CALIFORNIA FIRE SCIENCE CONSORTIUM

Research Brief for Resource Managers

Release:	Contact:	Phone:	Email:
December 2014	Chris Dicus	(805)-756-5104	cdicus@calpoly.edu

Wildland-Urban Interface Module | Natural Resources Management & Environmental Sciences Department, California Polytechnic State University, 1 Grand Ave., San Luis Obispo CA 93407

Social Constraints to Mitigation in a WUI Community

Collins, Timothy. 2004. Households, forests, and fire hazard vulnerability in the American West: A case study of a California community. Global Environmental Change Part B: Environmental Hazards. 6 (2005) 23-37.

http://www.sciencedirect.com/science/article/pii/S1464286705000033

The author examines social perceptions of risk of home ignition in the community of Forest Ranch, which is located in the Sierra-Cascade foothills near Chico in Butte County (Figure 1). The community consists of approximately 2500 people, of which nearly all are American born, English-speaking whites that are generally older, well-educated, affluent, and employed outside the community. There was socioeconomic variability in the community as evidenced by mobile homes being situated in close proximity to exclusive canyon dwellings.

A 63-question survey was sent to all residents, which addressed four thematic areas including (1) measures residents used to protect their homes from ignition, (2) reasons for not acting to reduce home ignitability, (3) socioeconomic characteristics of the respondent, and (4) open-ended questions regarding the positive and negative aspects of living in the community.

Over 60% of respondents indicated aesthetics, privacy, and environmental quality as the greatest benefits to living in the community. Survey responses suggest that residents valued the very attributes of the biophysical environment that contributed to their risk. The characteristics that residents valued most (e.g., forest setting, climate, mountains) are the same characteristics that exacerbate potential fire behavior. Fire managers therefore have the unenviable task of finding ways to make the perceived benefit of mitigation efforts outweigh the perceived cost of degrading the environment that is so highly valued there.

Over 60% of respondents also rated fire suppression capacity to be above average. Statistical tests revealed that if residents believed firefighters had the capacities to protect local homes, then they were less likely to implement

Management Implications

- Residents commonly place high value on the same environmental characteristics of an area that place them at greater risk of loss (e.g., dense vegetation, steep terrain, mild climate).
- Residents may view adequate fire suppression capabilities as a substitute for mitigation.
- Many residents, particularly renters, commonly lack the monetary means to mitigate elevated fire hazard.
- Public outreach efforts should come only after a thorough understanding of the local community and should not focus exclusively on risk of loss, but rather should include other benefits of mitigating a property (e.g., increased forest health via thinning for defensible space).

mitigation measures to reduce risk of ignition. Thus, residents there view fire suppression as a substitute for implementing mitigation measures.

Other statistical tests revealed that wealthier households were more active in reducing risk via mitigation measures. Further, renters had a much higher risk of home ignitability than those who owned their homes.

Results of the survey indicate that in Forest Ranch, residents were relatively vulnerable to fire for varying reasons, including

- A high value placed on characteristics of the environment that increased fire hazard;
- Fire suppression was viewed as a substitute for mitigation;
- Lack of basic fire infrastructure due to living in a rural unincorporated area;
- Lack of economic resources for investment in mitigation efforts;
- Renters, who were not responsible for, or were legally prohibited from, making adjustments to the property.

The author suggests that even if residents are motivated to initially mitigate their properties following public outreach strategies that rely on fear of loss, that motivation dissipates over time after a fire does not burn in the local area. Further, WUI residents may view disaster recovery programs, fire insurance and fire suppression as substitutes for mitigation efforts.

Thus, effective public outreach should not focus exclusively on the negative outcomes of a hypothetical fire event, but might gain wider acceptance if mitigation efforts are conceived to protect economic development, improve livelihoods, and acknowledges the environmental benefits afforded by mitigation activities.

Figure 1. Location of the Forest Ranch study site.

The author also recommends that scientists and managers avoid recommending mitigation activities until they reach a comprehensive understanding of the underlying reasons as to why a community is vulnerable to wildfire. Managers are recommended to take time to get to know the people in their community and what motivates them. "Education is a two-way street that requires mangers to learn about resident perspectives, values, and capacities. Only after acquiring intimate knowledge of residential constraints should managers intervene."

Suggestions for further reading:

Daniel, T.C., Weidemann, E., Hines, D., 2003. Assessing public tradeoffs between fire hazard and scenic beauty in the wildland–urban interface. In: Jakes, P.L. (Comp.), Homeowners, Communities, and Wildfire: Science Findings from the National Fire Plan. USDA Forest Service General Technical Report NC-231, pp. 36–44.

McCaffrey, S., 2004. Thinking of wildfire as a natural hazard. Society and Natural Resources 17 (6), 509–516.

Winter, G., Fried, J.S., 2000. Homeowner perspectives on fire hazard, responsibility, and management strategies at the wildland–urban interface. Society and Natural Resources 13, 33–49.

Table 1. Reasons for not mitigating fire risks.

Constraint	Frequency	Percent
Costs too much money	33	31.1
Takes too much time	18	17.0
Aesthetic conflicts	15	14.2
Work is too demanding	14	13.2
Lack of knowledge	12	11.3
Skepticism about utility of measures	11	10.4
Denial of responsibility	3	2.8