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## Prescribed Fires Do Not Reduce Future Area Burned in Central and Southern California

Frequent wildfire disasters in central and southern California highlight the need for fire risk reduction strategies for the region. Fuel reduction via prescribed burning is one commonly discussed option, yet there is no consensus about the effectiveness of prescribed fire in reducing the area of future wildfire.

A new statistical analysis of historic fires reveals that in central and southern California ecosystems, prescribed fires have no effect on reducing area burned by future fires. The *Journal of Environmental Management* paper was authored by researchers from the University of Wollongong, USGS and Conservation Biology Institute as part of the Southern California Wildfire Risk Project.

Researchers used 29 years of historical fire mapping to quantify the relationship between annual wildfire area and previous fire area in seven California counties: San Luis Obispo, Santa Barbara, Ventura, Los Angeles, Riverside, Orange and San Diego.

These data were used to measure “leverage” — reduction in future area burned resulting from one unit of prescribed fire treatment. For example, leverage for tropical savannas like the Serengeti is 1, where one unit of future area burned area can be directly inhibited by one unit of prescribed fire area. In Australian eucalyptus forests, the leverage is around 0.25, where 3 to 4 units of prescribed fire area is needed to inhibit subsequent fire area by 1 unit.

The leverage for central/southern California was found to be zero, which meant that no amount of area burned can inhibit future area burned. Researchers think this is for two reasons. First, southern California fires are not dependent on fuel age. The Santa Ana wind-driven extreme fires of the region will burn through vegetation of any age, and the growing acreage of easily burned, nonnative grasses also contributes to fire spread. Second, because only a random 2% of the vegetation burns each year on average, the chances of a prescribed fire patch being encountered by a fire are low.

### Management Implications

- Based on past data, prescribed fires in coastal southern California have no effect on reducing area burned by future fires.
- Prescribed fire may have more impact with management strategies designed to reduce ignitions, or to encourage planning decisions that minimize the spread of fires into urban environments.
- Regional planners seeking to reduce fire hazard risk may need to investigate other management strategies, such as ignition prevention and invasive plant management.

THIS BRIEF REFERS TO:

Price, OF, RA Bradstock, JE Keeley, AD Syphard. 2012. The impact of antecedent fire area on burned area in southern California coastal ecosystems. *Journal of Environmental Management* 113: 301-307. doi: 10.1016/j.jenvman.2012.08.042

<http://www.werc.usgs.gov/ProductDetails.aspx?ID=4828>  
<http://www.werc.usgs.gov/socalfirerisk>



Jon Keeley/USGS

Prescribed fires in central and southern California do not reduce future area burned, as they might in other ecosystems.