



Research Brief for Resource Managers

Release:
May 2013

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Fire history of a mixed conifer woodland at the ecotone between the southern Great Basin and Mojave Desert

Biondi, F., L. P. Jamieson, S. Strachan, and J. Sibold. 2011. Dendroecological testing of the pyroclimatic hypothesis in the central Great Basin, Nevada, USA. Ecosphere 2(1):art5. doi:10.1890/ES10-00068.1

The Mt. Irish area of Lincoln County, NV, lies within a broad ecotone between the southern Great Basin and Mojave deserts. As often occurs atop sky islands within this basin and range region, the higher elevations are dominated by conifer woodlands containing species such as ponderosa pines (*Pinus ponderosa* C. Lawson var. *scopulorum* Engelm.) and singleneedle pinyons (*Pinus monophylla* Torr. & Fre'm.). Because these tree species can survive fire and leave scars indicating the years that fire occurred, they are often used in dendrochronology studies to reconstruct fire histories.

Dendrochronology and other methods were used to reconstruct the fire history from 1500 through 2006 in the vicinity of Mt. Irish. Up until 1860, the time of Euro-American settlement, fires that scarred at least two trees occurred on average every 2 years, whereas fires that scarred at least 10% of the recorder trees (i.e. larger fires) occurred every 66 years. After Euro-American settlement there were only 2 fires recorded between 1861 and 2006 (Figure 1). Because of the area's remoteness it is unlikely that organized fire suppression by settlers resulted in the decreased frequency of fire. Alternatively, it seems that displacement of Native Americans who used fire for various cultural practices is a more likely explanation for reduced fire frequency. In addition, historical climatic analyses suggest that conditions conducive to fire became less frequent

Management Implications

- Historical fires between 1500 and 1860 were relatively frequent (occurrence average 2 years), whereas from 1861-2006 only 2 fires were recorded.
- This change in frequency is coincident with cessation of fire use by Native Americans and a shift to climatic conditions less favorable for fire.
- Management practices developed for mixed conifer ecosystems elsewhere in North America may not be appropriate for Mt Irish and other adjacent arid mountain ranges.

after the middle 1800s. Thus, it appears that a combination of the cessation of fire use by Native Americans and a shift to climatic conditions less favorable to fire are both explanations for decreased fire frequency over the past Century and a half in this region.



Mt Irish study area (Photo: Biondi et al. 2011)