

FOURMILE CANYON FIRE RESEARCH FINDINGS SUMMARY

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Overview

Effective communication and coordination are important to manage fires in the wildland urban interface (WUI). At present, little empirical work exists to document communication efficacy during a fire event and to identify effective management practices for establishing a coordinated response. In this research, we used a survey to better understand public information needs before and during a wildfire event for better fire management. This study was guided by the following question: How well are Incident Management Teams (IMT), local Forest representatives, and local cooperators communicating with the broader public before and during the fire?

Methods

Survey data were collected from four WUI wildfires in NM (Tecolote Fire), AZ (Schultz Fire), CA (Bull Fire), and CO (Fourmile Canyon Fire) during the summer of 2010. This report describes the survey findings from the Fourmile Canyon Fire, with a brief indication of how the results compare with results from the other study sites. In Fall 2010, we sent 1,000 surveys to a random sample of Boulder County residents within five miles of the Fourmile Canyon Fire perimeter to assess communication dynamics during and before the fire.

Research Site: The Fourmile Canyon Fire started on the Roosevelt National Forest on September 6, 2010, with Thomas' Great Basin Type I IMT assuming command from September 9 until September 17. Values at risk included homes, out buildings, and infrastructure. The fire covered 6,181 acres and cost nearly \$10 million to suppress. Evacuation of more than 500 residences occurred; 172 structures, including 167 residences, were destroyed; three major county roads were closed; and utility infrastructure was damaged. National Forest roads were closed for several days. At the peak of the incident, 1,096 personnel were on site.

Research Findings

- 1) **During the Fourmile Canyon Fire, residents were generally satisfied with the information they received but wanted more and better information about the status of the fire.**
 - 74% of residents surveyed indicated they were “satisfied” or “very satisfied” with overall communication during the fire.
 - The three general pieces of information that residents indicated were “very important” to them were: where the fire was going (94%), where the fire was likely to go (93%) and “what should I be doing?” (75%). Information about management choices (i.e., why the fire was managed the way that it was) was very important to about 40% of the residents, and information about the ecological impacts of the fire was very important to 32%. The least important information was who was responsible for the fire (22% said it was very important) and how much the fire cost (11% said it was very important).
 - Although information about the status of the fire (current threat, direction of movement, etc.) was something 94% “very much wanted,” 38% indicated that they had not received the information or it was inadequate for their needs.
 - 74% of residents were “satisfied” or “very satisfied” with how the fire was managed. When asked what factors were most important to them when considering fire management decisions, residents ranked life and property safety as being very important, with the top three items being: fire fighter safety (92%), community/resident safety (91%), and protecting private property (61%).
 - Among the specific types of information residents received, they were most satisfied with information about road closures, and most dissatisfied with information about evacuations and why fire management choices were made.
 - When looking at all four fires studied, overall communication and information satisfaction on the Fourmile Canyon Fire was comparable to the other fires. However, satisfaction with and adequacy of information about road closures was higher for the Fourmile Canyon Fire than for any of the other fires.

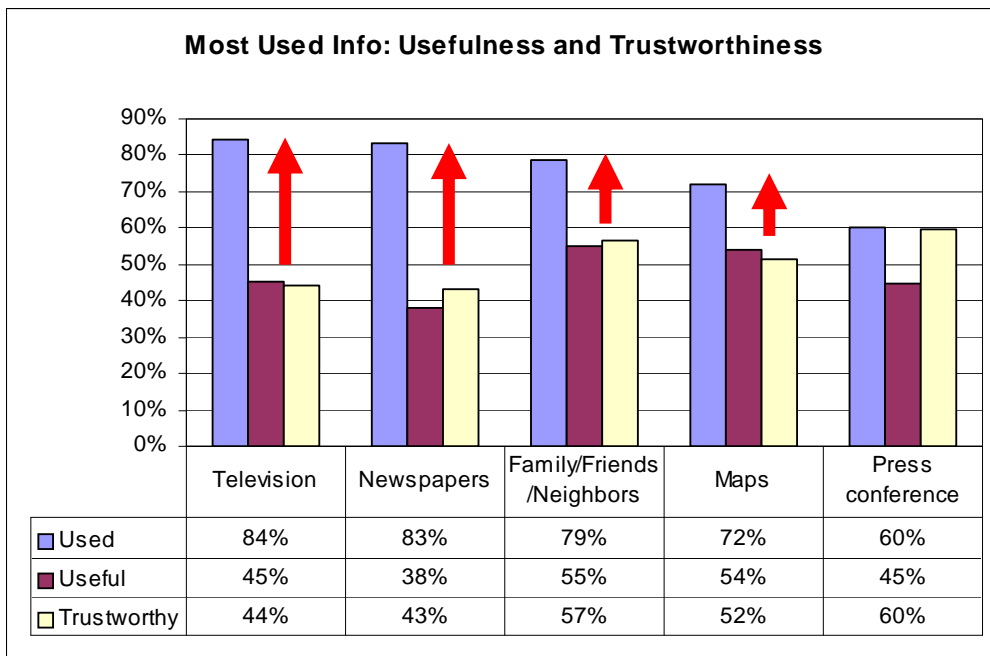
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2) Residents surveyed on the Fourmile Canyon Fire were equally satisfied with the information they received before the fire as with the information they received during the fire.

- **Before** the fire, residents indicated an average score of 3.06 (measured on a 1-4 scale, with 4 being the most satisfied) in terms of satisfaction with preparedness information they received (e.g., information re: evacuation, road closures, how fire is fought and managed) and how it was disseminated.
- **During** the fire, residents indicated an average score of 2.98 in terms of satisfaction with information types and dissemination processes. The differences in the averages before and during the fire were not statistically significant.
- Residents wanted more information about the upcoming fire season before the fire occurred. They indicated that they “very much wanted” information about fire hazards and concerns (57%), defensible space/FIREWISE (44%), and evacuation planning (42%).
- 20% of residents indicated they did not want information before or during the fire about protecting their home or property using defensible space/FIREWISE. Of these residents, 88% (before fire) and 60% (during fire) lived in suburban or urban residences, as opposed to rural residences. This may indicate that people living in more urban areas do not perceive wildfire to be a significant threat to their property.

3) A significant gap exists between the information sources respondents actually used, and those sources that respondents found most useful and most trustworthy.

- The most common sources of information used by residents were: television (84%), newspapers (83%), family/friends/neighbors (79%), and maps (72%). However, these were not necessarily the most useful or most trusted information sources. The most useful sources included local fire department (62%), friends/family/neighbors (55%), maps (54%), and websites other than InciWeb (47%). Most trustworthy sources were local fire department (77%), law enforcement (62%), press conferences (60%), and conversations with local government representatives (59%).



- The most useful and trustworthy sources tended to be more interactive and “official.”
- The information sources most used by residents before the fire tended to be the same sources most used during the fire.
- Less than 10% of respondents used social media (Facebook and Twitter) to get information during the fire, and these sources were not considered to be very useful or trustworthy.
- The disconnect between the most commonly used information sources and the most useful or trustworthy sources was found across all four study sites.

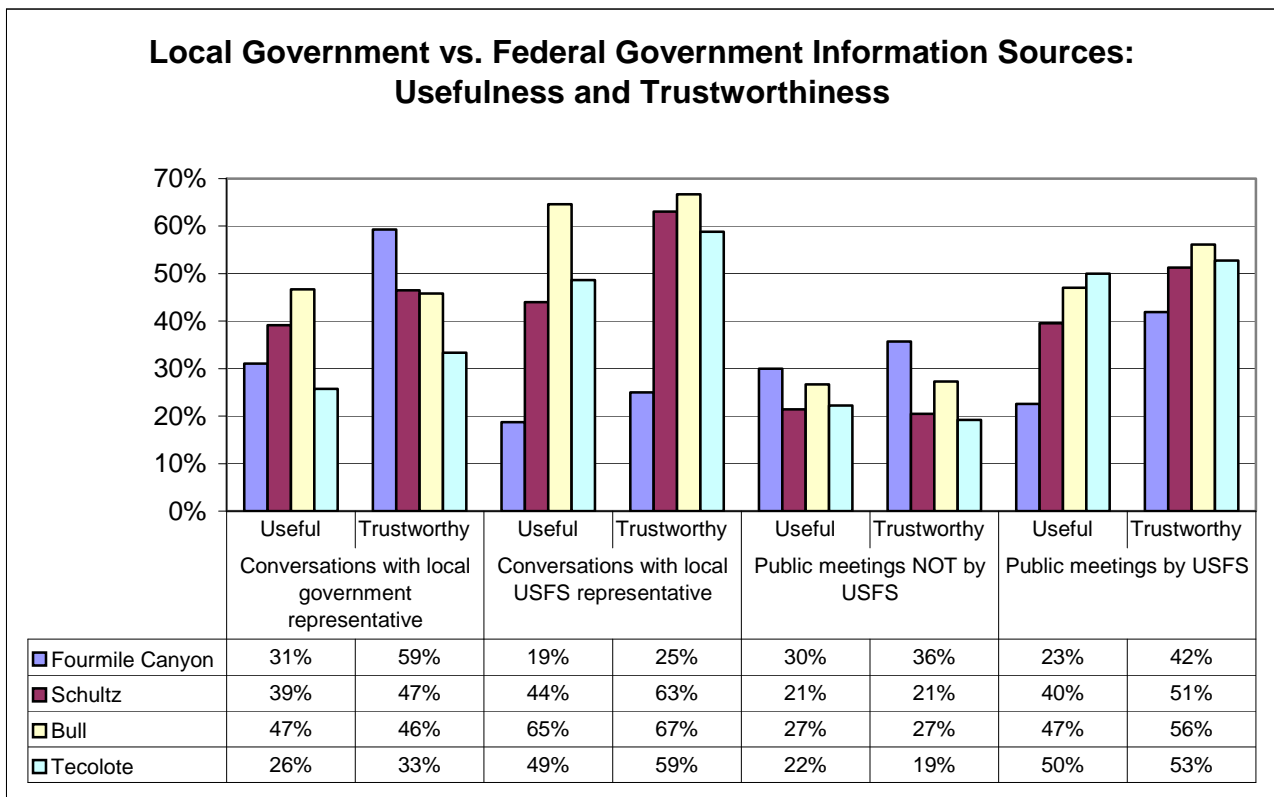
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4) When accessing information before and during the fire, it was important to residents that they could use multiple sources of information and that information sources were trustworthy.

- Both before and during the fire residents indicated that it was very important that they used multiple sources of information (60% before and 83% during) and that they were provided information by people they trusted (62% before and 77% during). Not surprisingly, the importance of multiple sources of information and trustworthy sources of information was greater during the fire.
- Interestingly, during the fire 55% of respondents indicated it was very important that information was provided by someone familiar to them, while only 31% indicated this was very important before the fire.
- Data suggest that what people value most about interactive modes of communication is the opportunity to ask questions, not just interact. Before the fire, residents indicated that it was more important to have opportunities to ask questions about what to do in response to wildfire risks (34%) than it was to have opportunities to interact with the people who were providing information (25%).

5) Residents surveyed on the Fourmile Canyon Fire leveraged local information resources more than the other three fires studied.

- 40% of Fourmile Canyon Fire residents used local law enforcement agencies, 35% used local fire departments, and 23% used public meetings not organized by the Forest Service to get information. The extent to which Fourmile Canyon Fire residents leveraged local resources was greater than on the other study sites (with the exception of Bull fire, for which 41% of residents got information from local fire departments).
- 71% of Fourmile Canyon Fire residents agreed that communication from local government during the fire helped them understand how the fire was being managed, while only 43% agreed that communication from the U. S. Forest Service helped them understand how the fire was being managed.



- Boulder County residents used the Forest Service as an information source less than residents of other study sites, and considered the Forest Service to be less useful and less trustworthy as an information source. This may be because the Fourmile Canyon Fire involved the least amount of Forest Service lands compared to other three fires studied. Most land within the fire perimeter was either private property or land administered by the Bureau of Land Management.