

Abstract

Across the nation wildfires in national forests and parks annually affect millions of acres of public lands, destroying recreational sites, historical areas, and scenic wilderness, and costing taxpayers hundreds of millions of dollars every year in suppression costs and lost resources. This research examined the spatial correlation between human activities and human caused wildfire occurrences within the Willamette National Forest to explore whether these activities might be responsible for many wildfire ignitions. Between 1995 to 2008, 493 human caused fires occurred. The density of these fires was investigated to identify clustering near recreational sites and human infrastructures. Maxent was used to model the probability of wildfire occurrences in relation to the recreational sites and human infrastructure areas located throughout the Forest.

It was initially hypothesized that more wildfires occur near specific kinds of recreational sites than elsewhere. Preliminary data exploration showed high densities of wildfire occurrences near the towns, human infrastructures, and major highways although these were also areas of clusters of recreational sites. Thus, it was not possible to identify visually which particular activities were most strongly related to wildfire ignitions. Maxent results revealed that areas of high population densities and recreation site clusters were more likely to correspond to areas of more human caused wildfire ignitions.