

## Western Ecological Research Center

# Publication Brief for Resource Managers

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## Testing a Basic Assumption of Shrubland Fire Management: How Important is Fuel Age?

Recent catastrophic wildfires in southern California highlight the need for effective planning and management for fire-prone landscapes. Southern California landscapes have experienced rising costs of fire suppression over the past several decades, and there have been increasing losses of human life and property due to wildfires. The multiple fires of late October 2003 brought the “fire problem” of densely populated southern California to national attention, with over 740,000 acres (300,000 hectares) burned in a single week. These fires, driven by the hot, dry winds typical of this region, overwhelmed fire suppression forces and burned through entire neighborhoods at points along the urban-wildland interface, resulting in 26 deaths and 3,361 homes lost.

As in many fire-prone ecosystems, the success of past fire suppression is generally believed to have allowed larger and older stands of even-aged vegetation to develop on these shrubland-dominated landscapes, a situation that purportedly generates larger and more intense wildfires. The importance of young vegetation patches in the landscape age-patch mosaic is, however, based on the premise that fire probabilities are strongly controlled by the age and spatial patterns of fuels. This premise has been tested in the March 2004 issue of *Frontiers in Ecology and the Environment* by a group of scientists including USGS research ecologist Dr. Jon Keeley and academic scientists Drs. Max Moritz (University of California, Berkeley), Ed Johnson (University of Calgary), and Allen Schaffner (Cal Poly, San Luis Obispo).

This work examined stand-age maps of shrubland landscapes that extend from Monterey County, California south past the U.S.-Mexico border and represent a lati-

### Management Implications:

- Fire suppression is not an underlying cause of catastrophic wildfires in southern California.
- Fire management policy based on eliminating older stands of shrubland vegetation through fuel treatments will not diminish the size of wildfires ignited under extreme weather.
- Fire management may require different regional approaches.

tudinal span of about 300 miles (500 km) and gradients in precipitation, growing season, ecological communities, and land use. Each fire history represented tens of thousands of hectares burned, hundreds of fires, and periods of record ranging from about 50 to 85 years in length.

Fire frequency analysis of several hundred wildfires over a broad expanse of California shrublands revealed that there is generally not a strong relationship between fuel age and fire probabilities, as is commonly assumed. The probability of burning in most shrublands increased only moderately with time since the last fire, and a marked age effect of fuels was observed only in limited areas. There was substantial burning through all age classes of fuels (e.g., about 25 % of burning took place before age 20). Fire interval distributions also indicated that the majority of burning occurred by a relatively young age (i.e., about 50 % of burning typically took place by age 40).

*Moritz, M. A., J. E. Keeley, E. A. Johnson, and A. A. Schaffner. 2004. Testing a basic assumption of shrubland fire management: how important is fuel age? Frontiers in Ecology and the Environment 2:67-72.*