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Wildfire Safety

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High Hazard Fire Environment

Colorado, like much of the western United States, is considered a high hazard fire environment, with conditions that increase wildfire risk. This environmental stressor is important to families.

Fire fighters recognize these risk components:

Weather

Hot, dry, windy weather increases the likelihood of a major wildfire. These conditions make ignition easier, allow fuels to burn more rapidly, and increase fire intensity. High wind speeds can transform a small, easily controllable fire into a catastrophic event in a matter of minutes.

Topography

Steepness of slope most influences fire behavior. As the steepness of the slope increases, the fire spreads more quickly. Other topographic features include aspect (south and southwest slopes usually have more fires) and steep, narrow drainages (chimneys), which can significantly increase the rate at which a fire spreads.

Fuel

Fuel is required for any fire to burn. In wildfire, fuels almost always consist of living vegetation and dead plant material. Houses can become a source of fuel.

These three components affect:

- the likelihood of a fire start,
- the speed and direction at which a wildfire will travel,
- the intensity at which a wildfire burns, and
- the ability to control and extinguish a wildfire.

Although weather and topography cannot be changed, fuels (or vegetation) can be modified. Many opportunities to reduce the wildfire threat lie in proper management and manipulation of wildland vegetation.

When people live in high hazard fire environments, the human-built environment becomes an important factor in predicting the loss of life and property. Untreated wood shake and shingle roofs, narrow roads, limited access, lack of fire-wise landscaping, inadequate water supplies, and poorly planned subdivisions are examples of increased risk to people living with the threat of wildfire.

Fire is a natural part of our environment, yet many homes are built and maintained in this fire environment without regard to wildfire. More people using our wildlands increases the chance of fire starts. Today's wildfires can burn intensely and be difficult to control, leading to potential for greater loss of life, increased property losses and more damage to natural resources.

– Information in this issue is adapted for Colorado with permission from Living with Fire: A Guide for the Homeowner, *a publication of the University of Nevada, Reno Agricultural Experiment Station and Cooperative Extension and Sierra Front Wildfire Cooperators.*

Defensible Space

Defensible space refers to vegetation management practices aimed at reducing the wildfire threat to homes. It is the area between a house and an oncoming wildfire where the vegetaton has been modified to reduce the threat and to provide an opportunity for firefighters to defend the house effectively. A defensible space may be a homeowner's properly maintained backyard.

Depending on the types and proximity of vegetation, moisture content, wind speed and terrain, flame lengths in a wildfire may reach less than 10 feet to over 50 feet. According to John Swanson, USDA Forest Service, direct fire suppression is ineffective on flames over 11 feet long. Defensible space can reduce flame lengths in a wildfire and increase the chances of a home's being saved.

If vegetation around a home is properly modified and maintained, a wildfire can be slowed, the length of flames shortened, and the amount of heat reduced, all of which assist firefighters in defending the home.

During a major wildfire, enough firefighting resources may not be available to defend every home. The most important person in protecting a house from wildfire is not a firefighter, but the property owner. The action taken by the owner **before** a wildfire occurs (such as proper landscaping) is most critical.

The size needed for defensible space varies according to the steepness of the slope and the types of vegetation. Thirty feet may be sufficient in some situations, but up to 200 feet may be needed. Check with your local forest service or the web sites listed at the end of this article to determine the space needed.

Defensible space does not require bare ground, which increases soil erosion. Many homes have attractive, well-vegetated landscapes that serve as effective defensible space.

In most cases, dead vegetation should be removed. Leave a downed dead tree that is embedded in the soil and cannot be removed without disturbing the soil, but remove the exposed branches. Reduce thick layers of pine needles to a depth of two inches, but leave the "duff" layer (dark area at the ground surface where needles are decomposing) if present.

Additional ways to create defensible space include reducing the density of vegetation and removing ladder fuels (vegetation that allows a fire to move from lower growing plants to taller ones). Keep the area closest to the house clear of debris.

Six steps to defensible space

1. Determine recommended defensible space distance.
2. Remove dead vegetation.
3. Break-up continuous vegetation.
4. Remove ladder fuels.
5. Keep vegetation lean, clean and green (small amounts of flammable vegetation, clear of debris, healthy green plants during fire season).
6. Maintain defensible space.

The Three R's of Defensible Space

Removal	Removal is the elimination of entire plants, particularly trees and shrubs, from the site. Examples of removal are cutting down a dead tree or cutting out a flammable shrub.
Reduction	Trimming plant parts, such as branches or leaves, constitutes reduction. Examples are pruning dead wood from a shrub, cutting low tree branches, and mowing dried grass.
Replacement	Replacement is substituting less flammable plants for more hazardous vegetation. Supplanting a dense stand of flammable shrubs with an irrigated, well-maintained flower bed is an example.

The objective of defensible space is to reduce the wildfire threat to a home by changing characteristics of the adjacent vegetation. To create defensible space:

? Increase the moisture content of vegetation.

? Decrease the amount of flammable vegetation.

? Shorten plant height.

? Alter the arrangement of plants.

Investigations of homes threatened by wildfire indicate that houses with both an effective defensible space **and** a nonflammable roof (compostion shingles, tile or metal) are many times more likely to survive a wildfire than those with flammable roofs (wood shakes or shingles) and without defensible space. See Page 3 for additional ways to make your home defensible.

Other Ways to Make Your Home Defensible

How a house is designed, where it is built, materials used in its construction and landscape, and access to the home all influence survivability during wildfire. The following recommendations are modified from California Department of Forestry and Fire Protection's publication "How to Make Your Home Fire Safe."

Roof

? Remove dead branches hanging over your roof.

? Remove any branches within 15 feet of your chimney.

? Clean all dead leaves and needles from your roof and gutters.

? Install a roof that meets the fire resistance classification of "Class C" or better. Local jurisdictions may require a higher fire resistance rating. Check with your fire marshal.

? Cover your chimney outlet and stovepipe with a nonflammable screen of one-half inch or smaller mesh.

Construction

? Build your home away from ridge tops, canyons and areas between high points on a ridge.

? Build your home far enough from your property line so that you can maintain defensible space.

? Use fire-resistant building materials.

? Enclose the underside of balconies and above-ground decks with fire resistant materials.

? Limit the size and number of windows in your home that face large areas of vegetation.

? Install only dual-paned or triple-paned windows.

? Consider sprinkler systems within the house. They may protect your home while you are away or prevent a house fire from spreading into wildlands.

Landscape

? See previous page on defensible space.

Yard

? Stack woodpiles at least 30 feet from all structures and clear away flammable vegetation within 10 feet of woodpiles.

? Locate LPG tanks (butane and propane) at least 30 feet from any structure and surround them with at least 10 feet of clearance.

? Remove all stacks of construction materials and other debris.

? Contact your local fire department to see if open burning is allowed; if so, obtain a permit before burning.

Emergency water supply

? Maintain an emergency water supply that meets fire department standards.

? Clearly mark all emergency water sources and notify your local department of their existence.

? Create easy firefighter access to your closest emergency water source.

? If your water comes from a well, consider an emergency generator to operate the pump during a power failure.

Access

? Identify at least two exit routes.

? Construct roads that allow two-way traffic.

? Design bridges to carry heavy emergency vehicles, including bulldozers carried on large trucks.

? Post clear road signs to show traffic restrictions such as dead-end roads, and weight and height limitations.

? Make sure dead-end roads and long driveways have turnaround areas wide enough for emergency vehicles. Construct turnouts along one-way roads.

? Clear flammable vegetation at least 10 feet from roads and five feet from driveways.

? Cut back overhanging tree branches above roads.

? Construct fire barriers such as greenbelts and parks.

? Make sure your street is named or numbered, and a sign is posted visibly at each street intersection.

? Make sure your street name and house number are not duplicated elsewhere in the county.

? Post your house address at the beginning of your driveway, or on your house if it is easily visible from the road.

Outside

? Designate an emergency meeting place outside your home.

? Practice emergency exit drills regularly.

? Make sure that electric service lines, fuse boxes and circuit breaker panels are installed and maintained as prescribed by code.

? Contact qualified individuals to perform electrical maintenance and repairs.

For the complete *Living with Fire: A Guide for the Homeowner*, visit the University of Nevada Cooperative Extension web site at www.extension.unr.edu/Fire/Frontpage.html.

Related web sites

Fire-resistant landscaping in Colorado, forest home fire safety and FireWise plant materials: www.colostate.edu/Depts/CoopExt/PUBS/NATRES/pubnatr.html

Updated fire management forecast: www.fs.fed.us/arnf/fire/nfdrs.html

Current fire restrictions in Colorado: www.fs.fed.us/r2/fire/rmamain.htm

Applying defensible space from a community development standpoint: http://www.firewise.org/

Invitation to dialogue

What issues and concerns would you like to see addressed?

Contact FYI at:

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Opinions expressed herein are not necessarily those of the Family and Youth Institute staff.

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