

WILDFIRE EFFECTS ON BIRD ABUNDANCE IN A MIXED-SEVERITY FIRE REGIME: TREATING FIRE SEVERITY AS A CONTINUOUS VARIABLE

N. E. SEAVY, J. D. ALEXANDER, C. J. RALPH, S. JANES, AND S. NORMAN

Second International Wildland Fire Ecology and Fire Management Congress, Orlando, FL, November 2003.

Abstract: With support from the Joint Fire Sciences Project, we are investigating the ecological effects of fire management by implementing a comprehensive study of bird distribution relative to fire management in the Klamath-Siskiyou region of southern Oregon and northern California. Traditionally, studies measuring fire effects on wildlife have treated fire as a categorical variable (e.g., burned vs. unburned). Such analyses may be appropriate in high-severity fire regimes where stand-replacement fires create consistent and dramatic changes in vegetation. However, in our study area fire regimes were historically mixed-severity, with varied effects on vegetation structure. Because fire severity is heterogeneous in space and time, we propose that fire needs to be treated as a continuous, rather than categorical, variable in order to understand how it affects bird abundance within the context of mixed-severity fire regimes. Using long-term bird monitoring data collected by the Klamath Demographic Monitoring Network across a large area of Oregon and California, we have compiled data on vegetation structure and bird abundance in two areas that were subsequently burned by the Quartz and Megram fires. These data, matched with post-fire surveys, provide a design that we have used to evaluate the effects of fire on vegetation structure and investigate changes in bird abundance as a function of fire severity. In addition to describing the response of individual species to fire severity, we will discuss the potential for mixed-severity fires to play a role in creating patterns of diversity. Finally, we suggest that this information should be applied to fire management strategies, such as prescribed fire and mechanical fuels reduction, to understand their effects on bird community composition.