

Wildfire Impacts

Overview

Wildfires are a fundamental component of most natural ecosystems in the western United States. Historical fire suppression practices, coupled with the proliferation of non-native plant species, have modified these ecosystems so that modern wildfires are more widespread and catastrophic than ever before. Extended periods of drought, particularly characteristic of the western United States, increase the probability and severity of major wildfires. These hazards are compounded by the continued extension of development into fire-prone areas. Major wildfires lead to numerous environmental changes including loss of vegetation and ground cover, alteration of soil properties, and the reduction of hillside stability. These factors and others can change a watershed's hydrologic response to rain events and can potentially result in post-fire flooding, debris flows, and landslides. Recent rain events in Southern California have illustrated the magnitude of the potential post-fire consequences in areas downstream of recent burn areas.



Exponent is skilled in the evaluation of wildfires and their impacts, including geologic and hydrologic hazards, as well as the ecological and water quality impacts that a fire has within and downstream of the burned areas. Additionally, we are experienced in the application of a mathematical model called the Habitat Equivalency Analysis (HEA). We provide evaluations of the use of an HEA approach and the fundamental scientific assumptions used.

Our services include:

- » Evaluation of burn limits, burn intensity, and degree of vegetative recovery
- » Air photo analysis
- » Remote sensing analysis
- » Land use and flood hazard studies
- » Sediment yield analysis
- » Geologic mapping
- » Debris flow and landslide hazard analysis
- » Natural resources damage assessment
- » Evaluation of ecosystem impacts
- » Evaluation of water quality impacts
- » Determining agricultural losses
- » Habitat Equivalency Analysis



Exponent can evaluate the hazards resulting from wildfires and provide remedial solutions tailored to the local site conditions.