

human dimensions

Community Wildfire Protection Planning: The Importance of Framing, Scale, and Building Sustainable Capacity

Daniel R. Williams, Pamela J. Jakes, Sam Burns, Antony S. Cheng, Kristen C. Nelson, Victoria Sturtevant, Rachel F. Brummel, Emily Staychock, and Stephanie G. Souter

Community wildfire protection planning has become an important tool for engaging wildland-urban interface residents and other stakeholders in efforts to address their mutual concerns about wildland fire management, prioritize hazardous fuel reduction projects, and improve forest health. Drawing from 13 case studies from across the United States, this article describes best management practices (BMP) that emerged from the data for facilitating the development of Community Wildfire Protection Plans (CWPPs) and ensuring that planning leads to action on the ground. Three BMPs are emphasized: (1) paying attention to problem framing, (2) choosing a scale where participants can make things happen, and (3) taking steps to facilitate implementation and ensure long-term success. These BMPs were found to hold true despite considerable diversity across the cases.

Keywords: Healthy Forest Restoration Act, wildfire planning, wildland fire, wildland-urban interface

For nearly a decade, the Healthy Forest Restoration Act (HFRA) has encouraged federal, state, and local agencies responsible for wildland fire management to work collaboratively with communities to mitigate their fire risk. One of the key HFRA policy tools for involving

communities in this task is the Community Wildfire Protection Plan (CWPP). Community wildfire protection planning provides an opportunity for resource and fire managers, residents, and other stakeholders to partner to achieve their collective wildfire management goals (CWPP Task Force

2008). Although CWPPs address the national goals embodied in HRFA, the details of their development and implementation are highly localized and variable (Jakes et al. 2011). The question for resource and fire professionals is how they can facilitate these local processes.

We conducted case study research in 13 communities that had developed CWPPs to identify and understand the factors and processes that facilitated collaborative wildfire management planning and enhanced local capacity to sustain wildfire management activities into the future (Table 1). Initial analyses of this data highlighted findings related to CWPP outcomes, including new or expanded social networks, social learning, and community capacity (Grayzeck-Souter et al. 2009, Brummel et al. 2010, Jakes et al.

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Affiliations: Daniel R. Williams (drwilliams@fs.fed.us) is research social scientist, USDA Forest Service, Rocky Mountain Research Station, 2150A, Centre Avenue, Fort Collins, CO 80526. Pamela J. Jakes (pjakes@fs.fed.us) is research forester, USDA Forest Service, Northern Research Station, 1992 Folwell Avenue, St. Paul, MN 55108. Sam Burns (BURNS_S@fortlewis.edu) is director of research, Office of Community Services, Fort Lewis College, 1000 Rim Drive, Durango, CO 81301. Antony S. Cheng (Tony.Cheng@ColoState.edu) is director, Colorado Forest Restoration Institute, Warner College of Natural Resources, Colorado State University, Fort Collins, CO 80523. Kristen C. Nelson (kcn@umn.edu) is professor, Department of Forest Resources, University of Minnesota, 1530 Cleveland Avenue, St. Paul, MN 55108. Victoria Sturtevant (sturtevant@sou.edu) is professor emeritus, Department of Environmental Studies Program, Southern Oregon University, 12550 Siskiyou Boulevard, Ashland, OR 97520. Rachel F. Brummel (brummelr@lafayette.edu) is assistant professor, Environmental Studies Program, Lafayette College, Quad Drive, Easton, PA 18042. Emily Staychock (stayches@flcc.edu) is sustainability coordinator, Finger Lakes Community College, 3325 Marvin Sands Drive, Canandaigua, NY 14424. Stephanie G. Souter (stephanie.souter@state.mn.us) is coordinator, Minnesota GreenCorps Program, Minnesota Pollution Control Agency, 520 Lafayette Road N, St. Paul, MN 55155.

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This article uses metric units; the applicable conversion factor is: hectares (ha): 1 ha = 2.47 ac.

Table 1. Characteristics of CWPPs selected as case studies at the time of study.

General location of CWPP	Vegetation	CWPP characteristics			
		Scale/local unit of government approving the plan	Acres covered (ha)	Ownership of forests covered by CWPP	Population and/or number of structures covered
Ashland, OR	Mixed conifers	Watershed/city council	14,000 (5,670)	98% Federal, 2% city of Ashland	Population 20,000/1,879 structures
Auburn Lake Trails, CA	Oak savanna; mixed conifer and oak with brush understory	Development/property owners association	4,000 (1,620)	Private ownership all within development boundary	Population 3,000/950 homes
Barnes-Drumond, WI	Jack and red pine; mixed hardwood	2 Towns/town boards	171,056 (69,220)	70% Public ownership (primarily federal and county forest)	Population 1,151
East Portal, CO	Ponderosa pine, Douglas-fir; subalpine forest; shortgrass steppe	Development/homeowners associations	4,800 (1,940)	Approximately 50% federal, 50% private	Population less than 1,000/300 structures
Grizzly Flat, CA	Mixed conifer with dense understory	Development/community service district	1,670 (680)	Private surrounded by public land (primarily federal)	Population 1,250/497 homes
Harris Park, CO	Ponderosa pine, Douglas-fir; subalpine forest; shortgrass steppe	Development/fire protection district	38,975 (15,770)	Approximately 30% national forest, 15% state, 55% private	More than 5,000 homes
High Knob, VA	Dense hardwoods, scattered conifers	Development/homeowners association	600 (243)	Private ownership all within subdivision boundary	Population more than 1,000/400 structures
Josephine County, OR	Heavily forested with 28 different coniferous species	County/county commissioners	1.04 million (420,873)	40% National forest, 27% Bureau of Land Management, 1% state	Population 75,700
Lake County, CO	Lodgepole and ponderosa pine; grasslands and sagebrush	County/county commissioners	245,760 (99,456)	74% Federal, 26% state and private	Population 7,812
Lake County, MN	Mixed northern hardwood, mixed conifer forest	County/county commissioners	1.34 million (542,279)	78% Publically owned (56% federal, 10% state, 12% county)	Population 11,058/more than 5,000 structures
Lincoln County, MT	Shade-tolerant species such as Douglas-fir	County/county commissioners	2.35 million (951,011)	73% National forest, with some state land, scattered private	Population 30,827
Post Mountain, CA	Oak with scattered conifer overstory; mixed conifer and oak with brush understory	Community/volunteer fire department	3,000 (1,214)	70% Federal (primarily national forest), scattered private	Population 275
Taylor, FL	"Flatwoods" pine and swamp with understory palmetto or thick brush	Town/county commissioners	1,700 (688)	1,700 Private acres surrounded by national, state and industrial forests	Population 1,500/425 structures

CWPPs, community wildfire protection plans.

2011). Further analysis resulted in the emergence of six best management practices (BMP) for CWPPs (Jakes et al. 2012). We presented these BMPs at workshops across the United States during which we heard that efforts to implement three of the BMPs can be especially challenging for local communities: (1) selecting an appropriate scale for the CWPP, (2) framing the CWPP to reflect local values and concerns, and (3) sustaining the CWPP planning process to facilitate implementation and community wildfire management efforts.

The purpose of this article was to describe how local issues and concerns resulted in key differences in how CWPPs were framed, the spatial scales they addressed, and the strategies they used for sustaining their implementation. There is no one correct frame, scale, or strategy, but there are frames, scales, and strategies that are more

likely to produce desired outcomes on the ground, and resource and fire managers can help communities find these local solutions.

Literature

HFRA identifies only three requirements for a CWPP: (1) that it be developed

Management and Policy Implications

The HFRA encourages managers to partner with local stakeholders in the development of CWPPs. How the wildfire problem is framed or defined in the CWPP will affect who participates in the process and what projects are identified as high priority. Considering who is included or eliminated by any frame will help insure that all critical stakeholders are included. Matching the scale of the CWPP to the local wildfire management objectives will help insure that those objectives are met. If objectives focus on individual homeowners, then a smaller-scale CWPP will more directly address homeowner concerns, but if objectives focus on landscape-level issues, a broader-scale CWPP will bring in the multiple large landowners and managers necessary to implement projects across the landscape. Finally, steps can be taken during the CWPP process to sustain planning and facilitate implementation, including identifying visible high-priority projects that can be quickly implemented, linking the CWPP to other planning efforts (such as county hazard mitigation plans) and adding stability and permanence to the CWPP by having it adopted as a plan of work for a local government department or supporting it through local codes and covenants.

collaboratively, (2) that it identify and prioritize areas on federal and nonfederal land for fuels reduction and methods to reduce fuels on these areas, and (3) that it include recommendations regarding strategies to reduce structural ignitability (US Congress 2003, p. 3). The CWPP process and content, as outlined in HFRA, have been characterized as vague (Hawkins et al. 2004); however, others argue that the act's vagueness provides the freedom to develop CWPPs that are relevant to local social and ecological conditions (Jakes et al. 2011).

In addition to the CWPP case study research being reported here, Fleeger (2008) conducted CWPP case study research in communities around the Sitgreaves National Forest. He identified five key factors to implementing the CWPP including a strong commitment to the process, an effort that built on ongoing collaborative processes, USDA Forest Service support and participation in the CWPP process, two fires that served as galvanizing events and changed perceptions of the need to mitigate local wildfire risk, and CWPP participants' understanding of the importance of the forest to the community and vice versa. Other CWPP research has focused on the link between CWPPs and other planning efforts and challenged the federal government to monitor CWPP implementation to provide feedback for more effective landscape-level wildfire planning (Hawkins et al. 2004, Colburn 2008). Although these early research efforts present an incomplete picture of CWPPs, with time, they may be joined with new research findings to produce a stronger knowledge base that will improve CWPP processes, implementation, and outcomes.

Framing refers to the various ways people see or define an issue (Brooks et al. 2006), and it is an important early step in any planning process. In discussing framing in the CWPP process, we are interested in the different ways in which people viewed the wildfire management issue. Examples of potential frames include a forest health frame (e.g., return fire to the landscape so that forests can function as healthy ecological systems), an emergency response frame (e.g., enhance fire response capabilities so that homes and infrastructure can be protected), a land-use planning frame (e.g., develop and enforce regulations and codes to discourage development in high fire-risk areas), and a homeowner responsibility frame (e.g., encourage homeowners to reduce wildfire hazards in the home ignition

zone). The existence of diverse frames helps explain why different planning efforts approach collaborative activities from different reference points and have different expectations regarding management options and outcomes (Burns and Cheng 2007). Gray (2003) has shown how the divergence or convergence of stakeholders' frames can influence deliberative processes and outcomes. Developing a common frame for planning or reframing the issue to offer a shared alternative lens through which to view an issue, can be one of the most difficult steps in the planning process. However, through such a process the group (1) builds understanding of each other's views, (2) generates a definition of the problem that represents these different views, (3) identifies existing knowledge about the problem and gaps in that knowledge, and (4) promotes social learning (Gray 2004, Clark and Stankey 2006).

Framing is closely related to scale. HFRA did not specify a scale for CWPPs other than to specify that the plan is "for an at-risk community" (US Congress 2003, Section 101.3). The "community" in community wildfire protection planning is self-defined (HFRA does not provide any guidance), and we use it here to refer the residents, organizations, and networks in the geographic area covered by the CWPP. The statute also requires that the plan recommend areas for fuels mitigation on federal and nonfederal land, suggesting that the scale of the plan could be more than a neighborhood, subdivision, town, or other political unit. In the literature on planning, reference is often made to an appropriate scale for a plan; with "appropriate" being determined by the ecological process being managed or the management goals to be addressed (Hann and Bunnell 2001). Scale has been identified as an important element affecting who is involved in collaborative decisionmaking processes and how people learn and work together in these processes (Cheng and Daniels 2003). Planning scale also influences the types of knowledge people bring to the process, with more personal knowledge favored in smaller-scale planning and more abstract knowledge favored at larger scales (Cheng and Daniels 2003).

Because fuel-treatment benefits are transient (Reinhardt et al. 2008), an ongoing effort is required to sustain any mitigation actions identified in CWPPs. Although there is no literature on sustaining community wildfire protection planning, there has been research on factors sustaining collabor-

ative resource management initiatives, of which CWPPs may be considered an example. In their seminal research on collaboration in natural resource management, Wondolleck and Yaffee (2000, p. 115) identify three "ways to make [collaboration] endure over time," including institutionalizing the collaborative process, developing supportive relationships so that people are motivated to continue working within the collaboration, and ensuring that partners continue to benefit from the productive interactions that occur within the collaborative.

In this study, we examine how framing and scale influence who becomes involved in a CWPP process and how these factors influence CWPP development and lay the groundwork for future implementation. Findings that emerged from our 13 case studies illustrate how stakeholders think about these themes to facilitate the CWPP process and work more effectively to achieve wildland fire management objectives.

Methods

Between 2005 and 2008, case studies were conducted in 13 communities (in 8 states) where the community wildfire protection planning process had been completed, although plan implementation was in the early stages. The unit of analysis was the CWPP. CWPPs completed or nearly completed were identified using our networks of emergency and land managers, community organizers, and fire researchers. From this list, CWPPs were selected using theoretical sampling (Strauss and Corbin 1998), with a goal of representing CWPPs that covered a variety of geographical, ecological, and social contexts; different planning scales (area and population); and different types of local government involved in the process (Table 1).

Primary data were obtained from more than 130 CWPP participants during semi-structured interviews or focus groups. Study participants were selected using purposeful sampling, with individuals chosen because of their knowledge or experience in CWPP development (Lindlof and Taylor 2002). Many of our participants were members of committees charged with developing the CWPPs or representatives of local units agreeing to the plans. Individuals interviewed included land managers, fire and emergency management professionals, local elected officials, nongovernment organization representatives, homeowner association members and staff, and local homeowners.

New participants were interviewed until the research team agreed that emergent themes had stabilized and no new information would be forthcoming from additional interviews (Glaser and Strauss 1999).

Interviews and focus groups were digitally recorded and transcribed. The analytical process included (1) individual researchers coding statements from their interviews into categories that reflected observed patterns in the data and identifying and rectifying any apparent contradictions in these patterns, (2) the research team discussing the themes and contradictions to standardize themes emerging from the data across cases, and (3) individual researchers selecting the most representative quotations for the remaining themes. This coding strategy provided a systematic way to identify salient themes based on their reoccurrence in the data (Boyatzis 1998, Silverman 2001).

Analytical quality was maintained by having more than one researcher analyze each transcript and through numerous team meetings and conference calls to compare findings and develop and define themes. Additionally, an advisory team composed of individuals with CWPP experience reviewed the themes for consistency with their experiences and provided a “ground-truthing” of the team’s analyses. Major findings emerging from the analytical process revolved around the following themes: local context, community capacity, networks, framing, planning scale, and factors contributing to long-term success (Jakes et al. 2012). Three of these themes—framing, planning scale, and sustainability—emerged as the most salient based on interactions with the advisory team and feedback from workshops held to present study findings.

Findings

The Value of Flexible Framing

Under HFRA the CWPPs are framed in terms of treating fuels and reducing structural ignitability. The findings from this study show that CWPP frames varied and evolved with the participants and were not limited to the dominant frames envisioned in HFRA. In our case study, CWPPs, a single frame was often used initially to define the local wildland fire management issue, but as the CWPP process evolved, it was common for additional frames to be introduced reflecting the values and concerns of the participants or new knowledge acquired through the CWPP process. For example,

Grizzly Flat, California residents initially focused on fire response time in framing their CWPP. The closest fire station was a 35-minute drive down a narrow, winding road, so local residents initially came together with representatives of the county fire safe council and the local fire district to talk about the need to have a staffed fire house located in the community to improve response time. As the CWPP committee met with fire professionals and involved other knowledgeable partners, they gathered additional information about wildfire management. They became more aware of the need for multiple evacuation routes and began working with national forest and department of transportation staffs to identify a route across federal land that could be used in an emergency. They also became more aware of what they could do to take personal responsibility for managing risk on their properties and began to frame the Grizzly Flat wildfire fire management issue as one of reducing hazards in the home ignition zone. They used community events and neighbor-to-neighbor contacts to discuss multiple aspects of wildland fire management. In Grizzly Flat, the single frame of fire response was joined by frames that defined wildland fire in terms of evacuation needs and vegetation management around homes and other structures.

As in Grizzly Flat, the initial frame for the CWPP in Harris Park, Colorado, was protecting homes during a wildfire, and the ability of the local fire department to respond to the threat. However, as insurance companies began requiring fuels mitigation to qualify for home insurance or offering discounts for homeowners who had reduced fuels, a second frame of taking personal responsibility for reducing wildfire risk was seen as critical to helping homeowners maintain or obtain insurance. A third frame of ecosystem health was also included in the CWPP as residents, placing a high value on wildlife and fish, proposed projects to protect critical habitat from wildfires. There was also growing awareness of the impacts of the mountain pine beetle on the health of federal forests in the area, and participants sought ways to link local CWPP projects with projects on federal lands to reduce fuels across the landscape.

With each additional frame, more and different people became involved in the CWPP processes in Grizzly Flat and Harris Park, reflecting the relevance of different frames for different individuals and organi-

zations and the need for new or different resources (particularly new knowledge) to develop projects relevant to different frames. Flexible, evolving frames also resulted in diverse projects—new evacuation routes, fuels treatment on public land, and hazard mitigation on private property—that contribute to a multipronged approach to wildfire management.

The Importance of Choosing an Actionable Scale

In our case studies, framing and scale were intertwined. The CWPPs studied in this project were developed at four different scales: development/neighborhood, town, multiple towns, and county. Across these cases, it was apparent that scale not only influenced the CWPP framing (and vice versa), but also who became involved in the process and the prioritization of plan projects. In Auburn Lake Trails, California, a contractor hired by the Auburn Lake Trails Property Owners Association to develop the CWPP argued that the scale of the plan should be determined by topography and vegetation, extending beyond the development boundaries. When this scale was proposed to the association’s board, board members rejected the idea and specified that the plan cover only the Auburn Lake Trails development. The board’s reasoning was that they could support CWPP projects within the development through their covenants, codes and restrictions, and operational control over common spaces, but lacked jurisdiction outside the development—they wanted to select a scale where they could make something happen.

The Virginia state forester was interested in promoting homeowner associations as a structure that would make the work of his department more efficient and effective. One way he chose to promote these associations was by stipulating that the state would only support CWPPs developed by associations. So, in the case of Virginia, the scale of the CWPP was specified by the state agency responsible for forest management. In High Knob, Virginia, the homeowner association took up the CWPP challenge. In addition to mitigating the risk of home ignition by reducing fuels around structures and building wildland fire awareness, the CWPP process helped generate a sense of community as homeowners interacted and worked together to identify shared goals and achieve objectives. Residents indicated that the relationships developed during the CWPP pro-

cess are helping the community achieve other nonfire-related goals.

Strategies for Building Long-Term Sustainability

Our case study communities did not view the CWPP as an end to their community wildfire protection planning, but as the first stage in an ongoing process. For example, in the Ashland, Oregon, CWPP they describe the plan as “a living document meant for review and revision as the needs of the community change over time” (Ashland CWPP Committee 2004, p. 2). The Lake County, Minnesota, CWPP is described as “a working document [that] will be enhanced collaboratively by the 16 local Wildland/Urban Interface communities which it serves” (Lake County CWPP Committee 2006, p. 7). For this reason, stakeholders were interested in how to sustain the planning process. In addition, although we did not set out to collect data on long-term success in implementation, people we interviewed shared some of their thinking about how the decisions made during the CWPP process could contribute to community efforts to sustain wildfire management initiatives. As we analyzed our data we found that participants suggested three main strategies for helping to sustain CWPP planning and insure implementation over time: (1) institutionalizing the CWPP, (2) nesting plans in larger planning efforts, and (3) establishing early success in project implementation. In Auburn Lake Trails, California, the association’s board created a resource management department within the local government structure. The department evaluated the workload required to perform the projects in the CWPP and developed a plan of work to complete the projects—with the CWPP referred as the department’s “blueprint for action.” Costs associated with the CWPP projects are covered by property owner fees (increased by the board specifically to perform CWPP projects) and grants. By creating a structure within the existing governing organization and securing funding for projects, those involved in the Auburn Lake Trails CWPP and board hoped to give some permanence to the plan and insure that projects were performed.

Other stakeholders interviewed hoped that by nesting their CWPP within a larger-scale plan, the CWPP would receive more attention and projects would have a better chance of implementation. In Montana, CWPPs were developed at the county level,

and Lincoln County stakeholders, led by a retired Forest Service employee and state forestry department representative, brought stakeholders together to create a strategic CWPP that would be implemented at the local level through community fire plans. This local implementation was shown in Em Kayan, Montana, a recognized Firewise Community, where projects identified in its Firewise plan contributed to Lincoln County CWPP objectives. The Lincoln County CWPP served as the wildfire chapter in the county’s predisaster mitigation plan, which contributed to Montana’s Multi-Hazard Mitigation Plan. Lincoln County CWPP leaders believed that by nesting their plan in the county all-hazard mitigation plan they would magnify the relevance of the CWPP, and that by linking it to local fuels and wildfire mitigation plans they would create a broader base for action. CWPP leaders in Josephine County, Oregon, and Post Mountain, California, also shared their beliefs that by linking their CWPPs to other planning efforts they would increase the plan’s sustainability.

CWPP stakeholders believed that early project successes would establish the relevance of the CWPP process to community safety and preparedness and would help build and sustain support for future CWPP activities. In High Knob, Virginia, CWPP planning and implementation were virtually simultaneous. The timely completion of home assessments provided property owners with recommendations that they could act on to reduce wildfire risk. High Knob property owners who were quick to perform the recommendations on their land provided a neighborly push that encouraged hesitant property owners to move forward with their projects and built community support for further civic action. Demonstration projects that were quickly implemented in Taylor County, Montana, and Grizzly Flat, California, helped allay the fears of some property owners that fuels-reduction projects would compromise aesthetics and privacy. These early projects showed that the CWPPs supported rather than threatened community and household values.

Discussion

Stakeholders involved in CWPPs across the country described how the planning process is facilitated by careful consideration of the planning frame and scale, and that decisions made during the CWPP planning process can contribute to sustaining the wildfire

planning process and wildland fire management initiatives. Framing often evolved during the CWPP process—the initial frame used in developing the CWPP was not necessarily the only or final frame. Stakeholders need to be aware of which frames were being used as the process evolves, and how each frame will influence who is likely to participate in the CWPP process and what projects would become priorities. Our research found that a frame of protecting lives and property was often a good starting point for engaging community residents in the CWPP process. A frame that focused on broader landscape issues, such as ecosystem health, brought larger private landowners and public land managers to the CWPP process. Our research showed the importance of considering who will connect with a given frame to avoid inadvertently excluding or limiting possible CWPP participants, solutions, and projects. Although other research has suggested that multiple frames can stymie collaborative efforts (Gray 2003, 2004), our research highlighted the advantages of allowing multiple and changing frames to reflect the evolving concerns and diversity of people engaged in CWPP efforts to produce a multipronged wildfire management effort.

How CWPP participants framed the wildfire management problem influenced the plan’s scale. Again, it is important for stakeholders to consider how the scale selected may limit or expand who is involved in the process and how scale sets sideboards on the types of projects that will be considered. A larger-scale plan, at a watershed or county level, was described as most appropriate to achieve objectives related to ecosystem health. A larger-scale plan was also important if the goal was to reduce wildfire risk across the landscape, because it facilitated involvement by the many partners affected by a larger-scale plan. Such plans forged valuable new relationships and improved coordination among federal, state, and county fire management offices. CWPPs developed at the county scale were more easily linked to other planning efforts undertaken at the county level, such as land-use or hazard mitigation plans. Although larger-scale plans were effective in addressing problems on a landscape level, in some cases they took longer to implement because of the greater number of partners involved. To convert strategy to local action, larger-scale plans were often linked to smaller-scale plans, e.g., to a Firewise Community plan that included

local projects that would contribute to a more strategic county CWPP.

A smaller-scale CWPP that focused on neighborhoods, developments, or fire districts was described as most appropriate if the goal was to protect structures and private property. In our case studies, smaller-scaled plans were more likely to reflect local values and resources and gain the support of community members. Working at a smaller scale also produced quicker on-the-ground results. Smaller-scale CWPPs that linked with larger-scale plans helped insure that local on-the-ground projects had landscape-level significance. Ultimately, the best scale for developing a CWPP was the one that enabled a community to make something happen.

This study looked at the CWPP planning process—we did not specifically study plan implementation or sustainability of the plans. However, in many of our cases, steps were taken that will facilitate implementation. In one of our cases the CWPP was institutionalized by creating a department within a powerful property owners association that could levee fees and hire staff to implement planned activities. However, most plans performed by neighborhood groups lacked such formal governance capacity. Instead, they had to rely on the relationships developed during the CWPP process—between local residents, between the local community and neighboring communities, and between the community and different government and nongovernmental organizations—to help sustain collaborative action. Neighbors learned from neighbors, helping to create a community of practice and community values that support future action. Taking action that was immediately recognized by residents as important to reducing wildfire risk—such as eliminating fuels in the home ignition zone or building a fuelbreak around the development—will also help to sustain support for the plan. In these cases small-scale demonstration projects were important means to build wider support for the plan.

Conclusion

By focusing on framing, scale, and sustaining implementation, the CWPP process may pave the way for achieving collective wildfire management goals in the expanding wildland-urban interface and build community capacity for future wildfire mitigation initiatives. The CWPP processes we observed resulted in a more sophisticated community understanding of wildland fire

and of the responsibilities and roles of different players in wildland fire management. In some communities local governments began to define a broader role for their participation in wildland fire management and to institutionalize wildland fire planning within the local government structures. Representatives from fire management agencies developed improved understanding of community values and neighborhoods at risk and how their own fuel-reduction projects could protect these values and support local priorities. By ensuring that stakeholders understand the implications of the frames, scales and strategies outlines in their CWPP, resource and emergency managers can help communities achieved locally desired wildfire management outcomes on the ground.

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