**Estimating the Impacts of Wildfire on Ecosystem Services in Southern California

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**Topic:** Managing fire regimes in a changing world (good fire/bad fire)
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 **Abstract:**Emma C. Underwood, University of Davis, California, USA and Hugh D. Safford, USDA Forest Service Pacific Southwest Region, California, USA Chaparral-type shrublands characterize the world's Mediterranean-type climate regions. In southern California they are the most extensive ecosystem and dominate the four southern USDA Forest Service National Forests. Wildfire is a natural disturbance in California's shrublands and critical for its healthy functioning. However, a rise in anthropogenic ignitions has resulted in increased fire frequency, which is having disastrous effects on property and human lives and incurring millions of dollars in suppression costs. Less obvious, though, are the intangible environmental impacts of wildfires â€“ the consequences on the provision of ecosystem services to the millions of people who live in close proximity. We developed a web mapping tool to quantify fire impacts on six ecosystem services: carbon storage, water runoff and groundwater recharge, sediment erosion, recreation, and biodiversity. The removal of vegetation increases water runoff, recharge and sediment erosion post-fire, and decreases carbon storage immediately after. Moreover, frequent short-interval fire is causing the type-conversion of native shrubs to invasive annual grasses. Quantifying the impacts of wildfire on ecosystem services in addition to routine fire suppression expenses is increasingly recognized as an important component of natural resource management on public lands in southern California. In addition, assessing areas of high ecosystem service provision can help prioritize areas for post-fire management activities, such as stabilizing slopes in areas of high erosion risk, thereby helping to ensure their long-term provision.