

## ABSTRACT

### FIRE AND GRAZING EFFECTS ON VERNAL POOL GRASSLANDS

Vernal pool grasslands are increasingly fragmented ecosystems dominated by non-native species in the Tulare Basin. To examine how native species respond to disturbances, I experimented with fire and grazing. Burning was applied in 2005 and cattle were excluded from some areas for three years. Vegetation, soils, aquatic animals, and physical-chemical properties were monitored before and after treatment and compared with reference sites. Variations in climate affected native plant richness, cover, and vegetative cover more than treatment with grazing and fire. Native plant frequency, residual dry matter, bare ground, and litter were affected by disturbances, stronger than climate variations. Disturbances and climate interacted to increase or decrease native abundance. Burning increased native plant diversity and abundance. Grazing negatively affected invertebrate taxa but not richness or water physio-chemistry. Burning had no significant effect on invertebrates or water physio-chemistry. These results will assist management of natural areas in the Tulare Basin.

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