



CALIFORNIA FOREST STEWARDSHIP PROGRAM

# Forestland Steward

SUMMER 2013

## California's native landscape

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Photo by Pete Veilleux, East Bay Wilds



## 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.

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The ideas contained in this newsletter are meant as general information and opinion, not management prescription.

Consult a Registered Professional Forester or a qualified technical advisor (see page 10) for management advice specific to your needs.



# Chaparral: Unloved and misunderstood

It's one of the iconic landscapes of California, yet chaparral lacks respect. Dismissed as "brush" or "weedy," these important native shrublands are under siege by some very serious threats: development, fire, nonnative plant invaders, and a changing climate.

Chaparral communities are very different from forests in ecosystem function. For that reason, management techniques that are appropriate for forests may not be applicable here. Because of the importance of shrublands in California and the significant threats affecting them, it is time to take a closer look at these misunderstood communities and how to best manage them.

## About California shrublands

Chaparral is found throughout California from the Oregon border to Baja California, especially in the Transverse and Peninsular ranges in central and southern California and the foothills of the Sierra Nevada (*see map*). Altogether, shrublands cover a respectable 8.5 percent of the state.

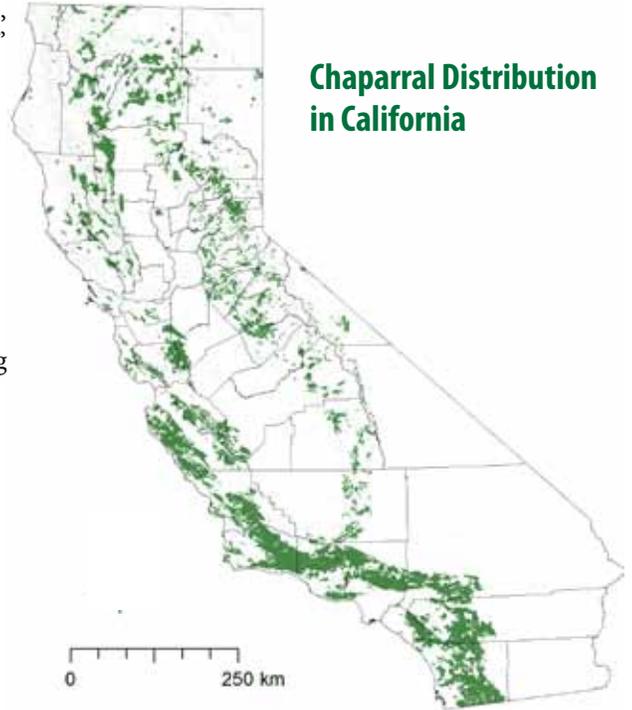
Chaparral communities occur in many forms, with dozens of different combinations of dominant plants and associations. These varied communities also have a lot in common. The dominant plants are woody with multiple stems, and there are few to no trees. Chaparral plants are highly influenced by our Mediterranean climate of mild wet winters and long hot dry summers. Their growing season occurs in the wetter winter months and they go dormant in the summer.

Fire is another major influence. Most chaparral plants regenerate after fire either by resprouting or germinating from the seed bank (*see page 4*).

Although plants in shrubland communities may look superficially similar, they are actually quite different physiologically. Chaparral dwellers—both plants and animals—are survivors, highly adapted to the Mediterranean climate and periodic fires. Some of the strategies they employ to live there are simply amazing (*see pages 6 & 7*).

## Importance of shrublands

Chaparral comprises about a quarter of the state's native plant species, of which almost half are endemics (only found in California).



**Chaparral Distribution  
in California**

—from Keeley, J.E., and F.W. Davis. 2007. *Chaparral*.  
<http://www.werc.usgs.gov/ProductDetails.aspx?ID=3457>

Shrublands are not only the repository of much of the state's biodiversity, they provide many other vital ecological functions. These ecosystems capture water to help replenish underground stores. Their roots hold the soil to prevent erosion. When chaparral is removed or converted to grassland, it can have far-reaching impacts on the area.

Just as importantly, shrublands feed our souls with their quiet beauty in a subtle palette of greens and greys that acts as a perfect foil for the flowers that bloom at certain times of the year and after a fire.

## Types of shrubland

Shrubland is generally categorized by its dominant species and associated plants, which vary based on numerous factors including elevation, slope, aspect, microclimate, moisture, soil, and many more. These are very complex communities. Each species is constrained in where it can live by its unique tolerances for drought, temperature, light, soil, and other parameters.



Photo: USFS

*Chaparral exhibits a quiet beauty in a subtle palette of greens and greys.*

### Chaparral

Chaparral is dominated by woody evergreen shrubs with deep roots and thick leathery leaves. It is found over a broad range of elevations, from sea level to about 6000 ft, often on poor soils.

The leaves of chaparral species are adapted to the long annual drought. They can be small, leathery, thick, fuzzy, and/or waxy—all adaptations to resist water loss. The plants generally have shallow roots that extend horizontally to collect rainwater, as well as taproots that reach deep into the groundwater.

Old growth chaparral is a term given to mature stands that develop after at least 40–50 years. These mature ecosystems form dense, sometimes impenetrable, thickets 6–9 ft tall, and can persist for decades where they continue to grow and be productive. These mature shrublands function as a climax community. They are quite resilient, able to maintain their ecosystem processes and recover to prefire diversity after a wildfire.

### Coastal Scrub

Coastal scrub is sometimes called “soft chaparral” because the dominant plants have softer leaves and are not as woody as “hard chaparral.” Coastal scrub is generally shorter and less dense than chaparral, and found on drier

slopes at lower elevations. Fog can alleviate some of this harsh climate by lowering the temperature and increasing the relative humidity.

Many species have hairy leaves and aromatic oils, which help retain water. Some are drought-deciduous; they drop their leaves during summer to reduce moisture loss. Others accomplish this by producing smaller leaves in the summer.

Coastal scrub soils tend to be erosive and poor in nutrients. The scrub vegetation species are instrumental in holding the soil with their fibrous shallow roots.

Coastal sage scrub supports over 100 species of plants and animals that have been listed as rare, threatened, or endangered.

### Threats to chaparral

Chaparral is facing numerous serious threats, including habitat loss due to development, invasive species, fragmentation and degradation of the ecosystem, and too much fire. Fire plays an important role in shrubland health and regeneration, but increased fire frequency in shrublands due to human-caused ignitions is taking its toll (*see page 4*).

Currently, due to a combination of threats, shrublands are some of the most endangered and least protected plant communities in California.

### Mediterranean shrublands around the world

Chaparral-type vegetation is found in Mediterranean climates in only a few places in the world. Globally, these shrublands contain 20 percent of the earth’s plant diversity. The term “chaparral” refers specifically to California plant communities, but similar communities are found in:

- Mediterranean Basin (known as maquis)
- South Africa (fynbos)
- Central Chile (matorral)
- SW Australia (kwongan)

Generally speaking, northern California has a problem with too little fire, while southern California has too much.

## Fire in California: north vs. south

In the last issue of *Forestland Steward* we discussed the need to bring fire back to the forest landscape, especially in northern California where fire suppression has removed this vital factor from the forest ecosystem.

But fire management is not one-size-fits-all. The chaparral landscapes of southern California are coping with the opposite problem: too much fire. It all comes down to the natural fire regime.

### Chaparral fire regime

Fire is extremely important to shrublands. These communities are composed of fire-prone species that are adapted to survive burning, and fire plays a major role in maintaining biodiversity. Fire can be a force for renewal of the ecosystem, however, it can also alter the chaparral

irretrievably. At issue is the need to maintain the natural fire regime, the historical pattern of fire frequency, season, intensity, and severity.

Under natural conditions fire is ignited by lightning, an uncommon occurrence in southern California. Historically, the fire return interval was extremely variable, probably anywhere from 30 to 200 years. This natural variability aids biodiversity since some species benefit from frequent fires while others do better with long intervals between fires.

In recent decades, however, fire frequency has increased dramatically due to the large and growing human population in chaparral landscapes, which results in more ignitions. These frequent fires can change the species composition of the chaparral community, facilitate the spread of nonnative invasive species (*see page 6*), and ultimately (absent restoration efforts) cause complete loss of the chaparral ecosystem in an area.

Most chaparral fires occur in the late summer and fall when vegetation is dry. These are often exacerbated by Santa Ana winds, which create extreme fire conditions (*see sidebar*).

Chaparral fires are almost always high intensity crown fires that destroy everything—stand-replacing fires. However, although fire may kill everything above ground, the native plants are well adapted to survive. Underground seeds, roots, and tubers remain unharmed.

Most native chaparral plants either resprout from underground parts or germinate from a long-lived seed bank that accumulates in the soil. Some species do both. The seeds of many chaparral plants actually require fire to germinate. Some need the heat from fire to physically crack open the seeds, while others need chemical cues from smoke or charcoal.

A chaparral fire, therefore, is part of the natural fire cycle and, under natural conditions, the plant community should regenerate easily. The threat comes from fires that occur too frequently or in the wrong seasons and disrupt the chaparral community to the point that it cannot recover on its own.

### After fire

The first few years after a fire are an exciting time in a chaparral community. Resprouters produce shoots almost immediately after the fire. Buried seeds germinate after the first rains. Many

## Santa Ana Winds = Extreme Fire Weather

In autumn, after months with no rain, shrublands are at their driest and most fire prone. It only takes one careless camper or discarded cigarette to ignite the chaparral. Unfortunately, this is also the season for the Santa Ana Winds.

Sometimes called the “devil winds,” Santa Anas are a major cause of extreme wildfire behavior in southern California. These winds originate over the Great Basin or Mohave Desert and flow downhill to the coast, becoming hotter and drier as they go; relative humidity may drop to 10 percent or below. Santa Ana winds can reach high speeds, up to 100 mph in some cases, especially in mountain passes and canyons, fanning the flames and sending wildfires out of control.



Image from NASA © 1995-1998 BDM Federal, Inc.

plant species that haven't been seen for decades come out of the seed bank. Some of these persist for only a few seasons, then go back to the seed bank to await the next fire. These seeds can remain dormant for a very long time; some have been documented to last over 100 years.

These early postfire plants also aid chaparral recovery thanks to their root systems, which stabilize and protect the soil from erosion.

### From chaparral to grasslands

The biggest concern about frequent fires is the threat of type conversion from chaparral into grasslands. Human disturbance creates conditions that can favor nonnative grasslands over chaparral. Under an unnatural regime of frequent fires, nonnative grasses can readily displace native species.

The timing, frequency, and intensity of a chaparral fire are all critical to native plant

recovery. Short intervals between fires do not allow enough time for some species to replenish their seed banks, which is necessary for postfire survival. For example, most *Ceanothus* species, which reproduce only from the postfire seed bank, need more than 10 years between fires to reestablish their seed bank. Manzanita requires even more time, perhaps 20 years. Without an adequate period between fires these dominant chaparral species will not recover, and nonnative grasses will likely take over.

Chaparral restoration is an up and coming study but, currently, the land use practices that place human habitation in chaparral environments, frequent ignitions due to the large population, and the introduction of nonnative species—combined with a hotter, drier climate—are seriously threatening the future of chaparral in California.

Under a regime of frequent fires, nonnative grasses can readily displace native chaparral species.

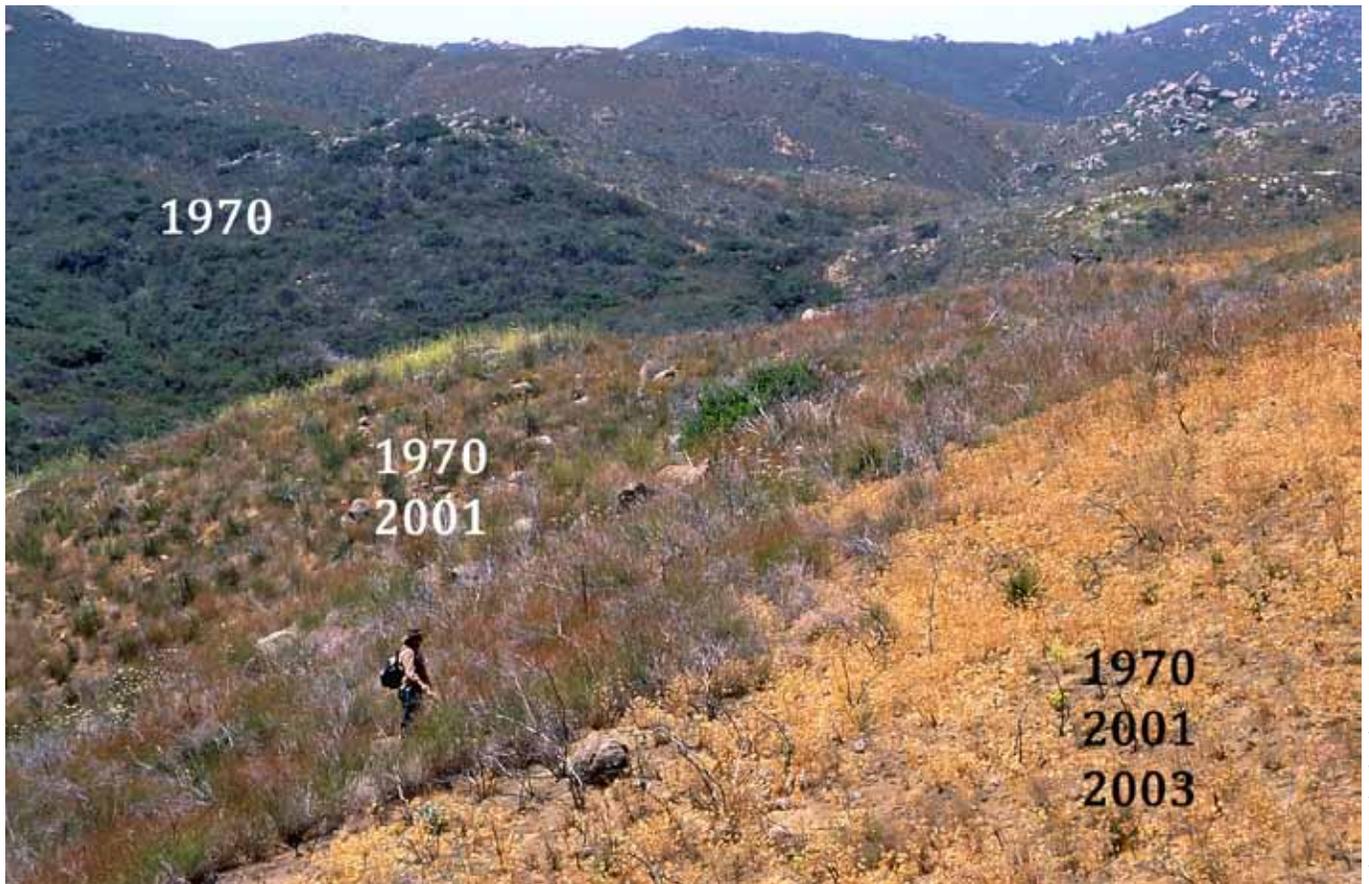


Photo: Richard Halsey

Chaparral on its way to being type-converted to weedy nonnative grassland. This site in San Diego County shows an old-growth chaparral stand last burned during the 1970 Laguna Fire. The middle/left shows an area recovering from the Viejas Fire of January 2001 composed primarily of chamise, deerweed, and several other shrub species. To the right is a portion of the Viejas Fire scar reburned in the Cedar Fire October 2003. The Cedar Fire scar is now filled with nonnative grasses. The majority of resprouting shrubs have been killed and no obligate seeding species, such as *ceanothus*, are present. The interval between the two fires was too short, causing the elimination of the chaparral plant community in that area.

### Plants of Chaparral and Coastal Scrub

- Chamise
- Ceanothus
- Manzanita
- Scrub Oak
- Mountain Mahogany
- Silk-tassel Bush
- White, Black, and Purple Sage
- California Sagebrush
- California Buckwheat
- Coyote Brush
- Bush Monkeyflower
- California Blackberry
- Coastal Cholla

# Native plants at risk

### Tricks to survival

Chaparral plants have evolved a lot of cool tricks for living in a hot dry environment. Most species are evergreen, which allows them to photosynthesize year round. They have thick waxy leaves or hairs that insulate and prevent water loss. Aromatic oils in the plants may also reduce water loss. There are fewer stomata (pores in the leaves for gas exchange), which cuts down on evaporation. Some plants can even orient their leaves to reduce their exposure to sunlight.

Microclimate also plays a role. Plants growing on hotter and drier south-facing slopes tend to have smaller leaves than those on cooler and wetter north-facing slopes.

Manzanita, a dominant chaparral species, has bark that peels away each year, preventing fungi, parasites, mosses, and lichens from establishing.

### Invasive species

Another suite of successful plants did not evolve as part of the native chaparral community. Most of the common grasses in California are nonnative invasives. Their lifecycles are different from those of native plants and their impacts on the chaparral community can be devastating. Nonnative grasses dry out before summer, creating a fuel source that increases the risk and frequency of wildfire. Grasses are often successful early colonizers after fire but their root systems are not as effective as

native species at stabilizing the soil, so there is greater potential for erosion and mudslides when the rains come.

A healthy chaparral ecosystem is resilient and will recover from wildfire. The presence of nonnative plants makes recovery more difficult.

### What can you do?

1. Learn to identify the invasive plants most likely to be found in your area.
2. Do not plant invasive species around your home (e.g., Pampas grass, brooms).
3. Remove invasive plants from natural habitats.
4. Check for “hitchhikers,” seeds that hitch a ride on your vehicle or clothing.
5. After a fire, avoid using nonnative grass seed for erosion control.
6. Make sure all mulches, straw bales, and straw wattles are weed-free.

—for more information, see *Invasive Plants and Wildfires in Southern California*, <http://anrcatalog.ucdavis.edu/pdf/8397.pdf>



Chamise

Charles Webber © CA Academy of Sciences



Ceanothus

Photo: William R. Hewlett © California Academy of Sciences



Mature old growth manzanita

Photo: Richard Halsey

**Plant/Animal List**

The Essential 64 Plants and Animals of Southern California Chaparral. [http://www.californiachaparral.com/images/The\\_64\\_Essential\\_List\\_2008\\_Final.pdf](http://www.californiachaparral.com/images/The_64_Essential_List_2008_Final.pdf)

# Who calls the chaparral home?

The animals that live in chaparral are a hardy lot...they have to be tough to live in habitats with limited precipitation, long hot dry periods, and little standing water.

## Rich in species diversity

Despite the harsh climate, shrublands are very rich in biodiversity. The animals that live there have similar survival strategies to desert dwellers. Many are nocturnal or stay in the shade by day to avoid the heat. Some avoid the hottest season by becoming dormant. And some have physiological adaptations, e.g., mice and lizards can reduce water loss by secreting a semi-solid urine.

Shrubland diversity also includes a very rich invertebrate fauna, including 150–200 species of butterflies, a rich diversity of native bees, 21 species of scorpions, and a large number of spiders.



Dr. Lloyd Glenn Ingles © CA Acad of Sciences

Kangaroo rats can survive dry conditions because of their physiological adaptations. They get most of their water from the seeds they eat and their kidneys are specialized to output very little water.



Dr. Lloyd Glenn Ingles © CA Acad of Sciences

Jerusalem crickets are nocturnal burrowing insects that come out at night to eat anything they can find. They are the heaviest insects in California and can be over 3 inches long. They are an important food source for many animals.

Many shrubland animals can survive fire by retreating to their burrows. However, the changes in community structure after a fire causes changes to the animal population as well. When chaparral converts to grasslands, the animal community also changes dramatically.

## Humans in the chaparral

Chaparral ecosystems support an ever-increasing human population, especially in southern California. In the wildland-urban interface (WUI) there is an inherently high risk of fire to the residents. At the same time, humans threaten the chaparral in several ways:

- habitat loss—replacement of natural communities with human development
- direct damage and degradation by human activities
- fragmentation—the remaining habitat is in pieces too small to support wildlife needs
- increased fires due to human ignitions

## Birds of Chaparral and Coastal Scrub

- California Quail
- Mountain Quail
- Greater Roadrunner
- Costa's Hummingbird
- Hutton's Vireo
- Gray Vireo
- Bewick's Wren
- Cactus Wren
- California Gnatcatcher
- California Thrasher
- Spotted Towhee
- Rufous-crowned Sparrow
- Sage Sparrow
- White-crowned Sparrow
- Wrentit



Photo: Jerry Kirkhart, Creative Commons



Photo: U.S. Fish & Wildlife Service

You are more likely to hear than see the wrentit (above). Its call is similar to the “sound of a ping-pong ball falling on the table.” It feeds in dense scrub on insects, as well as berries and seeds.

The Hermes copper butterfly (left) is an important pollinator in chaparral and sage scrub communities.

# Tips for enhancing coastal scrub and chaparral habitat for birds



Photo: John Hall

Spotted towhee on manzanita.

Dozens of bird species depend on scrub and chaparral, yet many of these special places are being lost due to development and the spread of nonnative plants. Help preserve this threatened habitat by managing the scrub/chaparral in your own backyard.

## Create or enhance backyard scrub and chaparral habitat

Healthy native habitats provide the best protection for breeding birds. Destruction and degradation of these habitats has been shown to be the main cause of bird population decline. Here's how you can maintain native habitat on your property, and create new habitat to support breeding birds:

- **Work with what's already there.** Identify native plants that may already exist in your yard. If a native area nearby is slated for development—transplant! You can move coastal scrub seeds, plants, and even soil. Ask first though...
- **Plant a mosaic of native shrubs and herbs.** Choose native coastal scrub plants (from your local nursery) and plant a mix of species in clumps to create a more natural mosaic. Planting in clusters will increase the number and types of birds that use your land.
- **Remove nonnative plants,** such as Pampas grass and French broom. Nonnative plants can overtake native plants, and many birds are not adapted to live with them.

## Reduce predators

The most common neighborhood predator is the domestic cat. Native predators (raccoons, skunks, and jays) also negatively affect nesting songbirds, especially when human activities inadvertently increase their populations. You can help with these simple actions:

- **Keep cats indoors!** Especially during the breeding season when young birds are vulnerable. Bells don't work! See the Cats Indoors Program at <http://www.abcbirds.org/cats/catsindoors.htm>.
- **Eliminate outdoor food sources** such as pet food dishes, compost piles, and uncovered garbage cans.
- **Cover compost piles** or use covered worm bins.
- **Use bird feeders that exclude jays and squirrels.** These can be found at wildlife stores.

## Mow early and often

Many songbirds nest very close to the ground in grasses and weedy areas. If you have to mow, mow early (beginning February) and often, as this will keep birds from nesting in these areas.

- **Set aside "no mow" areas of your land.** This will provide nest sites and shelter for birds, especially goldfinches, buntings, quail, and towhees.
- **Avoid clearing brush in the breeding and nesting season** (February–August)
- **Do not mow native tree saplings and shrubs.** Even poison oak, a native shrub, has high value for birds and other wildlife.
- **Leave brush piles and grass clippings.** Brush and grass clippings of native plants can provide shelter, nesting material, foraging grounds, and even nesting sites for birds (but keep these piles away from structures as they can also provide fuel for fires).

## Designate areas of your land "bird-friendly" with these actions:

- **Minimize human disturbance during the breeding season** (mid-March through August). Some common disturbances include construction, spraying, and pet activity.
- **Create networks of suitable habitat.** Connecting habitat patches is valuable to all wildlife. Work with neighbors and local groups to create a network of "bird sanctuaries" in your community.
- **Do not use pesticides,** which can harm birds. Allow insect- and pest-eating birds, like swallows, woodpeckers, bluebirds, and owls, to eat the pests in your backyard.
- **Learn the birds on your land!** Study their behaviors, learn their names, and watch them build nests and return year after year.

— from [http://www.prbo.org/calpif/pdfs/Scrub\\_handout.pdf](http://www.prbo.org/calpif/pdfs/Scrub_handout.pdf)

### More resources:

Managing Shrub Habitats for Birds in the Sierra Nevada  
<http://www.prbo.org/cms/docs/edu/NSierraShrub.pdf>

CalPIF Coastal Scrub / Chaparral Bird Conservation Plan  
<http://www.prbo.org/calpif/htmldocs/scrub.html>

PRBO Conservation Science  
<http://www.prbo.org/birdinfo>

California Partners in Flight Bird Conservation Plans  
<http://www.prbo.org/calpif/plans.html>

## “House Out” Defensible Space Concept

### Fire protection starts from the house out

Each year we include articles on fire safety in this newsletter. Proper fire maintenance is especially important for those living in fire-prone chaparral areas. There are many things you can do to protect your home and community, as well as the chaparral itself. A new approach recommends you begin your fire-safe preparations with your home, then move from the “House Out.”

Hardening your home from wildfire means fortifying or retrofitting your home to be impervious to heat and embers. This can be your best defense against ember intrusion. After that, move out into the yard starting with the first few feet adjacent to the building, then out to the wildlands as needed.

The Santa Monica Mountains Fire Safe Alliance, whose mission is to “integrate best management practices that will create defensible space while protecting the wildland,” produced *The Road Map to Fire Safety* to help residents in the Santa Monica Mountains comply with defensible space requirements. Get your own copy at <http://fire.lacounty.gov/RoadMaptoFireSafety.pdf>.

CAL FIRE has info on hardening your home at [www.readyforwildfire.org/hardening\\_your\\_home](http://www.readyforwildfire.org/hardening_your_home).

The things you do to protect your home/ community will also help protect the chaparral community.

## Harden your home with the Ember Awareness Checklist

- Wood Roof.** Replace wood shake and shingle roofs with fire-resistant types.
  - Roof Openings.** Plug openings in roof coverings, such as the open ends of barrel tiles.
  - Roof Debris.** Routinely remove plant debris—needles, leaves, branches bark—from the roof.
  - Skylights.** Replace plastic skylights with double-pane glass; one pane should be tempered. Close skylights if wildfire threatens.
  - Spark Arrester.** Install an approved spark arrester on chimneys.
  - Windows.** Replace single-pane, nontempered glass windows with multiple-pane, tempered glass. Close all windows if wildfire threatens.
  - Vents.** Cover attic, eaves, and foundation vents with 1/8 inch wire mesh or install new vents designed to prevent ember entry. If wildfire threatens, cover vent openings with plywood or aluminum foil folded several layers thick.
  - Rain Gutters.** Keep rain gutters free of plant debris during fire season.
  - Siding.** Fill gaps in siding and trim materials with a good quality caulk; replace poor condition building materials.
  - Woodpiles.** Move firewood stacks and scrap lumber piles at least 30 feet from buildings.
  - Patio Furniture.** Place combustible patio furniture inside if wildfire threatens.
  - Deck Boards.** Replace deck boards less than 1" thick or in poor condition. Use metal flashing between deck & house.
  - Deck Debris.** Remove plant debris from gaps between deck boards, between the deck and house, and on top of the deck.
  - Porch and Deck Accessories.** If wildfire threatens, remove combustible materials from porch and deck; place propane tanks indoors.
  - Under Deck.** Remove plant debris, wood piles, and other easily ignited materials from under decks. Enclose open sides of deck with siding materials that are properly vented or 1/8 inch wire mesh to reduce maintenance and deter embers. Do not enclose with wooden lattice.
  - Flowerboxes.** Remove wooden flowerboxes from beneath windows if wildfire threatens.
  - Eaves.** Cover open eaves with sheathing, e.g., plywood or fiber-cement board. Use tongue & groove or other intricate joints, not butt joints.
  - Flowerbeds.** Replace wood mulches with noncombustible types and remove plant debris from flowerbeds next to house, other buildings, and wooden fences. Replace ornamental junipers with low-growing deciduous shrubs or flowers under irrigation.
  - Vehicles.** Close vehicle windows. Back into the garage and close the garage door or park away from the house.
  - Garage Door.** Adjust garage doors to achieve a tight fit with the door frame. Trim around garage door opening to reduce size of gap openings. Close garage door if wildfire.
  - Garbage Cans and Recycling Bins.** Use garbage cans with tight-fitting lids near house and buildings. Move recycling bins indoors.
  - Wooden Fences.** Maintain wooden fences in good condition and create a noncombustible section or gate next to house for at least 5 feet.
- *Be Ember Aware.* <http://www.unce.unr.edu/publications/files/nr/2009/fs0905.pdf>

## Resources **Protectors, guides, and plans**

### Sustainable and Fire-Safe Landscapes in the Wildland Urban Interface

This extremely thorough guidebook from UC Cooperative Extension covers all aspects of fire-safety in southern California, including background, fire-resistant homes and landscapes, and seasonal considerations.  
<http://ucanr.edu/sites/SAFELandscapes/files/79452.pdf>

The **Chaparral Lands Conservancy** was formed in 2009 to “protect shrubland ecosystems as an integral and beautiful feature of California’s natural landscape through land preservation and stewardship. The Conservancy was founded to advance the conservation of shrublands, related ecosystems, dependent plants and animals and especially endangered species through acquisition of land and/or management rights, habitat restoration and enhancement, stewardship, research, and education.  
<http://chaparralconservancy.org/>

The **California Chaparral Institute** is a nonprofit, research, and educational organization dedicated to the preservation of native shrubland habitats throughout the world and supporting the creative spirit as inspired by nature.  
<http://www.californiachaparral.com/>

A list of **San Diego Regional Organizations** working to protect the chaparral can be found at  
<http://www.californiachaparral.com/nonprofitssandiego.html>

From UC Coop Extension: **Climate, Fire, and Habitat in Southern California**  
[http://ucanr.edu/sites/SAFELandscapes/Fire\\_in\\_Southern\\_California\\_Ecosystems/](http://ucanr.edu/sites/SAFELandscapes/Fire_in_Southern_California_Ecosystems/)



Photo: Ram Vasudev

California quail.

California Partners in Flight **Coastal Scrub and Chaparral Bird Conservation Plan**  
<http://www.prbo.org/calpif/htmldocs/scrub.html>

**Invasive Weed Field Guide**, produced by the Santa Monica Mountains National Recreation Area, covers the invasive species of most concern in the Santa Monica Mountains. Each species is spotlighted with photos, a description, habitat and locations, and a “Why Worry?” section.  
[http://www.nps.gov/samo/planyourvisit/upload/RecPub\\_InvasiveWeedGuide.pdf](http://www.nps.gov/samo/planyourvisit/upload/RecPub_InvasiveWeedGuide.pdf)

## 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  
 Jeff Calvert; jeff.calvert@fire.ca.gov

**Forestry Assistance Specialists**  
 Guy Anderson (Mariposa/Madera/Merced) 209-966-3622 x218  
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 Ivan Houser (Lassen) 530-257-4171  
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 Al Klem (Plumas) 530-283-1792  
 Patrick McDaniel (El Dorado) 530-647-5288  
 Jonathan Pangburn (San Benito/Monterey) 831-333-2600  
 Alan Peters (San Luis Obispo) 805-543-4244  
 Matthew Reischman (Placer/Yuba/Nevada) 530-265-4589 x101  
 Jim Robbins (Fortuna) 707-726-1258  
 Edwin Simpson (Fresno/King) 559-493-4307  
 Tom Tinsley and/or Patrick McDaniel (Amador) 530-647-5200

**California Association of RCDs**  
 916 457-7904; staff@carcd.org

**Natural Resources Conservation Service (NRCS)**  
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**USDA Forest Service**  
 Dan McKeague, Forest Landowner Asst Programs 707-562-8875; dmckeague@fs.fed.us

# Calendar

## August 6–8

### Board of Forestry Meeting

**Location:** Ventura, CA

**Website:** <http://www.bof.fire.ca.gov>

## August 8

### Collaboration Workshop (Part I—plan to attend Sept 10 also)

**Location:** Martell, CA

**Sponsor:** Sierra Nevada Adaptive Management Project

**Cost:** \$25

**Contact:** Kim Ingram, [kcingram@ucanr.edu](mailto:kcingram@ucanr.edu)

**Registration:** <http://ucanr.edu/collaborationworkshop/>

**Flyer:** <http://ucanr.edu/sites/forestry/Events/?calitem=191370&g=28858>

## August 23–24

### Northern California Society of American Foresters Summer Meeting: Challenges of Working Forests in the Santa Cruz Mountains

**Location:** Santa Cruz, CA

**Cost:** \$90/\$100

**Contact:** Rick Standiford, [standifo@berkeley.edu](mailto:standifo@berkeley.edu)

**Website:** <http://norcalsaf.org/>

## August 24

### Forest Stewardship Workshop

**Location:** Annapolis

**Sponsors:** Gualala River Watershed Council and Sonoma County Forest Conservation Work Group

**Contact:** Gualala River Watershed Council, 884-9166

**Notes:** Workshop will focus on management plans, forest health, and water quality.

## September 10

### Collaboration Workshop (Part II—see August 8)

**Location:** Martell, CA

**Contact:** Kim Ingram, [kcingram@ucanr.edu](mailto:kcingram@ucanr.edu)

**Registration:** <http://ucanr.edu/collaborationworkshop/>

**Flyer:** <http://ucanr.edu/sites/forestry/Events/?calitem=191371&g=28858>

## September 10–11

### Board of Forestry Meeting

**Location:** Resources Building, Sacramento

**Website:** <http://www.bof.fire.ca.gov>

## September 18

### Collaboration in Natural Resources Management

**Location:** Oakhurst, CA

**Sponsor:** Sierra Nevada Adaptive Management Project

**Cost:** \$15

**Contact:** Anne Lombardo, [amlombardo@ucanr.edu](mailto:amlombardo@ucanr.edu)

**Registration:** <http://ucanr.edu/camworkshop/>

**Flyer:** <http://ucanr.edu/sites/forestry/Events/?calitem=191490&g=28858>

## October 8–9

### Board of Forestry Meeting

**Location:** Resources Building, Sacramento

**Website:** <http://www.bof.fire.ca.gov>

## October 10

### Working for Conservation Conference: Active Engagement in Forestland Woodland Sustainability

**Location:** Sacramento, CA

**Cost:** \$100

**Website:** [http://ucanr.edu/sites/forestry/Working\\_for\\_Conservation/](http://ucanr.edu/sites/forestry/Working_for_Conservation/)

**Notes:** Register by Oct 1

## October 21–November 3

### Prescribed Fire Training Exchange

**Location:** Arcata, CA

**Audience:** Prescribed fire and wildfire personnel, other natural resource managers

**Cost:** \$200 (some tuition waivers available)

**Contact:** Lenya Quinn-Davidson, [nwcapfc@gmail.com](mailto:nwcapfc@gmail.com)

**Information:** [http://www.norcalrxfirecouncil.org/uploads/NorCal\\_TREX\\_Announcement\\_2013.pdf](http://www.norcalrxfirecouncil.org/uploads/NorCal_TREX_Announcement_2013.pdf)

**Notes:** Space is limited to 30 participants; selection will be made to ensure a diverse group. Those selected will receive an acceptance letter.

## Get the e-version with live links

Sign up for the e-version of *Forestland Steward*. It has live links, plus you'll see the newsletter weeks before the hard copy comes back from the printer. Send a note to [llitman@pacbell.net](mailto:llitman@pacbell.net) and specify whether you want to receive the e-version only, or get both electronic and paper versions.

Deadline for **Grants Clearinghouse** applications—**September 17**.  
<http://www.cafiresafecouncil.org/grants-clearinghouse/>

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For address changes, please send this box or contact Jeff Calvert via email, standard mail, or fax...be sure to reference *Forestland Steward* newsletter.

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ADDRESS SERVICE REQUESTED

# Red Flag Warnings & Fire Weather Watches

The National Weather Service issues Red Flag Warnings and Fire Weather Watches about the onset, or possible onset, of critical weather and dry conditions that could lead to rapid or dramatic increases in wildfire activity. Get these alerts at <http://www.wrh.noaa.gov/firewx/cafw/index.php>.

A Red Flag Warning, the highest alert, is issued for weather events that may result in extreme fire behavior within 24 hours. A Fire Weather Watch is issued when weather conditions could exist in the next 12–72 hours. During these times extreme caution is urged by all residents; a simple spark can cause a major wildfire. While a Fire Weather Watch is below a Warning, fire danger is still high.

Weather patterns that can cause a watch or warning include low relative humidity, strong winds, dry fuels, the possibility of dry lightning strikes, or any combination of these (see *Santa Ana Winds*, page 4).

During heightened fire danger, CAL FIRE urges Californians to be extremely cautious. A few helpful reminders and safety tips:

## 1. Equipment Use Safety

- Any mowing or weed eating should be done before 10 am or after 6 pm.
- Never use lawn mowers or weed eaters in dry vegetation or during extremely dry conditions.
- Don't mow or weed eat dry grass on windy days.
- Spark arresters are required on all portable gasoline-powered equipment in wildland areas.
- Never pull your vehicle over in dry grass.

## 2. Campfire Safety

- Before starting a campfire, make sure you have a campfire permit and that fires are permitted on the land you are visiting.
- Afterwards, ensure that your campfire is completely extinguished.

## 3. Debris Burning Safety

- Maximum pile size should be 4 ft x 4 ft.
- Clear all flammable material and vegetation within 10 ft of the outer edge of the pile.
- Keep a water supply close to the burning site.
- An adult with a shovel should be in attendance at all times until the fire is out.
- Burn only when weather conditions (particularly wind) are considered safe.
- Burning can only be done on Permissive Burn Days as determined by the State Air Resources Board or local air Pollution Control District.

## 4. Other

- Make sure cigarette butts are properly extinguished.

For more ways to help prevent and prepare for wildfires visit <http://ReadyForWildfire.org>

Current fire incidents and other fire-related topics <http://www.fire.ca.gov>

California Fire Weather web page <http://www.wrh.noaa.gov/firewx/cafw/index.php>