



Research Brief for Resource Managers

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Very Limited Age-Dependent Burning in Chaparral

Moritz, M. A. 2003. Spatiotemporal analysis of controls on shrubland fire regimes: age dependency and fire hazard. *Ecology* 84:351-361.

To Max Moritz, the crux of the chaparral fire debate was whether or not climate and weather have greater influence on the chaparral fire regime than does age and spatial pattern of the vegetation. In this 2003 study, Moritz tested the vegetation age half of the debate. Does the likelihood of a fire really increase with longer fire intervals? Is fire really less likely to burn in young stands of chaparral? The answer is not really, not when extreme weather conditions like the Santa Ana winds are part of the fire regime. The one anomalous region in the study was the region protected from Santa Ana winds. Moritz generalized that chaparral areas regularly exposed to extreme fire weather such as high winds and low humidity would be expected to show less age-dependent burning than areas sheltered from such events.

This study examined the historical fire intervals of two chaparral-dominated divisions of the Los Padres National Forest, California. Five separate landscapes in the main division and one in the Monterey Division were analyzed for age effects on fires. Using a GIS based fire interval distribution map, he estimated the degree of age dependency of fuels by fitting a Weibull function to fire interval data. The impact of fire suppression was investigated by contrasting patterns prior to 1950 with those after 1950.

Management Implications

- Shrubland fires typically burn through all age classes of vegetation and there is relatively limited evidence of young age classes acting as barriers to fire spread.
- Fire suppression is important as a tool to offset the increase in ignitions by humans in southern California.
- Subregions where extreme fire weather such as Santa Ana winds are rare is where age-dependent effects on fire spread are likely to be seen.

His results showed that on most landscapes and across all spatial scales, shrubland fires commonly burned through young age classes of vegetation. The one anomalous region exhibited a more rapid increase in the chance of burning with vegetation age, reflecting a moderately age-dependent fire regime. This anomaly was attributed to topography that blocked Santa Ana winds.

Recent fire suppression appears to have affected the characteristics of smaller fires much more than large fires. Since 1950 there has been an increase in the number and a decrease in the size of smaller fires. Moritz concluded that these findings contradict the assertion that in the absence of fire suppression large fires would be constrained by complex age-patch mosaics in this chaparral dominated landscape.