



2017 FIRE CONGRESS Research Highlight



How Exceptional Was the 2017 Tubbs Fire?

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MAIN QUESTIONS OR ISSUES THAT YOU ADDRESSED

1. How does Tubbs compare to California wildfires in size and destruction?
2. How does relative destruction in the wildland urban interface (WUI) compare?
3. How well did risk maps predict destruction rates?
4. Was Tubbs foreseeable (housing growth & fire history)?

LOCATION AND ECOSYSTEM INVESTIGATED

California fires statewide, varied ecosystems (for fires that burned between 2000 and 2013).

KEY FINDINGS OF YOUR RESEARCH

- Tubbs wasn't very large, but topped the CA records for destruction
- The overall rate of destruction in the Tubbs was higher than that of CA wildfires overall, as well as the top 10 most destructive in our dataset
- Unlike other CA fires (even highly destructive ones), a large proportion and high rate of destruction in the Tubbs fire occurred in urban area
- Areas with the highest Fire Hazard Severity Zone rating had lowest destruction rate in Tubbs; and unrated areas contained the majority of destroyed buildings for both Tubbs and CA wildfires
- The 1964 Hanly fire burned a similar area as the Tubbs and under similar conditions, but was far less destructive, perhaps due, in part, to housing having increased by over 700% between the Hanly and Tubbs fires • Growth within fire perimeters statewide was higher than average statewide growth, indicating that building is preferred in flammable areas

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

- Digitized locations of destroyed vs. surviving buildings in the Tubbs fire were compared to locations of buildings from 102 CA wildfires that burned between 1970 and 2013
- We examined the Tubbs fire, the 10 most destructive wildfires (from our dataset), and all CA wildfires (from our dataset)
- We compared the overall destruction and rates of destruction in terms of WUI designation and CalFire Fire Hazard Severity Zone rating
- Fire history and housing growth from backcast census data were used to compare relative growth within and outside fire perimeters over time.

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?

- Demonstrates that wildfire movement into urban areas is rare, but is possible. Planners should take this wildfire risk into account
- Shows that wildfire can move into urban areas, and highlights the need for improved fire models where buildings can be modeled as sources of fuel
- Demonstrates that the current Fire Hazard Severity Zone map for California does a poor job at characterizing building destruction in California fires statewide, suggesting the need for an improved product on which to base codes and regulations
- Pushes for research examining the impact of building pattern and location that could inform planners of more/less risky building patterns for a given area.

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

Policy Issues