



Other wildlife best practices can be found at: Point Reyes Bird Observatory (<http://www.prbo.org/cm5/56>), CA Department of Fish & Game (<http://www.dfg.ca.gov/about/wildlife.html>), and UC Davis (<http://anrcatalog.ucdavis.edu>)

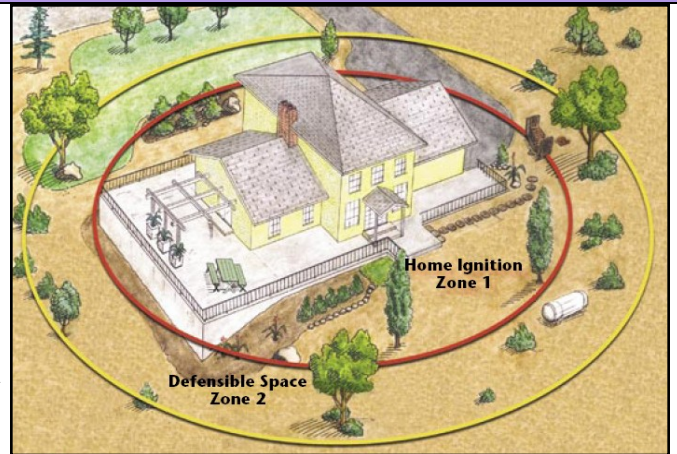
**Introduction-Wildlife and fire wise landscaping**

This brochure outlines some simple steps to protect your home from wildfire while considering wildlife needs. Your home is part of the fire environment and should be looked at as part of a larger watershed.

First consideration should be the building materials and other structural ignitability components (dual window panes, screened vents, roofing materials). Second consideration should be for the “little things” that become big issues like leaves in the rain gutter or materials under your porch. Most homes are ignited by embers that are blown through the air and can be carried up to 1.5 miles from the flame front. Having fire resistant materials is crucial in protecting your home.

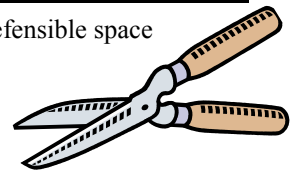
As part of the fire environment, you should look at the type of vegetation around your home, where plants are located on the landscape (slope, aspect, elevation), and how large and concentrated these plant groupings are. Your home should have a **home ignition zone** (Home and materials touching), a **defensible space zone** (100 feet around the home), and a **wildland reduction zone** (beyond 100 feet).

To maintain the natural beauty and wildlife habitat values while developing your home protection zones consider the best management practices outlined in this brochure.



For more information about home defensible space

- <http://www.firesafecouncil.org>
- <http://www.firewise.org>
- <http://www.fire.ca.gov>
- <http://anrcatalog.ucdavis.edu>
- <http://takeresponsibility.cafirealliance.com/>



**Location– Where to do your defensible space/fuels reduction work**


Fire behavior is strongly influenced by topography and vegetation, and so are the wildlife. To know where to do the work, you should consider vegetation conditions (spaces between), the hill slope and your location within the larger watershed (influences on wildlife habitat). You should also learn what animals live or travel through your area. Some plants and animals may be threatened and endangered species and the occurrence of these species may require additional considerations. Go to [http://www.fws.gov/sacramento/es/spp\\_list.htm](http://www.fws.gov/sacramento/es/spp_list.htm) or <http://www.dfg.ca.gov/biogeodata/> to find out which protected species may be in your area.

Start work at locations nearest your home. Remove dry grass, needles, leaves, branches and bushes within 10-feet of structures and LPG tank(s). Stack firewood away from the home during the fire season. Reduce the fuel continuity within 30-feet of home by removing dead and dying trees and shrubs and non-native invasive species. How does it look after this first work effort? Do you still have ladder fuels (vegetation connections from ground to shrub to tree– and home)? Trim shrubs and cut branches to create space between the top of shrub and lowest branches (3 times the height of shrub). You may need to remove shrubs underneath young trees if spacing can't be attained– to maintain health of a tree, only remove branches on bottom one-third of tree height. Consider having some tree clumps or shrub patches instead of all single trees or shrubs scattered around your property. These clumps and patches provide more habitat values. You'll need to maintain spacing between these patches to reduce fuel continuity. See chart below for vegetation space based on slope.

Trees or Tree Clumps		Shrubs or Shrub Patches	
Hill slope	Space between trees	Hill slope	Space between shrubs
0% to 20% slope	10 feet	0% to 20% slope	2 times shrub height
20% to 40% slope	20 feet	20% to 40% slope	4 times shrub height
40% or greater slope	30 feet	40% or greater slope	6 times shrub height

As part of a larger landscape, consider wildlife travel corridors. Leave some strips of vegetation or strategic tree/shrub patches to help provide cover from predators as animals travel through the area.

Be cautious near stream sides, lake-sides, meadows, vernal pools or wetlands, these areas are considered sensitive to impacts and may have higher concentrations of wildlife. Flag and avoid these areas unless working with experts in these areas and realize there may be additional planning and compliance required.



**Treatment– How to do your defensible space/fuels reduction work**

Implement the work in phases and remove the minimum amount of vegetation to start– you can always take out more later. Don't plant against your home or other structures.

**Trees and shrubs-** Hand thinning branches with non-motorized saws and clippers will have less impacts to wildlife. Chainsaws can be used but consider the season and cooler times of the day. Always refuel away from sensitive plant areas (on pavement or tarp). Keep oldest and biggest trees. If large trees must be removed, work with a forester or other local expert on determine best options. Always remove dead trees and shrubs and non-native vegetation first. If more trees/shrubs must be cut, keep the ones producing native nuts and berries. If possible, leave one wildlife snag (dead tree with cavities/holes) per acre. Try to keep an adjacent tree or shrub around wildlife snag to offer additional protection but maintain a distance (twice the height of tree/shrub) between other trees/shrubs. Goats can be effective in removing leaves and braches, but you may want to fence the out of sensitive areas and away from active low-lying birds nests.

**Vegetation Debris Piles–** Chip, burn or haul away materials immediately after cutting and you'll have less risk to wildlife. If you're landscape is mostly open with little mid-level (shrub) components, then you may want to keep a pile as wildlife habitat–keep out of the defensible space zone and away from other vegetation. If a pile remains for some time before removal, consider placing away from ponds or creeks, other vegetation and the defensible space zone. When constructing the pile, place smaller branches at the bottom to help reduce tunnels and spaces. When time comes to burn or chip, start by shaking materials at one end to chase animals out. If using a chipper, keep vehicle/chipper on existing access ways (roads/sidewalk). Start chipping or pile burn ignition on one end to avoid trapping animals inside.

**Grass/Ground Cover–** Mowing/weed-whipping annual grasses may need to take place immediately prior to fire season which is also the bird breeding season. If you're going to mow, start early (February) and do often to keep birds from nesting in the area. To reduce impacts to ground nesting birds, walk the area immediately prior to work and flag/avoid any active nests (50 foot buffer) or scare birds/animals out of immediate work area into safe cover. Mow/weed-whip vegetation down to around 6-inches height and if possible leave a few uncut islands as shelter– keep islands away from other vegetation and at least 10 feet away from home.





# Wildlife Considerations When Creating A Fire Wise Landscape

## Protecting homes and habitats on the California landscape

### Timing— When to do your defensible space/fuels reduction work

Consider the season, time of day and duration of your project. It's best if you can split up activities based on vegetation types and local wildlife needs. Many trees and shrubs may be healthier if pruned during the winter and fall. Grasses and other ground cover may be better mowed prior to the dry season (avoid fire starts) but considerations should be made for ground nesting birds and other small animals which may be taking cover in overgrown vegetation.

Each season has different considerations for wildlife. During the spring, breeding birds are very sensitive to habitat alteration and disturbance. Work should be avoided or modified during this season. The earlier in the nesting season, the more sensitive the bird is to disturbance and may abandon the nest site. Once the eggs hatch, the bird is more likely to tolerate noise and disturbance, if nest site is not altered. Working during cooler times of the day is better for you and wildlife.



Geographic Area	Elevation	Nesting-Fledging Season
Northern Sierra Nevada	Above 3,000 feet	May-August
Northern Sierra Nevada	Below 3,000 feet	March-August
Southern Sierra Nevada	Above 5,000 feet	May-August
Southern Sierra Nevada	Below 5,000 feet	March-August
Valley/Coast	All Elevations	March-August

During the rainy season many amphibians travel between their upland habitats to aquatic breeding areas. Work during the rainy season may also impact soil and watershed conditions. Keep large equipment and vehicles on existing access roads and pavement.

Work with your agency neighbors, Department of Fish & Game or U.S. Fish & Wildlife Service Office to determine if threatened or endangered animals live in your area. The timing of your activities may need to be modified to avoid impacts to particular species.

### Plants— What vegetation to remove, plant, or protect

**Plants:** All plants can burn under certain conditions, but some do not carry fire as readily and burn at lower intensities. To reduce your fire risk, choose plants that grow low to the ground, have few and open branches with fine leaves. Also consider less resinous plants and species that hold moisture longer. Remove the dead, dried and accumulated components of vegetation to reduce the fire risk. Using drip irrigation will help keep native plants green and conserve water. Remove non-native invasive plants (<http://www.cal-ipc.org>) and retain or plant native trees, shrubs, grasses and forbs. Increase the variety of vegetation types to provide diversity of cover and food for wildlife. Ask your local plant nursery or search out native seed suppliers which plants are native and less flammable.

**Sensitive/Protected Plants:** You can find information about protected and sensitive plants by contacting your regional native plant society, Fish and Game Department or US Fish and Wildlife Office. You can also work with a professional botanist or other experts to identify these plants on your property. If sensitive or protected plants are found on your property it's best to flag/fence and avoid with a temporary disturbance buffer of 50 foot buffer until compliance is completed. If you're using any Federal funding sources or require any state or local permits for your project, you may need to plan a budget and time for surveys, planning, and the regulatory process. You can get advice and recommendations from many of your neighboring agencies and fire safe council partners that have been through the process.

**Pesticide/Herbicide:** The use of herbicides and pesticides should be used only when other options fail. If necessary, consider use of a contact treatment such as a foliar spray rather than a pre-emergent herbicide. Always follow the labeled directions! Herbicides alone do not reduce the fuel load, they may create a larger number of dead and flammable plants which increase your fire risk and are toxic to wildlife. Any herbicide use that covers a large area should have a pest control advisor's written recommendations for treatment.

**Ground Cover/Mulch:** Mulch and chipped materials can be great for conserving water and preventing weeds but using them close to your home can increase the fire risk (keep at 3 to 5 feet away). Larger chunks of mulch pose less of a fire risk than fine or stringy mulches (ignite quicker). Avoid thick layers of mulch which allow for embers to smolder and are more difficult to extinguish (greater than 2 inches deep). Consider open soil and or rock immediately adjacent to your home. You should also keep mulches away from sensitive plant species since this may change the habitat characteristics and kill plants. Although green lawns are a good fire wise practice, they are not great habitat and attract many pests and invasive species into the area.



### Animals— What habitat components to consider



Your yard and the outlying landscape may be used year-round or seasonally by a variety of mammals, birds, reptiles, amphibians, fish, and invertebrates. Animals are not just interesting and beautiful to look at but help disperse seeds and pollinate plants, turn over soil, and maintain nutrient cycles. Look around for animal signs and habitat conditions in your area. Think about what you need to live and consider how wildlife is similar. They need shelter for their family, food and water (includes safe travel), and opportunities to connect with others in their population.

**Cover/Shelter:** Tree cavities and holes are used by many different animals for nesting and shelter including owls, woodpeckers, squirrels, and bats. Ground burrows, rock piles and downed logs are also good cover for wildlife including ground squirrels, rabbits, badgers, snakes, frogs, and some birds like the burrowing owl. Patches of old and overgrown shrubs can be shelter for rabbits, quail, deer, and other wildlife. Patches and strips of tall grasses provide shelter to ground nesting birds and other small animals. Trees, shrubs, tree roots, and woody debris in streams/rivers can be good shelter for fish, beaver and other aquatic wildlife.

**Water:** Available water is always important to wildlife but so is having safe cover nearby. Frogs, snakes and other small animals like to have grass and ground cover to keep hidden as they travel to and from the water. Many birds feed on insects in or near the water but need shrubs and trees to perch. Watersheds are also used as travel corridors for many species of birds, bats and other wildlife.

**Food:** There are a wide variety of food sources utilized by wildlife (consider the energy cycle and food web). Insects may eat living and dead plant materials, while small mammals and birds eat insects, berries, and nuts. Deer and other animals eat grasses, forbs, and shrubs. Coyotes, bears, bobcats, mountain lions, and raptors eat a range of other animals like rabbits, squirrels, mice, and small birds.

**Travel/Population Dispersal:** Depending on the territory and habitat needs of each animal, travel could be from burrow to burrow, upland forest to pond, valley grassland to high mountain meadow or even across states and continents. Maintaining some vegetation connections is very important. Consider small scale and large connections be it patches of shrubs along a hillside, strips of riparian vegetation along a streamside, forested connections throughout a watershed or even landscape preserves.

