CLIMATE CHANGE AND FIRE IN THE SIERRA NEVADA (6B)

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A lot has been written about the role of global warming in driving future fire regimes but relatively little empirical data have been presented on this problem. Here we focus on historical patterns of burning and climate, which should provide some insight since annual variation in temperature and precipitation over this period exceeds that for predicted increases for the rest of the century. Our study examined the historical relationship between past climate and fire activity across two different landscapes, higher elevation National Forests and lower elevation State Responsibility Areas. The former database covers a time span of 100 years and the latter 90 years. The fire history of California, and the Sierra Nevada specifically, shows surprisingly little relationship between temperature and fire activity, but this conclusion changes with spatial scale. There is a somewhat greater relationship between precipitation and fires but it accounts for a relatively small portion of annual variation in fire activity. Forested and non-forested environments exhibit significant differences that are likely explained by anthropogenic factors. These results indicate a need for much more research that includes all expected global changes in order to develop useful models of future fire regimes in the region.

Key words: Climate, fire, temperature, precipitation, human demography