

HISTORICAL FIRE REGIME IN SOUTHERN CALIFORNIA



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The historical variability in fire regime is a conservative indicator of ecosystem sustainability. Understanding the natural role of fire in chaparral ecosystems is therefore necessary for effective fire management.

In December 2001, we published two papers (Keeley and Fotheringham 2001a, 2001b) that contradict earlier studies suggesting that the “natural” fire regime in southern California was one of frequent small fires that fragmented the landscape into a mixture of stand age classes, thereby preventing large, catastrophic crown fires.

Stand-Replacing Fire Regime

It has been claimed that the natural fire regime in chaparral was lost because of overly effective fire suppression, and that if fire managers could “restore” it with widespread prescription burning, they could eliminate the hazard of catastrophic fires. The primary supporting evidence is a comparison of contemporary burning patterns in southern California (subject to fire suppression) with patterns in northern Baja California, Mexico (without effective fire suppression).

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In southern California, fire suppression has not even come close to excluding fire—unlike in many coniferous forests of the Western United States.

After reviewing the evidence, we concluded that the degree to which fire regimes vary between the two regions is debatable. Moreover, any differences that exist cannot be conclusively attributed to differences in fire suppression. Indeed, wildland fire records from the USDA Forest Service and the California Department of Forestry and Fire Protection show clearly that in the ecosystems of southern California, fire suppression has not even come close to excluding fire—unlike in many coniferous forests of the Western United States.

Historical records show that the natural fire regime in southern California shrublands included large, high-intensity fires. In fact, the historical fire regime was not substantially different from the contemporary fire regime. There is no evidence that fire management policies have created the contemporary fire regime dominated by massive fires driven by Santa Ana winds. Increased expenditures on fire suppression, and increased loss of property and lives, are the result of human demographic patterns that place increasing demands on fire suppression forces.*

* See Jon E. Keeley, “We still need Smokey Bear!”, *Fire Management Today* 61(1): 21–22.

Management Implications

We question the claim that destructive wildfires in southern California are a modern artifact of fire suppression. Our findings suggest that landscape-scale prescribed burning is not an effective means of preventing large, stand-replacing fires in southern California’s shrublands. Limited and strategically placed prescribed burns are more cost-effective for protecting communities and wildland resources. One of the most important roles for fire managers of chaparral ecosystems is to educate land planners on the inherent limitations of fire hazard reduction in these natural crown fire ecosystems.

References

- Keeley, J. E.; Fotheringham, C.J. 2001a. The historical role of fire in California shrublands. *Conservation Biology*. 15: 1536–1548.
- Keeley, J. E.; Fotheringham, C.J. 2001b. History and management of crown-fire ecosystems: A summary and response. *Conservation Biology*. 15: 1561–1567. ■



Postfire greenup on the Angeles National Forest, CA. Stand-replacing fires every 20 to 40 years are typical in southern California's native shrublands. Fire triggers germination in seed-banked annuals, which return to dormancy after shrubs such as chamise, resprouting from root crowns and/or from fire-activated seeds, reestablish the canopy cover. Photo: USDA Forest Service, 1990.

WEBSITES ON FIRE

Six Minutes for Safety

The Federal Fire and Aviation Safety Team (FFAST) includes the USDI Bureau of Land Management, National Park Service, Bureau of Indian Affairs, and Fish and Wildlife Service and the USDA Forest Service. Team members have collaborated to develop the first interagency safety initiative that daily addresses the high-risk situations that historically have meant trouble for firefighters. The FFAST, in an effort to continue to find innovative ways to keep firefighters safe on the fireline, believes that the new initiative will have a tremendous positive impact.

*Occasionally, *Fire Management Today* describes Websites brought to our attention by the wildland fire community. Readers should not construe the description of these sites as in any way exhaustive or as an official endorsement by the USDA Forest Service. To have a Website considered for inclusion, contact the managing editor, Hutch Brown, at USDA Forest Service, Mail Stop 1111, 1400 Independence Avenue, SW, Washington, DC 20250-1111, tel. 202-205-1028, e-mail: hbrown@fs.fed.us.

Site visitors can either access 12 months of calendars containing "safety-of-the-day discussions" or select discussion topics from a drop-down list. The 200- to 300-word papers cover a variety of safety topics. Readers can learn about the perils of fighting fires at night, what to do when fire engines are trapped, or how to take a nap near the fireline. If you're involved in firefighting, check out the valuable, succinctly written safety information at the Six Minutes for Safety Website.

Found at <http://www.nifc.gov/sixminutes/index_j.asp>

