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Publication Brief for Resource Managers

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Historic Fire Regime in Southern California Shrublands

Overview

The historical variability in fire regime is a conservative indicator of ecosystem sustainability, and thus understanding the natural role of fire in chaparral ecosystems is necessary for effective fire management. In the December issue of *Conservation Biology,* USGS scientist Dr. Jon E. Keeley and co-author C. J. Fotheringham, graduate student at the University of California, Los Angeles, have published two papers that contradict earlier studies suggesting that the "natural" fire regime was one of frequent small fires that fragmented the landscape into a mixture of stand age classes, which prevented large catastrophic crown fires.

Their studies question the earlier claim that destructive wildfires are a modern artifact of fire suppression, and they present arguments suggesting that landscape-scale prescription burning is not an effective means of preventing such fires. It is proposed that one of the most important roles for fire managers of these ecosystems is to educate land planners on the limitations to fire hazard reduction in these natural crown fire ecosystems.

Background

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

After reviewing the evidence, Keeley and Fotheringham concluded that the degree to which fire regimes vary between these two regions was debatable and any differences that do exist can not be conclusively attributed to differences in fire suppression. Indeed, U.S. Forest Service and California Department of Forestry fire records show clearly that in these ecosystems, fire suppression has not even come close to excluding fire, as is the case in many Western U.S. coniferous forests.

Management Implications:

- Widespread prescription burning will not affect the occurrence of catastrophic wildfires in Southern California shrublands
- Limited and strategically placed prescription burns are more cost effective
- Greater attention to educating the public on the limitations to fire hazard reduction is needed

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

Keeley, J. E. and C. J. Fotheringham. 2001. The historical role of fire in California shrublands. Conservation Biology 15:1536-1548.

Keeley, J. E. and C. J. Fotheringham. 2001. History and management of crown-fire ecosystems: A summary and response. Conservation Biology 15:1561-1567.