

A GEOSPATIAL ASSESSMENT OF FOREST VULNERABILITY IN THE S. SIERRA

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Abstract: As part of the collaborative “Alternative Futures for Fire Management” project, we conducted a geospatial vulnerability assessment for the southern Sierra Nevada ecoregion by combining information about current and projected future exposure and sensitivity of the landscape to undesired change. Current information inputs were fire return interval departure (FRID), potential flame length, and ignition probability. Projected “climate exposure” was determined by comparing the baseline (1971-2000) hydroclimate envelope for CalVeg vegetation types to projected future hydroclimate envelopes. Projected fire probability of the landscape was modeled with a similar procedure. Future projections were conducted using downscaled output for the GFDL 2.1 and PCM global circulation models, which correspond to “much warmer/much drier” and “moderately warmer/similar precipitation” futures for the study area. These vulnerability results can be used in various ways to help decision-makers prioritize locations for management treatments. For example, we identified areas projected to be at risk soonest versus most resilient longest (i.e., potential climate refugia). In this presentation, results for the forested landscape (mixed conifer, giant sequoia groves, and subalpine) will be highlighted.