

Research Note

Wildfire Outreach and Citizen Entrepreneurs in the Wildland–Urban Interface: A Cross-Case Analysis in Colorado

ELIZABETH KOEBELE, DESERAI A. CROW,
LYDIA A. LAWHON, ADRIANNE KROEPSCH, AND
REBECCA SCHILD

Environmental Studies Program, University of Colorado Boulder,
Boulder, Colorado, USA

KATHERINE CLIFFORD

Geography Department, University of Colorado Boulder, Boulder,
Colorado, USA

Due to rapid growth in the wildland-urban interface (WUI), the risk to lives and property from wildfires is increasing in the western United States. While previous studies have identified factors that influence residents' perceptions of wildfire risk and responsibility for mitigation, less research has been conducted on how mitigation information is disseminated to residents or the most effective strategies for doing so. During an examination of two case studies of catastrophic wildfires in Colorado, an important actor involved in wildfire outreach emerged that we label the citizen entrepreneur. Citizen entrepreneurs are highly motivated community members who can help resource-constrained wildfire agencies encourage mitigation on private property by directly engaging with WUI residents. Using data from interviews with wildfire professionals and focus groups with residents, this research note introduces the concept of citizen entrepreneurs and provides an initial examination of the important role they can play in wildfire outreach.

Keywords mitigation, outreach, wildfire, wildland–urban interface

Wildfires are increasing in frequency, size, and severity in the American West (Litschert, Brown, and Theobald 2012). Simultaneously, Western states are experiencing significant exurban development in the wildland–urban interface (WUI) (Radeloff et al. 2005), exposing a growing number of people and homes to wildfire risk. Wildfire professionals—public officials who work in wildfire risk communication, mitigation, or response—have responded to this dynamic through outreach

Received 21 May 2014; accepted 14 April 2015.

Address correspondence to Elizabeth Koebele, Environmental Studies Program, University of Colorado Boulder, 1333 Grandview Ave., UCB 488, Boulder, CO 80309, USA. E-mail: elizabeth.koebele@colorado.edu

efforts that seek to educate WUI residents about wildfire risk and encourage mitigation activity (Brenkert-Smith 2010). However, as wildfire agencies face growing resource constraints, their ability to engage with an expanding WUI population is increasingly limited. An actor we label the citizen entrepreneur, defined as a highly motivated community member who directly engages with other WUI residents to encourage them to mitigate on their private property, can aid resource-constrained wildfire agencies in creating effective outreach and should be explored further by hazards policy and management scholars.

Wildfire Outreach and Mitigation

While wildfire risk awareness is a necessary but not sufficient motivator for residents to take action to reduce hazard exposure (Steelman and McCaffrey 2013), previous studies have established that effective outreach programs can increase public understanding of wildfire risk (Champ, Donovan, and Barth 2013) and encourage mitigation by residents (Sturtevant and McCaffrey 2006). WUI residents favor interactive outreach approaches rather than unidirectional information exchange (Toman, Shindler, and Brunson 2006), specifically in the form of face-to-face consultations with wildfire professionals about risk (McCaffrey and Olsen 2012).

Interactions with community groups and neighbors have also been positively associated with risk perception and mitigation activities. Brenkert-Smith et al. (2013) found that while both vertical (formal, expert information) and horizontal (informal, nonexpert information) interactions correlate with heightened wildfire risk perception, talking with one's neighbor had the strongest positive relationship with perceptions of risk. Similarly, interactions with community groups and neighbors have been positively associated with mitigation activity (Schulte and Miller 2010).

In particular, motivated community members have been cited as influential horizontal information sources (Brenkert-Smith 2010; McCaffrey et al. 2011), and studies have shown that wildfire agencies rely on such community members to disseminate wildfire risk information in the face of growing resource constraints (Lang, Nelson, and Jakes 2006). These community members are often described as agency extensions (Shiralipour et al. 2006) or individuals whom wildfire professionals enlist to spread information on their behalf (Sturtevant and McCaffrey 2006).

However, the description of such motivated community members as merely horizontal disseminators of expert information may be too simple, particularly because this characterization conflicts with our understanding of similarly situated actors in the policy entrepreneurship and charismatic leadership literature. Policy entrepreneurs are advocates who promote specific definitions of and solutions to policy problems; they are defined by their persistence and willingness "to invest their resources in return for future policies they favor" (Kingdon 2003, 204). Theory on charismatic leadership emphasizes the motivational gifts of leaders who command wide followings during times of crisis (Davis and Gardner 2012). While neither of these theoretical constructs perfectly describes the highly motivated community members involved in wildfire risk mitigation, they acknowledge the active, multidimensional roles such citizens may play.

During an examination of two cases of catastrophic wildfire in Colorado, motivated community members, whom we label citizen entrepreneurs, emerged as

important actors involved in outreach. We define citizen entrepreneurs as highly motivated community members who can help resource-constrained wildfire agencies encourage mitigation on private property by directly engaging with WUI residents. In this research note, we introduce the concept of citizen entrepreneurs and provide an initial examination of the role they can play in wildfire outreach efforts.

Research Methods

This research uses a comparative case study design (Yin 2003) of two catastrophic wildfires in Colorado that destroyed or threatened human lives and property in 2012: the High Park fire, which killed one person and burned 87,284 acres and 259 homes in the exurban area outside of Fort Collins (Colorado State Forest Service 2012); and the Waldo Canyon fire in the urban and suburban areas of Colorado Springs, which caused two deaths, consumed 18,247 acres, and destroyed 347 homes (City of Colorado Springs 2013). Multiple fire response and management jurisdictions were included in each case study.

Two sources of data from each case were used in this analysis: (1) semistructured interviews with 3–4 key wildfire professionals that focused on local risk and agency outreach about risk and mitigation ($n = 7$), and (2) focus groups with local residents that focused on personal risk perceptions, mitigation behaviors, and outreach experiences ($n = 12$). Two researchers coded interview and focus-group transcripts using NVivo qualitative analysis software and a codebook that focused on (1) outreach methods used by fire professionals, (2) perceptions of effectiveness of various modes of outreach, and (3) limits to the effectiveness of information on mitigation behaviors. Researchers then referenced the coded material to identify patterns in the data (Miles and Huberman 1994).

Defining the Citizen Entrepreneur

In both the High Park and Waldo Canyon cases, residents and wildfire professionals described certain individuals, whom we characterize as citizen entrepreneurs, as particularly important to outreach in their communities. In Waldo Canyon, some citizen entrepreneurs are formally called neighborhood champions by the Colorado Springs Fire Department (CSFD), which has institutionalized their role in wildfire outreach. The neighborhood champion program provides motivated citizens with agency support for mitigation planning, outreach, and implementation; champions send mailers, knock on doors, hold neighborhood meetings, seek grant funding, and organize mitigation projects. One wildfire professional suggested that the demographic makeup of Colorado Springs helps to explain why there is enough citizen interest in this work to merit a formalized program: “What’s interesting in our community is that we have a lot of retired military. And so these colonels . . . now are retired . . . and this is their new mission in life, and they get out there.”

In addition, citizens who live outside of the CSFD jurisdiction also took on similar roles to help write crucial wildfire planning documents for their communities and plan mitigation events despite the absence of a formalized program.

In the High Park case, there was no institutionalized role for citizen entrepreneurs. However, wildfire professionals explained that they informally seek out community leaders to spread mitigation information to their neighbors. Wildfire professionals and focus-group respondents also suggested that some particularly

motivated residents organize mitigation projects on their own because they prefer to keep government wildfire agencies out of their neighborhoods. As one wildfire professional explained,

The same group of folks who didn't want us going up to do [risk] assessments decided that they were going to take it upon themselves to put in some fuel breaks. They used . . . maps to define where their highest hazard areas [were] . . . [and] were able to get grant funds to take care of it on their own. Excellent, but highly exceptional.

Whether they were residents who began mitigating on their own property and sought to scale up their efforts by tapping into agency resources and recruiting their neighbors, or members of unorganized but high-risk WUI neighborhoods who saw the value in applying for grant funding and bringing mitigation projects to fruition on their own, the citizen entrepreneurs in both cases were described as motivated, persistent, and skilled at integrating vertical and horizontal channels for information sourcing and dissemination.

Roles for Citizen Entrepreneurs

Residents and wildfire professionals suggested that citizen entrepreneurs may be particularly adept at engaging fellow WUI residents in the interactive, face-to-face manner identified by previous studies as being particularly successful. For instance, focus-group participants in both cases who self-identified as citizen entrepreneurs explained:

What I do is when I see . . . people moving to the area . . . I send a little packet about [wildfire risk and mitigation]. I encourage them to contact the volunteer fire department, get involved, to give me a call if you have any questions. (High Park)

Every new resident that moves into our neighborhood gets a welcome bag, and it includes a folder from the [CSFD] . . . Then our welcome committee visits them [to discuss mitigation]. (Waldo Canyon)

Through these efforts, citizen entrepreneurs can reach those who do not actively seek out mitigation information or understand that wildfire is a risk in their communities. Importantly, their work can complement the efforts of resource-constrained wildfire agencies with limited outreach capacity. One Colorado Springs focus-group participant explained, “[The CSDF has] a very small staff . . . so their target is the [homeowners associations]. Then, of course, their [neighborhood] champions. I think by now there are well over 100 . . . 120.”

In High Park, wildfire professionals emphasized that similar work could be done even by even a small number of citizen entrepreneurs: “You really need a strong community up there with some real sparkplugs, and sometimes it really is just one or two people who . . . carry it forward for a community.”

Through these actions, citizen entrepreneurs can help overcome one of the biggest barriers that agencies face in encouraging residents to mitigate: a brief window of opportunity for effective outreach. Fire professionals and residents in both cases argued that residents are typically only receptive to mitigation information for about

a year after a fire occurs, which unfortunately is often the time when fire agency personnel are most resource-constrained. Thus, if agencies can capitalize on the outreach efforts of citizen entrepreneurs during this crucial post-fire window, they might begin to address such personnel constraints.

Conclusion

Citizen entrepreneurs played crucial roles in wildfire outreach in both cases by connecting with residents about wildfire risk and mitigation, and actively seeking out information and resources to meet their neighborhoods' needs. They can also reach inactive residents, especially during the crucial 1-year postfire window, and simultaneously reduce the burden of intensive outreach on resource-constrained agencies. Through these actions, citizen entrepreneurs challenge existing characterizations of motivated community members as mere disseminators of agency information. While citizen entrepreneurs may indeed seek risk mitigation information from wildfire professionals through vertical channels and share it with their neighbors through horizontal channels, they may also actively develop and carry forward their own outreach efforts and mitigation projects.

Neither the policy entrepreneur scholarship nor the charismatic leader literature accurately describes the citizen entrepreneurs found in this study. While many citizen entrepreneurs share the opportunism of policy entrepreneurs, are persistent in linking their neighborhood's needs to resources, and may possess traits of charismatic leaders, most were described as everyday residents with diverse inspirations for their work. This category of particularly motivated community members demands further investigation and theoretical elaboration from scholars seeking to trace information dissemination and outreach dynamics. While this study specifically focuses on wildfire outreach, it would be useful to explore citizen entrepreneurs across a wider range of cases and topical areas to determine if these patterns of behavior recur.

References

- Brenkert-Smith, H. 2010. Building bridges to fight fire: The role of informal social interactions in six Colorado wildland–urban interface communities. *International Journal of Wildland Fire* 19(6):689–97. doi:10.1071/wf09063
- Brenkert-Smith, H., K. L. Dickinson, P. A. Champ, and N. Flores. 2013. Social amplification of wildfire risk: The role of social interactions and information sources. *Risk Analysis* 33(5):800–17. doi:10.1111/j.1539-6924.2012.01917.x
- Champ, P. A., G. H. Donovan, and C. M. Barth. 2013. Living in a tinderbox: Wildfire risk perceptions and mitigating behaviours. *International Journal of Wildland Fire* 22(6):832–40. doi:10.1071/wf12093
- City of Colorado Springs. 2013. Waldo canyon fire: Final after action report. https://www.springsgov.com/units/communications/ColoradoSpringsFinalWaldoAAR_3April2013.pdf (accessed March 3, 2014).
- Colorado State Forest Service. 2012. Fort Collins 2012 annual report. http://csfs.colostate.edu/pdfs/v4_FINAL_FortCollins2012_AR.pdf (accessed March 3, 2014).
- Davis, K. M., and W. L. Gardner. 2012. Charisma under crisis revisited: Presidential leadership, perceived leader effectiveness, and contextual influences. *Leadership Quarterly* 23(5):918–33. doi:10.1016/j.leaqua.2012.06.001
- Kingdon, J. 2003. *Agendas, alternatives, and public policies*, 2nd ed. New York, NY: Longman.

- Lang, E. A., K. C. Nelson, and P. Jakes. 2006. Working with community leadership to promote wildfire preparedness. In *The public and wildland fire management: social science findings for managers*, ed. S. McCaffrey, 137–49. Gen. Tech. Rep. NRS-1. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station.
- Litschert, S. E., T. C. Brown, and D. M. Theobald. 2012. Historic and future extent of wildfires in the Southern Rockies ecoregion, USA. *Forest Ecology and Management* 269:124–33. doi:10.1016/j.foreco.2011.12.024
- McCaffrey, S. M., and S. C. Olsen. 2012. *Research perspectives on the public and fire management: a synthesis of current social science on eight essential questions*. Gen. Tech. Rep. NRS-104. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station.
- McCaffrey, S. M., M. Stidham, E. Toman, and B. Shindler. 2011. Outreach programs, peer pressure, and common sense: What motivates homeowners to mitigate wildfire risk? *Environmental Management* 48(3):475–88. doi:10.1007/s00267-011-9704-6
- Miles, M. B., and A. M. Huberman. 1994. *Qualitative data analysis: An expanded sourcebook*, 2nd ed. Thousand Oaks, CA: Sage.
- Radeloff, V. C., R. B. Hammer, S. I. Stewart, J. S. Fried, S. S. Holcomb, and J. F. McKeefry. 2005. The wildland–urban interface in the United States. *Ecological Applications* 15(3):799–805.
- Schulte, S., and K. A. Miller. 2010. Wildfire risk and climate change: The influence on homeowner mitigation behavior in the wildland–urban interface. *Society & Natural Resources* 23(5):417–35. doi:10.1080/08941920903431298
- Shiralipour, H. J., M. C. Monroe, K. C. Nelson, and M. Payton. 2006. Working with neighborhood organizations to promote wildfire preparedness. In *The public and wildland fire management: Social science findings for managers*, ed. S. McCaffrey, 151–62. Gen. Tech. Rep. NRS-1. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station.
- Stelman, T. A., and S. McCaffrey. 2013. Best practices in risk and crisis communication: Implications for natural hazards management. *Natural Hazards* 65(1):683–705. doi:10.1007/s11069-012-0386-z
- Sturtevant, V., and S. McCaffrey. 2006. Encouraging wildland fire preparedness: Lessons learned from three wildfire education programs. In *The public and wildland fire management: Social science findings for managers*, ed. S. McCaffrey, 125–36. Gen. Tech. Rep. NRS-1. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station.
- Toman, E., B. Shindler, and M. Brunson. 2006. Fire and fuel management communication strategies: Citizen evaluations of agency outreach activities. *Society & Natural Resources* 19(4):321–36. doi:10.1080/08941920500519206
- Yin, R. K. 2003. *Case study research: Design and methods*. Thousand Oaks, CA: Sage.