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Publication Brief for Resource Managers

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Fire Suppression Impacts on Postfire Recovery of Sierra Nevada Chaparral Shrublands

Roughly half of the chaparral shrublands in the southern part of California's Sierra Nevada Range have never had a recorded fire since record keeping began in 1910. This long fire-free period is very likely outside the historical range of variability and presents management challenges. These ecosystems are dominated by species adapted to periodic fires and many species require fire for regeneration. Thus there is reason to believe that such a long absence of fire could threaten the health and stability of these systems. In the September issue of the *International Journal of Wildland Fire,* USGS researchers Dr. Jon E. Keeley and Anne Pfaff in collaboration with U.S. Forest Service ecologist Hugh Safford report on comparisons of postfire recovery following fire in ancient stands of chaparral with that in younger stands.

These researchers did extensive studies of postfire recovery following the 2002 McNally Fire in Sequoia National Forest. A major portion of this fire burned ancient chaparral stands that were as much as 150 years of age, as well as some younger (mature) stands. Based on shrub seedling recruitment, shrub resprouting success, abundance of postfire endemic annuals and total species diversity, they found that ancient stands recovered as well as younger mature stands. Two characteristics were significantly different. Ancient stands had smaller populations of the obligate-seeding shrub *Ceanothus cuneatus* prior to the fire and produced substantially fewer seedlings of this species after fire. Nonetheless, seedling recruitment of this species was still potentially high enough to replace the parent populations. In addition, non-native species richness and abundance increased slightly in the ancient stands, suggesting that in the long absence of fire these stands become somewhat more open to alien colonizers. However, long fire-free periods do not appear to pose a major threat of alien invasion.

Management Implications:

- Chaparral is very resilient to long fire-free periods.
- There is no evidence that fire severity effects differ between shrublands 50–60 years of age and those close to 150 years of age.
- Fuel modifications such as prescription burning in these shrublands should be justified on the basis of fire hazard reduction rather than resource benefits.

These researchers point out that it is unknown what the historical fire return interval is in the foothill chaparral belt of the Sierra Nevada. However, they conclude that a century of fire exclusion poses little threat to the postfire recovery of this vegetation type.

Keeley, J. E., A. H. Pfaff, and H. D. Safford. 2005. Fire suppression impacts on postfire recovery of Sierra Nevada chaparral shrublands. International Journal of Wildland Fire 14:255–265.