Making Your Home Safe From Wildland Fire

Cooperative Extension Service
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Guide H-708

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The western United States is subject to forest and rangeland fires that can destroy homes and damage watershed vegetation cover and, subsequently, degrade drinking water quality and quantity. Fires are more prevalent during droughts, which occur every 10 years on average in New Mexico. The U.S. Department of Agriculture's Forest Service produces a monthly fire forecast index, which characterizes the weather-induced wildland fire potential for the continental United States. The index, a modified version of the Chandler Burning Index (CBI), provides a measure of the effects of temperature and humidity on fire intensity and rate of spread (fig. 1).

Both the index value's intensity and spread components are linearly related to temperature (an increase in temperature results in a higher but insignificant index value). However, these components are exponentially related to humidity (a small decrease in humidity results in a large increase in the index value) (fig. 1).

Another index calculated by the Forest Service is the Haines Index, or Lower Atmosphere Stability Index, which is computed each morning from the atmospheric temperature, dew point, and barometric pressure data collected from National Weather Service balloons.

The Haines Index is composed of a stability value and a moisture term. The stability value is derived from the temperature difference at two atmospheric levels. The moisture term is derived from the dew point depression at a single atmospheric level. This index is correlated with speed of fire growth for fires that are not dominated by surface winds. Even when surface moisture is low, a high Haines Index can result in uncontrollable wildfires.

The Haines Index ranges from 2 to 6 to indicate the potential for large fire growth, with 2 corresponding to a very low potential and 6 corresponding to high potential.

At the time of the devastating Cerro Grande fire near Los Alamos, N.M., in May 2000, the Haines Index was high. The fire destroyed 235 residences and burned 42,878 acres. Wildfires that start under high

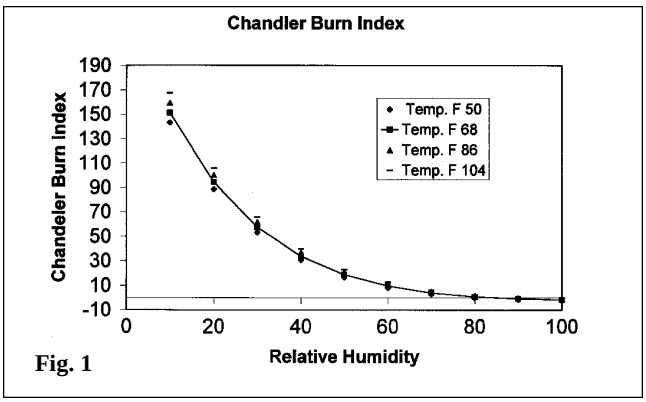

Fig. 1

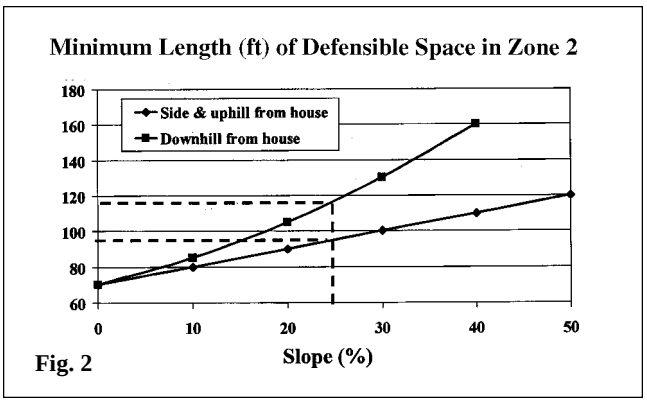

Fig. 2

temperatures, windy conditions and low humidity tend to burn fast and may be uncontrollable.

Homes located near the wildland-urban interface are at greater risk for wildfire damage than those located in urban areas. Homeowners can help protect their property from wildfires. Information and assistance is available at New Mexico State University's Cooperative Extension Service county offices, your State Forestry district offices, and other natural resources agencies. Informational brochures and direct on-site assistance with evaluating wooded sites is available. There also is excellent information on the internet.

One recommended World Wide Web site is http:www.colostate.edu/Depts/CoopExt/PUBS/NATRES/06302.html. This site is maintained by Colorado State University and defines four fire prevention zones. The first zone, located closest to the residential structure, should be at least 15 feet wide and designed to protect the home from intense flames and sparks carried by strong winds, which are common during a wildfire.

The second zone is a transitional area of fuel reduction between zone 1 and zone 3. Generally, homeowners should clear flammable vegetation from at least a 70-foot perimeter (fig. 2). Wildfires run up slopes and gullies, so the size of the defensible space should increase as the steepness of the slope increases. For example, a home on a 25 percent slope should have at least 95 feet of defensible space on the side uphill from the house. The defensible space should be at least 115 feet downhill from the house.

The third zone is open forest, and the fourth zone, lying farthest away from the residence, consists of native vegetation thinned to reduce foliage (fuel load).

Landscaping in the first two zones should consist of fire-resistant shrubs and vegetation. Trees and shrubs should be at least 10 feet apart. A list of fire retardant vegetation recommended for New Mexico landscapes is available at Extension county offices and New Mexico State Forestry district offices. Deciduous trees and shrubs are suggested as alternatives to more flammable native conifers. Safe roofing materials include asphalt, fiberglass, concrete tile, clay tile, or metal. Exterior walls should be constructed of brick, stone, metal, or concrete.

Organizations that offer updated information about how to protect your home include public and private

agencies listed below. Easily retrievable information also is available at the organizations Internet sites.

- The New Mexico State Forestry Division (http://www.nmforestry.com) provides private landowners with fire information and can often provide on-site evaluation for forested home sites.
- The Southwest Area Wildland Fire Operations (http://www.fs.fed.us/r3/fire/) maintains a comprehensive site with current Southwest fire conditions and educational information.
- The National Interagency Fire Center (http://www.nifc.gov/) also provides current status of fires in the West, along with educational information about protecting your home.
- The Department of Agriculture National Symbols Catalog (http://wahoo.dnr.state.mn.us/catalog/products/fire_welcome.html) has educational materials about fire protection for all age groups.
- The private Firewise organization (http://www.firewise.org/) offers materials, along with videos and books, about protecting homes from wildfires.
- Other government agencies that offer fire protection information include the Federal Emergency Management Agency's United States Fire Administration (USFA) (http://www.usfa.fema.gov/) and the Bureau of Land Management (http://www.blm.gov/fire/fire.html).