

## Creating Wildfire-Defensible Zones

### Brief facts...

Wildfire will find the weakest links in the defense measures you have taken on your property.

The primary determinants of a home's ability to survive wildfire are its roofing material and the quality of the "defensible space" surrounding it.

Even small steps to protect your home and property will make them more able to withstand fire.

Consider these measures for all areas of your property, not just the immediate vicinity of the house.

Fire is capricious. It can find the weak link in your home's fire protection scheme and gain the upper hand because of a small, overlooked or seemingly insignificant factor. While you may not be able to accomplish all measures below, each will increase your home's, and possibly your family's, safety.

Start with the easiest and least expensive actions. Begin your work closest to your house and move outward. Keep working on the more difficult items until you have completed your entire project.

### Defensible Space

Two factors have emerged as the primary determinants of a home's ability to survive wildfire. These are the home's roofing material and the quality of the "defensible space" surrounding it.

Use fire-resistive materials (Class B or better rating, preferably Class A) not wood or shake shingles, to roof homes in or near forests and grasslands. When your roof needs significant repairs or replacement, do so with a fire-resistant roofing material.

Defensible space is an area around a structure where fuels and vegetation are treated, cleared or reduced to slow the spread of wildfire towards the structure. It also reduces the chance of a structure fire moving from the building to the surrounding forest. Defensible space provides room for the firefighters to do their jobs. Your house is more likely to withstand a wildfire if grasses, brush, trees and other common forest fuels are managed to reduce a fire's intensity.

Creating an effective defensible space involves developing a series of management zones in which different treatment techniques are used. Develop defensible space around each building on your property. Include detached garages, storage buildings, barns and other structures in your plan.

The actual design and development of your defensible space depends on several factors:

- ◆ size and shape of buildings
- ◆ materials used in their construction
- ◆ slope of the ground on which structures are built
- ◆ surrounding topography
- ◆ sizes and types of vegetation on your property

These factors all affect your design. You may want to request additional guidance from your local New Mexico State Forestry office or fire department. Defensible space can be divided into three zones. Treatments for each of the three defensible space zones are discussed below.



Energy, Minerals and Natural  
Resources Department,  
Forestry Division

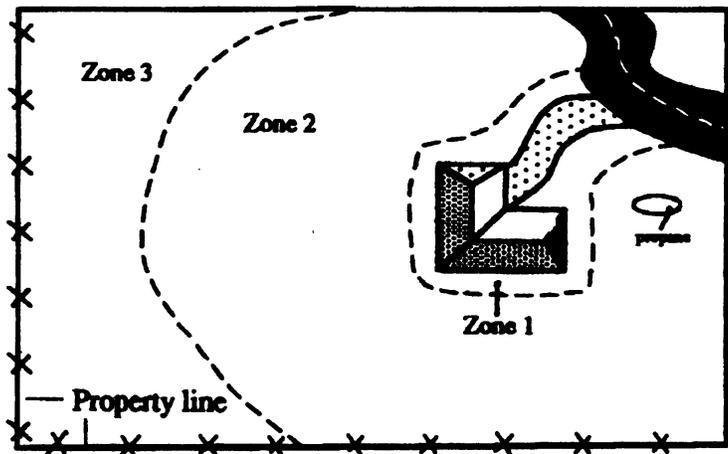


Figure 1: Forested property showing the three fire-defensible zones around a home or other structure.

### Defensible Space Zones

**Zone 1** is the area of maximum modification and treatment. It consists of an area 15 feet around the structure in which all flammable vegetation is removed. This 15 feet is measured from the outer edge of the home's eaves and any attached structures, such as decks, see Figure 1.

### Prescriptions for Defensible Space

**Zone 1...** The size of Zone 1 is 15 feet, measured from the edges of the structure. Within this zone, several specific treatments are recommended.

Plant nothing within 3 to 5 feet of the structure, particularly if the siding is a flammable material. Decorative rock creates an attractive, easily maintained nonflammable ground cover.

If the house has noncombustible siding, widely spaced foundation plantings of low growing shrubs or other "fire wise" plants are acceptable. Do not plant directly beneath windows or next to foundation vents. Be sure there are no areas of continuous grass adjacent to plantings in this area.

Frequently prune and maintain plants in this zone to ensure vigorous growth and low growth habit. Remove dead branches, stems and leaves.

Do not store firewood or other combustible materials in this area. Enclose or screen decks with metal screening. Extend the gravel coverage under the decks. Do not use areas under decks for storage.

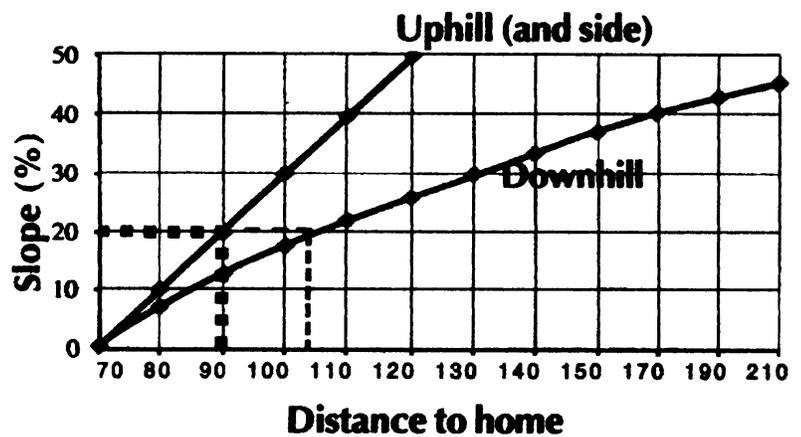
Ideally, remove all trees from Zone 1 to reduce fire hazards. If you do keep one tree, consider it part of the structure and extend the distance of the entire defensible space accordingly. Isolate the tree crown from any other surrounding forest by at least 15 feet. Prune it to at least 15 feet above the ground. Remove any branches that overhang the roof or are within 10 feet of the chimney. Remove all "ladder fuels" from beneath the tree. Ladder fuels are small shrubs, trees, tree limbs and other materials that allow fire to climb into the tree crown – the branches and foliage.

**Zone 2** is an area of fuel reduction. It is a transitional area between Zones 1 and 3. The size of Zone 2 depends on the slope of the ground where the structure is built. Typically, the defensible space should extend at least 75 to 125 feet from the structure. Within this zone, the continuity and arrangement of vegetation is modified. Remove stressed, diseased, dead or dying trees and shrubs. Thin and prune the remaining larger trees and shrubs. Be sure to extend thinning along either side of your driveway all the way to your main access road. These actions help eliminate the continuous fuel surrounding a structure while enhancing home site safety and the aesthetics of the property.

**Zone 2** is an area of fuel reduction designed to reduce the intensity of any fire approaching your home. Follow these recommended management tips.

Selectively remove (thin) trees and large shrubs so there is at least 10 feet between crowns. Crown separation is measured from the furthest branch of one tree to the nearest branch on the next tree, not from tree trunk to tree trunk. On steep slopes, allow more space between tree crowns. Remove all ladder fuels (undergrowth) from these remaining trees. Carefully prune trees to a height of 10 feet.

Thin the inner portion of Zone 2 more heavily than the outer portions. Gradually increase tree density as you approach Zone 3. As a rule of thumb, the recommended width of defensible space from the structure to the outer edge of Zone 2 will increase as slope percent increases. See Figure 2.



**Figure 2:** This chart indicates the minimum dimensions for defensible space from the home to the outer edge of Zone 2. For example, if your home is situated on a 20 percent slope, the minimum defensible space dimensions would be 90 feet uphill and to the sides of the home and 104 feet downhill from the home.

Isolated shrubs may remain, provided they are not under tree crowns. Prune and maintain these plants periodically to maintain vigorous growth. Remove dead stems from trees and shrubs annually.

Limit the number of dead trees (snags) retained in this area. Wildlife need only one or two snags per acre. Be sure any snags left for wildlife cannot fall onto the house or block access roads or driveways.

Mow grasses (or remove them with a weed trimmer) as needed through the growing season to keep them low, a maximum of 6 or 8 inches. This is extremely critical in the fall when grasses dry out and cure or in the spring after the snow is gone but before plants green up.

Stack firewood and woodpiles uphill or on the same elevation as the structure at least 30 feet away. Clear and keep away flammable vegetation within 10 feet of these woodpiles. Do

not stack wood against your house or on or under your deck, even in winter. Many homes have burned from a woodpile that

ignited as the fire passed. Wildfires can burn at any time of year in the southwest.

Locate propane tanks at least 30 feet from any structures, preferably on the same elevation as the house. You don't want the LP container below your house. If it ignites, the fire would tend to burn uphill. On the other hand, if the tank is above your house and it develops a leak, LP gas will flow downhill into your home. Clear and keep away flammable vegetation within 10 feet of these tanks. Do not screen propane tanks with shrubs or vegetation.

Dispose of slash (limbs, branches, and other woody debris) removed from your trees and shrubs by chipping or by piling and burning. Contact your local municipal, county or rural fire department for a permit before burning debris. If burning slash or debris is not permitted in your area, your local fire department may have a few designated days in early spring when slash can be dropped of at a designated location at no cost. If none of these slash disposal methods are available to you, an alternative is to lop and scatter very small pieces over the ground, keeping the scattered pieces very close to the soil to aid natural decomposition. Avoid any large accumulations of slash. If desired, no more than two or three small brush piles may be left for wildlife purposes. Locate these towards the outer portions of your defensible space.

**Zone 3** is an area of management for landowner objectives and is of no particular size. It extends from the edge of Zone 2 to your property boundaries.

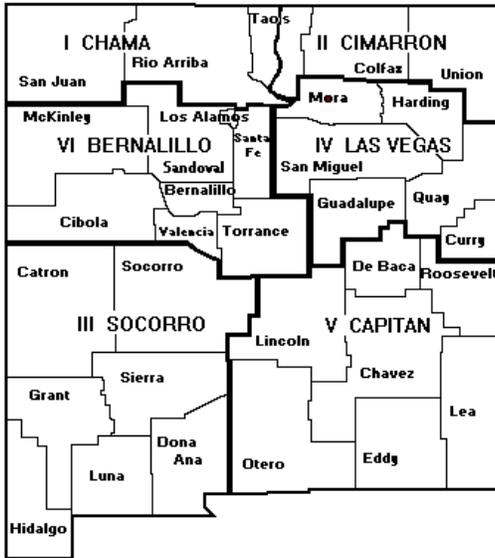
**Zone 3** is an area of no specified size. It extends from the edge of your defensible space to your property lines. In this area you are encouraged to manage your forests in a more traditional manner.

Typical management objectives for areas surrounding homesites or subdivisions are: provide optimal recreational opportunities; enhance aesthetics; maintain tree healthy and vigor; provide barriers from wind, noise, dust and visual intrusions; support limited production of firewood, fence posts and other forest commodities; or grow Christmas trees or trees for transplanting.

Specific thinning requirements will be dictated by your objectives for your land. Most thinning will be done from below (leaving the biggest trees) and on an individual tree basis. Thinning sanitizes the stand and improves forest health by removing trees that are severely damaged, attacked by insects, infected by disease, or are crowded, causing low vigor.

Tree spacing depends on the species being managed and factors such as susceptibility to windthrow or damage from heavy snow loading. For ponderosa pine and Douglas fir, a good rule of thumb for stem spacing is diameter + 7, for spruce and fir, the stem spacing guide is diameter + 5. Measure diameter in inches at about 4 ½ feet above the ground. Substitute feet for inches and add it to the spacing guide number for the proper species. For example, if the average tree to be left following your thinning was an 8-inch ponderosa pine, then add  $8 + 7 = 15$ , for a spacing of 15 feet between trees as measured between tree stems. A greater number of wildlife trees can remain in Zone 3. However, make sure dead trees pose no threat to power lines or fire access roads. While pruning generally is not necessary in

This pamphlet is based on and borrowed heavily from a publication by Chuck Dennis of the Colorado State Forest Service, Colorado State University.



Zone 3, it may be a good idea from the standpoint of personal safety to prune trees along trails and fire access roads. Or, if you prefer the aesthetics of a well-manicured forest, you might prune the entire area. In any case, pruning helps reduce ladder fuels within the tree stand, enhancing wildfire safety.

Mowing is not necessary in Zone 3.

Any approved method of slash treatment is acceptable for this zone, including piling and burning, chipping or lop and scatter.

#### State Forestry District Offices

Chama	(505) 588-7831
Cimarron	(505) 376-2204
Socorro	(505) 835-9359
Las Vegas	(505) 425-7472
Capitan	(505) 354-2231
Bernalillo	(505) 867-2334

## Maintaining your Defensible Space

Your home is located in a forest that is dynamic, constantly changing. Trees and shrubs continue to grow, plants die or are damaged, new plants establish and grow, needles and leaves drop to the ground, forming duff. Like other parts of your home, defensible space requires maintenance. Use the following checklist each year to determine if additional work or maintenance is necessary.

### Defensible Space and FireWise annual Checklist

- 4 Trees and shrubs are properly thinned and pruned within the defensible space. Slash from thinning is disposed of.
- 4 Roof and gutters are clear of debris.
- 4 Branches overhanging the roof and chimney are removed.
- 4 Chimney screens are in place and in good condition
- 4 Grass and weeds are mowed to a low height.
- 4 An outdoor water supply is available, complete with a hose and nozzle that can reach all parts of the house.
- 4 Fire extinguishers are checked and in working order.
- 4 The driveway is wide enough. Clearance of trees and branches is adequate for fire and emergency equipment. (Check with your local fire department.)
- 4 Road signs and your name and house number are posted and easily visible.
- 4 There is an easily accessible tool storage area with rakes, hoes, axes and shovels for use in case of fire.
- 4 You have practiced family fire drills and your fire evacuation plan.
- 4 Your escape routes, meeting points and other details are known and understood by all family members.
- 4 Attic, roof, eaves, and foundation vents are screened and in good condition. Stilt foundations and decks are enclosed, screened or walled up.
- 4 Trash and debris accumulations are removed from the defensible space.
- 4 A checklist for fire safety needs inside the home is available from your local fire department.

For more information on wildland fire, check out the Southwest Area web page at [www.fs.fed.us/r3/fire/](http://www.fs.fed.us/r3/fire/)

For wildland urban interface issues and recommendations on creating defensible space, you can find good information at [www.colostate.edu/Depts/CSFS/fire/interface.htm](http://www.colostate.edu/Depts/CSFS/fire/interface.htm)

For more information on wildland urban interface issues, go to [www.firewise.org](http://www.firewise.org)