a plastic container. Close the lid and put the container in a location at room temperature and out of direct sunlight. Every five days, count the seeds with a primary root at least as long as the seedcoat and remove them. After 30 days average the counts from the four groups to get a percent germination. If most of the seeds have not germinated in the first 10–21 days, the seeds may need a longer stratification.

—adapted from Raising Forest Tree Seedlings at Home: Simple Methods for Growing Conifers of the Pacific Northwest From Seeds, by R.K. Dumroese, T.D. Landis, and D.L. Wenny. Published in 1998 by the Idaho Forest, Wildlife, and Range Experiment Station; Contribution #860. Find the entire publication at: <http://www.uidaho.edu/seedlings/howtogrow/manual.htm>.

### For more information

*The Container Tree Nursery Manual.* Agriculture Handbook 674, Washington, CD USDA Forest Service.

*Woody-Plant Seed Manual*  
<http://www.rngr.net/nurseries/Publications/Folder.2004-04-22.2821>

*Forest Nursery Manual: Production of Bareroot Seedlings,* Kluwer Academic Publishers

*Growing Conifer Seedlings, Transplants, and Trees in an Outdoor Nursery—Book 1 & 2* by Donald and Joan Hilliker.

# The state of our state's forests

*The internet continues to change the way information is disseminated. The Forest and Range 2003 Assessment was developed as a web-based, rather than print-based, report which allows easier updates and the ability to link to additional resources. Users can gather information from databases, maps, and other resources. Topics are presented as a series of on-line technical reports (next page) that are also available on CD.*

*Find the 2003 Assessment on the web at <http://www.frap.cdf.ca.gov/assessment2003/> or call FRAP at (916) 327-3939 for a hard copy or CD.*

About once a decade, CDF does an assessment to learn what is happening with California's forests and rangelands. Required by law, this assessment is accomplished in cooperation with others—state, federal, local agencies, public and private organizations, and academic researchers.

## A new approach

The latest report, *The Changing California: Forest and Range 2003 Assessment*, was developed by CDF's FRAP (Fire and Resource Assessment Program) and takes a new tack from earlier editions. It assesses California forests in a larger regional and global context, and identifies the new and changing issues surrounding them. In addition, the 2003 Assessment utilizes new technology to make the information available to researchers and the public for further use.

A review of the status and trends occurring in California forests provides a framework for the bigger questions of sustainability, defined as "meeting the needs of the present without compromising the ability of future generations to meet their needs." Three major interrelated areas of sustainability are addressed—environmental, social, and economic.

## New and changing issues

Some of the important new issues that affect California forests include pressure from continuing population growth, environmental and regulatory costs, global competition, and technology.

The public is more involved in forest management than ever before. There are hundreds of groups—landowner groups, watershed groups, restoration groups, land trusts, and fire safe councils—involved in forest-related issues. Each brings its own needs and perspectives to the table. Thanks in large part to the technology of the internet, there is more networking and information sharing among groups.

The global connections are also changing and growing. Competition within a world market and concerns on a global level about environmental degradation and deforestation, socio-economic development, loss of biological diversity, climate change, and species extinctions has led to a number of international conferences and agreements. California forests are part of this bigger global picture.

The forest products industry is in a state of

The following eight themes have been identified as vital to sustainability.

- Integrate environmental, economic, and social goals.
- Conserve the working/private landscape.
- Improve watershed conditions.
- Reduce wildfire threats.
- Reduce loss of productivity and forest health from increased stocking levels.
- Meet the complexities of management in metropolitan forests and rangelands.
- Address continued residential land use pressures.
- Improve policy coordination and integration.

change also with declining timber harvest outside of plantations, declining number and capacity of mills, and declining timber-related employment. At the same time, Californians are consuming more from the forest. We use increasingly larger quantities of wood and other forest products, water, energy, and forest-related values such as recreation.

Significant changes to California's forests over the last decade include

- Increasing consumption of forest products and water
- Increasing focus on watersheds, open space, wildfire, and endangered species habitats
- Decreasing production of forest products
- Increasingly complex interactions among owners, regulators, and stakeholders.

## The Montréal Process

The 2003 Assessment uses indicators of sustainability developed internationally and used by 12 countries covering over 90 percent of the world's temperate and boreal forests. These are known as the Montréal Process.

The assessment indicators are organized around seven major themes, or criteria:

- 1) biological diversity

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- 2) productive capacity
- 3) forest health
- 4) soil conservation and water quality
- 5) forests and climate change
- 6) socio-economic benefits
- 7) governance

Within these themes are 67 indicators that measure the status and trends of forest conditions and focus attention on the factors affecting sustainability. FRAP adapted these indicators to meet the special conditions of the state.

### Challenges, Opportunities, and Options

California forest issues involve two separate, but related, aspects. The first is maximizing useful

services and commodities; the other protecting, maintaining, and improving the underlying ecosystems. These are not mutually exclusive but do require a mix of tools, options, and creativity to integrate. The challenge is to reach acceptable levels of biological diversity, commodity production, social well being, and environmental quality; to find the right mix of management and protection.

This is a big challenge, but, as Andrea Tuttle, Director of CDF states in the forward, "We have the critical elements for problem solving already in place—a strong environmental ethic, well-developed economic and regulatory institutions, and respect for law....Our hope is that better understanding, greater trust, and wiser decisions will come from better information."

*In addition to the technical reports, four other types of useful information have been compiled:*

*Data: Spatial data such as GIS files, databases, and tables.*

*Maps: A variety of maps including wildlife habitat, management complexity, ownership, wildfire characteristics, and development patterns.*

*Related links: Links to publications and data authored by various academic, nonprofit, and government agencies.*

*Interactive products: On-line mapping services in which users can display and query spatial information.*

## Technical reports

A comprehensive series of reports on over 30 topics evaluating environmental, economic, and social conditions that are the foundation to California's forest and rangeland resource sustainability. These reports can be found at <http://www.frap.cdf.ca.gov/assessment2003/toc.html>.

### Conservation of Biological Diversity

- Habitat Diversity
- Special Habitat Elements: Snags & Down Logs
- Old Growth Forests
- Hardwoods
- Population Status of Native Species
- Species of Concern

### Maintenance of Productive Capacity

- Forest Land Base
- Timberland Inventory Characteristics
- Maintenance of Productivity of Forest Lands by Zoning
- Rangeland Area and Condition

### Maintenance of Forest and Rangeland Health and Vitality

- Habitat Loss and Alteration
- Wildfire Risks to Assets
- Trends in Wildland Fire
- Forest Pests and Diseases
- Non-native Invasive Species
- Air Quality Influences

### Soil Conservation and Water Quality

- Protection of Soil

- Watershed Quality and Assessment

### Forest Contribution to Global Carbon Cycles

- Forests and Climate Change

### Maintenance of Socio-Economic Benefits

- Socio-Economic Characteristics
- California
- Economic Conditions and Structure
- Forest and Range Related Energy Industry
- Recreation
- Range Livestock Industry
- Forest Products Industry
- Water Supply and Use
- Contributions of Timber-Related Revenue to Local Governments

### Legal, Institutional, and Economic Framework for Conservation and Sustainable Management

- Legal Frameworks
- Institutional Shifts During the 1990s
- Infrastructure and Services in Support of Forest and Range Communities
- Resource Investments
- California's Wildland Fire infrastructure
- Information Collection, Monitoring, and Research

## Resources

# Where's the money?

Funding for cost share and assistance programs for forest landowners continues to fluctuate and is tricky to keep track of. Here is the status of some of the programs that may provide technical and financial assistance to private forest landowners. For more information, go to the website or contact your local NRCS or RCD office. A new cost share directory will be available soon at the Forest Stewardship website.

**CFIP** (California Forest Improvement Program) No funds are allocated for FY 2004 at this time.

**EQIP** (Environmental Quality Incentives Program) has \$42 million for California and this amount is expected to increase in the next 2–3 years. EQIP funds are prioritized by Resource Conservation Districts (RCDs) in each county. It is important to get ready with your project now and meet with your RCD to make sure that forest projects receive high priority. For more information go to <http://www.nrcs.usda.gov/programs/eqip/>.

**WHIP** (Wildlife Habitat Improvement Program) is still available for private landowners who want to improve fish and wildlife habitat.

More information is at <http://www.nrcs.usda.gov/programs/whip/>.

There is quite a bit of money, over \$150 million, earmarked for **dead tree removal** in the counties of San Bernardino, Riverside, and San Diego. This money is available through county agencies. Contact the MAST (Mountain Area Safety Task Forces in San Bernardino and Riverside) or FAST (Forest Area Safety Taskforce in San Diego) for more information.

The **Oak Woodlands Conservation Program** is offered to protect and restore California's oak woodlands. 80% of the funds are for easement acquisition, restoration, or long term projects; 20% is for education, outreach, and technical assistance. For more information go to [http://www.dfg.ca.gov/wcb/oak\\_woodland\\_program.html](http://www.dfg.ca.gov/wcb/oak_woodland_program.html).

**FIP** (Forest Incentives Program) and **SIP** (Stewardship Incentives Program) have been eliminated, although there is still a little FIP money left.

The **FLEP** (Forest Land Enhancement Program) is not being funded at the present time.

## 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](mailto:ncsaf@mcn.org)

**California Department of Forestry & Fire Protection**  
Forest Landowner Assistance Programs  
Jeffrey Calvert  
(916) 653-8286; [jeff.calvert@fire.ca.gov](mailto:jeff.calvert@fire.ca.gov)

**Forestry Assistance Specialists**  
Jill Butler (Santa Rosa)  
(707) 576-2935; [jill.butler@fire.ca.gov](mailto:jill.butler@fire.ca.gov)  
Rich Eliot (Fortuna)  
(707) 946-1960; [rich.eliot@fire.ca.gov](mailto:rich.eliot@fire.ca.gov)  
Adam Wyman (Red Bluff)  
(530) 528-5116; [adam.wyman@fire.ca.gov](mailto:adam.wyman@fire.ca.gov)  
Tom Sandelin (Fresno)  
(559) 243-4117; [tom.sandelin@fire.ca.gov](mailto:tom.sandelin@fire.ca.gov)

**California Association of RCDs**  
(916) 447-7237  
[staff@carcd.org](mailto:staff@carcd.org)

**California Dept of Fish & Game**

Marty Berbach  
(916) 327-8839; [mberbach@dfg.ca.gov](mailto:mberbach@dfg.ca.gov)

**California Resources Agency:**  
California Environmental Resources Evaluation System (CERES)  
Deanne DiPietro  
(916) 653-8614; [deanne@ceres.ca.gov](mailto:deanne@ceres.ca.gov)

**Farm Service Agency**  
Larry Plumb  
(530) 792-5520

**Natural Resources Conservation Service**  
Jerry Reioux  
(530) 792-5655; [jerry.reioux@ca.usda.gov](mailto:jerry.reioux@ca.usda.gov)

**U.C. Cooperative Extension Forestry**  
Richard Harris  
(510) 642-2360; [rrharris@nature.berkeley.edu](mailto:rrharris@nature.berkeley.edu)  
Gary Nakamura  
(530) 224-4902; [gmnakamura@ucdavis.edu](mailto:gmnakamura@ucdavis.edu)

**USDA Forest Service**  
Sandra Stone  
(707) 562-8918; [ssstone01@fs.fed.us](mailto:ssstone01@fs.fed.us)

## Calendar

### June 29–July 1, 2004

#### **Integrated Management of Forest Landscapes for Ecological and Social Values: Using Ecological Forestry for Forestland Mgmt.**

Blue River, OR

Western Forestry & Conservation Assn.

Aimee 888-722-9416; aimee@westernforestry.org

\$850; July 2 Optional Field Day add \$175

www.westernforestry.org

### July 12–14, 2004

#### **Board of Forestry**

Sacramento, CA (Resources Bldg.)

Board of Forestry

Donna Stadler 916-653-8007, fax 916-653-0989

www.fire.ca.gov

### July 21–22, 2004

#### **CA Forest Pest Council Weed Summer Field**

#### **Tour: Tools of the Trade**

Chico/Oroville, CA

California Forest Pest Council

Mike Marvier 530-873-0530 x 225;

mmarvier@spi-ind.com

\$75; 21st dinner add \$25

### July 24, 2004

#### **NCSAF Summer Field Tour: Healthy Forest Restoration Act–Multiparty Monitoring**

Georgetown, CA

N. Cal. Society of American Foresters

Julie Lydick 707-562-8921; jlydick@fs.fed.us;

Sherry Cooper 530-224-4902;

shcooper@ucdavis.edu

\$40-\$45; late fee after 7/16/04

www.norcalsaf.org

### July 28–30, 2004

#### **CA Forest Soils Council Annual Field Tour**

near Tahoe City, CA

California Forest Soils Council

Dave Young 530-226-2545; daveyoung@fs.fed.us

http://www.humboldt.edu/~cfsc/

### August 1–6, 2004

#### **Ecological Society of America Annual Meeting: Lessons of Lewis and Clark: Ecological Exploration of Inhabited**

#### **Landscapes**

Portland, OR

ESA

202-833-8773; esahq@esa.org

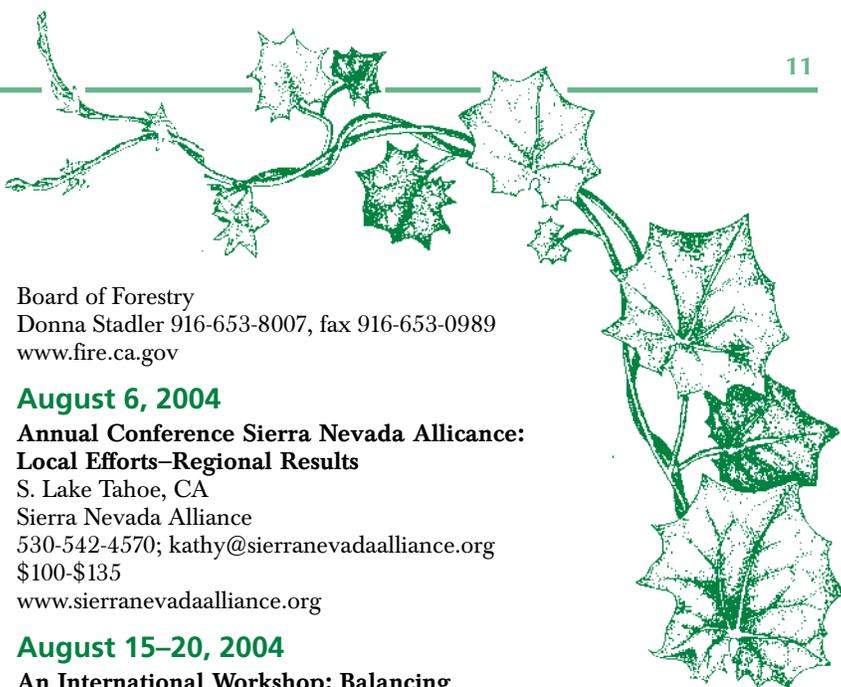
\$225-\$325

http://esa.org/portland/

### August 3–5, 2004

#### **Board of Forestry**

Sacramento, CA (744 P St., tentative)



Board of Forestry

Donna Stadler 916-653-8007, fax 916-653-0989

www.fire.ca.gov

### August 6, 2004

#### **Annual Conference Sierra Nevada Alliance: Local Efforts–Regional Results**

S. Lake Tahoe, CA

Sierra Nevada Alliance

530-542-4570; kathy@sierranevadaalliance.org

\$100-\$135

www.sierranevadaalliance.org

### August 15–20, 2004

#### **An International Workshop: Balancing Ecosystem Values–Innovative Experiments in Sustainable Forestry**

Portland, OR

Oregon State University

Conference Assistant 541-737-2329;

outreach@for.orst.edu

http://outreach.cof.orst.edu/ecosystem/

### August 31–September 2, 2004

#### **Board of Forestry**

Sacramento, CA (Resources Bldg.)

Board of Forestry

Donna Stadler 916-653-8007, fax 916-653-0989

www.fire.ca.gov

### September 18–22, 2004

#### **The Wildlife's Society Annual Conference**

Calgary, Alberta, Canada

The Wildlife Society

301-897-9770 mailto:tws@wildlife.org

http://www.wildlife.org/conference/

September 22, 2004

### September 30–October 4, 2004

#### **SAF 2004 National Convention: One Forest Under Two Flags**

Edmonton, Canada

Joint Society of American Foresters & Canadian

Institute of Forestry

301-897-8720 fax: 301-897-3690

\$375-\$500; late fee after 8/25/04

www.safnet.org/calendar/natcon.htm

### October 4–6, 2004

#### **CALFED Science Conference: Getting Results: Integrating Science and Management to Achieve System-Level Responses**

Sacramento, CA

Anke Mueller-Solger; amueller@water.ca.gov;

David Schoellhamer; dschoell@usgs.gov

\$145; late fee after 9/17/04

http://iep.water.ca.gov/calfed/sciconf/2004/

*For more information on these events call the number provided or the Forest Stewardship Helpline, 1-800-738-TREE.*

*To submit an event, contact Sherry Cooper, 530-224-4902;*

*shcooper@ucdavis.edu.*

*Find a more comprehensive calendar at the Forest Stewardship website <http://ceres.ca.gov/foreststeward>*

## Species Spotlight

# Incense-cedar: as lovely as it is useful

Incense-cedar is a ubiquitous tree, well loved for its beauty, fragrance, and many superior properties.

This stately California native is an extremely versatile species, found in California forests from the coastal fog belt to the edges of the desert—even on serpentine soils. It seldom grows in pure stands, but rather as one component of the forest ecosystem.

Size varies significantly over its range. In the Coast Range, an average tree might be 70 feet tall and 42 inches dbh (diameter at breast height), while in the Sierra Nevada it will reach 150 feet and 84 inches dbh. The trees can live to an old age of 500 years or more.

Incense-cedar can tolerate a wide range of conditions—drought, shade, even ozone pollution. Although seedlings are very sensitive to fire and

burn easily and completely, larger trees have a thick bark and usually survive ground fire.

Its ability to hang on in adverse conditions is one of the characteristics that makes incense-cedar so successful. Compared to other associated trees, incense-cedar grows very slowly, often taking 5 years to reach a height of 6 inches. It is usually overtopped and shaded by faster growing trees on good sites where it is a subdominant tree. On poor sites, however, it can outcompete other trees and becomes a codominant species. Its extensive root mass allows it to avoid drought and windthrow.

For full development incense-cedar requires good light. In the Sierra Nevada, it grows as an understory species in ponderosa-sugar pine forests. The trees grow very slowly in their natural shaded conditions, but when an opening occurs, they respond quickly, becoming a codominant species in the stand.

Mature trees are plagued by pocket dry rot, a fungus that affects 75–100% of trees in some areas of the Sierra Nevada. The fungus enters the tree through fire scars or other wounds. However, since trees are usually affected only after they are 165 years or older, this is not a problem for timber production where rotations are considerably less than that.

Root disease, especially the fungus *Heterobasidion annosum*, causes considerable damage to incense-cedar. Other pests include bark beetles and other insects, but these seldom are serious problems.

A large variety of wildlife utilize incense-cedar for shelter. It is a common deer browse but not very palatable for most species.

Incense-cedar makes great pencils. The wood is soft, fine-grained, and easily sharpened. Products from the tree also include brooms and basketry. It has been used medicinally to treat stomach distress and colds.

Lumber from incense-cedar is highly resistant to moisture and decay, and so is used extensively for exterior purposes such as siding, shingles, window sashes, fencing, poles, and trellises. Thanks to its aromatic properties, the wood is highly desirable for indoor paneling and, of course, cedar boxes.

Besides its durability, the wood is easy to work and finishes well. It can be cut, planed, routed and bored, painted, nailed, and glued easily. Even pecky cedar, boards made from trees infected with pocket dry rot, is popular for fencing and paneling.



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Phone: (916) 653-8286; Fax: (916) 653-8957; email: jeff.calvert@fire.ca.gov