

\*MERRIAM, K.E.<sup>1</sup>, J.E. KEELEY<sup>1</sup>, and J.L. BEYERS<sup>2</sup>.

<sup>1</sup>U.S. Geological Survey, Western Ecological Research Center, \*contact author phone: (559) 565-4266, email: kmerriam@usgs.gov. <sup>2</sup>U.S. Forest Service, Pacific Southwest Research Station.

### **The role of pre-fire fuel manipulations in the invasion of alien plants**

Federal and state agencies are currently implementing large pre-fire fuel manipulation programs to reduce the threat of catastrophic wildland fires. An unintended result of these programs may be the introduction of invasive plant species. We investigated the effect of fuel breaks on alien plant invasion and evaluated the spread of alien species from fuel breaks into adjacent wildland areas. We examined fuel breaks across California representing different construction methods, maintenance regimes, and fire histories. Relative and absolute alien cover, density, and species richness were significantly higher within fuel breaks than in surrounding wildland areas. Alien plant abundance was significantly affected by over story canopy cover and percent of bare ground. Fuel breaks constructed by bulldozers had higher relative alien cover, lower over story canopy cover, and more bare ground than those constructed by other methods. Alien plants were most likely to spread into wildland areas that had experienced more numerous fires during the past fifty years. Our data suggest that fuel breaks provide establishment sites for alien plants, and that surrounding areas are susceptible to invasion after disturbances such as fire. Fuel break construction and maintenance methods that maintain some over story canopy cover and minimize exposure of bare ground may be less likely to promote alien plant invasion.