



**Multi-century reconstruction of chaparral fire history using fire-scarred  
Bigcone Douglas-fir in Southern California  
Angeles, Los Padres and San Bernardino National Forests  
2007**

**Project Description:** Bigcone Douglas-fir (*Pseudotsuga macrocarpa*) is a unique conifer species restricted to the mountains of Southern California. This tree species provides important habitat for the threatened California spotted owl and is seriously threatened itself by increasingly frequent fire throughout its range. We are applying a novel set of dendrochronological approaches to sample fire scar data from Bigcone Douglas-fir stands embedded within surrounding chaparral to (1) determine a long-term historical record of chaparral fire regimes, which we currently lack for most of S. California; (2) to evaluate the effects of climate on these regimes; and (3) to shed light on the poorly understood ecological relationship between Bigcone and fire. Our strategy focuses on tree-ring sampling and dating of fire-scarred Bigcone Douglas-fir forests that exist as scattered islands in a sea of chaparral in the Los Padres, San Bernardino and Angeles National Forests. In a related project, we are using fire severity mapping from the Region 5 Fire Severity Mapping Program to assess current patterns of fire severity in Bigcone Douglas-fir stands so as to understand how terrain and climate influence stand survival after fire.



Bigcone Douglas-fir

**Implementation Plan and Accomplishment to Date:** Our project began in the fall of 2006 and is expected to finish during the summer of 2009. Work to be accomplished includes collection of scarred wedges, material preparation and dating, analysis and write-up. We are working in close collaboration with the University of Arizona Tree Ring Laboratory, Tom Swetnam, director.

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