



2017 FIRE CONGRESS  
Research Highlight



# Aligning Endangered Species Management with Rebuilding and New Construction Trends after California Wildfires

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## MAIN QUESTIONS OR ISSUES THAT YOU ADDRESSED

1. How do rebuilding and new building contribute to development over time after fire?
2. What environmental factors impact rebuilding and new building within 20 years after fire?
3. Do these factors differ between 5 and 20 years after fire?

## LOCATION AND ECOSYSTEM INVESTIGATED

State of California, varied human-wildland ecosystems (wildfires that destroyed at least 20 buildings between 1970 and 1999).

## KEY FINDINGS OF YOUR RESEARCH

1. Overall, 79% of buildings are rebuilt within 5 years, and 94% within 20 years after fire, but with high inter-fire variability. In most fires, new building outpaces rebuilding in the first 5 years after fire.
2. Rebuilding and new building are related to numerous environmental factors, and are impacted differently by these factors, but neither is significantly different from locations where buildings were destroyed
3. Drivers of both rebuilding and new building shift between <5 and 5-20 years post-fire

## HOW DID YOU ANSWER THE MAIN QUESTIONS OR INFORM THE ISSUES?

- We tracked destruction, rebuilding, and new building within 11 destructive (at least 20 buildings visibly destroyed) fire perimeters that burned between 1970 and 1999
- We documented destruction/survival immediately after the fire, as well as rebuilding and new building at 5, 10, 15, and 20 years after wildfire
- Data were gathered from aerial and satellite images from a variety of image repositories
- We used a combination of summary statistics and probit models (including numerous environmental factors at each building site) to answer our research questions.

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This research was presented at the 7th International Fire Ecology and Management Congress, which was held in Orlando, Florida, November 28-December 2, 2017 and was hosted by the Association for Fire Ecology, in cooperation with the Southern Fire Exchange.

## HOW MIGHT/WILL IT INFLUENCE FIRE MANAGEMENT DECISIONS OR PRACTICES?

- Because rebuilding is usually small in comparison to new building, policy change (regulations around mitigation or home materials) after wildfire will usually affect only a small number of buildings in the short-term, as residents rebuild and some new building occurs. However, such changes can have a larger cumulative impact over time, as development within the fire perimeter continues.
- Providing 5 years of post-disaster resources for rebuilding would impact 84% of buildings that are ultimately rebuilt after 20 years.
- Post-disaster planning should acknowledge that environmental drivers of rebuilding will be different from drivers of new building.

## WHO IS THE MAIN END-USER OF YOUR RESEARCH?

- City, county, and emergency planners
- Other researchers interested in exploring the role of wildfire in human-settled areas

## CONGRESS SESSION

Living with Fire ~ Cultural, Socio-Economic, Health