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# Standing closest to the flame: Community wildfire planning and the Healthy Forest Act

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STANDING CLOSEST TO THE FLAME  
COMMUNITY WILDFIRE PLANNING AND THE HEALTHY FOREST ACT

BY

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Bachelor of Arts, University of Oregon, 1988

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DISSERTATION

Submitted to the University of New Hampshire

In Partial Fulfillment of

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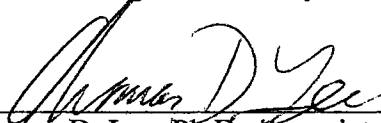
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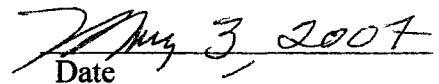
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## FORWARD

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LIST OF ABBREVIATIONS

AFLC .....	Ashland Forest Lands Commission
AFRP.....	Ashland Forest Resiliency Project
AFRCA .....	Ashland Forest Resiliency Community Alternative
AWPP.....	Ashland Watershed Protection Project
AWSA.....	Ashland Watershed Stewardship Alliance
BLM.....	Bureau of Land Management
CAG .....	Community Action Group
CCC.....	Civilian Conservation Corps
CWPP.....	Community Wildfire Protection Plan
DEIS.....	Draft Environmental Impact Statement
DFPZ.....	Defensible Fuel Profile Zones
EIS.....	Environmental Impact Statement
EA .....	Environmental Assessment
FACA .....	Federal Advisory Committee Act
FDN.....	Fuel Discontinuity Network
FEIS .....	Final Environmental Impact Statement
GAO.....	General Accounting Office
GIS .....	Geographical Information System
GFCWPP.....	Greater Flagstaff Community Wildfire Protection Plan
GFFP .....	Greater Flagstaff Forest Partnership

HFI .....	Healthy Forest Initiative
HFRA .....	Healthy Forest Restoration Act
MOU .....	Memorandum of Understanding
NEPA .....	National Environmental Policy Act
NFP .....	National Fire Plan
NGO .....	Non-Governmental Organization
NOI.....	Notice of Intent
NPS .....	National Park Service
NRAC.....	Natural Resource Advisory Committee
NRWG .....	Natural Resources Working Group
ODF.....	Oregon Department of Forestry
PAG.....	Plant Association Groups
PFAC.....	Ponderosa Fire Advisory Council
ROD .....	Record of Decision
SAF .....	Society of American Foresters
SCWPP.....	Sitgreaves Community Wildfire Protection Plan
USFS .....	United States Forest Service
USDA.....	United States Department of Agriculture
USDI .....	United States Department of Interior
WGA.....	Western Governors Association
WUI.....	Wildland Urban Interface

## ABSTRACT

# STANDING CLOSEST TO THE FLAME: COMMUNITY WILDFIRE PROTECTION PLANNING AND THE HEALTHY FOREST RESTORATION ACT

by

William E. Fleeger

University of New Hampshire, May, 2007

Recently, national fire policy has been redirected from a primary focus on suppression towards a more integrated and comprehensive approach developed at the community level. As part of this policy shift, Congress passed the Healthy Forest Restoration Act (P.L. 108-148) in 2003 encouraging communities to develop community wildfire protection plans (CWPPs) to guide fuel reduction and wildfire mitigation efforts on both federal and nonfederal lands. This research examines U.S. Forest Service (USFS) and community collaboration in the development of CWPPs through a case study analysis of four communities in two western states. The social and decision-making processes used in the development of CWPPs are examined in each community using the policy sciences approach and decision process framework. A cross-case comparison reveals the influence of social process factors and effectiveness of each community's decision process to address the wildfire problem. The primary finding of this research is the critical role played by the USFS in the success of CWPP planning efforts. Additional recommendations are provided for improving the effectiveness of community decision-making processes to address this important and pressing management issue.

## CHAPTER I

### OVERVIEW OF RESEARCH

#### **Introduction**

Few campaigns in our national history have been waged with such fervor, rectitude, and unconstrained resources as the American war on fire. That we were not completely successful in achieving a policy of total fire exclusion was not for lack of effort or expenditure. The protection of forests from fire was a concept forged in tandem with the disposition of the public domain and the philosophy of the Progressive Era. The devastating 1910 fire season led to a national mobilization and galvanized the mission of the U.S. Forest Service (USFS) as the vanguard force in a national battle against fire. The nations' firefighting infrastructure and capabilities expanded in the 1930s with the additional manpower and equipment provided by the New Deal and the Civilian Conservation Corps. Fire suppression forces became increasingly more effective in the 1940s and 1950s with the addition of surplus military equipment available after World War II and the Korean War. Using airplanes, smokejumpers, and helicopters, the USFS was increasingly successful in pursuing fire into evermore remote areas of the backcountry. In the period from the 1950s through the late-1960s, the number of acres in the western states burned annually by wildfires was at an historical low (Pyne 1982:65).

However, in subsequent years, fires began to grow in both size and intensity. Decades of accumulated fuel, once ignited, proved increasingly difficult to extinguish and the cost of suppression escalated. Well-intentioned attempts by the USFS and other

national fire management agencies to redirect fire policy failed, and the seemingly annual spectacle of burning homes and large-scale evacuations in advance of a flaming front were broadcast to the American public on television. Large-scale fire seasons that taxed the nation's firefighting resources occurred in 1990, 1994, 1996, and 1999, claiming hundreds of lives and destroying thousands of homes and structures. The endless and record-setting 2000 fire season proved to be a turning point in national fire policy—with fires scorching more than 8.4 million acres, the forced evacuations of thousands of residents, 861 structures burned, and suppression costs exceeding \$1.3 billion (National Interagency Fire Center 2006).

### **National Fire Policy and Community-based Approaches**

Following the 2000 fire season, the nation and its beleaguered fire management agencies were adequately preconditioned for a change. Wildfires were no longer a phenomenon of the backcountry, and national fire policy was reoriented to accommodate the new and increasingly costly reality of fire in the area known as the Wildland Urban Interface (WUI). Working in concert with the Western Governors' Association (WGA) in 2001, Congress appropriated funds for what became known as the National Fire Plan (NFP). The WGA called for a new strategy that, while strengthening capabilities for fire suppression, also included addressing the multiple goals of wildfire fuels reduction, the restoration of fire-adapted ecosystems, and increased assistance to at-risk communities (USDA 2000; Western Governors' Association 2002). This more collaborative community-based approach was seen as necessary to comprehensively address the underlying causes of the wildfire problem while at the same time build capacity at the local level to mitigate the threat to communities annually faced with the risk of wildfire.



Prompted by continued disastrous fire seasons and wildfire events in 2002 and 2003, other policy initiatives followed and strengthened the NFP. In 2002, the Bush administration announced the Healthy Forest Initiative (HFI), a series of administrative reforms designed to further the goals of NFP by modifying processes of environmental review to allow wildfire fuel reduction projects to be expedited. In 2003, the legislative complement to HFI was passed by Congress in the form of the Healthy Forest Restoration Act, 16 U.S.C. § 6501 *et seq.* (hereinafter “HFRA”). Although a controversial piece of legislation, HFRA passed with strong bipartisan support in both the House of Representatives and the Senate. HFRA further codified the WGA’s strategies for collaborative community-based approaches to addressing the wildfire problem and introduced a new policy tool in the form of a Community Wildfire Protection Plan (CWPP) (Vaughn and Cortner 2004).

### **Community Wildfire Protection Plans**

CWPPs are a central component of community empowerment under HFRA, and communities are encouraged to develop these plans to guide fuel reduction projects on both federal and nonfederal lands. As part of a CWPP, communities have the opportunity to delineate a WUI boundary based on local values and conditions and to propose and prioritize management actions on lands within the WUI [16 U.S.C. § 6513 (d)(2)(B)]. This allows a community to influence where federal agencies conduct fuel reduction projects and where federal funding for fuel reduction should be directed. Although federal agencies are not required to implement the methods suggested by a CWPP, they are required to give consideration to the plan in developing projects under HFRA and at

least 50 percent of funding appropriated for projects under HFRA must be spent in the WUI as identified in a CWPP [16 U.S.C. § 6513 (d)(1)(A)].

The interim field guide for implementation of HFRA projects, jointly published by the USFS and U.S. Department of Interior, encourages agency managers to be full partners in the development of CWPPs and to work cooperatively with communities in setting fuel treatment priorities (USDA and USDI 2004). To further this goal, Congress specifically exempted federal involvement in planning and development of CWPPs from the Federal Advisory Committee Act, 5 App. U.S.C. 1 (hereinafter “FACA”) [16 U.S.C. § 6513 (b)(2)]. FACA regulates the participation of nongovernmental parties in federal decision making and has long been considered by many advocates of community-based management to be a major impediment to agency and community collaboration (Meidinger 1997). Additionally, Congress directed that, if “significant interest is expressed,” agencies are to establish a collaborative, multiparty monitoring, evaluation, and accountability process that includes diverse stakeholders in monitoring the impacts and effectiveness of projects implemented under HFRA [16 U.S.C. § 6512 (g)(5)]. Multiparty monitoring is a central tenet of community-based management and provides a way to ensure accountability to diverse stakeholders, build trust, and provide for adaptive management (Kusel et al. 2000). Through deference to CWPPs, the specific direction for agencies to facilitate collaboration with local stakeholders, the limiting of FACA’s applicability to federal involvement in community planning, and the requirements for multiparty monitoring, HFRA establishes a supportive framework for community participation in wildfire planning.

## **Paradoxes of Implementation**

Consistent with the recent trend in national fire policy, HFRA attempts to create a greater role for communities in wildfire planning, mitigation, and response. Yet HFRA also presents a number of paradoxes and constraints to effective implementation of such a policy. The first paradox of HFRA is that it attempts to expedite fuel reduction projects while at the same time promoting a collaborative community-based process inclusive of diverse stakeholders. Although community-based approaches may indeed promote expeditious action in the long term, most practitioners and researchers agree that collaborative community-based approaches most often require substantial investments of time and energy and are likely to produce few tangible results in short time frames (Born and Genskow 2000; Brunner et al. 2002; Leach and Pelkey 2001; Lubell et al. 2005; Wondolleck and Yaffee 2000). This is in part because community efforts must often first focus on building trust among disparate groups, as well as creating a shared understanding of the problem and consensus on acceptable solutions.

The second paradox of HFRA is that federal land management agencies have been slow to embrace collaborative approaches and are still primarily organized around a rational planning model, which emphasizes science and the role of government experts in planning and decision making (Lachapelle, MCCool, and Patterson 2003; Smith 1997; Kemmis 2002; Baker and Kusel 2003). This is especially true for the firefighting cadre of agencies, such as the USFS, which has necessarily emphasized a highly professionalized paramilitary infrastructure capable of generating a rapid and effective fire suppression response (Pyne 1982). The hierarchical structure of the agencies and command and

control culture of professional firefighting may prove resistant to the demands of collaborative community-based processes.

The third paradox is that HFRA attempts to promote collaboration and inclusiveness while at the same time streamlining decision making and limiting the ability of individuals to challenge and appeal decisions. Many environmental organizations remain skeptical of community-based approaches, fearing that economic concerns will prevail over national environmental interests (Coggins 2001; McCloskey 1999). There is also a deep distrust of the intentions of the current administration among environmental activists with some claiming HFRA uses fear of fire to maintain the status quo, grant favors to the timber industry, and restrict public input into the planning process (Aber and Melillo 2001; Della sala et al. 2004; Wilderness Society 2004). Replacing post-decisional appeals with a pre-decisional objection process raises questions about participant motivations, fairness, accountability, and trust within a framework of collaborative planning at the community level (Manring 2004).

### **Research Focus**

The catastrophic conflagrations in the past two decades have provided the opportunity and motivation to redirect national fire policy from a primary focus on suppression towards a more integrated and comprehensive approach developed at the community level. However, organizational and institutional resistance and the paradoxes contained in HFRA present significant obstacles to change. Also, this shift in policy focus places greater responsibility for fire risk management on communities, some of which may lack adequate resources and capacity. Therefore, the purpose of this research is to contribute to a broader understanding of how to create effective social and

institutional arrangements to negotiate the challenges inherent in changing our national fire policy focus from a hierarchal “command and control system of fire suppression to a more community-based suite of negotiated fire practices” (Pyne 2004:39). Consequently, this research investigates the following interrelated questions: (1) To what extent is the development of CWPPs occurring using the collaborative social processes envisioned in HFRA; and (2) to what extent are communities developing effective decision processes to advance a more integrated and comprehensive approach to wildfire planning and management at the community level? The goal of this research is to identify and understand the opportunities and barriers to agency and community collaboration as well as challenges and possibilities in creating effective and adaptive wildfire management policies. This information can then be used to help communities by suggesting methods and approaches for improving community responses to this important and pressing management issue.

## CHAPTER II

### RESEARCH APPROACH AND METHODS

#### **Research Approach**

In order to evaluate the extent to which the development of CWPPs is occurring using collaborative and effective planning and decision-making processes, this research was guided by the analytic framework of the policy sciences. The policy sciences were first introduced by Harold Lasswell as a distinctive, problem-oriented, and multi-method approach to policy analysis (Lasswell 1971:10). The policy sciences have been successfully used by many notable researchers to take a comprehensive and integrative approach to understanding complex natural resource management problems (Brewer and deLeon 1983; Brunner and Steelman 2005; Clark 2002; Clark, Willard, and Cromley 2000; Steelman and Kunkel 2004). Decisions affecting the management of ecological systems are embedded in social and institutional arrangements that greatly influence, if not determine, the management outcome. The policy sciences framework provides a systematic methodology for incorporating and integrating relevant social, institutional, political, and technical information to obtain a multidimensional view of the problem (figure 1). This allows policy alternatives to be designed to more effectively address complex natural resource problems in their specific social and institutional contexts (Clark 2002).

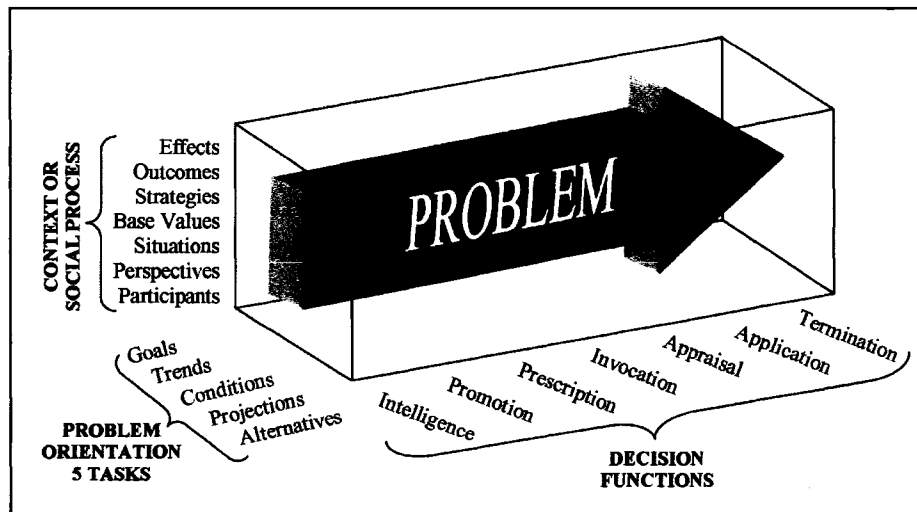


Figure 1. Illustration of the three dimensions of the natural resource management and policy process. Interdisciplinary problem solving incorporates problem orientation, context or social process mapping, and decision process analysis. Source: Modified with permission from (Clark 2002)

The policy sciences framework is applied by categorizing research information into three primary areas: problem orientation, social processes, and decision functions. Problem orientation involves collecting and analyzing research information in order to determine the spatial and temporal boundaries of the problem and the nature of the threats posed to the ecological system. The process of problem orientation seeks to provide a “contextual map” of the problem by clarifying management goals, describing relevant trends, analyzing existing conditions, projecting future developments, and inventing, evaluating, and suggesting alternatives. Social processes are the key elements which shape people’s motivations and influence their behaviors in the policy process. These include the perspectives, values, and strategies that guide participants’ behavior in the policy process. The outcomes and effects of participant behaviors are also important components of the social process which provides an understanding of how people interact to achieve their social and ecological goals. Decision functions are those actions which

collectively lead to the creation and implementation of public policy, including the types and sources of information that are collected and used to promote and develop specific policy actions (*intelligence, promotion, and prescription*). Decision functions include the processes of how decisions are made (*invocation*), applied (*application*), monitored (*appraisal*), and adapted (*termination*) to incorporate new information or changing circumstances (Clark 2002). Using these three discrete yet intertwined components of the policy sciences—problem orientation, social processes, and decision functions—allows research information to be integrated and analyzed to determine the overall effectiveness of the policy process and suggest areas where changes or improvements can be made (Clark 2002).

A fundamental tenet of the policy sciences is that the policy process should seek to identify and secure, to the maximum extent practicable, the common interests of a given community (Brunner et al. 2002; Clark 2002). Common interests are those “interests widely shared by members of a community . . . would benefit the community as a whole and be supported by most community members” (Brunner et al. 2002:8). Special interests can be defined as those interests that benefit an individual or group “at a net cost to the common interests of the community as a whole” (Brunner et al. 2002:10). Therefore, in the view of the policy sciences, a “decision process is a means of reconciling (or at least managing) conflict through politics in order to find a working specification of a community’s common interests” (Clark 2002:57). In a democratic and diverse society it is unlikely that the outcome of any decision process will effectively harmonize all interests in a community, and some community members may continue to resist new rules and norms. However, it is important and necessary that the vast majority



of community members reasonably expect that the policy prescription will be adopted and enforced by the appropriate and responsible officials (Clark 2002). To be successful, the outcome of a decision process must have the support of the politically relevant actors necessary to enable policy adoption and enforcement, as well as those capable of effectively blocking policy implementation. The more effective a decision process is in defining a pathway to achieving the common interests of a community, the more likely it will generate a positive social response, whereby the outcome will be internalized and supported by participants in the policy process. Conversely, the less effective a decision process is in developing and implementing policies serving the common interest, the more likely it will be to generate a social response that fails to support or actively oppose adoption and enforcement of a policy prescription. In this way, the social process serves either to legitimize or reinforce a decision process or to frustrate and obstruct policy implementation.

Consequently, as a decision process, CWPPs should ideally represent a sufficiently detailed policy prescription for addressing the wildfire problem which the community sees as appropriate and acceptable for future implementation. Each community will necessarily establish a different mix of objectives based upon the available resources and the specific nature of the wildfire threat it confronts (Steelman and Kunkel 2004). Therefore, according to Steelman and Kunkel:

It is less important to identify the specific variables (e.g., hazardous fuel reduction programs, emergency management services systems, number of firefighters, public education campaigns) that correlate with an effective response, since these will vary considerably from community to community, than it is to identify the processes that allow various combinations of variables to work effectively in each situation. (Steelman and Kunkel 2004:681)

Subsequently, the usefulness of CWPPs in mitigating the wildfire threat facing a community depends in large measure on the efficacy of the social and decision processes used to clarify and define the common interests of a community and to develop and implement the plan (Steelman and Kunkel 2003).

Because the functions of the decision process are often performed concurrently and without the explicit awareness of the participants involved, they are often integrated in intricate ways (Clark 2002). *Intelligence* includes “gathering, processing and dissemination of information for the use of all who participate in the decision process” (Lasswell 1971:28). Having access to comprehensive and reliable information is central to effective decision making. Since intelligence leads people to identify and define the problem it is also important that information is widely shared and that there be general agreement regarding validity and the usefulness of information among all relevant participants in the policy process. Intelligence also includes the identification of goals and alternatives for solving the problem. *Promotion* “is the function of recommending and mobilizing support for policy alternatives” (Clark 2002:61). Value demands are part of the process of promotion and, therefore, open debate and discussion regarding the definition of the problem and the merits and costs of alternative courses of action is required. Through the process of promotion participants clarify, reject, or accommodate value demands, and expectations for specific courses of actions are formed. *Prescription* is the establishment of new rules and procedures designed to address the problem. “To prescribe is to clarify and articulate the basic goals and norms, or values of the community” (Clark 2002:63). The prescription function codifies the expectations of a community for action including how specific policy objectives will be

achieved and who is responsible. Invocation “is the first action taken to invoke, or appeal to, a prescription” (Clark 2002:65). The function of invocation involves the actions taken to put new rules in place including the establishment of administrative arrangements and the allocation of resources. *Application* is the steps taken to manifest the prescription in specific situations. The application function involves determining whether actions and behaviors are consistent with the prescriptions, how rules are enforced, and who is to be held accountable. Application also includes determining how disputes are resolved and the penalties or sanctions for noncompliance. *Appraisal* “is the assessment of a decision process as a whole and the success of particular prescriptions in achieving their goals”(Clark 2002:67). The appraisal function allows for community learning, determinations about the success or failure of specific policies, and estimation of what future actions might prove more effective. *Termination* is the process of adjusting, modifying, or canceling a prescription. It includes reconciling the claims of those who might be harmed by changes or cessation of a prescription.

Referencing the decision functions provides a way to systematically analyze the comprehensiveness, fairness, and rationality of a decision process and suggest methods and resources to improve the outcome (Clark and Brunner 1996). Analysis of the social process provides insight into participants’ interactions and responses to determine whether or not the policy prescription will be supported and effective and what actions might be taken to gain greater community acceptance. Thus, the policy sciences framework is a useful tool for understanding and analyzing the processes communities use to develop their CWPPs and for making determinations and recommendations regarding the efficacy of community approaches to reshaping national wildfire policy.

## Methods

In order to understand, describe, analyze, and make recommendations regarding the collaborative and comprehensive characteristics of CWPP processes, this research was conducted in three phases. In the first phase, a review of the literature was conducted to develop an understanding of the ecology of fire-adapted ecosystems, the evolution of national fire policy, and the varying and differing approaches to collaborative community management currently being undertaken throughout the United States, and indeed the world. As the field of community-based ecosystem management is currently growing, particularly in an international context, the literature review focused primarily on research and case studies dealing with local community collaboration in the management of federal public lands, primarily in the western United States. The results of this literature review are summarized in chapter III, "Problem Orientation and Literature Review," and provide an overview of the goals, trends, and conditions relevant to evaluating CWPPs in the context of the development of national fire policy and collaborative community-based management.

Also conducted in first phase was an examination of the first wave of CWPPs, which were just being made publicly available over the Internet either through state forestry Web sites or by communities themselves during the period of August 2004 to January 2005. During this time, plans were often posted in draft form and many were still in the process of seeking final approval. Several guide books and reference manuals were developed by governmental agencies and nongovernmental organizations to assist federal employees, state agencies, and community participants in developing and designing CWPPs to meet federal requirements and guidelines.

### Case Study Selection

Based on this preliminary survey of CWPPs and related reference materials, two states and four communities were selected for further analysis through the development of case studies (Yin 1994). The states of Oregon and Arizona were chosen for this research because they are of roughly equal size, have similar amounts of land under federal ownership, and recently experienced their largest fires on record during the 2002 fire season (table 1) (National Interagency Fire Center 2006).

Table 1. Sample State Comparison

	<b>Oregon</b>	<b>Arizona</b>
<b>Total Acreage of State*</b>	61,589,720	72,688,000
<b>Acreage Owned by Federal Government*</b>	32,314,519	32,388,814
<b>% Owned by Federal Government*</b>	52.5	44.6
<b>USFS Regional Office</b>	Pacific Northwest Region 6	Southwest Region 3
<b>Record Fires (2002)</b>	Biscuit: 499,968 ac.	Rodeo-Chediski: 467,066 ac.
<b>Case Study CWPPs</b>	City of Ashland and the Rogue-Siskiyou National Forest  Wallowa County and Wallowa-Whitman National Forest	Greater Flagstaff and Coconino and Kaibab National Forest  The Communities of the Apache-Sitgreaves National Forest

\*As of September 30, 1999. Sources: General Services Administration; U.S. Department of Commerce, Bureau of Census

Both states also have numerous small and primarily rural communities interspersed in checkerboard fashion within larger tracts of land administered mainly by the USFS. The protection of these communities from wildfire depends, to a great extent, on the actions taken in concert with their federal neighbors. The states of Oregon and Arizona are administered by different regional offices within the USFS, with Oregon residing in the Pacific Northwest Region 6 and Arizona in the Southwest Region 3. This allows potential

comparisons of similarity and differences in policy implementation between the regional offices of the USFS. These two states were chosen also for reasons of interest to the researcher. Initial data related to this topic were previously collected in a prior research project on community participation in wildfire planning in the Ashland watershed in southern Oregon. In addition, the state forestry offices in both Arizona and Oregon have been very proactive in collecting information on the status of community wildfire planning in their state and making that information accessible via the Internet.

Because planning processes are different in each community and state, the case study CWPPs were chosen to represent a variety of approaches to the planning process as well as differing levels of USFS and community collaboration. In Oregon, the City of Ashland CWPP was chosen because it was developed by municipal government and included a community alternative to proposed USFS management actions within the city's watershed. Wallowa County was selected because the CWPP was developed on a county scale, was facilitated by the Oregon Department of Forestry, and included USFS representatives as part of the plans' steering committee. In Arizona, the Apache-Sitgreaves National Forest CWPP was chosen because it was developed by a private consulting firm, Logan Simpson Design, Inc., and included all communities encompassed in a single national forest located within Navajo, Apache, and Coconino Counties. The greater Flagstaff area was selected because the CWPP was facilitated by a nonprofit organization, the Greater Flagstaff Forest Partnership, and included multiple communities within Coconino County, incorporating both the Coconino and Kaibab National Forests. One common element is that the selected plans represent the "early adopters" of CWPPs and were among the first communities to produce plans within their states. These four

case study CWPPs allow comparisons of planning processes in different communities, counties, states, national forests, and regional USFS offices and allow conclusions to be developed regarding the amount of influence, if any, each of these factors had on collaborative processes and approaches to wildfire planning.

In the second phase, data collection entailed site visits and archival document collection, including government documents, meeting minutes, and newspaper accounts relevant to the development of the CWPP in each community. During the site visits, information was obtained through photographic documentation, participant observation, field tours, and in-depth personal interviews conducted with key participants in the CWPP processes (appendix A, “Informed Consent Form”; appendix B, “Focused Interview Form”; appendix C, “Institutional Review Board Approval”). Site visits to Ashland, Oregon, were conducted May 18 through May 25, 2006; the Sitgreaves National Forest and Flagstaff, Arizona, visits took place June 19 through July 2, 2006; and Wallowa County, Oregon, visits took place August 9 through August 15, 2006.

Participants were selected based upon their role and involvement in the development or implementation of the CWPP and their availability and willingness to participate in this research. Phone interviews were conducted in fall 2006 with participants who were unavailable during the scheduled site visits. Early on in the site visits, the author encountered a phenomena identified by participants in this research as “STP,” which stands for “the Same Ten People.” STP acknowledges that the same groups of individuals, often established community leaders, are involved in multiple projects in the community or serve in their communities through multiple roles and organizations. Thus, a number of people interviewed for this research held a variety of roles and

responsibilities related to the development and implementation of the CWPP within their communities. For example, one participant was a state agency employee who provided mapping services during the development of the CWPP and then worked for a nongovernmental organization that was a stakeholder in plan's implementation. Another participant was a retired federal agency employee then responsible for working with local governments on CWPP implementation as an employee of a state institution. There were also situations in which individuals held a formal organizational role in a CWPP process and also had a private interest as a homeowner in the WUI.

Some of the relationships between organizations and participants in several of the CWPPs were fragile, and it was of concern that this research not jeopardize already-sensitive interpersonal interactions. Therefore, to encourage open and honest dialogue, participants were assured confidentiality as a condition of their participation in this research. In a few instances, this created some tension between the commitment to maintain participant confidentiality on the one hand and ensure the transparency and integrity of this research on the other. In such cases, that tension was attempted to be resolved in favor of protecting the identity of the participant. However, even with assurances of confidentiality, it was difficult to get representatives from some stakeholder groups to participate. In one case, multiple individuals within an organization were contacted with requests for in-person and telephone interviews. With one exception, every individual in the organization declined to participate or failed to respond to repeated requests by e-mail and telephone.

In the end, a total of 34 individuals, representing five stakeholder groups, participated in this research. Of those 34 participants, 12 had dual roles, and 4



represented three different organizations. Quotations used to describe the CWPPs examined later in this research are attributed to the individual's primary role within the CWPP in which they participated. Table 2 shows the number of participants and the primary stakeholder groups they represented by CWPP participation.

Table 2. Participants' Primary Roles by Project

<b>Primary Role</b>	<b>City of Ashland CWPP</b>	<b>Sitgreaves National Forest CWPP</b>	<b>Greater Flagstaff CWPP</b>	<b>Wallowa County CWPP</b>
Federal Government	2	2	1	3
State Government or Institution	0	3	1	3
Local Government	2	1	2	3
Nongovernmental Organization	2	1	2	1
Private Business or Industry	1	1	0	1
Private Citizen	2	0	0	0
<b>Total</b>	<b>9</b>	<b>8</b>	<b>6</b>	<b>11</b>

Personal interviews generally lasted one to two hours and revealed the knowledge, values, and perspectives that the various participants brought to the policy process. Personal interviews also were used to understand the strategies and formal and informal networks that participants used to obtain information, solve problems, and influence decision process outcomes. All interviews were recorded with the permission of the subjects and then were transcribed into electronic text files and returned to the participants for verification. Additional follow-up telephone and e-mail interviews assisted in clarification of collected data.

## Analysis

In the third phase, the electronic transcripts were coded using a content analysis program, Atlas.ti, and the data were analyzed using the framework of the policy sciences. Codes were assigned to group participant responses into separate categories identifying each of the four CWPPs. The four categories were further divided into two subcategories of social processes or decision functions based upon the framework of the policy sciences. Figure 2 diagrams the categories and codes used to group responses by project and by category.

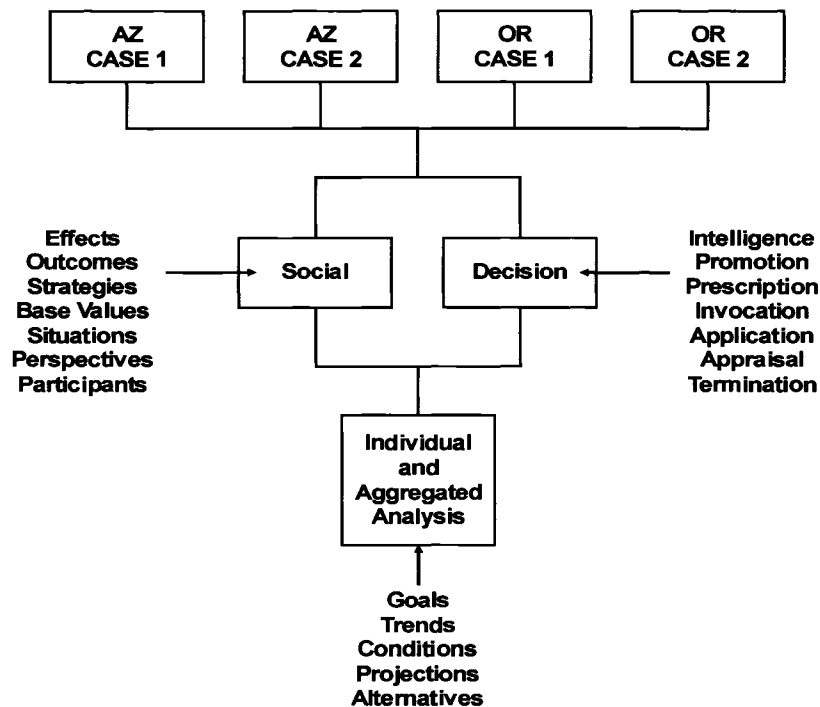


Figure 2. Participant responses were coded into categories corresponding to the CWPP processes. Responses were further subdivided into categories of social process or decision function.

Coding responses in this way allowed the multiple comments from numerous participants to be aggregated and analyzed together to understand how social and decision-making processes functioned in each CWPP. This also allowed comparing and

contrasting social and decision-making processes between plans to determine the factors responsible for the relative success of one CWPP to another.

Again, in the third phase, the collected data were analyzed using the policy sciences framework. The results of this analysis are presented in this document in the following three ways. First, the process of problem orientation which includes clarifying management goals, describing trends, and analyzing existing conditions, is described in chapter III. This is accomplished through an examination of the literature related to the goals and evolution of national fire policy in the United States, including the recent focus on collaboration and community-based approaches and the current conditions and trends affecting fire-adapted ecosystems. The remaining components of problem orientation, that of projecting future developments and developing and analyzing alternatives, are conducted as part of chapter V, “Discussion and Recommendations.”

Second, a detailed analysis of the CWPP decision-making process employing the seven decision functions of the policy sciences and an analysis focused on the key contextual features of the social processes influencing the CWPP planning effort is conducted in the case studies presented in chapter IV. Analysis of the decision process incorporates data collected through personal interviews, the finalized CWPPs, and other documents related to the policy process. The analysis of the decision functions attempts to describe the information, decision-making processes, and strategies communities employ to mitigate the wildfire threat, as well as the methods for implementing, monitoring, and adapting their CWPP over time. The social process analysis draws primarily from interviews with key participants in the CWPP process and attempts to

understand the important goals, values, circumstances, and constraints that influence how individuals and communities interact to address the wildfire problem.

Finally, chapter V integrates the findings of the decision process and social process analysis presented in individual case studies to draw conclusions and make recommendations regarding the efficacy of collaborative community-based planning processes in promoting a more comprehensive and rational approach to wildfire planning and management at the local level.

## CHAPTER III

### PROBLEM ORIENTATION AND LITERATURE REVIEW

#### **Introduction**

In 1910, the newly appointed chief of the USFS, Henry Graves, declared in an agency bulletin that “the first measure necessary for the successful practice of forestry is the protection from forest fires” (Graves 1910:5). At this time in our nation’s history, sustainable forestry was synonymous with fire suppression. The vast forest reserves, particularly in the western United States, were thought to be capable of providing an inexhaustible supply of timber, if only they could be protected from the destructive menace of fire. Today, in addition to timber and a wide variety of other forest products, the forested lands in the public domain are expected to provide critical municipal water supplies, all types of recreational opportunities, scenic vistas, and personal spiritual fulfillment. Our national forests are also a refuge for biodiversity, including the numerous species of plants and animals expatriated from much of their home range by our sprawling and increasingly urbanized society. They also provide excellent habitat for fire. Therefore, unlike the past, the first measure necessary for the sustainable management of forested ecosystems is understanding fire as a critical bio-physical process in which humans are ecological actors and play an important functional role.

#### **Fire Ecology**

From a basic ecological perspective, fire is part of the dynamic equilibrium between the production and decomposition of biomass. It serves a recycling function for

nutrients both at the micro- and macro-levels of whole plant communities across a landscape. In climates where primary production exceeds rates of biochemical decomposition, fire acts to liberate nutrients stored in layers of accumulated litter and duff. As fire breaks down organic matter, it releases heat that kills some organisms and consumes others. Thus, fire reshapes the microclimate allowing more sunlight and nutrient availability to those organisms able to survive or quickly repropagate (Aber and Melillo 2001). Many organisms have adapted to withstand the heat caused by fire by developing a thick protective bark, storing food in tuberous roots, or resprouting quickly after a fire passes. Other plants have developed properties to promote combustion and high-intensity fires that eliminate competitors and favor their own survival. For example, some species of conifers contain high concentrations of pitch, a highly flammable resin that promotes combustion, and serotinous cones that only open after exposure to very high temperatures (Aber and Melillo 2001). In this way, the effects of fire tend to be self-reinforcing, with the types of growth occurring after a fire determining the nature of the fuel complex. The development of the fuel complex then determines the frequency and intensity of the fire and its future biological effects. This results in a more or less definite fire regime exhibiting a typical fire pattern in a typical fuel complex. On the landscape scale, this results in the creation, perpetuation, and migration of vegetative mosaics in various stages of successional development. This functions to regulate fire intensity and spread, because the shifting mosaic of vegetative communities breaks up the continuity of fuels. Thus, in many environments, fire is the controlling agent of ecological dynamics exerting an inordinate influence on the composition and distribution of most vegetative communities (Pyne 1982).

## Prehistory and Fire

Fires caused by lightning have shaped and regulated biota throughout time as the climate fluctuated and wildland fire expanded and contracted its range. However, since the waning of the Pleistocene, humans have been the Earth's primary source of fire and the greatest modifier of the fire environment (Pyne 1982). Because of the self-reinforcing nature of a fire regime, the vegetative composition of a landscape can be shifted by either withholding or applying fire. Humans, having learned to exploit fire to create conditions favorable to their own survival, transported fire and modified the fire environment on nearly every landscape on the Earth. Fire has been used throughout human history for hunting, herding, manufacturing, agriculture, ceremony, and warfare. According to Pyne:

The larger effects of fire on Earth are thus really of anthropogenic fire. They depend not merely on the genetic and ecological potential for exploiting fire that is inherent in the natural system but also on the potential within the culture—on its domesticated flora and fauna, on its hunting and gathering preferences, on its perceived meaning of fire, on its understanding of fire behavior and its comprehension of fire's effects, on its ability both to apply and to withhold the fire of its own or of nature's making. The great fires, and the most important historic fire regimes, were the result of anthropogenic fire practices or of anthropogenic modifications of the fire regime. (Pyne 1982:39)

Anthropogenic ignitions are known to have been important over the past millennia in the fire regime of forest and grassland types in North America. According to Pyne, the effects of Native American fire practices were so extensive that

...the general consequence of Indian occupation of the New World was to replace forested land with grassland or savannah, or, where the forest persisted, to open it up and free it from underbrush. Most of the impenetrable woods encountered by explorers were in bogs or swamps from which fire was excluded; naturally drained landscape was nearly everywhere burned. Conversely, almost everywhere the European went, forests followed. The Great American Forest may be more a product of settlement than a victim of it. (Pyne 1982:79-80)

Some authors have criticized Pyne and other researchers for this expansive view of Native American influence in the composition and distribution of vegetation in North America. Other researchers have raised issues of uncertainty regarding anthropogenic fire practices and the difficulty of distinguishing the effects of native burning from the “natural” fire regime (Vale 2002). At least some portion of this counterargument appears to be driven by a concern that accepting the idea of extensive human participation in modifying the landscape undermines notions that a pristine and unmodified landscape existed prior to European immigration. This, in turn, has implications for the entrenched policies of promoting parks and wilderness areas for purposes of nature preservation. Despite the difficulty of distinguishing intentional burning from the background of lightning fires in the prehistoric past, Native Americans were clearly effective in managing fire to achieve their resource needs, and, in many areas, the cumulative effects of native fire practices were a significant contributing factor to the historical fire regime in western forests (Arno and Fiedler 2005).

### **The Historical Fire Regime**

As interest in fire as an ecological process has grown, researchers have focused on attempting to understand the role that fire played in the historical development of western forests. The presence of fire on most landscapes can be observed through fire-scarred trees or determined by the age classes of trees that have regenerated since the last fire. Researchers gather this information from multiple sites for a variety of forest types and use a variety of methods to calculate an average or mean fire return interval and describe the fire regime. A fire regime is a general description of the role fire plays in an ecosystem based on the characteristics of the fire and the severity of the effects on the



dominate vegetation or potential vegetation of that ecosystem (Agee 1993). Figure 3 depicts three basic fire regimes: understory, mixed, and stand replacement for western forests based on the characteristics of the fire and the effects on the dominant vegetation. Each of these fire regimes is discussed in more detail below.

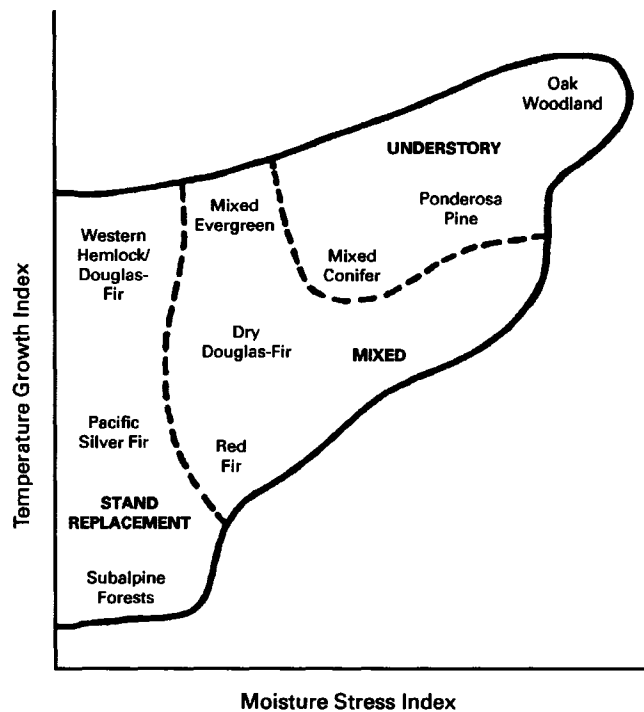


Figure 3. Basic fire regimes of western forests based on fire severity and effects on overstory vegetation. Forests in understory regimes have 20 percent or less of the basal area removed by a fire, while stands in stand replacement regimes have 70 percent or more of their basal area removed. (Adapted from Agee 1993 and Arno 2005)

### Understory

The understory regime was common prior to 1900 and dominated the dry inland valleys and lower-elevation forests as well as grass land prairies. Researchers have estimated that that the understory regime included nearly 40 percent of the forested areas in the Interior Northwest and was widespread in California and the Southwest (Agee 1993; Arno and Fiedler 2005; Covington and Moore 1994). Fire swept through these

areas at intervals ranging from 1 to 30 years, killing few trees in the overstory but scorching low-hanging branches and killing many saplings and shrubs. The effect of this type of fire was generally to maintain an open and grassy understory with large, widely spaced trees (figure 4). This pattern of frequent burning promoted abundant grasses, flowering herbs, and low shrubs which resprout quickly after fire. It also favored trees that developed a fire resistance at an early age (Arno and Fiedler 2005).



Figure 4. Large, widely spaced pine trees with abundant grasses characteristic of the understory fire regime. (Photo Credit: USDA, Forest Service)

### **Mixed**

The mixed fire regime covered about 40 percent of the forest in western states and generally occurred in cooler, moister, and higher-elevation forests than did the understory regime. Fires occurred at intermediate intervals averaging from 30 to 100 years and occurred in the drier portions of the Coastal Mountains, mid-elevation portions of the Cascades, and higher-elevation forests in the Intermountain West (Agee 1993; Arno and Fiedler 2005). The mixed fire regime resulted in tremendous diversity in the landscape,

as individual fires ranged from low-intensity underburns to stand replacement fires. This resulted in highly variable tree mortality in mixed conifer forests leaving a mosaic of contrasting patches dominated by multiple age classes and species of trees. The mixed fire regime also opened up areas for longer-lived shade-intolerant deciduous trees and fruit-bearing shrubs important for wildlife (Arno and Fiedler 2005).

### **Stand Replacement**

The stand replacement regime historically occurred in moist or cold and high-elevation forests where fires occur only in summers with unusually dry conditions, often in conjunction with cycles of regional drought. Affecting approximately 20 percent of the forests in the West, fires return at long intervals of 100 to 400 years and typically kill most of the trees in large irregular patches, leaving a mosaic of burned and unburned areas. Depending on weather conditions, stand replacement fires can remain localized or can cover vast areas of the landscape. Subalpine forests contain species, such as lodgepole pine (*Pinus contorta*), Engelmann spruce (*Picea engelmannii*), and subalpine fir (*Abies lasiocarpa*), which have little resistance to fire and over time form stands of a few low-productivity, shade-tolerant tree and undergrowth species. Stand replacement fires recycle these communities and reopen the site to a diversity of vegetation (Agee 1993; Arno and Fiedler 2005).

### **The Effects of Fire Suppression**

There is a growing body of research documenting the ecological consequences resulting from changes to the historical fire regimes, particularly the successful implementation of policies of fire suppression for the greater part of the 20th century (table 3). In the absence of fire, vast areas in the West have experienced deteriorating

forest conditions and diminished ecosystem diversity and resiliency, because nutrient recycling and growth rates decline, organic matter accumulates, and species less resistant become more dominant (Aber and Melillo 2001; Agee 1993; Arno and Fiedler 2005; Atzet 2002; Covington and Moore 1994; Main 1996). This is most apparent in forests of understory and mixed fire regimes, where decades of suppression as well as past logging practices have produced dramatically overstocked forests susceptible to disease and insect outbreaks. Such conditions exacerbate the probability for uncharacteristic high-intensity fires that threaten communities, air, soils, water quality, and plant and animal species (Agee 1993; Arno and Fiedler 2005; Pyne 1982; USDA 2000). Even in forests prone to stand replacement fire, the effects of fire suppression are likely to be significant as countless fires that might have occurred were prevented from happening (Agee 1993; Arno and Fiedler 2005; Pyne 2004).

Table 3. Effects of Fire Exclusion (Atzet 2002)

<b>Effects of Fire Exclusion</b>
<ul style="list-style-type: none"> <li>* Increased arthropods and fungal populations</li> <li>* Increased landscape homogeneity</li> <li>* Increased potential and extent of high-severity fire</li> <li>* Increased suppression and rehabilitation costs</li> <li>* Decreased long-term aesthetic values</li> </ul>
<b>Structural</b>
<ul style="list-style-type: none"> <li>* Increased density and cover</li> <li>* Increased organic matter (CWM, Snags, Fines, Duff)</li> </ul>
<b>Compositional</b>
<ul style="list-style-type: none"> <li>* Increased shade-tolerant species</li> <li>* Declining shrub browse</li> <li>* Declining fire-dependent species</li> </ul>
<b>Processes</b>
<ul style="list-style-type: none"> <li>* Declining growth rates</li> <li>* Increased mortality</li> <li>* Declining decomposition and cycling rates</li> <li>* Declining stream flows</li> </ul>

Changes in the structure, process, and composition of forests can have significant consequences for wildlife and people. The size of recent fires, such as the 500,000-acre Biscuit Fire in Oregon and the 470,000-acre Rodeo-Chediski fire in Arizona, demonstrates that habitat for many threatened and endangered species, such as the Northern Spotted Owl and Mexican Spotted Owl, will eventually be impacted by wildfire. The severity and extent of such large-scale fire events could contribute to a substantial reduction of suitable habitat, further complicating efforts for species recovery (Agee 1997). In addition, water is a critical resource in many communities in the West, and watersheds impacted by wildfire of uncharacteristically high intensity are subject to high rates of erosion and detrimental impacts to water quality and quantity. Finally, many communities, along with their recreational, cultural, and scenic resources, are themselves at risk from high-intensity wildfire. Many communities in the West face the threat of fire on an annual basis, and experience with recent fire seasons demonstrates that losses can sometimes be catastrophic.

### **Fire and the Future**

Increased human population growth, land-use development, climate change, and changes in historic fire regimes all affect ecosystem dynamics and processes. The trends for the understory and mixed fire regime forests in the West suggest that successful fire suppression, along with the increasing accumulation of fuels, will lead to more fires, with the potential for these fires to burn with greater intensities. The trend for forests with stand replacement fire regimes is that the extent of younger forests is declining and the extent of older forests is increasing, and subsequent future stand replacement fires may burn more uniformly over larger areas (Agee 1997; Agee and Skinner 2005). Both trends

suggest increased threats to human life and property, as well as degraded ecosystem values and services. Reversing these trends and moving towards the sustainable management of fire-adapted ecosystems requires accepting the role that humans have historically played in modifying the fire environment. Given the social and political realities of our time, it is not possible or desirable to simply step back and allow fires to burn unchecked on the landscape. Our actions of manipulating fuels and suppressing, applying, or withholding fire allow us to choose to some degree how fires behave across the landscape. Human intervention and manipulation will be necessary to both maintain ecosystem processes and protect and preserve social values and uses.

### **Restoring Fire-adapted Ecosystems**

The primary emphasis of restoring fire-adapted ecosystems is to ensure the viability and sustainability of natural resources while protecting human values and uses (Dombeck, Williams, and Wood 2004; Franklin and Agee 2003; Main 1996). Restoring fire-adapted forests requires integrating social values and goals with an understanding of fire history, potential fire behavior, past management actions, land-use change, watershed needs, species viability, and the relative risk to human communities. It is critical to identify future ecosystem goals and characteristics, because changes in land use patterns and shifts in climate in today's landscapes may be different from those of the past. Historical conditions, while providing a biological reference point, may be unsustainable under current climatic conditions or incompatible with modern social values and uses. Therefore, an increasingly important component of restoration is the identification of, and development of plans to address, other threats to fire-adapted ecosystems beyond those associated with too much or too little fire. For example, in the western United States, a

significant and growing threat is the conversion of forests to suburban and commercial development (Arno and Fiedler 2005; Pyne 2004). This conversion increases the risk of loss of life and property in the wildland-urban interface. It also increases the risk to the forest of untimely ignitions and unsustainable recreational uses.

The restoration of fire-adapted ecosystems will not be successful unless issues of urban growth and land use planning are considered as part of a landscape management plan. State and local governments have primary responsibility for land use planning, thus necessitating coordination and involvement among all levels of government to address this threat. In addition, caution and consideration of the growing impact of invasive species should be exercised when planning and implementing restoration activities in fire-adapted ecosystems. Actions such as thinning and burning can shift ecosystem properties to favor early successional species and have the potential to alter the competitive balance between native and non-native species. In some cases, the presence of alien species may be so pervasive as to preclude certain restoration practices, such as prescribed burning (Keeley 2005).

The uncertainties associated with the restoration of fire-adapted ecosystems must be addressed through public involvement, research, monitoring, and adaptive management, whereby information gained through the study of past management actions can be reincorporated to improve future management proposals. During planning and implementation of restoration activities, local knowledge, science, and frequent monitoring must be used to reduce uncertainty, facilitate learning, and identify the appropriate methods and conditions for achieving restoration objectives. Many fire-adapted stands may require extensive preparation through mechanical or manual removal

of fuels prior to the reintroduction of fire. For other areas, fires may be prescribed or allowed to burn within certain parameters. In some cases, fires may always be suppressed. Such planning must be conducted in advance and in an inclusive and collaborative process that includes all interested stakeholders. It is important that these plans fully acknowledge the benefits and risks as well as the consequences of deferred action. Also, actions to restore fire-adapted systems, such as restrictive zoning, prescribed burning, and manipulation of vegetation, will have impacts on private property rights and public values (e.g., air quality, area access, aesthetics). Therefore, public outreach, education, and collaboration will be critical components to successful ecosystem restoration (Agee 1997; USDA 2000).

### **Evolution of National Fire Policy**

During the latter half of the 19th century, both the frequency and intensity of fires increased in western forests as settlers displaced native populations and fires were set for land clearing, logging, mining, and livestock grazing. Large fires were not uncommon during this time, with fires in excess of 200,000 acres reported in the late-1840s, 1853, 1857, 1864, and 1868 (Pyne 1982). During most of the 1890s, dense smoke from frequent fires was common in the summers, prompting a general public outcry. Smoke was reportedly so thick at times that survey crews in the Cascade Mountains of Oregon were forced to quit attempts at topographic mapping. In fact, prior to the arrival of industrial logging and the need to protect the timber resource, the chief argument for fire suppression was safeguarding communities from the ill effects of smoke (Pyne 1982).

The practices of organized fire protection grew out of the concepts of the Progressive Era (1890s to 1920) and the acquisition of vast areas of land in the West that



make up the public domain. In the midst of greatly expanding the forest reserve system, Congress passed the Forest Transfer Act and transferred the federally owned forests from the U.S. Department of the Interior to the U.S. Department of Agriculture (USDA) in 1905. Part of the initial mission of the USFS was to address the problem of wildfire as well as the issues of erosion, water quality, and flooding that frequently followed the fires (Pyne 1982). In line with the ideals of the Progressive movement, Gifford Pinchot, the first chief of the USFS, brought the principles of scientific management and bureaucratic organization to the practice of professional forestry and was among the first advocates of an aggressive fire policy and organized fire protection (Pyne 1982). Because the costs of fire suppression varied greatly from year to year, Congress, in 1908, granted the USFS the flexibility to expend funds beyond its annual appropriation for the purpose of firefighting and to seek reimbursement through supplemental emergency appropriations (Busenburg 2004; Pyne 1982).

In 1910, the West was engulfed by a series of devastating wildfires. In an event which became known as the “Big Blowup,” more than five million acres burned, 78 firefighters died, and several towns were destroyed (Pyne 1982). The 1910 fires were a transformative occurrence for the newly formed USFS. Determined never to let such an event happen again, the agency took on the challenge of fire suppression as its primary mission (Dombeck, Williams, and Wood 2004; Pyne 1982). The establishment of the USFS as the lead agency in a national war on fire came, in part, through its role in building the organizational and administrative capacity of state and local agencies to assist in the firefighting mission. The Weeks Act of 1911 and the Clarke-McNary Act of 1924 provided federal matching funds to the states to extend fire protection to private

lands through cooperative fire protection agreements between the USFS and state forestry agencies. This significantly increased the amount of land covered by organized fire protection and the influence of the USFS in developing and administering federal standards for fire protection in cooperation with the states (Pyne 1982).

Cooperative fire protection agreements between the USFS and the states built the organizational and administrative infrastructure for organized fire suppression in the United States. However, it was the advent of the New Deal and the resources that became available through the creation of the Civilian Conservation Corps (CCC) that supplied the manpower. Prior to the CCC, firefighting was largely conducted by semi-skilled, untrained laborers often hurriedly summoned from nearby work camps (Pyne 1982). The CCC quickly became the foot soldiers in the war on fire, and its capability to mobilize organized, trained, and equipped crews of able-bodied men transformed the task of firefighting. Beyond their proven usefulness on the fire line, CCC crews constructed and staffed the physical infrastructure necessary for organized fire protection, including thousands of lookout towers and other fire support structures. The CCC also constructed an unfathomable number of miles of roads, trails, telephone lines, and fuel breaks on federal, state, and private land (Salmond 1967).

Using the muscle and resources of the organized CCC crews and funding provided by Congress through emergency supplemental appropriations, the USFS sought to extend its ability to control fire in ways that had previously been thought to be impractical and impossible. Because fires are easier to extinguish when they are small, the USFS, in 1935, adopted a policy whereby all fires were to be attempted to be controlled by 10:00 a.m. the day following their report. If the fire escaped this initial

attack, plans were to be made and adequate resources assembled to control the fire by 10:00 a.m. the following day, and so forth. The “10 a.m. policy” greatly simplified decision making on the ground by emphasizing aggressive suppression of all fires regardless of location or cost. However, the effect of this “continental experiment” in fire control was to void any pragmatic assessment between the costs of suppression and the values at risk (Pyne 1982:116).

In the 1940s and 1950s, the manpower provided by the CCC was replaced by technology. The nation’s fire suppression capabilities became increasingly more effective and far ranging with the surplus military equipment available after World War II and the Korean War. The addition of airplanes and helicopters enabled the USFS to deploy smokejumpers and aerial retardant deep into the backcountry. Firefighting became increasingly mechanized and firefighting organizations more highly organized and efficient. In the 1960s, the USFS developed specially trained “hot-shot” fire crews for rapid deployment anywhere in the country, and the National Interagency Fire Center was established in Boise, Idaho, as a national command and control headquarters for dispatch and coordination of firefighting resources (Dombeck, Williams, and Wood 2004; Pyne 1982).

To support and gain acceptance for its policy of fire suppression, the USFS undertook equally aggressive systematic public education campaigns to eliminate traditional uses of fire for purposes of grazing, hunting, forestry, and agriculture by Native Americans, residents of rural areas, and timber owners. An example was the “Dixie Crusaders” who, in the late-1920s, traveled more than 300,000 miles in caravans throughout the South with the slogan “Stop Woods Fires—Growing Children Need

Growing Trees” painted on the sides of trucks (Carle 2002:47). The agency also produced substantial research supporting its fire suppression practices and even suppressed research by its own scientists when it contradicted established policy (Carle 2002). In the 1950s and 1960s, Smokey the Bear and his message of fire prevention became one of the most successful and widely recognized advertising campaigns in American history (Dombeck, Williams, and Wood 2004).

Although the USFS policy of aggressive fire suppression prevailed during the first half of the 20th century, there remained a small cadre of scientists, academics, and forestry professionals that questioned the wisdom of the policy of fire suppression and remained committed to the use of prescribed fire. In the 1960s, these voices joined with those from an emergent environmental movement and the discipline of ecology and began forming an alternate vision of fire as an essential natural process. Beginning in 1962, a series of annual fire ecology conferences, sponsored by the privately funded Tall Timbers research station in Florida, provided a forum for a growing amount of scientific research that questioned official fire policy (Carle 2002; Pyne 2004).

Passage of the Wilderness Act in 1964 established a statutory basis for limiting human intervention, and the preeminence of natural processes in wilderness areas and public support for environmental causes and legislation was growing. As a result of these forces, a sea change in scientific understanding and public perception was underway. In 1968, the National Park Service revised its policy to adopt the principle of fire management, and a decade later, the USFS followed suit and formally withdrew the “10 a.m. policy.” The new policy of fire management gave managers the ability to allow lightning-ignited wildfires, called “prescribed natural fires,” to burn in national parks and

wilderness areas and for prescribed fires to be purposefully ignited under carefully controlled conditions (Pyne 1982). However, despite changes in policy, “it proved easier to denounce the culture of suppression than to invent a working successor” (Pyne 2004:59). The amount of acreage burned by prescribed fires or natural fires allowed to burn in the backcountry was an exceedingly small percentage of total number of acres burned on an annual basis (Carle 2002). Yet interest in prescribed fire grew steadily until the 1988 fires in Yellowstone National Park sparked a fierce debate about national fire policy and the wisdom of letting wildfires burn. The Yellowstone fires virtually halted the national prescribed fire program for several years while fire policies were debated and new fire management plans were developed (Carle 2002).

A new wave of federal fire policy reforms was mandated in 1995 following the tragic deaths of 34 firefighters, 14 of which occurred in the South Canyon fire in Colorado. These reforms reaffirmed the principles of fire management but attempted to reform practices through a strategy of “appropriate management response.” As “generic as its 10 a.m. predecessor was emphatic,” many of the measures in this new (and current) strategy were designed to reintroduce a calculus for matching suppression actions with the values at risk, not the least of which included firefighters’ lives (Pyne 2004:64; Wildland Fire Leadership Council 2001).

This new policy also renewed a commitment to the use of prescribed natural fire, now called “wildland fire use.” Yet, despite reaffirming the need to use fire in the backcountry, “exurban sprawl complicated the scene by scrambling homes and wildlands into an complex ecological omelet” (Pyne 2004:10). Thus, most of the resources of the fire management agencies shifted to the Wildland Urban Interface (WUI), where

increasingly the American public watched on television as wildfires came out of the hills and consumed entire neighborhoods. In 1990, the Painted Cave fire torched 641 structures in Santa Barbara, California. The 1991 Oakland Hills fire burned only 1,600 acres but claimed 25 lives, destroyed 2,449 houses and 437 apartments and condominiums, and caused more than \$1.5 billion in damages (Carle 2002). This was just the beginning, as large fire seasons occurred again in 1994, 1996, and 1999. Then, the record-setting 2000 fire season started off with an escaped National Park Service prescribed fire, which forced the evacuation of 18,000 residents from the area of Los Alamos, New Mexico. When the fire was finally contained, it had run more than 47,000 acres, burned down 239 homes, and damaged or destroyed 39 structures at the Los Alamos Nuclear Laboratory (Carle 2002). From there, things just got worse, and by the end of the 2000 fire season, fires had scorched more than 8.4 million acres and claimed 861 structures and suppression costs skyrocketed to more than \$1.3 billion (National Interagency Fire Center 2006).

By the end of the 2000 fire season, it was clear that decades of fire suppression had produced disastrous and escalating consequences and the intended reforms to national policy had fallen massively short of their goal. The remarkable 2000 fire season led to calls from scientists, fire managers, and politicians for reexamining the roles, responsibilities, and practices of federal agencies in protecting communities and resources from wildfire (Agee and Skinner 2005; Pyne 2004; Western Governors' Association 2002).

## **Community-based Management and National Fire Policy**

Over roughly the same period of time as the nation's fire management agencies, particularly the USFS, were struggling to refashion national fire policy, collaborative community-based approaches to the management of natural resources were gaining credence in the United States. Called a variety of names—such as partnerships, collaborative conservation, community forestry groups, and grassroots ecosystem-based management—community-based management efforts had proliferated in the late-1980s and 1990s, particularly in the American West (Brick, Snow, and Van de Wetering 2001; Cortner and Moote 1999; Kusel and Adler 2001; Wondolleck and Yafee 1994). Regardless of what they are called, community-based management efforts share common characteristics of generally being place-based, cooperative, multiparty efforts, often focused on building relationships between disparate groups to solve natural resource management problems at a defined landscape level. Promoted as a way to reduce stakeholder conflict, broaden community participation, and build local support and involvement in the management of natural resources, they are typically informal and adaptive in their structure and use deliberative processes explicitly focused on questions of fairness, transparency, and the use of high-quality information to make decisions. They may include representatives of government agencies but often operate outside or alongside traditional forms of governance (Brick and Weber 2001; Brunner et al. 2002; Weber 2003; Wondolleck and Yaffee 2000). Some researchers described community-based management approaches as a new social movement (Baker and Kusel 2003; Weber 2003). Others have documented an increased call for collaboration in natural resource management from a diverse spectrum of interests, including politicians, academics,

conservative think tanks, and the popular press (Conley and Moote 2003). Collaborative efforts are gaining acceptance in some areas of state and federal governments, and many nongovernmental organizations and foundations are promoting collaboration through a wide range of programs and policies (Environmental Protection Agency 1997).

Many authors argue that the emergence of numerous community-based management efforts is due to increasing public frustration with traditional forms of governance. Progressive Era institutions, such as the USFS and the doctrine of scientific management, are poorly equipped to cope with the increasing complexity of natural resource problems and to reconcile competing claims and interests in ways that provide for the common good (Brunner et al. 2002; Brunner and Steelman 2005; Borchers and Kusel 2003; Kemmis 2002). For example, Kemmis argues that collaboration offers an alternative to the adversarial forms of public involvement and the use of “dueling” scientists and competing scientific claims characterizing most natural resource decision-making processes. Instead, collaboration, democratic deliberation, and local knowledge provide the framework for the appropriate application of science in solving natural resource management problems:

Collaboration works when opposing interests can agree on . . . specific scientific procedures that can give them reliable information to fill in the relevant gaps in local knowledge. This move rescues science from its adversarial perversion while enabling it to play a role that is actually within its grasp: providing reasonably reliable information about a reasonably determined set of ecosystem parameters. Without that consensual determination of the questions science is supposed to answer, we continually set science up by expecting it to give us the answers without having done the civic work of first deciding what the questions are. (Kemmis 2002:34)

Similarly, Brunner et al. (2002) use the case of the water crisis in the Klamath Basin of southern Oregon and northern California to illustrate how complex landscape-



level problems involving multiple federal and state government agencies, Indian tribes, nongovernmental organizations, and private interests have outgrown the Progressive Era ideal of expert and disinterested personnel making optimal decisions in the public interest through a single centralized authority.

...[A] fragmented decision-making structure systematically frustrates finding common ground on policies that advance the public interests, in the Klamath crisis and on many other issues in natural resource policy. A fragmented structure gives each agency or interest group incentives to defend its own primary interests and attack other interests involved in the issue, even if it accepts those interests as valid and appropriate. The structure also encourages adversaries to commission their own scientific studies as part of their defense or attack. (Brunner and Steelman 2005:18)

The authors argue that collaborative community-based initiatives have demonstrated the potential to develop innovative and integrative solutions to natural resource problems that reach beyond narrow organizational interests and traditional regulatory approaches. The authors suggest that the rise of community-based efforts marks the emergence of what they refer to as “adaptive governance” from the remnants of scientific management.

Sound policy is based on people as they are, and in a democracy it seeks to advance their common interests within practical constraints. Adaptive governance... includes the adaptation of policy decisions to experience on the ground as real people interact with each other and the soils, water, plants and animals in specific contexts. Sound policy takes differences and changes in their contexts into account. Because of its emphasis on adapting to experience on the ground, adaptive governance is an expression of American pragmatism, not another set of utopian aspirations. (Brunner and Steelman 2005:19)

It is the pragmatic benefits that perhaps provide the most compelling argument for collaborative community-based management. Wondolleck and Yaffee (2000) argue that “building bridges” into the community is a practical solution to the growing complexities and challenges of natural resource management. These authors describe numerous examples of how collaborative community-based efforts have allowed agencies to be more effective and efficient in accomplishing their management responsibilities by

reducing the amount of time spent dealing with conflict, eliminating redundant efforts, and pooling resources. Similarly, in a USFS report designed specifically to support agency collaboration in fuels management, Sturtevant et al. (2005) provide a comprehensive synthesis of the literature about collaboration identifying numerous practical reasons for agency participation, including increased efficiency, increased community trust for agency actions, increased agency and community capacity, facilitation of landscape-level planning, and encouraging the involvement of private landowners. The ability for community-based efforts to bridge diverse interests, integrate science and local knowledge, build unanimity amidst a fragmented decision-making structure, and develop pragmatic solutions provides a promising framework for addressing the wildfire problem.

### **The National Fire Plan**

The convergence of these two trends in natural resource policy and management, the success and proliferation of many community-based management initiatives, and the need to reform and reframe how we manage fire provided the basis for transforming national fire policy. Practitioners and advocates for community-based management have been increasingly successful in achieving bipartisan support in Congress to engage local communities in the issues of wildfire protection and forest restoration (Cromley 2005). Thus, in the aftermath of the disastrous 2000 fire season, Congress looked to involve local communities when it appropriated funds for what would become known as the National Fire Plan (NFP). Congress directed the secretaries of the interior and agriculture departments to work with the WGA to develop a long-term solution to the wildfire problem and create a strategy for implementing the 10-year, \$10 billion program. The

result was a comprehensive plan that placed emphasis on managing wildfire through a collaborative community-based approach:

A collaborative, community-based approach to wildland fire combines cost-effective fire preparedness and suppression to protect communities and environments with a proactive approach. This approach recognizes fire as part of the ecosystem; focuses on hazardous fuels reduction, integrated vegetation management, and firefighting strategies; and allocates and utilizes resources in a cost-effective manner over a long-term basis. A community-based approach relies on local knowledge and develops objectives to manage long-term activities in communities and environments. (Western Governors' Association 2002:9)

The WGA's 10-year implementation strategy identified four key goals to address the threats posed by wildfire over the long term: (1) improve fire prevention and suppression; (2) rehabilitate and restore fire-adapted ecosystems; (3) reduce hazardous fuels; and (4) promote community assistance. Although fire suppression remained a central component, the WGA's strategy marked a fundamental shift in wildfire policy away from a primary focus on suppression and crisis management. This more proactive policy recognized the complexity and multiple causes of the problem and attempted to develop more integrative solutions at the community level.

Despite defining a new approach to fire policy, the implementation of the NFP got off to a slow start. According to the General Accounting Office:

The failure of the five federal land management agencies to incorporate into the National Fire Plan many of the federal wildland fire management policy's guiding principles and recommendations can be traced to their reluctance to change their traditional organizational structures of federal wildland fire management. . . . Moreover . . . federal fire managers and managers in other disciplines within the agencies—including those responsible for wildlife and fisheries and vegetation and watershed management—have been reluctant to forge the necessary new working relationships. (GAO 2001:3)

Researchers investigating community responses to the wildfire threat found wide discrepancies among communities in their abilities to access funding available under the

NFP and to successfully address the four goals identified under the WGA 10-year implementation strategy (Steelman and Kunkel 2003). Critics of the agencies' implementation of the NFP claimed that funds were being shifted away from collaboration with communities and preventative projects and were used to develop new fire suppression resources and pay for firefighting efforts (Cromley 2005). A 2004 progress report issued by the WGA on implementation of the NFP verified this criticism. The report stated that while substantial progress had been made in improving fire prevention and suppression capabilities and the reduction of hazardous fuels (goals 1 and 2), significant obstacles remained, including a sense that "suppression is still driving NFP activities and that borrowing funds from other agency accounts to cover growing suppression costs threatens to overwhelm and limit land manager and community ability to address wildfire threats proactively" (Western Governors' Association 2004:3). The report also indicated that progress towards reducing hazardous fuels and working across jurisdictional boundaries was impeded by "a lack of understanding of the collaborative process, consistency in implementation... cumbersome budgeting processes, fuel target pressures and confusion of definitions..." (Western Governors' Association 2004:4). The WGA reported progress as being poor for goal 3, restoring fire-adapted ecosystems, and goal 4, promoting community assistance. The report acknowledged general confusion regarding the terminology and intent of goal 3, as well as a lack of consensus surrounding the appropriate scale and strategies to achieve the restoration of fire-adapted ecosystems. Progress towards promoting community assistance was slow because of a lack of assistance and investment in helping communities to develop technologies for the utilization of small-diameter material. Measures for assisting state and local governments

in establishing local wildfire codes and planning processes were also lacking from goal 4 implementation efforts.

Overall, the WGA report made numerous recommendations for improving the implementation of the NFP. Stating that “the collaborative framework is not being used consistently at the local, state, and national level as called for in the 10-year strategy,” particular emphasis was given to improving collaborative processes as key to successful implementation of the NFP (Western Governors’ Association 2004:4). It is also interesting that the WGA progress report referenced negative effects resulting from initiatives purportedly designed to strengthen NFP objectives:

The institution of new directives related to the Healthy Forests Initiative (HFI) and the Healthy Forests Restoration Act (HFRA) over the past year has made certain collaborative efforts more complicated. Further, the strong emphasis on fuels (goal 2) under HFI/HFRA comes at the expense of other 10-year strategy goals, most notably restoration (goal 3) and community assistance (goal 4). (Western Governors’ Association 2004:4)

### **Healthy Forest Initiative**

After the passage of the NFP in 2001, another intense fire season occurred in 2002, with Oregon, Arizona, and Colorado each experiencing their largest fires in recorded history. Fires scorched 6.9 million acres of land and suppression costs exceeded \$1.6 billion (National Interagency Fire Center 2006). In August 2002, the Bush administration unveiled the Healthy Forest Initiative (HFI), which proposed measures to expedite fuel reduction projects by streamlining processes of environmental and judicial review. Standing in the burnt-out interior of the Squires fire in southern Oregon, President Bush claimed that further measures were necessary because excessive litigation and burdensome planning requirements were thwarting agency action to adequately address the wildfire problem. Dale Bosworth, USFS chief, testified before Congress that

“gridlock and analysis paralysis directly affected our ability to protect communities from catastrophic wildfire” (Bosworth 2003). A General Accounting Office report also indicated that the implementation of a substantial number of fuel reduction projects had been delayed because of process appeals, although only a few had been litigated (GAO 2003).

Under HFI, the Bush Administration developed new rules that would allow high-priority fuel reduction and forest health projects developed under certain restrictions to be categorically excluded from review under the National Environmental Policy Act (NEPA). Some of the restrictions on the use of categorical exclusions included limiting projects to areas outside of wilderness boundaries and not more than 1,000 acres for mechanical treatments and 4,500 acres for prescribed burning. Categorically excluded projects must only occur in the interface, or in high fire risk areas outside of the interface, and not involve the use of pesticides, herbicides, and road building or sale and removal of commercial products other than to meet fuel reduction goals. HFI also established new guidelines streamlining agency consultation under the Endangered Species Act to expedite fuel reduction projects considered to have a low risk for impacting endangered species or critical habitat (Vaughn and Cortner 2005).

#### **Healthy Forest Restoration Act**

The legislative complement to the administrative reforms advanced in HFI began moving forward in Congress beginning in the late summer of 2002. Various legislative proposals were put forward but the political compromises necessary to secure a sufficient numbers of votes were elusive in both the House and the Senate (Vaughn and Cortner 2005). In comparison to the previous two years, the 2003 fire season had been relatively

tame. Then, in November 2003, a devastating series of wildfires struck southern California, killing 22 people, destroying 3,640 homes, forcing the evacuation of 40,000 people, and causing property losses in excess of \$2 billion. In December 2003, HFRA passed Congress with a 286–140 vote in the House and an 80–14 vote in the Senate. The legislation authorized expedited measures to treat hazardous fuels on up to 20 million acres of federal land rated at high risk for wildfires. The major components of the act relating to wildfire planning and protection are listed below:

- **Environmental Analysis:** Increases the use of categorical exclusions and limits the number of alternatives agencies required to study under NEPA. Within the WUI or 1.5 miles of an at-risk community, agencies are only required to analyze the proposed agency action. Outside of the WUI boundary, the agency must describe the proposed action, a no action alternative, and an additional action alternative, if one is proposed during scoping that meets the purpose and need of the project.
- **Judicial Review:** Limits temporary injunctions to 60 days, directing courts to consider the effects of inaction on fuel reduction projects. Courts are to give weight to agency scientists when making decisions. Appeals must be filed within 15 days and are limited to those who file written comments during the initial planning stages.
- **Collaboration:** Encourages communities to develop Community Wildfire Protection Plans (CWPPs) and directs agencies to give consideration and priority for funding to communities with approved plans. Exempts CWPPs from the Federal Advisory Committee Act (FACA) and directs agencies to facilitate collaboration with state, local, and tribal government and “all interested persons.” Authorizes \$760 million annually to pay for fuel reduction projects and requires that 50 percent of those funds be spent within the WUI as defined in the CWPP. Directs agencies to establish multiparty monitoring of fuel reduction projects where interest is expressed by communities.
- **Miscellaneous:** Provides statutory protection for retention of old growth and large fire-resistant trees. Encourages research and provides grants for biomass utilization. Provides for agreements with private landowners to protect and enhance habitats for endangered and threatened species, protect biodiversity, and sequester carbon. Encourages research and monitoring of forest resiliency and early warning programs for insect and disease outbreaks. (16 USC § 6512)

The provisions within HFRA granting additional discretion to agencies, streamlining the process of environmental review, and limiting the ability of the courts to overturn agency decisions have made HFRA a controversial piece of legislation (Ancient Forest Roadshow 2005; Wilderness Society 2004). However, the provisions within HFRA promoting agency and community collaboration, all-party monitoring of fuel reduction projects, and granting significant authority to communities in proposing management actions on federal land have received much less attention.

### **Community Wildfire Protection Plans**

Many of the key features of CWPPs are detailed in chapter 1; however, there are several other important contextual components surrounding the development and implementation of CWPPs that warrant discussion. First, in the February 2003 Omnibus Appropriations Act, Congress significantly expanded stewardship contracting. In that legislation, Congress changed stewardship contracting from a limited USFS demonstration project to a semi-permanent authority that can be used by both the USFS and the Bureau of Land Management (BLM) (16 U.S.C. § 2104). Stewardship contracting allows the agencies to enter into contracts that include the exchange of goods for services, whereby the value of products removed and sold as a by-product of restoration work can be used to offset some or all of the costs of the work. Typically, in fuel reduction projects, this means applying the value of commercial timber removed in the project to reduce or pay for the costs of disposing material that is not commercially valuable. Stewardship contracting also gives greater flexibility to the agencies to accept contracting bids based upon the “best value” to the agency as opposed to a “least cost” under traditional contracting methods [16 U.S.C. § 2104 (c)(1)]. Under the new authority,



the USFS and BLM can enter into an unlimited number of stewardship contracts for up to a 10-year period and are required to use multiparty monitoring to evaluate stewardship projects [16 U.S.C. § 2104 (g)(3)]. Because stewardship contracts allow the agency greater flexibility to employ local contractors and work with the community to design and implement projects, practitioners and advocates for community-based forestry have been largely supportive of their use. However, stewardship contracting is also controversial for many of the same reasons. Critics claim stewardship contracts grant too much flexibility to the agencies and provide incentives for the sale of commercial timber to generate funds for local use (Cromley 2005). Although the authority for stewardship contracting is not specifically tied to the development and implementation of CWPPs, there is considerable potential for their application and use in the accomplishment of fuel reduction projects, including those developed under CWPPs.

Second, following the passage of HFRA, several important guidebooks were made available to support the development of CWPPs and the implementation of HFRA projects. In February 2004, *The Healthy Forest Initiative and Healthy Forest Act Interim Field Guide* was published by the USFS and BLM. This field guide provided specific guidance to agency managers about the processes and guidelines for projects implemented under HFI and HFRA. The interim field guide stated that “federal agencies should be partners in the preparation of Community Wildfire Protection Plans to the extent that a community desires, within budgetary constraints” and narrowly described the basic requirements and benefits to the agencies in working with communities in the development of CWPPs (USDA and USDI 2004:53). Another important document was *Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban*

*Interface Communities*, sponsored by the Society of American Foresters (SAF), the Communities Committee, the National Association of Counties, the National Association of State Foresters, and the WGA. This handbook was published in May 2004 and disseminated the basic criteria for producing a CWPP under HFRA, which included seeking formal approval by “the applicable local government (i.e., counties or cities); the local fire department(s); and the state entity responsible for forest management” (Society of American Foresters et al. 2004:3). The handbook also described the three minimum requirements for a CWPP:

1. **Collaboration:** A CWPP must be collaboratively developed by local and state government representatives, in consultation with federal agencies and other interested parties.
2. **Prioritized Fuel Reduction:** A CWPP must identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and methods of treatment that will protect one or more at-risk communities and essential infrastructure.
3. **Treatment of Structural Ignitability:** A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the plan. (Society of American Foresters et al. 2004:3)

An interesting feature of this CWPP handbook was its eight-step approach to developing a CWPP (table 4).

Table 4. Step-by-step Guidelines for Developing a CWPP

✓ <b>Step 1: Convene Decision Makers</b>	Form a core team made up of representatives from the appropriate local governments, local fire authority, and state agency responsible for forest management.
✓ <b>Step 2: Involve Federal Agencies</b>	<ul style="list-style-type: none"> <li>• Identify and engage local representatives of the USFS and BLM.</li> <li>• Contact and involve other land management agencies as appropriate.</li> </ul>
✓ <b>Step 3: Engage Interested Parties</b>	Contact and encourage active involvement in plan development from a broad range of interested organizations and stakeholders.
✓ <b>Step 4: Establish A Community Base Map</b>	Work with partners to establish a baseline map of the community that defines the community's WUI and displays inhabited areas at risk, forested areas that contain critical human infrastructure, and forest areas at risk for large-scale fire disturbance.
✓ <b>Step 5: Develop A Community Risk Assessment</b>	<ul style="list-style-type: none"> <li>• Work with partners to develop a community risk assessment that considers fuel hazards; risk of wildfire occurrence; homes, businesses, and essential infrastructure at risk; other community values at risk; and local preparedness capability.</li> <li>• Rate the level of risk for each factor and incorporate into the base map as appropriate.</li> </ul>
✓ <b>Step 6: Establish Community Priorities And Recommendations</b>	<ul style="list-style-type: none"> <li>• Use the base map and community risk assessment to facilitate a collaborative community discussion that leads to the identification of local priorities for fuel treatment, reducing structural ignitability, and other issues of interest, such as improving fire response capability.</li> <li>• Clearly indicate whether priority projects are directly related to protection of communities and essential infrastructure or to reducing wildfire risks to other community values.</li> </ul>
✓ <b>Step 7: Develop An Action Plan And Assessment Strategy</b>	Consider developing a detailed implementation strategy to accompany the CWPP, as well as a monitoring plan that will ensure its long-term success.
✓ <b>Step 8: Finalize CWPP</b>	Finalize the CWPP and communicate the results to community and key partners.

Reprinted from the guidebook *Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities*, sponsored by the Communities Committee, the Society of American Foresters, the National Association of Counties, the National Association of State Foresters, and the Western Governors' Association.

Based upon the initial survey of CWPPs conducted as part of this research, the format provided by this handbook was followed and in several cases even duplicated in step-by-step fashion by numerous CWPPs. In February 2005, the USDA undersecretary

for Natural Resources and the Environment testified before a House subcommittee on forests and forest health that more than 6,000 CWPP handbooks had been distributed and more than 600 CWPPs written (Rey 2005). The SAF CWPP handbook and the interim field guide were the initial primary resources available to agencies and communities to guide development of CWPPs. Several more CWPP handbooks were published later in 2004; however, these documents became available after the CWPPs for the communities considered in this research had been substantially finalized. In fact, a handbook developed by Logan Simpson Design, which was sponsored by Navajo County in cooperation with the USFS Southwest Region and the White Mountain Natural Resources Working Group, was written based on the experience of developing the CWPP for communities of the Sitgreaves National Forest examined in this research. This document takes a more comprehensive approach to the development of CWPPs beyond that provided by the handbook distributed by the SAF. This included emphasis on integrating CWPPs into existing plans and guidelines, the development of monitoring plans as well as other lessons learned for the development of the Sitgreaves plan. Another CWPP guidebook was published by Southwest Strategy, a community development and natural resources conservation and management effort led by federal, state, tribal and local governments. This document guidebook substantially mirrors the SAF handbook but includes case study information from the communities of Prescott, Arizona, and Ruidoso, New Mexico.

The final contextual element important in the discussion relating to the development of CWPPs is a matter of policy. Early in 2004, the USFS and U.S. Department of Interior issued guidance linking the declining grant funds made available

through the NFP to projects developed under approved CWPPs (National Fire Plan 2004). Therefore, there was a tremendous incentive for communities to finalize their CWPPs as quickly as possible in order to gain a competitive advantage for continued NFP funding. The overall effect of this policy is unclear. However, it is reasonable to speculate that many communities confronted the potential trade-offs associated with quality, comprehensiveness, and the prompt completion of the plan. There is evidence to support this consideration in the case studies that follow in chapter IV.

## CHAPTER IV

### CASE STUDIES

#### **Overview**

This chapter presents four case studies of community wildfire protection planning processes. The cases are presented alphabetical order and include the City of Ashland, Oregon; the greater Flagstaff region, Arizona; the at-risk communities of the Sitgreaves National Forest, Arizona; and Wallowa County, Oregon. Included in each case study is a description of the physical environment and the social context surrounding the planning process including the community's history of addressing the wildfire risk. Each case then incorporates a detailed analysis of the CWPP decision-making process employing the seven decision functions of the policy sciences: intelligence, promotion, prescription, invocation, application, appraisal, and termination. Concluding each case is an analysis focused on the key contextual features of the social processes influencing the outcome of the CWPP planning effort.

#### **City of Ashland Community Wildfire Protection Plan**

##### **The Physical Environment**

The City of Ashland is located in the foothills of the Siskiyou Mountains, which are part of the larger Klamath Mountain Physiographic Province covering much of southwestern Oregon and northern California. Fire, from both natural and human sources, has been a dominant ecological process in southwest Oregon, and fire return intervals for the Siskiyou Mountains range from 8 to 15 years in the lower elevations to 75 to 100 years

in higher-elevation areas. The forests of the Siskiyou Mountains, managed predominately by the USFS are now partly covered by the Late Successional Reserve (LSR) Network developed under the 1994 Northwest Forest Plan. Designed primarily in response to the listing of the Northern Spotted Owl as an endangered species, LSRs are areas designated for the protection and enhancement of late successional and old growth forest ecosystems. The Mt. Ashland LSR, covering an estimated 51,000 acres along the crest of the Siskiyou Mountains, is a critical node in the overall migratory pattern in the Pacific Northwest, linking the high-elevation Siskiyou range of the Klamath Mountains with the southern Oregon Cascades (USDA 2001). Figure 5 shows the location of the City of Ashland within southwestern Oregon.

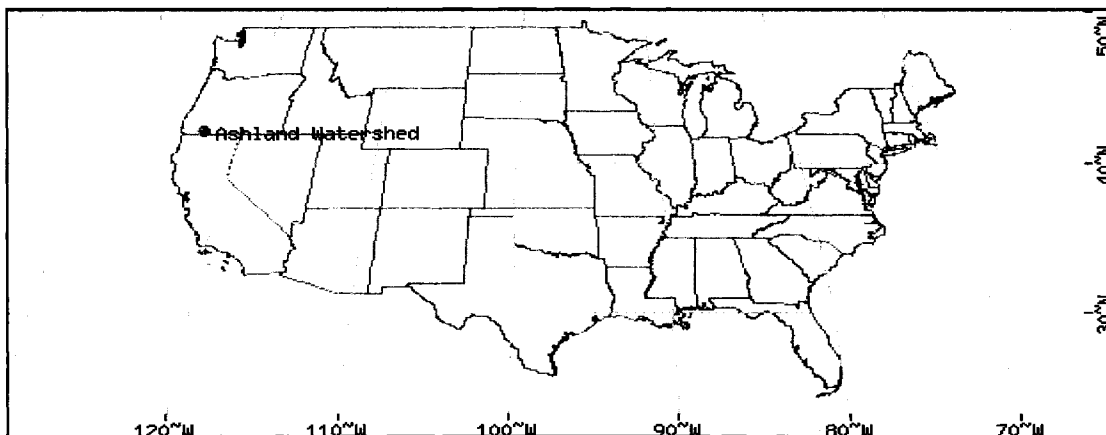


Figure 5. The City of Ashland is located just north of the California border in southwestern Oregon. (Map by author)

A central focus of the Ashland CWPP was protection of the Ashland municipal watershed, which covers an area of just less than 15,000 acres and ranges in elevation from 2,000 feet where Ashland Creek enters the city limits to more than 7,400 feet at the summit of Mt. Ashland. The geomorphic terrain is composed almost entirely of decomposed granitic soils that are subject to high rates of erosion and instability. Slopes are steep, ranging from 20 to 70 percent with some steeper slopes found in certain areas

of the watershed. A national priority and policy of active fire suppression began after multiple large and deadly fires occurred in the West between 1900 and 1910. Since that time, only one large-scale fire event (1,000+ acres in 1959) has occurred within the watershed. The eastern Siskiyou Mountains of interior southwest Oregon have the lowest annual precipitation and the highest annual temperature of any area in Oregon or Washington west of the Cascade Mountains. The average annual precipitation for Ashland, Oregon, is less than 20 inches with serious drought conditions (less than 10 inches per year) occurring on an average 10-year cycle. Most of the precipitation occurs during the winter and spring months and “dry” summer thunderstorms are common (USDA 2001). Such periods of drought exacerbate stand moisture stress and, as a result, trees become vulnerable to attack from bark beetles and tree mortality is high across large portions of the watershed, particularly in the lower elevations (figure 6).



Figure 6: Widespread tree mortality occurring in the lower sections of the Ashland watershed. (Photo by Small Woodland Services, <http://outreach.cof.orst.edu/resilientfire/main.html>)



## **The Social Context**

At one time, the City of Ashland, much like the rest of southern Oregon, was a natural-resource-dependent community and, as late as 1954, there were 12 sawmills operating within a short distance of town. However, as timber from private lands became depleted and timber harvest shifted to federal lands, many of the smaller operators folded and remaining mills consolidated their operations to centrally located facilities in Medford and White City (O'Harra 1993). Since that time, the economy of Ashland has increasingly become dependent on Southern Oregon University, now a major state university, and tourism, primarily focused on the nationally acclaimed Oregon Shakespeare Festival. This combination of theater arts and education has given the city a reputation for being a “liberal island” in the generally more politically conservative sea of southern Oregon. The cultural opportunities of Ashland, along with its picturesque location and small town atmosphere, have made the city a very attractive place to live. As the community has grown, numerous homes have been built in the wildland areas surrounding the city—many in areas that have burned intensely in previous wildfire events (figure 7).



Figure 7. Homes “nestled” on the hillside above Ashland Creek in an area that previously burned during a wildfire in 1959. (Photo by author)

The combination of extreme fire hazard, limited access, steep topography, and the highly combustible nature of many homes provides conditions remarkably similar to those existing prior to the 1991 Oakland Hills fire, which burned only 1,600 acres but claimed 25 lives, destroyed 2,449 houses, and caused more than \$1.5 billion in damage (Main and Uhtoff 2002; Carle 2002).

With its liberal reputation, Ashland has been a haven for the environmental community in southern Oregon. Headwaters, a grassroots environmental organization, which gained a national reputation for challenges to federal timber harvest practices during the 1970s and 1980s, has its headquarters in Ashland. During the mid-1990s, several new local environmental organizations became active, and the region gained national and international recognition when the World Wildlife Fund “adopted” the Klamath Siskiyou bioregion as an endangered place and opened a field office in Ashland (World Wildlife Fund 2004). Additionally, the Nature Conservancy identified the

importance of the region and has been active in the local area for a longer period of time, although in a much quieter way (The Nature Conservancy 2004).

The Ashland municipal watershed provides the City of Ashland, and its 19,000 residents, with their primary source of drinking water. The USFS has management responsibility for 96 percent of the land within the watershed boundaries and the City of Ashland owns the remaining 4 percent of the land. The watershed is a highly prized asset and scenic backdrop to the community and its tourism-driven economy. Because of its beauty and close proximity to town, the watershed receives heavy recreational pressure. The watershed is well known for the extensive system of challenging and mostly unregulated mountain bike trails, and the area hosts several nationally recognized mountain bike races each year (Southern Oregon Mountain Biking Association 2005). The watershed is also extensively used by runners, day hikers, and horseback riders (Ashland Watershed Trails Association 2004). Transients also take advantage of the watershed's close proximity to town, and illegal camping and homelessness are a growing problem for the city (Squires 2005). Additionally, the city is the leaseholder for a small community-owned ski area located on USFS land in the headwaters of the watershed. In 2004, the Mt. Ashland Ski Area, operated by a nonprofit organization, the Mt. Ashland Association, obtained long sought after USFS approval to expand its facilities. This proposed expansion has undergone extensive environmental analysis and been a source of bitter controversy in the community for well over a decade. A Federal District Court decision upholding the USFS approval of the expansion is currently being litigated by local environmental organizations (Panebaker 2006).

## **History of Addressing Wildfire Risk**

The USFS and City of Ashland have long recognized the threat posed to the watershed by wildfire and have a long history of interacting to address the management and protection of the watershed. Frequent USFS fire patrols began in 1913 and lookouts were constructed on mountain tops overlooking the watershed by 1923 (USDA 2001). In 1929, the City of Ashland and the USFS signed a cooperative management agreement in which the USFS agreed to conserve and protect the watershed and consult with the city prior to engaging in activities which could potentially harm the water supply. For a period of about 25 years, this custodial agreement limited public access to the watershed and eliminated grazing and timber cutting except for the purpose of fire control. Then, in 1955, the supervisor of the Rogue River National Forest announced to the Ashland City Council that the area would be placed under multiple use management and that carefully planned timber harvests would occur (Netboy 1977). However, USFS timber harvesting and road building in the 1960s and 1970s caused extensive sedimentation threatening the city's water supply, and the Ashland City Council petitioned the USFS to grant greater protection to the watershed. In 1979, the USFS gave the Ashland watershed special management status and formally designated it as a "restricted watershed" in the 1990 Rogue River National Forest Plan (Atwood 1998; USDA 1995).

USFS fire crews began construction of shaded fuels breaks in the watershed starting in 1975 and additional shaded fuel breaks were constructed in 1986 and 1991 using administrative timber sales (USDA 2001). The City of Ashland began providing volunteer fire prevention patrols in the watershed beginning in 1982 (USDA and City of Ashland 1996). In 1983, the USFS implemented a prescribed burning program on more

than 600 acres to anchor and reinforce the fuel break system. A memorandum of understanding (MOU), supplemental to the initial 1929 cooperative agreement between the USFS and City of Ashland, was signed in 1985 and has been twice updated, once in 1996 and again in 1999. The MOU detailed the cooperative measures to be taken by both parties to protect the watershed from fire, including assessing fire danger, administering fire-related closures, providing training to volunteer fire patrols, and cooperating to take advantage of opportunities to achieve mutual objectives on projects such as fuel break construction and prescribed fires (USDA and City of Ashland 1996). In 1991, the USFS conducted a salvage timber sale to remove widespread tree mortality caused by drought and bark beetle infestation occurring in the late-1980s (USDA 2001). The city also conducted a timber sale on its land in the watershed and the timing of this sale was coordinated with the USFS to take advantage of helicopter logging equipment that could work on both operations (local government representative, personal communication, June 18, 2004).

In the aftermath of the 1991 Oakland Hills fire, the city's newly hired fire chief, along with other city leaders, began encouraging the city to take a more proactive approach to the threat of wildfire. In 1992, the city commissioned a private company, McCormick and Associates, to develop a management plan for more than 1,000 acres of city-owned forest land. This report specifically identified the risk of high-intensity wildfire as a key management issue for the city:

Attainment of the natural resource goals in the city's comprehensive plan and this Forest Plan will depend, to a large measure, on preventing large, destructive wildfire. There is also a high potential for the loss of life and property and it will increase as the fuels continue to build up and development proceeds. In addition, the watershed could be severely impacted with serious consequences to the city's

domestic water supply. The gravity of the problem cannot be overstated. . . .  
(McCormick and Associates 1992:6)

The 1992 Ashland Forest Plan recommended the city take a more coordinated approach to fuels reduction and fire suppression, noting that the fact that “ the impressive efforts by the Rogue River National Forest and private landowners to construct shaded fuel breaks . . . do not extend across city lands and the gaps may be fatal flaws in effective fire suppression efforts”(McCormick and Associates 1992:12). After formally adopting the Ashland Forest Plan in 1992, the city council created the Ashland Forest Lands Commission (AFLC) and charged it with implementation of the Ashland Forest Plan. AFLC members were to be appointed by the mayor, and nonvoting *ex-officio* membership on the commission included representatives from the USFS Ashland Ranger District, Oregon Department of Forestry, a member of the city council, and the directors of all major city departments (City of Ashland 1993). In 1995, the city contracted with Small Woodland Services (SWS), a highly reputable company specializing in nonindustrial forest management to provide forest management guidance to the commission. With the assistance of SWS, the city undertook its first project later that year, removing several truckloads of timber and treating fuels on five acres of city-owned land adjacent to a residential neighborhood.

At the same time the city was increasing its effort to address the threat of wildfire on lands under their ownership, designation of the Ashland watershed as an LSR under the 1994 Northwest Forest Plan brought USFS efforts to a standstill. In 1996, the USFS proposed a fuel hazard reduction project, called “HazRed,” which proposed to extend the system of fuel breaks in the watershed using administrative timber sales. The HazRed project met with bitter opposition from local environmental organizations concerned that

shaded fuel breaks were a pretext to continue logging of old-growth timber from areas newly designated as LSRs. According to a USFS document, “public involvement in the EA [environmental analysis] process became fraught with intense conflict, threats to the safety of forest employees, accusations of miss-intent, inaccurate information, mistrust, civil disobedience, and time delays” (USDA 2003:2). In an attempt to diffuse public controversy the USFS decided to conduct a more extensive environmental analysis and the project was renamed the Ashland Watershed Protection Project (AWPP) (USDA 2001). The USFS met with community leaders and agreed to accept a community alternative to the AWPP drafted by an informal group of citizens and city leaders, called the Ashland Watershed Stewardship Alliance (AWSA). The AWSA proposal and response to the draft Environmental Impact Statement (EIS) recommended that the USFS move to a strategy of “area-wide treatment” instead of fuel breaks to manage fire in the watershed (Ashland Watershed Stewardship Alliance 1999). In July 2001, a Record of Decision (ROD) for the AWPP was released by the USFS selecting a modified version of the alternative proposed by AWSA; however, implementation of the AWPP was slow due to personnel changes and turnover in the USFS agency. Concerned about the slow progress in implementing the AWPP and the lack of a plan for the remaining portions of the watershed, some AWSA members began encouraging the city to utilize the framework of the 1929 cooperative agreement and subsequent MOUs to become more actively involved in the management of the watershed. Attending city council and AFLC meetings, AWSA members recommended the city develop a multi-ownership coordinated strategy for reducing the fire hazard in the Ashland Watershed within a

definite timeframe and requested that the commission expand its responsibility to include the high-risk urban interface and the greater watershed area (City of Ashland 5/8/2002).

While USFS efforts had stalled, the city had accomplished the majority of noncommercial fuel reduction work on lands under its jurisdiction. In December 2000, the AFLC began planning a project, called the Forest Lands Restoration Project Phase II, which included a timber sale to treat a portion of its remaining acreage in the watershed through commercial tree removal (City of Ashland 2000). Also, starting in 2001 and continuing through early-2004, the city had been successful in obtaining more than \$542,000 in grant funding under the NFP to provide cost share funds to private landowners in the interface areas to reduce fuels on private properties within the city. A portion of this funding was used to develop a map of the WUI, establish treatment priorities, and develop prescriptions based upon vegetation types to help guide landowners in reducing wildfire fuels. The NFP funding also allowed the city to hire a coordinator for the grant who was also responsible for outreach and education to private landowners (City of Ashland 2004a).

### **CWPP Decision Process**

**Intelligence.** The Ashland Forest Resiliency Project was one of the first projects undertaken by the USFS under HFRA. The notice of intent (NOI) filed by the Rogue River-Siskiyou National Forest in the Federal Register on February 25, 2004, proposed the Ashland Forest Resiliency Project with treatment actions to modify fire behavior during a wildfire event on more than 8,000 acres in and around the Ashland watershed. The agency proposal called for the creation of 0.25- to 0.5-mile-wide “defensible fuel profile zones” (DFPZs), complementing the existing fuel break system in order to



“compartmentalize” and contain a wildfire starting in one section or “compartment” from spreading to adjacent parts of the watershed. This strategy would be accomplished through a variety of density management and fuel hazard reduction techniques, including prescribed burning and the removal of understory vegetation and larger trees to reduce ladder fuels and canopy closure. The NOI stated that a draft EIS was to be available for public review in June, 2004, with a final EIS expected to be completed in the fall (Federal Register 2004).

Less than a week after the USFS announced the Ashland Forest Resiliency Project, local environmental organizations predictably denounced the plan as a “Trojan horse,” using fuel reduction as a guise to log old-growth timber from the Ashland watershed. They also complained that the project’s methods mirrored the 1997 HazRed project but on a scale 10 times larger (Lininger 2004). Recognizing the potential for substantial opposition to the plan from environmental interests, a USFS official contacted a local environmental organization and encouraged it to consider developing an alternative to the USFS proposal. As a result, several local environmental organizations formed a coalition and began working on crafting an alternative plan.

With the Ashland Forest Resiliency Project it was this juggernaut because of the nature of HFRA. The agency was only obliged to have one action alternative and a no action alternative and it was on a very crunched timeframe. So it was pretty clear to us that if we didn’t get engaged in a real substantial way there wouldn’t be any other option looked at but the one that the agency had as the preferred alternative and there really wouldn’t be anybody that would step up to the plate to get the community involved. (NGO employee, personal communication, June 22, 2004)

The same USFS official also met with city officials and informed them of the opportunity provided under HFRA to develop a CWPP and create an alternative to the USFS proposal

to be considered through the federal process. (USFS employee, personal communication, May 23, 2006).

Over the next several weeks, the momentum and substance of an alternative to the USFS proposal began to solidify both in the community and in the city through the AFLC. With the deadline for the USFS's formal scoping process set to expire on April 30, the AFLC held a special meeting on April 22, 2004, and agreed to combine efforts of the commission, local environmental groups, and other interested citizens to create a single alternative that would be formally submitted by the city within the framework of a CWPP. A subcommittee consisting of the city's consulting forester, several AFLC members, the city's NFP grant coordinator, representatives of several local environmental organizations, and other interested citizens gathered to draft a response to the USFS (City of Ashland 2004b). In a special meeting on April 29, the AFLC voted unanimously to approve sending the results of the subcommittee's work, which included scoping comments for the Ashland Forest Resiliency Project, along with a recommended "community third alternative" and Phase I of the Ashland CWPP, on to the USFS. The following excerpt from the city's scoping comments clearly indicates the desire to be involved in the management of the watershed and the frustration with the time frame imposed under HFRA:

The City of Ashland would like to be more closely involved in the planning, decision making and implementation of management activities in the Ashland Watershed. The city has clearly shown its ability to act collaboratively and produce sound professional outcomes on the ground. . . . The city has a long history of committed public involvement in forest land issues and this is reflected in the significant professional expertise within its paid staff, volunteers, and committed citizens. A revitalized arrangement between the city and the Forest Service is needed that integrates this reality in a way that can improve forest management in the watershed, build social capital, foster a sense of responsibility and ownership

within the community, and enhance workable connections with a sometimes distant federal land manager.

The legal time constraints imposed by the current process, while well-intentioned, have made the proper compilation of this community proposal a challenge. Even though there may be an element or two that is deficient, there has been an outstanding level of good science and dutiful hard work by some very able members of our community. We would hope that this unprecedented collaboration would not be negated by some minor process requirement. (City of Ashland 2004a:74-75)

On April 30, this document was delivered to the USFS on the city's official letterhead signed by the AFLC chair and a city council member, along with signatures from representatives from the environmental organizations involved, including Headwaters, Klamath Siskiyou Wildlands Center, and the World Wildlife Fund (City of Ashland 2004a). The scoping comments prepared by the subcommittee were actually a "fast and furious" compilation of many existing documents modified to include federal lands and address the language and format required by HFRA.

I would bet that most communities would not have had the capacity to develop a community alternative under HFRA in the time frame that HFRA provides. The only reason that Ashland was capable of doing it is because we've done a ton of work on related issues over the years. In fact, if you look at the initial working CWPP, it is a collection of previous documents that the community has worked on that is just organized in a new way; grab this, grab that and put it in one notebook and put a new cover on it. Really the only new product that was in that initial working draft of the CWPP was the alternative for federal lands management . . . everything else was stuff grabbed off the shelf. (NGO employee, personal communication, June 22, 2004)

After receiving the city's comments, the USFS accepted the CWPP as meeting the requirements of HFRA but found that the Ashland Forest Resiliency Project community alternative failed to contain enough detail to meet federal analysis requirements under NEPA. However, in what the city termed as "a positive move toward collaborative stewardship," the USFS agreed to extend the deadline until October 1, 2004, to provide

the city more time to refine its alternative “by designating the specific locations, extent, and prescriptions for the thinning to be done in the watershed” (City of Ashland 2004a:7).

With more time granted to the refine the CWPP and community alternative, the city created two AFLC subcommittees: a technical committee to refine the community alternative for the watershed and a steering committee to further develop the components of the CWPP addressing wildfire policy, response, and mitigation in the inhabited areas of the WUI (City of Ashland 2004a). The two committees established the following goals for the CWPP:

- Summarize and review regulations, past plans, community values, and actions as they relate to wildfire and forest management in our community and watershed.
- Present a community vision and plan for restoring resiliency to the forests of the watershed as allowed under HFRA.
- Analyze issues of community wildfire safety and make recommendations for increasing community wildfire preparedness.
- Identify actions to decrease community wildfire hazards.

Participation on both committees was open to all interested citizens. Early on in this process, there were disagreements between the USFS and the city regarding the types of information necessary to develop the plan and who would have access to it. The city felt that the coarse-scale data provided by the USFS developed through satellite imagery and aerial photos was insufficient to provide enough site-specific information to develop detailed treatment prescriptions for the watershed. In its scoping comments, the city felt it was necessary to conduct, and ideally for the USFS to pay for, additional forest inventories to “ground truth” the coarse-scale data. The city estimated that “roughly 140

field day equivalents and another 70 day equivalents for analysis and development of GIS layers” would be required to complete the task (City of Ashland 2004a:76).

Well, the main issue hanging right now is the data that’s available and whether or not our group feels that it is sufficient to base decisions upon, and how much time would be available for more inventorying of forest resource values and data collection and the cost associated with that and who is going to pay for it. We are still working our ways through some of those issues. (Local government employee, personal communication, June 10, 2004)

However, the USFS believed that the existing data, although not ideal, did provide sufficient information on which to base a decision and that the ability to gather and provide additional data was constrained by lack of personnel and fiscal resources.

The resources aren’t indefinite. So if I have the soil scientist for eight days, I have eight days and have to choose how to spend it. I have to be very judicious when the city comes to me and says they need soil data. One of the challenges has been to figure out if it is data we’re going to need for the federal process anyway, or is it research oriented, is it educational, is it interesting to know. There is a line between how much information the federal government needs to make what it considers a reasonable decision and how much information a citizen needs to make a reasonable decision. Some of the tension I think we have with the city and the federal is that we just don’t provide the amount of information that their citizens want. . . . I think largely it would be safe to say that many in that process on the city side have not been satisfied with the amount of resources they have received from us or the timeliness of those resources because we are short budgeted and short staffed. (USFS employee, personal communication, May 23, 2006)

The concern over sharing information emerged after the USFS received a finalized version of the community alternative in October 2004. The USFS requested that the city formally designate liaisons to answer questions and provide clarification regarding the plan as they moved into the next stage, which involved environmental analysis of the USFS proposal and the community alternative in preparation of a draft EIS. According to a USFS employee, the request for designated liaisons from the city was intended to make communication between the two entities more efficient. However, the city’s CWPP planning process was open to the public, causing the USFS the

additional concern that sharing pre-decisional information with the city, outside of formally designated city representatives, would potentially violate FACA and NEPA provisions.

The issue that I was facing was that the people coming to the table were designated city representatives but they weren't making decisions. They were taking it back to the community and bringing the community information or wanting community members at the table and they weren't declaring them representatives of the city. So my worry was that we could get through this whole process and then found vulnerable under FACA because the people at the table weren't city representatives, they were simply citizens of the community that were interested. (USFS employee, personal communication, May 23, 2006)

Although Congress specifically exempted federal participation in the development of CWPPs under HFRA, the USFS was concerned that, because the CWPP contained an alternative to a USFS proposal, there could be a potential conflict between HFRA and FACA as well as with the requirements for an environmental analysis process under NEPA.

... [T]he problem is that NEPA didn't go away when HFRA came along, so all the requirements from NEPA still stand. So FACA still stands, even though HFRA says it goes away. The community alternative is chapter 8 or 9 of the CWPP. So no, we didn't see it [the community alternative] as separate [from the CWPP], but we saw it as two conflicting laws, and my experience has been to be more conservative than liberal when you are trying to figure out whether to bend a law or not. I was trying to meet both by the city government as being the entity at the table and not the citizens at large being the entity at the table. (USFS employee, personal communication, May 23, 2006)

Having a designated liaison from the city provided a formalized "government-to-government" relationship and the USFS relaxed the concern over potential violations of the law.

I finally talked with [USFS Forest Supervisor] and our legal counsel and said lets just not worry about how they [the city] share information and who is making the decisions. . . . If they want to broadcast it on public television they can. If they want to broadcast decisions in advance that is their business and that is how they are running their city. As a federal government we shouldn't have to control that or

worry about it. So when I could finally frame it in that way the federal government could relax and go fine, the city is responsible for how they run their business and if they want to share information pre-decisionally they can . . . and things loosened up quite a bit. I can't actually say practice changed . . . but people quit worrying about it. (USFS employee, personal communication, May 23, 2006)

Promotion. The CWPP steering committee established by the city had the task of assembling and editing the necessary documents to “further develop the community aspects of the CWPP document related to wildfire planning, policy, response, and recovery in the inhabited land of the planning area” (City of Ashland 2004a:7). The steering committee was facilitated by a member of the city council and regular participants included the city’s NFP grant coordinator, representatives of the city’s Community Emergency Response Team (CERT), a retired forester, and representatives of environmental interests. One aspect of the steering committee’s responsibility was to formally designate a WUI boundary. Under the provisions of HFRA, a community is allowed to define the WUI boundary to include surrounding areas that contain important resources or infrastructure which the community sees as valuable and requiring protection. An interesting feature of the city’s CWPP is that it did not include the entire watershed in the WUI boundary, even though to have done so would have allowed consistency between the CWPP and the community alternative. The author attended a meeting of the technical committee on June 15, 2004, in which the steering committee had requested input from the technical team defining the WUI boundary. At this meeting, there was a specific proposal from an environmental representative to define the WUI narrowly around the community based solely on geographical features. Others present at the meeting expressed opinions that favored including the entire watershed in the WUI or at least a substantial majority of the watershed based on elevation gradients or changes in

plant communities. The environmental representatives expressed concern at that meeting that including greater portions of the watershed in the WUI would allow the USFS the ability under HFRA to conduct expedited environmental reviews of projects proposed in the watershed thus limiting the rights for public input and appeal. Although the technical committee failed to reach agreement at this meeting, the proposal narrowly defining the WUI boundary to include only the lower portions of the watershed immediately adjacent to the community was formally adopted with some modifications and presented in the CWPP with the following justification:

Defining the WUI as allowed under the HFRA was difficult. There was widespread agreement regarding the ecological and community protection aspects of the WUI boundary, but a lack of clarity on the political ramifications of the WUI area. It was impossible for our working group to anticipate all the future implications of our decision on the location of the WUI, not only for this particular project, but also for our continued involvement in future restoration projects. Because the HFRA is a new process and subject to change and interpretation, the community may choose to redefine the WUI boundary should conflicts with community values or opportunities that require a different interpretation of the WUI arise. Recognition of the connectivity between the city, the WUI, and the watershed is paramount. We stress the critical importance of the Ashland Creek Watershed as our municipal water supply and further stress our dedication to collaborative watershed management in perpetuity. Any WUI definition cannot compromise these values. (City of Ashland 2004a:10-11)

Both the steering committee and the technical committee met weekly throughout the summer and up until the October 1, 2004, deadline to accomplish their tasks. An e-mail Listserv was established to facilitate group communication and disseminate information. Any citizen who expressed an interest in the process was included on the Listserv. AFLC meetings were open to the public and a well-attended public hearing was held prior to submitting CWPP. The technical committee also led several field trips to the watershed that were open to the public, although citizen participation was light.



The technical committee was responsible for drafting the community alternative contained in the CWPP and was facilitated by the city's consulting forester. Regular participants in the process included a Nature Conservancy ecologist; a consulting ecologist; a graduate student affiliated with the Klamath Siskiyou Wildlands Center, a local environmental organization; a soil scientist and a fish biologist representing Headwaters, a local environmental organization; the city's fire chief; and several AFLC commissioners, one of whom was a consulting botanist and others who were also employees with land management agencies with specialties including wildlife biology and forest ecology. Two of the participating environmental organizations in the CWPP planning process, Headwaters and Klamath Siskiyou Wildlands Center, were also at the time plaintiffs in an appeal of a USFS decision regarding the Mt Ashland Ski Area expansion (City of Ashland 2004a). According to a local government employee, the USFS had very little presence in the process.

The lion's share of the work really occurred on the public's end and city staff. . . . We had access to their [USFS] specialists which was very helpful to us particularly fish and wildlife. So we were able to glean from them the information we needed to know. The maps that they had prepared and the GIS, we had access to those. So their role was to provide us with data and information and specialists within the disciplines. But as far as the meat grinding process of cranking the thing out, that was wholly in the hands of the community and the Forest Lands Commission. . . . We didn't have permanent staff assigned from the Forest Service. They were there with us to consult with and as needed. But they wanted not to, and this is the politics side of things. . . . The Forest Service is mistrusted by a lot of those environmental groups and we wanted their participation. We had Headwaters at the table, KS Wild [Klamath Siskiyou Wildlands Center], World Wildlife Fund and so there wasn't an overwhelming presence by the Forest Service in those meetings because of that. (Personal communication, May 25, 2006)

However, according to a USFS employee, the agency felt that since it was a community alternative it was appropriate to keep USFS participation at a minimum.

As it developed they kept wanting me to come into their process . . . but [we] . . . really created a definite line, this is the city alternative and you say what you want. We'll help you if you need data to support you and we have it, or we were going to go get it anyway, or we think we're going to need it. We will provide that to you and then we'll receive your alternative when you're finished with it. We'll work it through the NEPA analysis and share that with you and display how that turned out and talk about any changes you want to make. (USFS employee, personal communication, May 23, 2006)

Yet still another interpretation of the lack of USFS participation in the process was agency frustration with what it saw as the community's interference in urgently addressing the fire hazard issues in the watershed.

The CWPP efforts suddenly imposed a whole new time frame because the city was saying hold up, wait a minute, not only do we not like what you are proposing, but we want to propose something else. So instead of saying lets plan together from the very beginning the Forest Service had already independently come up with a solution. And the CWPP was an imposition on the Forest Service's timeline and an imposition on their sense of . . . urgency to move forward. . . . So I understand how there could have been some resistance, or not a lot of enthusiasm, expressed from the Forest Service to participate collaboratively with the community slowing down the ability to respond to this urgent crisis in our backyard. So my perception is that the Forest Service severely limited their participation in the CWPP where they could have . . . invested a lot more time with the locals thinking this through and having the discussion about the environmentalists and local community concerns. (NGO employee, personal communication, May 25, 2006)

Because of the time frame imposed by the USFS, there was considerable pressure to move the process of developing the community alternative forward. Decisions were made based on participation in the process and consensus agreement when critical decision points were reached. This method of decision making was used by the technical team throughout the CWPP process and was problematic for some members of the group.

One of the problems is that none of the environmental group partners in this are funded for this work . . . and that means that I don't make it to every single meeting. So I look at the agenda and make sure that I'm there at the ones that really matter for our issues so that we can be involved in the discussions and try to work through these gnarly issues. But they may come up at the next meeting when it's not on the agenda and I'm not there. Then I come back and discover that the ground is no longer where I thought it was. And yet you can't oblige the group to work with any

other than who is present. So I can't object to things happening in my absence not being run by me. I wasn't there; so it is difficult. (NGO employee, personal communication, May 23, 2006)

Much of the debate surrounding the appropriate courses of management actions to be taken in the community alternative revolved around questions of how much human intervention was necessary to address the risk of fire in the watershed. The environmental interest represented in the process generally held the perspective that "fire has been overworked, they don't feel it is that great of threat" (local government employee, personal communication, June 10, 2004). They tended to advocate for less aggressive approaches to management that minimized commercial timber removal, and mechanical treatments and "were willing to accept relatively large scale, stand replacement fires" (NGO employee, personal communication, May 23, 2006). While others in the group, particularly those with forestry and land management agency backgrounds were "willing to consider active management in a way that far exceeds the comfort levels particularly other interests" (NGO employee, personal communication, May 23, 2006). As a finalized version of the community alternative emerged, an individual representing the interests of city government felt that the process was necessary to gain community support and find common ground between those two often competing management approaches.

There are some compromises that have been made. But we have done that because we considered the alternative to be unacceptable and that alternative is no action. There are some environmental groups that are willing to live with the no action alternative but the government of Ashland was not. So how do you get to the middle, everybody gives up a little bit. . . . You know when it really boiled down to it the issues of divergence were less than the fingers on this hand. Really, the diameter limit, work in the roadless area, there were very, very few. There was so much acquiesce you couldn't believe it. (Local government employee, personal communication, May 25, 2006)

The finalized CWPP, which included the community alternative as a separate chapter, was approved by the Oregon Department of Forestry and Ashland City Council and submitted to the USFS prior to the October 1 deadline (City of Ashland 2004a).

After the plan was finalized and approved, the project moved into the next phase of promotion which included an environmental analysis conducted by the USFS. The changes that occurred during this phase had disruptive effects on city's planning effort. When the alternative was handed over to the USFS, the chairperson of the AFLC disbanded the CWPP technical and steering committees and created a new subcommittee, called the Ashland Forest Resiliency Community Alternative Technical (AFRCAT) committee, to continue to refine the community alternative and work with the USFS in the development of a draft EIS (City of Ashland 2004c.). The AFLC also agreed, as per the USFS request, to formally designate liaisons to answer questions and provide clarification to the USFS regarding the community alternative as it conducted its environmental analysis. These changes, along with the fact that the city had forwarded the approved CWPP directly to the USFS without seeking formal concurrence from Headwaters, prompted a series of e-mails from representatives of environmental organizations concerned that the city and AFLC were attempting to "unilaterally dissolve our collaborative partnership" and "operate independently" of community partners (Deacon-Williams 2004). A well-known environmental activist and critic of the AFLC filed an ethics complaint with the city, alleging that this decision to disband the technical group "brings [in]to question the legality of the entire process of developing this 'community' alternative. There appears to be a core group that is exploiting public process to move forward a selected and predetermined agenda" (Navickas 2004).

Although this situation was resolved in subsequent AFLC meetings when it was clarified that the newly constituted subcommittee would include all members of the former technical team and any other interested parties, it revealed an underlying tension and lack of clarity regarding public participation and the role of outside organizations, particularly environmental groups in the city's decision-making process. The AFLC commission experienced further turmoil starting in January 2005, when the chair of the commission abruptly resigned, citing an inability to work with a city council member recently designated as a liaison to the commission by a newly elected mayor (City of Ashland 2005a.). Turmoil surfaced again in April 2005, when the mayor declined to reappoint to the commission a charter member of the AFLC, who had served 12 years as chair (City of Ashland 2005b.). Additional changes came when the mayor appointed two new members to the commission, one of whom was a real estate agent with a forestry background and the other of whom was an employee with Klamath Siskiyou Wildlands Center (City of Ashland 2005c.).

In June 2005, the USFS issued a draft EIS for the Ashland Forest Resiliency Project subject to a 45-day comment period. The results of the draft EIS indicated that the community alternative had an unexpected "likely to adversely impact" determination for populations of Northern Spotted Owl in the watershed. Through a facilitated process, the AFRCAT committee provided a formal response to the draft EIS approved through AFLC and Ashland City Council in August of 2005. The response provided a detailed critique of the USFS's analysis of the community alternative and stated the city's desire to modify its alternative based on the results of the environmental analysis. The city's response to the draft EIS also included a proposal to amend the MOU between the USFS

and the city to clarify the relationship of the two parties in the implementation and monitoring of the Ashland Forest Resiliency Project (City of Ashland 2005d.). In September 2005 and January 2006, the AFRCAT committee met with wildlife biologists from the USFS and U.S. Fish and Wildlife Service to discuss the draft EIS analysis and habitat models used in determining the impact of the community alternative of Northern Spotted Owl habitat. As the result of these meetings, it was determined that the “likely to adversely affect” determination by USFS was incorrect due to inaccurate use of terminology. At these meetings, USFS and U.S. Fish and Wildlife Service wildlife biologists expressed confidence that although the community alternative would adversely affect Northern Spotted Owl habitat, it would not be likely to have an adverse affect on Northern Spotted Owl populations and could possibly benefit owls in the long term through decreased chance of habitat loss to fire and better foraging conditions in more open forests (City of Ashland 2005d., 2006a). Following these meetings, and after additional investigation suggested that the habitat models used to determine impacts to Northern Spotted Owl populations had limited usefulness in the Ashland Watershed, the city decided not to make any adjustments to the treatment prescriptions contained in the community alternative. In December 2006, over two and a half years after the process had begun, the city sent a letter to the USFS finalizing the community alternative within the CWPP (City of Ashland 2006b.).

Prescription. The key difference contained in the community alternative was the approach and prescriptions for management of federal lands within the municipal watershed. Rather than the DFPZs called for by the USFS, the city’s alternative proposed

the creation of a Fuel Discontinuity Network based upon vegetation types called plant association groups (PAGs). According to the community alternative:

While compartmentalization may be an appropriate conceptual approach for fire hazard reduction in the Ashland Watershed, we believe it should be based to the greatest extent possible on natural landscape and vegetative features rather than artificially engineered linear swaths that pass through a mix of stand conditions and plant associations. This approach would take advantage of the existing heterogeneity in the watershed, and where necessary, create additional discontinuity in fuels (both horizontally and vertically) to establish a fuel discontinuity network (FDN) and thereby reduce landscape-scale fire hazard. Such an approach would achieve variability in fuel density across the landscape while treating the least number of acres necessary in order to address the purpose and need effectively. (City of Ashland 2004a:77)

The final draft of the community alternative contained an impressive delineation of the FDN categorized into 12 levels of priority with detailed treatment prescriptions for the eight different PAGs occurring within the project area. The community alternative also contained extensive protection and mitigation measures for soils, geologically sensitive areas, riparian values, wildlife, retention of snags, and downed woody debris. In addition, the city called for a more detailed inventory of vegetation and soil conditions throughout the watershed and extensive research and project monitoring. The plan stated, in bold with double asterisks, that “it is very important that the Technical Team or other designated representatives of the City of Ashland and the community be involved during the verification process to ensure that the intent of these prescriptions are faithfully implemented on the ground” (City of Ashland 2004a:61).

The prescriptions for the watershed represented a scientifically credible approach to mitigating the risk of wildfire in the Ashland Watershed. At the time that it was approved by the city council in late September 2004, it was successful in presenting the consensus recommendations agreed to by nearly all of the participants in the planning

process, including those representing environmental interests. However, in the extended time gap that has followed completion of the community alternative, the social fabric that bound the plan together began to fray.

In a lot of the technical discussions that we had amongst the AFRCATs, we managed to as a group of scientists come to some pretty good agreement. Some of these are pretty tough issues and very controversial and we managed to work them out. But I feel like you can never really count on an agreement because the forest lands commission or the city may come back for another bite. You may have to further negotiate and compromise but none of the other partners can come back for another bite. So we're forever chipping it away and almost every meeting I walk away wondering whether or not it is still has enough good in it to stay. (NGO employee, personal communication, May 23, 2006)

Yet other participants in the process felt that it wasn't the city or the AFLC that was hedging away from the agreements reached in the community alternative.

... I believe that the community alternative may not really get or have the backing and level of support and agreement that it will really need for the environmental community to not slow it down and in further ways constrain implementation to less of the landscape. . . . My perception of the environmental groups is that they have become very astute at using NEPA process and social process; they are really good at using those tools as a means to get to their ends. What I would describe as playing the process card. So if they don't like the outcome then they are able to very astutely point out errors in process or at least the perception . . . of errors in process and take more time and go through the process again and have another shot at influencing the outcome. (NGO employee, personal communication, May 23, 2006)

Still another perspective on the fragile community compromise came from the USFS:

[W]hen a ranger brings a recommendation to the forest supervisor it is pretty much a done deal. But it seems like when the Forest Commission brings a recommendation to the City Council it is open for complete rediscovery. I think that is where...[they] were feeling like they really couldn't stand up and really be positional about any one particular item because it really was open to council debate and reopening of the whole discussion. (USFS employee, personal communication, May 23, 2006)

Clearly the delays, of now almost three years, in moving forward with a plan to address what some people in the community viewed as a crisis in the watershed has had serious



consequences on the social relationship for participants in the process. “Socially, that is a big gap. Socially, you want to go through the process and when you have a community engaged you want to be able to act upon that engagement. This has been a fairly long period of time here that this has gone on to capitalize on the social investment” (local government representative, personal communication, May 25, 2006).

Invocation and application. When members of the Forest Commission and representatives of the community alternative subcommittee presented a finalized draft of the CWPP to the Ashland City Council, a representative of Headwaters was there to speak in favor of the plan. Even though the CWPP was presented as “working document,” subject to revision as the result of ongoing community discussion and consultation with the USFS, the city council voted unanimously to approve the plan in concept and it was submitted to the USFS prior to the October 1, 2004, deadline (City of Ashland 2004a). The plan was also approved by the Oregon Department of Forestry (ODF), although there was no ODF representation in the decision process. Therefore, with approval by the three required authorities, the local government, the local fire department, and the state forestry agency, the plan is essentially in effect. Yet, the plan for the most part remains stuck in the previous stages of the decision process for three primary reasons. First, the USFS has the responsibility for analysis of the community alternative under the requirements of NEPA and selection of the management action for the watershed. In January 2006, a ruling in a lawsuit filed in U.S. District Court in Seattle overturned the Bush administration’s revisions of the survey and management guidelines established under the 1994 Northwest Forest Plan (Fattig 2006). As a result, the USFS was required to redo surveys for mollusks and red tree voles in the watershed. According

to a February 2006 estimate by the USFS Ashland District Ranger, the additional survey work is estimated to cost approximately \$250,000 and could result in the final EIS being unavailable for public review until spring 2007 (Duffy 2006). This will feed new intelligence into the planning process and may or may not require changes be made to the plan. Second, the city has provided continued funding for a CWPP coordinator within the fire department, with responsibility for implementing and updating the plan and overseeing NFP grant funding. In Oregon, the ODF has adopted the policy of developing CWPPs based upon the jurisdiction boundaries of the counties. Individual community CWPPs are then nested within and are ideally consistent with the countywide CWPP (Oregon Department of Forestry 2004). Jackson County, in which the City of Ashland is located, began its CWPP process in January 2005 and the plan was finalized in July 2006. The Jackson County WUI boundaries conflict with the City of Ashland WUI boundaries, and the City of Ashland was reticent to adjust its WUI boundaries to accommodate the county plan (Jackson County Oregon 2006). Rather than redraw the Ashland WUI, the county plan designated a different WUI boundary based upon the needs of adjacent communities. Although the county WUI line appears to not have included the Ashland watershed, it does include lands adjacent to the watershed which were deliberately excluded from the Ashland WUI.

It is important to understand that the Ashland CWPP was only for Ashland; surrounding communities at-risk that border the watershed (upper Wagner Creek and upper Neil Creek) may border part of the Ashland watershed not designated as WUI, but are still included by the larger [Jackson County] WUI designation. The risk committee agreed that adjacent communities should have an equal chance for funding if using the [Jackson County] WUI in their justifications for grant funding. (Jackson County Oregon 2006:62)

This discrepancy between the city and county plans could serve as a stimulus for a potential conflict that may have implications for future management actions proposed in those areas where the WUI boundary is disputed. Third, the city's intensive focus on developing a management alternative for the Ashland watershed may result in other actions to mitigate the wildfire risk within its own jurisdiction being neglected. With the notable exception of developing and implementing a wildfire evacuation plan (figure 8), and a new ordinance addressing residential landscaping for new construction, the city's CWPP lacked substantive new measures for wildfire mitigation within the city or surrounding interface.



Figure 8. Sign identifying wildfire evacuation route in the Ashland WUI. (Photo by author)

Examples of measures other communities have taken that are potentially transferable to Ashland include developing revenue sources for fuel abatement programs beyond grant funding from the NFP; strengthening codes for wildfire abatement in the interface; economic development measures to increase by-product utilization; neighborhood fuel

reduction programs; and developing a prescribed burning program within the fire department.

Appraisal and termination. Since the analysis of the Ashland Forest Resiliency Project has not yet been completed, there have not been any specific agreements for implementation and monitoring of the eventual plan. The community alternative contained a fairly extensive monitoring proposal as an appendix, and the city has continued to press for a revision of the MOU between the USFS and the city to provide a specific framework for cooperation in the implementation and monitoring of the Ashland Forest Resiliency Project (City of Ashland 2006c.). However, the outcome of this effort remains unclear. According to city representatives, the USFS considers such questions to be “out of scope” of the current planning effort and has resisted discussion about developing a specific framework for future collaboration with the city in project implementation and monitoring (local government employee, personal communication, May 25, 2006).

### **Social Process Analysis**

Through an open and inclusive planning process, the city attempted to engage and encourage participation of a broad cross-section of the community. However, the planning process was significantly influenced by the presence of organized environmental interests, the absence of representation from other levels of government, particularly the USFS, and a bias toward scientific and technical expertise. “A lot of times I think its fair to say it got a little fuzzy as to whether individuals were representing themselves or the agendas of their organizations” (local government representative, personal communication, May 25, 2006). Although Ashland has a substantial

environmental and scientific constituency, other interests in the community were decidedly underrepresented.

Our whole effort did not . . . adequately reach out to the “community.” We had a lot of members of our effort describing themselves as the community. But we really didn’t have more of the, well even business leaders, recognized leaders from the community involved really until the tail end. . . . [W]e didn’t do enough to reach out and spark the interest of the broader community and to help have an expression of the community that is more reflective of who is really out there and how they perceive the situation. . . . (NGO employee, personal communication, May 23, 2006)

While the emphasis on scientific and technical expertise promoted interdisciplinary interaction and contributed to development of an innovative and scientifically credible plan, it may also have contributed to lack of participation and accessibility of the process to lay persons and citizens. There was also evidence of power issues and skirmishes over disciplinary turf.

. . . I think there were some problems with our liaisons in terms of technical communication. In their areas of expertise, the communication on the technical stuff went very well because they could hold the conversations. But in other areas they were less competent to hold the technical conversations. There were similar problems with administrative processes where they didn’t have either the technical knowledge of the planning process or the experience working with those planning processes. (NGO employee, personal communication, May 23, 2006)

The working relationships and interactions among participants in the process were also influenced, at least to some degree, by a history of adversarial interaction and mistrust, particularly between environmental organizations in the community and the USFS—not least of which is the ongoing and poisonous litigation over the Mt. Ashland Ski Area expansion, in which the city, as the leaseholder of the ski area, is a third party to the dispute. The presence of organized environmental interests complicated the city’s planning process, because its attendance was sometimes intermittent or strategic.

They wouldn’t show up to a meeting because they didn’t like the direction the group was taking on a particular topic . . . that is so frustrating because what do you

do then? You have to have them there in order to adjudicate your way through those differences but if they just don't show up, what does that mean? (Local government employee, personal communication, May 25, 2006)

Participation in the community planning process was seen by organized environmental interests as necessary to achieve organizational objectives of restraining USFS actions in the watershed. This was particularly evident in the proposal and later adoption of a narrowly defined WUI. The participating environmental interests also held the perspective that the consequences of management are a potentially greater threat to watershed and well-being of the community than fire. Reframing the crisis as one of needing to constrain overzealous management appeals to its constituency but makes substantive compromises to solve the real problem wildfire poses difficult.

The lack of a USFS presence in the planning process and limiting interacting to designated liaisons also reduced the effectiveness of the process in clarifying and securing the common interest. Although the relationship between the USFS and the community can be reasonably characterized as consultative, it was not collaborative.

There is a disadvantage of not having the Forest Service more integrally involved all through the process. They kind of said okay, we're going to give you the city, the opportunity develop your alternative and we're just going to step out of the way. That's not collaboration. The idea then is to come back together and compare the alternatives. We give them the alternative, but the Forest Service is comparing them; still not really collaboration. So all through this . . . we are participating on the same project, you do your part and we do our part, and then at some point after all of this we're going to collaborate. (Local government representative, personal communication, May 25, 2006)

Because the USFS did not participate in the process, there was not an opportunity to develop the personal relationships and trust that help break down stereotypes and barriers between agency employees and community members. Also, in the absence of USFS participation, it is likely that the community alternative failed to take into consideration

agency concerns and issues (e.g., funding, personnel, legal requirements), which may lead to unrealistic community expectations or lack of agency support and backlash. The “hurry up and wait” atmosphere imposed, first by the initial USFS deadlines and later by the court ruling invalidating the “survey and manage” guidelines, also caused frustration among many participants. The planning process also suffered from the curious absence of representatives from county or state government. Its presence in the process would have facilitated integration of the city’s plan into the larger CWPP planning framework occurring at the county and state levels. As it stands now, the conflicting city and county WUI definitions set up a potential future conflict that may have implications for projects proposed in those contested areas.

Overall, the City of Ashland CWPP social process can be characterized as fragmented and contentious with substantial separation between USFS, environmental, and community interests. Still, despite all of the challenges and barriers listed above, in October 2004, the approved Ashland CWPP and community alternative did represent a social two-steps-forward toward a working proposal to address the threat of wildfire in the community. The delays surrounding development and implementation of the plan are the proverbial one-step-back as commitments to the original plan are reconsidered and actors and circumstances change. However, given the history of environmental conflict in the community, it is reasonable to speculate that, had the game been left to the usual players, a zero-sum contest between environmental interests and the USFS would have been the likely outcome. Therefore, the opportunity under HFRA for the city to intercede and attempt to assert some control over the fate of its municipal watershed through a

negotiated compromise represents progress towards, but not achievement of, the community's common interest.

## **Greater Flagstaff Community Wildfire Protection Plan**

### **The Physical Environment**

The City of Flagstaff is located at the base of the San Francisco Peaks on the southwestern edge of the Colorado Plateau in north central Arizona. This region is located in the midst of the largest contiguous ponderosa pine (*Pinus ponderosa*) ecosystem in the world. The San Francisco Peaks, just outside Flagstaff, contain a variety of forest types varying from ponderosa pine at their base of about 7,000 feet, mixing with Douglas-fir (*Pseudotsuga menziesii*), aspen, and other species as the elevation rises (Swetnam and Betancourt 1990). Much of the southern portion of the Colorado Plateau is considered arid or semi-arid with annual precipitation amounts in some areas of less than 10 inches. However, because of the altitude, the Flagstaff area has a very diverse climate with moderate summers and occasionally severe winters. Average annual snowfall is more than 100 inches, and the average annual rainfall is 22 inches. Summer temperatures are moderate with high temperatures averaging around 80°F. Fire activity usually begins in the spring and peaks in late-June or early-July, then declines rapidly with the onset of the summer monsoonal rainy season (Swetnam and Betancourt 1990).

Numerous fire history studies have shown that fire occurred often in southwestern forests in the centuries preceding Euro-American settlement in the 1870s. Whether set by lightning or by Native Americans, these fires burned through the forest as frequently as every few years. Because fire was so common, fuels did not accumulate. The forest remained open, with a grassy understory that fed frequent fires (Moir 2002). However,



since the late-1880s, the combined effects of extensive grazing, logging, and fire suppression on southwestern ponderosa pine and mixed-conifer forests have been profound, including a shift to forests characterized by dense stands of suppressed young pines and a substantial accumulation of litter on the forest floor (figure 9).

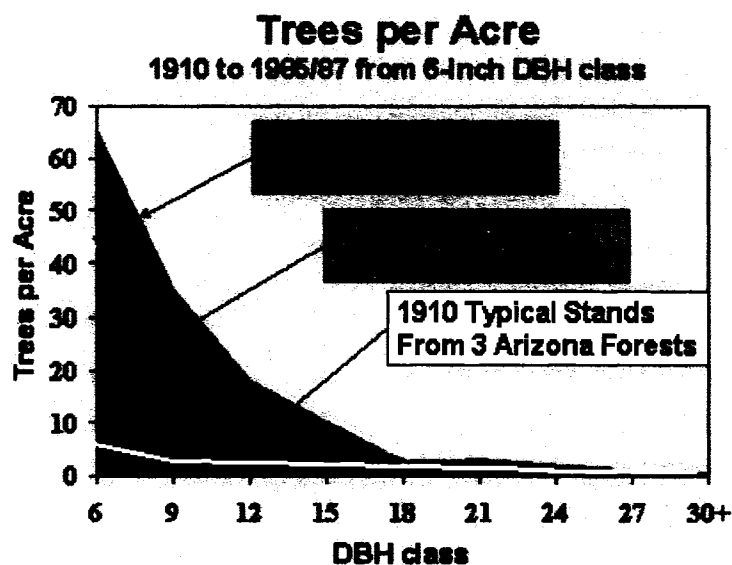


Figure 9. Total tree densities in southwest forests now often exceed 1,000 trees per acre and the majority of the trees are young, 50 to 100 year old, with diameters of three to six inches DBH (diameter breast height).  
 (Source: <http://forestfire.nau.edu/densities.html>)

The combined effects of fire suppression and periodic drought have increased stand moisture stress, making trees vulnerable to attacks by bark beetles escalating tree mortality and contributing to the build up of fuels. Subsequently, the fire regime in these forests has changed from frequent low- to moderate-intensity surface fires to large, infrequent, stand-replacing crown fires (Grahame and Sisk 2002).

## **The Social Context**

The planning area included in the Greater Flagstaff CWPP (GFCWPP) includes portions of Coconino and Yavapai Counties, the two cities of Flagstaff and Sedona, and the unincorporated communities of Munds Park, Mormon Lake, Parks, Bellemont, Cosnino, and Winona. Estimated at approximately 1,465 square miles, the plan covers a region extending from the San Francisco Peaks in the north to an area below the Mogollon Rim in the south. The plan also covers more than 80 percent of the Coconino National Forest and 3 percent the Kaibab National Forest. It also include includes several national monuments in the Flagstaff area, with state and private ownership comprising approximately 15 percent of the area (figure 10) (GFFP 2005).

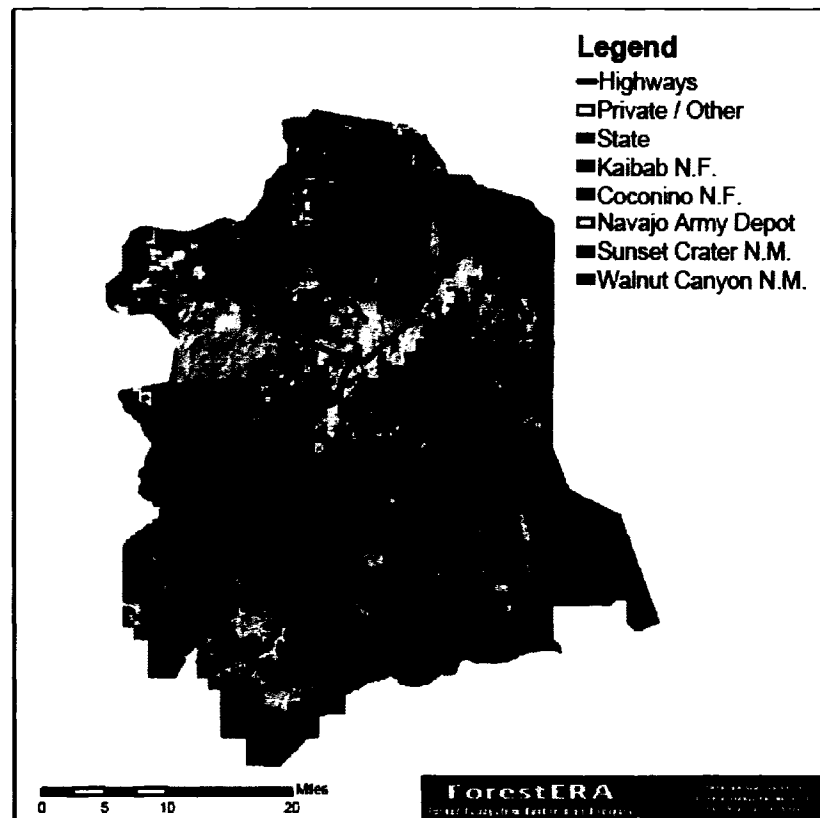


Figure 10. Analysis area and landownership included in the Greater Flagstaff CWPP. The City of Flagstaff is located in the top area of the map where the highways converge. (GFFP 2005)

The town of Flagstaff was first established based on an economy of timber and ranching but quickly became important as major transportation corridor. In the mid-1880s, Flagstaff was the largest city on the main railroad line between Albuquerque, New Mexico, and the west coast. Then, in the 1920s, Highway 66 was constructed and the city attracted tourists due to its proximity to the Grand Canyon and numerous other attractions. Today the city has a population of more than 61,000 residents and is a tourist destination in its own right. The Flagstaff area, as the location of Northern Arizona University (NAU) and the world-famous Lowell Observatory, attracts seasonal residents and tourists throughout the year (Coconino County 2006).

### **History of Addressing Wildfire Risk**

The Ponderosa Fire Advisory Council (PFAC) was formed in 1989 as a consortium of local fire agencies within the greater Flagstaff area, including the National Parks Service (NPS), USFS, Arizona State Lands Department, Coconino Emergency Services, and municipal and rural fire districts. The mission of this group was to improve communication and coordination among agencies and to take advantage of joint funding and training opportunities. Then, in 1996, two large fires, one of which was the largest fire on record at in the Coconino National Forest, burned in close proximity to the town. These large fire events focused public attention on the wildfire threat and created awareness in the community of the need to take action. That same year, the Grand Canyon Forests Partnership began as a collaborative effort organized by the Grand Canyon Trust to restore the forest in the region (GFFP 2005). At the same time the City of Flagstaff established a Fuel Management Division within the Flagstaff Fire Department and, in 1997, hired a manager to begin an active public education and fuel

reduction program (Steelman and Kunkel 2003). In 2000, Grand Canyon Forests Partnership joined with the PFAC to draft a wildfire risk assessment for the Flagstaff area based on a 0.5- to 1-mile set distance from the community (GFFP 2005). In 2002, members of the original Grand Canyon Forests Partnership formed an independent nonprofit organization, called the Greater Flagstaff Forests Partnership (GFFP), in order to focus specifically on the Flagstaff area. The GFFP is an alliance of 24 academic, environmental, business, and governmental organizations with the mission of developing new approaches to restoring the fire-adapted ecosystems in the Flagstaff area. The partners in the GFFP include Arizona Department of Game and Fish, Arizona State Lands Department, Coconino County, the City of Flagstaff, NAU, Grand Canyon Trust, the Nature Conservancy, and the U.S. Fish and Wildlife service, among others. The GFFP has established MOUs with the USFS Coconino National Forest and USDA/USFS Research Stations (GFFP 2006a).

Together these three organizations and agencies, the PFAC, the Flagstaff Fire Department's Fuels Management Division, and the GFFP, along with the USFS have taken the lead in addressing the wildfire risk in the Flagstaff area. Since its establishment in 1996, the Fuels Management Division of the Flagstaff Fire Department has built an impressive record of addressing fire risk within the municipal boundaries.

All of these things came together at the right moment and it generated a need to change. Prior to 1996 in our community mentality was that it was wrong to cut trees and who in their right minds would set fires. Really that was the basis of where we were at. As the fire department now, we set more fires now than we put out. We're one of the few departments in the country that admits that, or will do that. Within the city, we know that by the end of this summer we will have cut in excess of two million trees and we have more work to do than we can do. I mean, there has been a huge paradigm shift within the community. (Local government employee, personal communication, June 26, 2006)

Through a combination of municipal codes and planning ordinances, educational and outreach efforts, home and landowner assistance programs, and a full-time seasonal crew conducting fuel reduction and prescribed burning projects, the Flagstaff Fire Department has aggressively mitigated the wildfire risk in and around the city. In 1996 through 1998, the city adopted ordinances requiring limited combustible roofing, sufficient water requirements for fire protection, and incorporation of Firewise construction elements into the planning and development process, including limited combustible siding, closed eaves and soffits, wire mesh screen over all venting, and thinning requirements for the property (Steelman and Kunkel 2003). Prior to the development of the NFP, the fire department managed to pool more than \$900,000 of funding from a variety of sources, including the Arizona State Land Department, the USFS, NAU, WalMart, and State Farm Insurance, as well as an ongoing budget from the city to carry out its activities (Steelman and Kunkel 2003). After the NFP was established in 2001, the city was very successful in obtaining grant funding and, by 2002, along with other entities in the Flagstaff area, had already received more than \$1,112,000 in federal funding under the NFP (Steelman and Kunkel 2003). By the time HFRA was passed in December of 2003, the Flagstaff Fire Department had already become a model for other at-risk communities throughout the West. Its accomplishments included writing 7,500 forest stewardship and prescribed burning plans, thinning in excess of 4,800 acres, and prescribed burning on more than 3,000 acres in the interface (Flagstaff Fire Department 2006).

Based upon the 2000 wildfire risk and fire hazard assessment written by PFAC and the then Grand Canyon Forest Partnership, the GFFP began working with the USFS

to analyze 100,000 acres of WUI around Flagstaff, in 10,000-acre blocks, in order to conduct forest restoration and fuel reduction projects. This planning effort led to the development of multiple large-scale projects, including the Fort Valley Ecosystem Restoration, Research, and Demonstration Sites and the Mountaineer, Airport, Arboretum, Elden, Kachina Village, and Woody Ridge projects. By the end of 2003, these projects together represented environmental analyses covering more than 40,000 acres. The USFS proposed to use stewardship contracts to conduct restoration and fuel reduction treatments, including thinning and prescribed burning on approximately 24,000 acres of the analyzed area (Steelman and Kunkel 2003). However, some of the proposed projects were controversial and were appealed and litigated. The Fort Valley Project was appealed three times and eventually litigated by regional environmental organizations. These organizations opposed the removal of commercial timber and the use of a “pre-settlement” restoration model, developed by Wally Covington at NAU, which attempts to restore forests conditions prior to the arrival of European immigrants (Covington and Moore 1994; Steelman and Kunkel 2003). Other projects were slow to be implemented for a variety of budgetary and contractual reasons. However, by the end of 2003 the USFS estimated that in GFFP projects more than 2,800 acres had been thinned, and prescribed burning had been conducted on more than 1,500 acres in the greater Flagstaff area (Steelman and Kunkel 2003). The USFS was also involved in other fuel reduction projects around Flagstaff initiated without GFFP involvement. By 2003, approximately 2,000 additional acres had been thinned in USFS projects and more than 1,000 acres had been burned through a combination of broadcast and pile burning (Steelman and Kunkel 2003).

The GFFP had also taken a very active role in addressing issues of public education and landowner assistance, as well as economic development, through small-diameter material and biomass utilization. The GFFP conducted numerous market analyses and feasibility reports investigating various biomass and small-diameter utilization strategies for the region. It has also created an Enterprise Development Fund in partnership with NAU. Prior to the completion of the CWPP in January 2005, the GFFP had awarded grants totaling approximately \$245,000 to local businesses to purchase equipment and expand business operations for forest by-product utilization and marketing. In 2004, the GFFP created a 50/50 cost share program to assist private landowners with hazardous fuel reduction on their property and the partnership routinely engages in public education and outreach programs (GFFP 2005).

While the accomplishments in the Flagstaff area have been significant, an additional important consideration in the history of addressing wildfire risk is the efficacy of the social interactions and working relationship of the groups and individuals working to address the problem. Based upon previous research conducted prior to the GFCWPP on community responses to wildfire threat, Steelman and Kunkel identified the following future social challenges in the Flagstaff area.

There are two great challenges for the Partnership. The greatest external challenge is dealing with the principal agency-the USFS. GFFP has had three different forest supervisors on the Coconino since the Partnership began. Turnover of key leadership and people in the agency makes it difficult to maintain continuity. Personnel can be inflexible to new ideas, and also makes the USFS difficult to work with in some cases. The greatest challenge internally for GFFP is holding the principal collaborators together because they all have various interests. (Stelman and Kunkel 2003)

## **CWPP Decision Process**

**Intelligence.** The GFCWPP was initiated by GFFP in partnership with PFAC in March 2004. These two organizations established an eight-member planning committee with four members each from GFFP and PFAC. Representatives included the Flagstaff Fire Department, a staff member from GFFP, the Nature Conservancy, Grand Canyon Trust, NAU, and the Highlands Fire Department (GFFP 2004a.). This eight-member committee was further broken into subcommittees charged with drafting various sections of the plan. The staff member from GFFP and a representative from the Flagstaff Fire Department were responsible for consolidating the various sections of the plan and were the principle authors of the final document (GFFP 2004b.). The plan was developed and paid for using the staff time of PFAC and GFFP members and was supported in part by several small grants from local community foundations (NGO employee, personal communication, June 26, 2006). The goals that were established by the committee for the GFCWPP were as follows:

To protect Flagstaff and surrounding communities, and associated values and infrastructure, from catastrophic wildfire by means of

- a) An educated and involved public,
- b) Implementation of forest treatment projects designed to reduce wildfire threat and improve long-term forest health, in a progressive and prioritized manner, and
- c) Utilization of Firewise building techniques and principles. (GFFP 2005:1)

The primary data that were used in the development of the GFCWPP came from Forest Ecosystem Restoration Analysis (Forest ERA), a landscape analysis database developed by the Ecological Restoration Institute at NAU.

The data is remote sensing data that has been ground truthed. Essentially we took LANDSAT data, satellite imagery, and we also used digital aerial photos, and



ground truthed those by using predictive models to develop continuous landscape-scale forest structure and composition data sets. Those were then used to develop predictive fire hazard and behavior maps for the area and predictive wildlife habitat characteristics maps and watershed condition maps. . . . It's very scientifically rigorous and it is probably the most rigorous data sets that have been developed. They are the most scientifically rigorous data sets that have been developed at the landscape scale for this area. (NGO employee, personal communication, July 24, 2006)

Using this state-of-the-art data set, the GFCWPP planning committee developed a threat matrix based upon multiple factors including wind direction, fuel modeling, and values at risk to analyze the fire risk and hazard. The committee then developed management objectives to modify fire behavior, such as moving areas that were predicted by the computer model to have a high likelihood for active crown fire to a lower-intensity surface or ground fire.

I think the use of those data sets increased the scientific rigor of the results. In a more interesting way, I think use of the data sets and the techniques for combining the data to devolve priority areas and to develop management actions was really the unique difference . . . there was a certain amount of objectivity that is pulled into the process where the data is allowed to define the priorities versus people's predetermined assumptions about priority areas. . . . I don't think there was any exception to accepting those management actions based on that process. So it was an objective driven, multicriteria decision analysis process that allowed folks in the process to use the data and use the goals to define what kind of action took place on the ground in a very specific way. (NGO employee, personal communication, July 24, 2006)

Using the Forest ERA data set, the planning committee delineated a WUI of approximately 280,000 acres surrounding the greater Flagstaff area and also developed priority areas for treatment based upon predicted changes in fire behavior after treatment. Approximately 80 percent of the land identified as the WUI was under USFS jurisdiction, with 76 percent on the Coconino National Forest. State and private land comprised the other 20 percent. Given the extent of USFS landownership in the WUI, an interesting

feature of the intelligence function in the GFCWPP was that USFS data was not used and USFS personnel were not involved in the committee working with the Forest ERA data.

We really wanted to stay away from the Forest Service information, the databases that they had. We didn't want to be influenced on it in any way. That was really a conscious decision on our part. . . . But we felt being a community-based thing that it made sense to use the science and the academic side of the house over at NAU. I think it has worked out very well. (Local government employee, personal communication, June 26, 2006)

The use of the Forest ERA data proved to be a major sticking point in the planning process when the USFS became more involved in the process after initial drafts of the plan had been produced. The data sets used by the USFS are based primarily upon stand-level data, and USFS fire mangers and specialists were unfamiliar and skeptical of the Forest ERA data and modeling protocols. This set up a disagreement between the GFCWPP planning committee and the USFS regarding the accuracy and validity of the GFCWPP based on the use of coarse-scale Forest ERA data versus the stand-level data used by the USFS.

Promotion. Although the initial committee chartered to develop the CWPP was comprised of eight members, the working group conducting the analysis and determining the parameters for defining the WUI and setting treatment priorities was a very small subset of the original committee. The group working with the Forest ERA databases consisted only of representatives from the Flagstaff Fire Department and the GFFP with “minimal involvement from the Nature Conservancy” (NGO employee, personal communication, July 24, 2006). Thus, according to some participants in the planning process, periodic presentations and updates provided to GFFP Board of Directors and Partnership Advisory Board, as

well as the PFAC advisory committee, formed the basis for the collaborative process in the development of the plan.

I think that the primary vehicle for that [collaboration] was the plan was presented to the Greater Flagstaff Forest Partnership for review and comment. The Greater Flagstaff Forest Partnership represents a broad cross section of the stakeholders in the Greater Flagstaff area and everyone within that process had an opportunity to comment on the plan. . . . I would say it was not an active collaborative effort per se. I think there were opportunities given to folks. It was an open process, but there wasn't active solicitation of participation by folks throughout the process. There were some opportunities for folks to comment on the plan as it was developed. But I would say in terms of collaborative energy invested, the group . . . sort of decided on the minimal level necessary to get the plan out the door. (NGO employee, personal communication, July 24, 2006)

However, other participants in the process felt that although the GFFP and PFAC did provide the collaborative foundation, substantial effort was put into getting feedback and participation from outside the GFFP and PFAC.

So we really looked at the two collaborative groups that were developing this as the foundation from which we would then try and pull in other community representation. So, I think that we [GFFP and PFAC] . . . represented 70 to 80 percent through these groups. We represented 100 percent of the people that have to deal with fire and we represented probably 50 to 60 percent of the people that would have an interest in it for some reason or another. . . . [W]e vetted it through anybody who would look, or listen, or talk about it, or pull it off the web page. It was on the web page and revised; there were probably four different versions that were on the web page over the months. Then we did a lot of the outreach. We carried it to each of the entities that had to sign it, things like that. I'd say it was 70 to 80 percent representative. It was 100 percent representative of what needed to be addressed and 70 to 80 percent of the views of how it should be addressed. . . . (NGO employee, personal communication, June 26, 2006)

The GFCWPP planning committee held several public meetings to gain public support and input into the plan. According to one participant, these meetings were well attended and included representatives from environmental organizations in the area. The group also presented the plan to the County Board of Supervisors and the Flagstaff City

Council. Frequent updates regarding the status of the plan were e-mailed to all city and county employees (local government employee, personal communication, June 26, 2006).

Yet despite being a member of PFAC, a partner in the GFFP, and having a designated liaison that attended GFFP meetings, the USFS was not involved in the GFCWPP planning effort until the initial drafts of the plan had already been produced. And, in an ironic inversion of the typical USFS-community hierarchy, many of the USFS specialists were given their first opportunity to comment on the plan during a public meeting.

They were invited to a lot of meetings and had representation at just about every meeting that we had. I would go so far to say they had representation at every meeting that we had. What was really the issue that came up as the plan got developed was that not the right people were at the meeting to address the specific issues that needed to be more thoroughly discussed early in the process. For example, when they knew we were using the Forest ERA fire predictive model, their fire people didn't come out early to say let's talk about this and sort through some things. What happened was they came in late when we had maps, draft maps that showed predicted fire behavior, that didn't take into account their fire behavior information. . . . So they then realized that we were going to develop specific proposals for specific parts the land where they were developing projects based on our fire information instead of theirs. So, at our second public meeting they were out in force. There were probably 15 silviculturalists and fire managers and things like that at that meeting and we got down to brass tacks about looking at specific places. (NGO employee, personal communication, June 26, 2006)

According to all participants in this research, the USFS reaction to the plan was less than enthusiastic. According to one USFS employee,

I think it was hard for the Forest Service because the plan was so large and detailed. There was a lot of uncertainty about how this was going to affect a lot of the planning we had already done. . . . There were differences in the data that was used and how the partnership defined the WUI. . . . I think a lot of people felt that this was another layer of planning that wasn't really necessary because we had already done a lot of work on projects and now this was just one more thing. Then I think there were some process concerns. . . . The Forest Service is such a big stakeholder in the process and I think it would have been better to have been involved very early in the process. To me collaboration means that you start with everybody there. But to others it's more about public participation and allowing people to comment.

But it's a community document and a community process and I think that it was hard for the Forest Service. (USFS employee, personal communication, June 26, 2006)

According to another participant in the planning process,

Depending on who you talk to and their perspective, I think you would get anything from the Forest Service was; I don't think you would get many folks saying the Forest Service was very excited about that process. I think you would get some folks saying the Forest Service was neutral and some folks saying the Forest Service was somewhat passive aggressive about the development of the CWPP. Partly because it was taking the decision making prerogative out of their hands and putting it in other folks hands. (NGO employee, personal communication, July 24, 2006)

Members of the GFCWPP planning committee later held several meetings with USFS specialists and attempted to address agency concerns regarding the plan and particularly about the discrepancies between Forest ERA and USFS data.

The Forest Service was really new to HFRA and it had not filtered down from D.C. through the region down to the Forest as to how they were supposed to deal with these CWPPs. . . . So they were kind of stepping back and saying that we, through NEPA and probably FACA, shouldn't be involved with you guys developing a plan that we may have to do something with down the road. So there was this kind of administrative hesitancy on their part. I think when they got involved to the degree they needed to, things worked fine. There was still what I would call a technical difference about the reliability of models using satellite remote sensed imagery. . . . [I]t came down to fairly traditional fire managers not trusting technology. They didn't have exposure to it. (NGO employee, personal communication, June 26, 2006)

The USFS also provided written comments on the plan when it was in its final stages and posted it on the GFFP Web site for a formal 45-day public comment period.

So when we got through all of the process we actually then had a formal 45-day public comment period at the end that was announced. . . . We then sat down, and went through the plan and addressed every one of those issues that were submitted to us. Which were very few and we didn't expect to have many . . . but we had quite a few from the Forest Service, formal comments. It put them in a different role, they were making formal comments to us on it and we addressed them all. I think we actually incorporated in excess of 80 to 85 percent of all of the comments we received, revisions in the plan. The ones we didn't incorporate into the plan we felt

either had adequately been covered elsewhere and we explained that to them. (Local government employee, personal communication, June 26, 2006)

Prescription. The disagreement over the accuracy of the Forest ERA and lack of stand-level data was reflected in the prescriptions that followed in the GFCWPP. The section titled “Community Mitigation Plan” contains the following preface:

This plan provides recommendations for successful outcomes, and not prescriptive options for treatment of ponderosa pine forests. The following discussion is intended to serve as a general guide and framework within which specific prescriptions should be developed. Modification of these concepts, by the JHA [Jurisdiction Having Authority] based upon specific conditions and objectives for that specific parcel, existing land management plans, legal requirements, and other standards, will be required and is encouraged. (GFFP 2005:31)

The community mitigation plan section provided detailed treatment guidelines for fuel hazard reduction, including establishing desired future conditions, tree selection, cutting techniques, by-product utilization, slash treatment, pile burning, and broadcast burning.

In the following section of the plan, titled “Implementation and Monitoring,” a subsection titled “Community Mitigation Treatments” is also similarly prefaced.

In this section, we have also chosen to present Treatment-Types utilizing the “coarse filter” approach and vocabulary available with Forest ERA data: We recognize that site-specific planning will need to occur prior to implementation of any treatment, and that the application of tree cutting, prescribed fire, etc, may differ somewhat from that described herein and must reflect silviculturally accurate methodology and terminology. (GFFP 2005:45)

This section describes three generalized treatment types of low-, medium-, and high-intensity thinning and two generalized categories of light and heavy burning. The insertion of the generalized treatment types and the language making the prescriptions in the plan less prescriptive was an attempt to accommodate USFS concerns regarding the use of Forest ERA data versus the stand-based data used by the agency.

We put a lot of—what do I want to call it—I want to call it “waffle” language but that’s what it is. We put language in here that says these are descriptive things

rather than prescriptive. They are side boards within which a prescription can be developed . . . and are remotely sensed and therefore subject to on-the-ground verification and quantification. . . . All of our prescribed treatments are fairly general. . . . High-intensity treatment followed by burning; medium-intensity treatment followed by burning; low-intensity treatment followed by burning; burn only to thin. . . . So, I think that once we got to the point where they didn't feel that we were telling them exactly what to do on every piece of land, they felt a lot better. (NGO employee, personal communication, June 26, 2006)

According to one participant the identification of treatment area priorities for was also a place in the document where the language was modified in order to reach a compromise with the USFS. Compared to other plans, the GFCWPP recommendations for priority treatment areas were especially vague.

The priority area for implementation of appropriate vegetative treatments is the entire Wildland Urban Interface zone . . . within the WUI priority zone, emphasis should be placed on treating areas of predicted active crown fire behavior adjacent to communities or infrastructure. In addition, anywhere surface fire behavior is predicted, these areas can be treated more quickly and at much lower cost with prescribed fire and may also be emphasized. (GFFP 2005:45)

Beyond treatment guidelines, the Community Mitigation Plan included a delineation of 18 additional action items to further mitigate the risk of fire in the greater Flagstaff area. Some of these items included surveying, mapping, and prioritizing neighborhoods for fuel reduction; establishing a regional fuels crew; increased public education strategies; creating additional funding sources; standardizing neighborhood assessment formats; code adoption and enforcement; improving statewide mapping capabilities and coordination with adjacent jurisdictions; and increasing utilization and wood distribution networks. Some members of the planning process felt that the identified actions items were the most valuable part of the plan.

Because we had been engaged in doing this work since '97, it didn't really launch any new efforts. One of the aspects of the plan it did focus on was a section in there that talks about improving community capabilities. . . . We utilized that to identify about [18] different items that we needed to do that we weren't doing now. So we

used that portion of it as an action plan because we're already doing a lot of the work. We're doing the thinning. We're doing the burning. We're doing the outreach. So we're doing a lot of those things already. But we used those items to identify what we need to do better. We have used that as a somewhat of a loose direction to give us annual work plans and we've accomplished some of those things. (Local government employee, personal communication, June 26, 2006)

Invocation. The GFCWPP was finalized in October 2004, seven months after the planning process began. The plan was approved by the mayor of Flagstaff, the chair of the Coconino County Board of Supervisors, the chair of PFAC, and the Arizona state forester. Concurrence signatures were provided by the chair of the GFFP, the supervisor of the Coconino National Forest, and the superintendent of the Flagstaff Area National Monuments. As new projects are proposed, the USFS has included in project plans a section describing how the proposed project addresses the recommendation provided in the GFCWPP.

Application. The City of Flagstaff has implemented several of the community mitigation plan measures identified in the GFCWPP. The city has added a Firewise coordinator to work with neighborhoods to improve fire preparedness and oversee planning and code enforcement. The city has also completed a survey of neighborhoods and produced a neighborhood threat assessment map identifying and prioritizing neighborhood based on fuel hazard and risk. The Flagstaff Fire Department Fuels Management Division is now completely funded within the annual operating budget of the city (local government employee, personal communication, June 26, 2006). The fire department has also continued with its fuels reduction program and, in 2004 and 2005, completed an additional 1,800 forest stewardship and prescribed burning plans, thinned in excess of 1,200 acres, and conducted prescribed burning on more than 1,600 acres (figure 11) (Flagstaff Fire Department 2006).





Figure 11. Flagstaff Fire Department conducting prescribed burning adjacent to homes in the WUI (Photo by Flagstaff Fire Department)

USFS application of the GFCWPP is less clear. The USFS has continued to work with the GFFP in implementing projects that had developed prior to the GFCWPP. There has been tension between the partnership and the USFS relating to implementation of these projects, let alone the CWPP. There has also been discord within the GFFP regarding the actions of the USFS and strategies to improve the collaborative relationships among all of the partners. For example, the June 2006 Board of Directors meeting minutes reported that the U.S. Fish and Wildlife Service and Arizona Department of Game and Fish were considering resigning from the GFFP due to the partnership's lack of influence on USFS implementation of thinning prescriptions in the Woody Ridge project (GFFP 2006b.). In another meeting, a member of the GFFP Board of Directors questioned whether USFS planners knew about the CWPP and how much they were using it. A USFS representative in attendance indicated that the agency was using the CWPP and that it was just a perception that it was not using it (GFFP 2006c.).

I think it has been fairly minimal response to those [CWPP] recommendations on the part of the Forest Service. I think there was a very cursory review about whether those actions were consistent with other actions that the Forest Service defines through its environmental assessments for projects and no quantitative assessments of how they respond or not. I think that the partnership has really has been fraying as a result of folks demanding that it occur. There has been a passive aggressive response to those recommendations in my perspective. (NGO employee, personal communication, July 24, 2006)

The Coconino National Forest leadership decided to eliminate the position of a dedicated liaison to the GFFP as part of a restructuring of its organization.

Although it remains committed to continue participating in GFFP activities, USFS representation will occur through a variety of individuals, depending upon the needs of the partnership and the projects under consideration (USFS employee, personal communication, June 26, 2006). It is a shortcoming in this research that more data were not available regarding USFS perspectives, application, and accomplishments related to GFCWPP. Despite numerous telephone and e-mail attempts to secure interviews with USFS personnel familiar with the GFCWPP, only one individual responded and was willing to participate in this research. However, a review of the Schedule of Proposed Actions available on the Coconino National Forest Web site lists six proposed fuel reduction and planning projects from the period covering April 2005 to December 2006. Together these projects included environmental analyses covering approximately 20,000 acres. Two of these projects, the Eastside and Mountaineer projects, were proposed in conjunction with the GFFP and were developed under the cooperative planning efforts that preceded the CWPP (USDA 2006).

The GFFP has continued to push forward with efforts to promote biomass and small-diameter utilization through its Enterprise Development Fund and

initiatives with other partners in the region including NAU. The GFFP has also continued to conduct public education and outreach programs related to wildfire fuel reduction (figure 12).

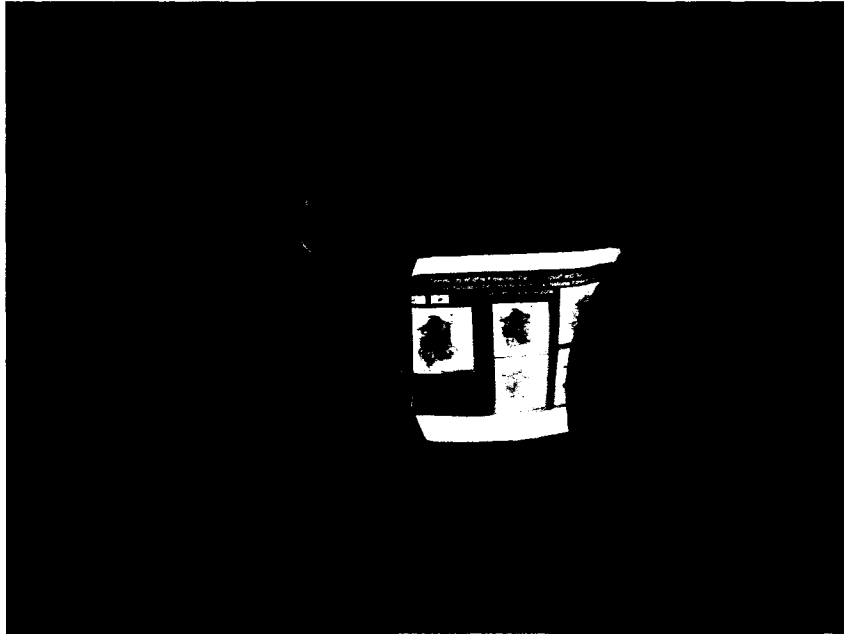


Figure 12. Members of the GFFP conducting a field tour of USFS fuel reduction projects in the Flagstaff area. (Photo by author)

Additionally, the GFFP has provided assistance to private landowners in treating 316 acres using approximately \$80,000 made available through the University of Arizona Cooperative Extension and State Fire Assistance grant (GFFP 2006a). The GFFP has since had extensive consultation with the USFS in an attempt to reconcile the differences between the Forest ERA data used in the CWPP and USFS data that is used in project planning.

We went through a big exercise. We had their fire maps and ERA fire maps and they took them and looked at them and we took them and looked at them. I think we had 84 percent concurrence on what was proposed to happen. And the areas where there wasn't good concurrence were areas that had a lot of what we call pine savannah as opposed to forest. It's maybe four to five trees per acre, big old trees and a lot of grassland. The satellite read that very differently than the guys on the

ground. The guys on the ground would predict higher fire regime condition class problems than the guys on the satellite because they are mainly looking at aerial extent. So we adjusted some things and looked at how this was done. This was done after the CWPP was done. (NGO employee, personal communication, June 26, 2006)

Regardless of the efforts listed above, some participants in this research remained skeptical that, absent a significant infusion of federal funding, local efforts will be unequal to the task.

Personally I don't see much implementation happening unless federal funds come forward to make it happen. It is just not going to happen other than on a small scale basis... I think the whole purpose of the developing a CWPP and the reason all these communities are doing it is because HFRA says that you will get priority when funds are available for these type of treatments. But it doesn't provide the funds. That is a whole driving force behind these CWPPs is to get in line for the funds. Then the Feds don't come up with the funds. So there will be little implementation except for what individual fire districts can do and individuals. (Local government employee, personal communication, June 26, 2006)

Appraisal and termination. The GFCWPP contained an extensive and detailed "Draft Monitoring and Adaptive Management Framework" in an appendix. This monitoring framework was developed by the GFFP prior to the GFCWPP for application across a wide range of projects. The GFCWPP calls for a CWPP review team to be established to include, "at a minimum, representatives from GFFP, PFAC, Forest ERA, the USFS, local government, the environmental community, and citizens at large" (GFFP 2005:50). According to participants in this research, a CWPP has been established; however, perspectives vary about what has been accomplished and the efficacy of monitoring process.

We have a group that is the CWPP review team that includes members that were involved in the development of the plan as well as a Forest Service individual. We meet periodically. I think we've met about every five to six months. We meet all the time in PFAC and we meet in the GFFP so we see each other, but formally as a review team we have met three times I think since we've had this approved. Our real focus there is where are we at in the [18] items that we have identified and are

there any new items we have not identified that we should add to our list? (Local government employee, personal communication, June 26, 2006)

However, another participant in the CWPP planning process was less confident that the monitoring called for in the plan would occur or that the plan would be re-evaluated over time.

As far as I can tell there aren't any formal established mechanisms for ensuring that the CWPP continues to live and is really actively embraced and re-evaluated. There is a CWPP evaluation team that has been convened I believe once and is convened on a regular basis. But really, without some sense that the CWPP is embraced by its actual decision makers the incentives for folks to participate in that re-evaluation process and track that is very much diminished. (NGO employee, personal communication, July 24, 2006)

### **Social Process Analysis**

The GFCWPP planning process was supported by the formalized social network and established long-term relationships with the GFFP, PFAC, and USFS. However, there is evidence of turbulence in the informal working relationships among participants and between organizations. According to one participant, because the GFFP represents so many diverse interests, "we can't agree . . . this is an ongoing thing. We didn't solve anything yesterday. It is one of the same meetings we had last year, year before last, and the year 2000; the same thing, exactly the same arguments with the same organizations" (state agency employee, personal communication, June 29, 2006). The internal discord within the GFFP has implications not only for those formally participating within the partnership but for their colleagues as well, particularly the USFS.

We're in the 10th year of a process of collaborating with the Forest Service about forest restoration issues around Flagstaff. . . . I think it is somewhat predictable that after that amount of time collaborating with the Forest Service there would be some element of collaboration fatigue. . . . But that seems to be what is happening here for a number of reasons; collaboration fatigue by the Forest Service and by a bunch of partners. I think the fact that the economics of the issue don't allow us to really meet our goals substantially is really causing a lot of folks to question what they are

getting out of collaboration. I think a lot of folks feel that it is slowing their process down. . . . I guess it has put us in a position where our overall collaborative capacity is not as high as what it once was and it might be in the future. We are at a low point. (NGO employee, personal communication, July 24, 2006)

This sense of “collaboration fatigue” may explain why a more participatory process was not used in the development of the GFCWPP. Although the GFCWPP planning process was consultative with the GFFP Board of Directors, the Partnership Advisory Board, the PFAC, the public, and eventually the USFS, it was not collaborative in the sense of having broad stakeholder participation in the planning and decision-making process itself. The evidence and data gathered in this research suggest that the GFCWPP was authored by a small subset of individuals from the groups represented in the GFFP and PFAC and that key decisions, such as defining the WUI, were made without substantial input from other interests, primarily the USFS. To be fair, it is not clear the extent to which the USFS had the opportunity and chose not to participate more collaboratively early on in the community process. Some participants felt that “there wasn’t a requirement for them [USFS] to be actively participating and they made it clear that they didn’t really need to or want to” (NGO employee, personal communication, July 24, 2006). What is clear is that the lack of early USFS participation led to future disagreements over the validity of Forest ERA data and modeling protocols. This had implications for the recommendations contained in the GFCWPP—specifically, that the prescriptions and designation of priority treatment areas were less effective than they might have been had the USFS been involved from the beginning. This then gives the community less influence in development of USFS projects and decreases accountability to the community on the part of the USFS.

Another perspective that may have also influenced the decision not to take a more inclusive approach in the development of the GFCWPP was the view that Flagstaff was already taking substantial action to address the wildfire threat and that the CWPP process was largely redundant. According to one participant, “I don’t really think we needed the CWPP. The only reason we did it was to get in line for the funds like everyone else because we are already doing all of these things anyway” (local government employee, personal communication, June 26, 2006). Others in this research reported that a similar perception was also shared by the general public. “Our thoughts when we began this whole process; people are going to be surprised that we don’t have the plan already, because we’ve been doing the work for years with widespread support” (local government employee, personal communication, June 26, 2006). Therefore, the view that furthering collaboration and community mitigation efforts was an ancillary objective to obtaining funding led participants to “. . . get the plan done and to do it well, but to get it done more efficiently or as efficiently as possible. . . .” (NGO employee, personal communication, July 24, 2006). There was widespread public support in the greater Flagstaff area for fuel reduction activities. Several participants in this research pointed to a recent poll that was conducted in Flagstaff indicating that close to 90 percent of residents held a positive view of fuel reduction treatments that have occurred around the area (NGO employee, personal communication, June 26, 2006). However, the primary consequence of emphasizing efficiency in the CWPP planning process was in not capitalizing on the development of plan as a method to improve collaborative relationships with the USFS. As 80 percent of the land in the WUI is under USFS jurisdiction, the ability to substantially mitigate the wildfire threat depends substantially

on their cooperation. There is some irony in the fact that the GFCWPP was developed through the use of specialized knowledge (Forest ERA databases) which the USFS did not have access to, and that there was an emphasis on an efficient and minimally inclusive process. In this way, the planning effort of the community took on the often-criticized characteristics of the processes typically used by its federal neighbors. It may be argued that, given the past history of USFS resistance to collaboration, additional efforts to encourage their participation would have been fruitless. However, the corollary to that argument is that failing to take such effort virtually ensures the same outcome.

Overall, the social process surrounding the GFCWPP is comprised of a community of competing and sometimes fragmented interests. There is general acceptance and support of the CWPP among those individual and groups that created it. However, the plan lacks the support from a key constituent—the USFS. Although the plan may ultimately prove to be useful to furthering some aspects of community fire planning and mitigation, it was not successful in unifying and integrating the common interests of the community.

### **Community Wildfire Protection Plan for At-risk Communities of the Sitgreaves**

#### **National Forest in Apache, Coconino, and Navajo Counties**

##### **The Physical Environment**

The Sitgreaves National Forest is situated along the Mogollon Rim adjacent to the White Mountains in east-central Arizona. The Rim is an escarpment formed by erosion and faulting defining the southwestern edge of the Colorado Plateau. Much of the land below the Mogollon Rim lies 4,000 to 5,000 feet above sea level, with the escarpment rising to approximately 7,000 feet. It is a major floristic and faunal boundary, with



species characteristic of the Rocky Mountains on the top of the plateau and the species of the Mexican Sierra Madre Occidental on the slopes below. Much of the Mogollon Plateau is considered arid or semi-arid with annual precipitation amounts in many areas of less than 10 inches. Considerably more precipitation occurs in the higher areas of the White Mountains, with some areas receiving 20 to 30 inches annually. Forests in this region lead the nation in average number of lightning fires and area burned. Fire activity usually begins in the spring and peaks in late-June or early-July and declines rapidly with the onset of the summer monsoonal rain season (Swetnam and Betancourt 1990).

Historically, the extensive ponderosa pine forests found both on the slopes of the Mogollon Rim and on the plateau above were subjected to low-intensity ground fires as frequently as every 2 to 12 years (Moir 2002). Early settlers described magnificent open stands of mature pines with rich grasses and occasional shrubs beneath. However, since the late-1880s, the effects of extensive grazing, logging, and fire suppression on southwestern ponderosa pine and mixed-conifer forests have been profound, including a shift to forests characterized by dense “dog-hair” thickets of young pines with a substantial accumulation of litter on the forest floor. Also, like many other forested areas throughout the West, the combined effects of fire suppression and periodic drought have increased stand moisture stress making trees vulnerable to attacks by bark beetles increasing tree mortality and contributing to the build up of fuels. Subsequently, the fire regime in these forests has changed from frequent low- to moderate-intensity surface fires to large, infrequent, stand-replacing crown fires (Grahame and Sisk 2002).

## **The Social Context**

The Sitgreaves CWPP (SCWPP) encompasses the communities of Vernon, McNary, Hon Dah, Pinetop-Lakeside, Show Low, Linden, Clay Springs-Pinedale, Aripine, Heber-Overgaard, and Forest Lakes. The communities of McNary and Hon Dah are located on the Fort Apache Indian Reservation with a year-round population of a little more than 350 residents and an influx of recreational visitors during the summer. The remaining communities combined support a year-round population of approximately 17,000 residents and more than 65,000 seasonal residents. The City of Show Low and Town of Pinetop-Lakeside are the only incorporated communities. The 307,583-acre WUI described in the plan includes approximately 71,523 acres of private, county, and state lands; 179,603 acres of federal lands; and 56,457 acres of lands administered by the White Mountain Apache Tribe on the Fort Apache Indian Reservation (Logan Simpson Design 2004a.). Despite slow economic conditions, the numerous amenities of the White Mountain region continue to bring an influx of people, particularly around the communities of Show Low and Pinetop-Lakeside. The number of residential building permits issued in the City of Show Low nearly doubled between 1999 and 2003 (City of Show Low 2003). As these communities have grown, many homes have been built in areas directly adjacent to wildlands and it is common for high-density residential developments to directly abut national forest land (figure 13).



Figure 13. A subdivision adjacent to national forest land in the community of Pinetop-Lakeside. Note the close proximity of houses and trees and the front deck built around a ponderosa pine. (Photo by author)

Many of the communities included in the SCWPP were founded by Mormon settlers in the late-1800s and have historically been heavily dependent upon the natural resources of the region. Following World War II, the harvest of timber on the Sitgreaves, as well as other national forests, began to substantially increase and the region became an important supplier of lumber and pulpwood for the Southwest. At the same time, the population of the Southwest began to expand and this region, with its numerous historic resources, scenery, lakes, and waterways became a popular recreation destination and location for summer homes away from the heat and congestion of the major urban areas. In 1974, the Sitgreaves and Apache National Forests were administratively combined to become the Apache-Sitgreaves National Forest (Baker et al. 1988). In the 1980s and early-1990s, growing environmental awareness and increasing conflicts of land use allocations and management practices brought significant changes to the traditional

cultural and economic base of the region. In 1995, a lawsuit filed on behalf of the endangered Mexican Spotted Owl by a regional environmental organization resulted in a federal court injunction blocking all logging in the national forests of the Southwest for 16 months before critical habitat for the species was designated. The uncertainty surrounding future federal timber harvests resulting from the 1995 injunction was a contributing factor in the decision by Abitibi Consolidated, owner of a local pulp mill, to convert its plant to process recycled materials instead of raw logs harvested primarily from the surrounding national forests. This decision effectively eliminated the market for small-diameter wood and impacted several other local sawmills, including several owned by the same company. By 1996, the income from lumber and wood product manufacturing in Apache and Navajo Counties had declined to less than half of the levels achieved during the peak in 1989 (Lenhart 2006).

### **History of Addressing Wildfire Risk**

Like many natural-resource-dependent communities, the mid-1990s was a tumultuous time for the communities of the Sitgreaves National Forest. With a moratorium on timber harvests due to the Mexican Spotted Owl and changes in livestock grazing management practices on federal lands, mills were closing, workers were leaving, and there was a strong sense of antagonism and polarization between environmental, industry, and governmental interests. In 1996, the Cottonwood fire burned 1,400 acres near Pinedale, and, although it was relatively small compared to subsequent fires, it was a significant event for many people in the region. Later that year, a group of agency and community leaders meeting at a workshop got together over lunch and began finding some common ground by looking at the potential impacts of wildfire on communities,

wildlife, and industry (personal communication, UA employee, May 20, 2006). This group became known as the White Mountains Natural Resources Working Group (NRWG) and was formalized in 1997 by an intergovernmental agreement among federal, state, and county governments (Logan Simpson Design et al. 2004b.). Regular participants in the NRWG included representatives from city and county government, Arizona Game and Fish Commission, University of Arizona Cooperative Extension, U.S. Fish and Wildlife Services, the USFS, the Nature Conservancy, and the White Mountain Conservation League, with occasional participation from representatives tribal government, private industry, and regional conservation organizations (local government employee, personal communication, May 20, 2006). The experience of the NRWG was an important precursor to the CWPP in creating trust among diverse interests and building community consensus about the types of treatments necessary to address the wildfire risk.

I started going to these meetings and realized these guys weren't just after the big trees but that they actually wanted to do something about the forest for the forest sake and the community's sake too. That is when we got on board because I felt they were sincere in this. Which I might not have thought had I not been involved with the group I'd and just walked in the door. I think I would have been a little suspicious. But it evolved into this amazing group that had a lot of consensus. So far it has been working extremely well. (NGO representative, personal communication, June 22, 2006)

After nearly a year of monthly meetings, the membership of NRWG agreed that they wanted to do something different and that the best way to do that was to identify areas where they could demonstrate their ability and desire to work together. In what became known as the Blue Ridge Demonstration Project, the NRWG group agreed to test three differing approaches to forest restoration and wildfire fuels treatment. The first treatment type closely followed the USFS Forest Plan and was largely driven by Northern

Goshawk Guidelines and the Mexican Spotted Owl Recovery Plan. The second treatment type was the first phase of a “pre-settlement” forest restoration plan offered by the Ecological Restoration Institute at NAU. This treatment attempted to emulate historical forest conditions of open stands of large mature pines with a predominately grass understory. However, due to limitations imposed under the existing environmental analysis, this treatment was done as a less-intensive first-phase treatment. The third treatment type proposed by environmental organizations was eventually called “natural process restoration” and focused on removing small-diameter trees, maintaining wildlife habitat, and allowing fire to play a more natural role in the ecosystem (Lenhart 2006).

Despite agreement about the proposed treatment prescriptions, implementation of the project remained problematic. In 1999, the Forest Service developed and applied the prescriptions to approximately 6,500 acres and put together three timber sales in an attempt to implement the project. However, the timber sales failed to attract even a single bidder because of the high percentage of small-diameter material and lack of a local market (personal communication, USFS employee, May 21, 2006). Over the next year, members of the NRWG successfully lobbied members of Congress to obtain funding for the project and eventually the USFS was given pilot project authority and the green light to implement some treatments using embedded contracts (Lenhart 2006). Embedded contracts are now more commonly referred to as “stewardship contracts,” whereby a timber sale contract is embedded within a service contract. Thus, the cost of the service of removing or disposing of the small-diameter material is reduced by the proceeds gained from the sale of the timber (USDA 2006). Over the next three years, from 2001 to 2003, the USFS put together three different embedded contracts to demonstrate the

different treatment prescriptions on approximately a 2,000-acre area (personal communication, USFS employee, May 21, 2006).

The experience of the NRWG in the Blue Ridge Demonstration Project was critical in the aftermath of the Rodeo-Chediski fire in 2002 and the Kinishba fire in 2003. At more than 460,000 acres, the Rodeo-Chediski was the largest wildfire in Arizona's recorded history (figure 14).



Figure 14. A large area of the Sitgreaves National Forest burned in the 2003 Rodeo-Chediski fire. (Photo by author)

The fire claimed approximately 400 homes and forced the evacuation of more than 30,000 residents from nine communities (Logan Simpson Design 2004a.). Although the 30,000-acre Kinishba fire was much smaller, it again threatened to force the evacuation of the community of Pinetop-Lakeside. Immediately after the Rodeo-Chediski fire, “there was a lot of negative energy” and people “angry about feeling helpless and out of control” (USFS employee, personal communication, June 20, 2006). Much of the anger was focused on environmental organizations, signified by a large billboard outside of the

town of Heber that said, “Thank you environmentalists for making the 2002 fire season all it could be” (figure 15).



Figure 15. Billboard erected outside of Heber, Arizona in the aftermath of the Rodeo-Chediski fire. (Photo from [www.azfire.org](http://www.azfire.org))

However, the fire created a shared understanding of the problem and “changed a lot of our attitudes, at least about the WUI” (personal communication, NGO representative, June 22, 2006). The Rodeo-Chediski fire and Kinishba fire that followed also created a window of opportunity for leaders in the community to step forward and build collective action towards a solution.

Right after we closed out the Kinishba fire . . . the community leaders gathered together and said you know we can’t let this happen again. . . . The Tribal Forestry and Bureau of Indian Affairs had been doing a lot of thinning on the tribal lands. We hadn’t been doing that scale of thinning on the Forest Service lands partly because we had been stopped by a lot of lawsuits and appeals. . . . So at close out of the Kinishba fire we agreed that we would each do a role and we asked the County supervisors to step up ahead and start getting the Community Wildfire Protection Plans done. That was about the time that the Healthy Forest Restoration Act and Initiative had come out. So that was a new concept and we said let’s get out and get those done and be the first ones to get them done. If nothing else that will make us more competitive for some the grants because you need to do those plans before



you can get grants for thinning. So the counties then pooled their resources to hire a contractor to start the Sitgreaves Plan. (USFS employee, personal communication, June 20, 2006)

Prior the Rodeo-Chediski fire, the communities covered by the SCWPP had not been very aggressive in pursuing funding through the NFP (state agency employee, personal communication, May 20, 2006). This was in part because many of the smaller communities were unincorporated and lacked jurisdictional authority and administrative capacity. A high percentage of seasonal homes in this area also made contact and coordination with homeowners difficult. For example in 2001-2002, the community of Heber-Overgaard had only applied for and received just over \$50,000 in NFP funding. However, after the fire, the Heber-Overgaard Rural Fire Department applied for and received \$250,000 in 2003 and another \$250,000 in 2004 (Steelman and Kunkel 2003). Other barriers existed in the incorporated communities such as Show Low. In order to protect aesthetic values of the communities, Show Low and Pinetop-Lakeside had ordinances in place that prohibited landowners from cutting trees on their properties without permission from the city. "So that was very counter-productive to any kind of thinning or fire mitigation work that we were trying to facilitate within the city. But after the fire, in cooperation with the University [of Arizona], the city went out and got over \$1 million worth of grants to help people cut their trees" (state agency employee, personal communication, May 21, 2006).

### **CWPP Decision Process**

Intelligence. In the aftermath of the 2003 Kinishba fire, the NRWG formed a working group to examine the condition of the WUI along an important evacuation route known as the Rim Road, which extends along the Mogollon Rim connecting the

communities of Hon Dah, Pinetop-Lakeside, and Show Low. After congressional approval of HFRA later that year, this working group began focusing on the idea of developing a CWPP to take advantage of the provisions contained in HFRA and secure funding for community wildfire protection. After consultation with the Arizona state forester and the Apache-Sitgreaves National Forest supervisor, as well as a series of meetings held with local government officials and community leaders, the NRWG decided to produce a single CWPP to include all of the at-risk communities of the Sitgreaves National Forest:

There was talk about doing it by county boundary and what surprised me the most was that three counties pooled money initially to do the Sitgreaves plan. They said county boundaries aren't really the key here. The key really is that the communities are going to be most affected by what goes on in the national forest. The winds come here from the southwest and the lightning hits to the south and so a fire is much more likely to come up from the Forest Service boundaries into the community then vice versa. Really the important thing here is the national forest boundaries and all the communities just kind of go right through the heart of the forest. (USFS employee, personal communication, June 20, 2006)

With funding pooled from Coconino, Navajo, and Apache Counties and the communities of Show Low and Pinetop-Lakeside, the NRWG obtained the services of Logan Simpson Design, Inc., an environmental consulting service based in the Southwest, to facilitate a community planning process and develop the SCWPP (Logan Simpson Design 2004a).

Under the leadership of a Logan Simpson Design consultant, and in consultation with the NRWG, a core planning team was formed which then decided to use a short-duration, high-intensity planning process to develop the CWPP. To facilitate community participation, the core team established two Community Action Groups (CAGs), one in the eastern end of the planning area for the communities of Vernon, McNary, Hon Dah, Pinetop-Lakeside, Show Low, Linden, and Clay Springs-Pinedale and another one in the

west focusing on the communities of Aripine, Heber-Overgaard, and Forest Lakes. The CAGs involved all significant stakeholders in the communities, including local government officials, USFS personnel, fire district chiefs, Arizona State Forestry, the Nature Conservancy, University of Arizona Cooperative Extension, White Mountain Conservation League, Natural Resource Conservation District, as well as business and private landowners and neighborhood and homeowners' associations.

We made sure that the collaborative working group actually represented all of the interests that we knew of in the community. . . . Peripherally there were no significant interests left off the table or that weren't actually actively sought after for input. We had folks who . . . did not believe it best to be at the table to participate face-to-face on some of the issues. But those same environmental organizations were available to us to review documents and recommendations. They would give us feedback on whether or not they saw concerns in the direction we were going. (Business representative, personal communication, June 21, 2006)

The primary actions relating to the intelligence function were carried out through the core planning group and the CAGs. These groups were responsible for identifying local values at risk and collectively identified the six primary goals to be served by the CWPP:

- Improve fire prevention and suppression
- Reduce hazardous forest fuels
- Restore forest health
- Promote community involvement
- Recommend measures to reduce structural ignitability in the CWPP area
- Encourage economic development in the community

The CAGs were also charged by the core team with the responsibility of gathering information on existing wildfire risk conditions and fire history and recommending strategies for community wildfire protection and preparedness. The USFS assigned a

resource specialist to each CAG and also provided additional technical and resource specialists depending on what was needed in terms of data or expertise. Additionally, the USFS provided geographical information system (GIS) assistance, and much of the data used by the CAGs to describe wildfire fuel hazard and risk, as well as identify priority areas for treatment, was provided by the USFS.

We wanted to make sure that we were partners in this process but we didn't lead it because it wasn't about the national forest it was about the communities; it was a community plan. The communities needed to take the lead and we were there to provide them the data, the information about forests, fires and forest health and get a lot of the technical information but it was about the communities. . . . So we brought all of that to the table but other folks led the process. (USFS employee, personal communication, June 20, 2006)

In addition to data provided by the USFS, the core team and CAGs relied heavily on the local knowledge and experience of local government officials, fire chiefs, and USFS personnel. The core team and CAGs also reviewed all applicable federal, state, and local laws, plans, ordinances, and guidelines in order to allow consistency in planning between communities and at higher levels of government (Logan Simpson Design et al. 2004b.). Both the core planning team and the CAGs committed to frequent meetings which were open to the public, and all interested citizens were encouraged to attend (Logan Simpson Design 2004a.). Each CAG had representatives on the core team, and, as the process developed, the core team provided a link between the two CAGs ensuring that each group was informed of what the other was doing and that processes and recommendations would be consistent (Logan Simpson Design 2004a.).

Promotion. The two local CAGs, along with the core planning team and consultation with the NRWG, served as the basis for the public involvement and collaboration in the development of the SCWPP. "We got into some of the initial

discussions about when is a tree a tree, when is it a commodity, when is it a resource, and what do we mean when we talk about fuel” (business representative, personal communication, June 20, 2006). However, the collaborative efforts of the NRWG in the development and implementation of the Blue Ridge Demonstration Project, and the experience of the Rodeo-Chediski fire, had been largely successful in creating a broad consensus of the types of treatments that were necessary in the WUI. “Having that [NRWG] group already in place and having the demonstration forest out there helped us get a lot farther ahead than some communities that hadn’t talked about it much. . . . So it made ours go much faster because we had already done the ground work” (USFS employee, personal communication June 21, 2006). With “consistent and persistent facilitation” provided by Logan Simpson Design, the core team and CAGs went through a consensus-based decision process to develop the plan’s recommendations:

There was a wide range of opinion and deeply held personal beliefs that surfaced in discussions of the use of size caps in developing fuel reduction treatments on adjacent forestland. Issues related to environmental concerns (wildlife biodiversity, forest health versus industry needs) or to private property rights and government intrusions on private lands. These were all openly discussed and debated. The diversity of views was anticipated; however, because of longstanding small-community working relationships, a high level of trust had developed among all interests—from government, fire chiefs, industry, and environmental concerns—the CAGs created a consensus. (Logan Simpson Design et al. 2004b.:28)

The CAGs’ consensus recommendations included fuel reduction priorities, land treatments prescriptions in the WUI, and fire prevention and loss mitigation strategies that included public education, information, and support for local wood products industries (Logan Simpson Design et al. 2004b.:28).

Prescription. In developing the plan, the CAGs attempted to ensure that the proposed recommendations were consistent with the provisions of HFRA as well as all

other applicable federal and state guidance and regulations, including the Apache-Sitgreaves Forest Plan. There was also a desire within the CAGs to explicitly address the environmental concerns as a part of the SCWPP:

I'm thinking that if we don't do this to address the broadest spectrum of the environmental concerns at the same time we're looking at real wildland fire protection, we run the risk that everything we try to put together getting hammered in court or locked up or just a lot of consternation over the treatments and discussions again. So we went into the discussion about describing wildland fuel and describing how we were going to meet the conditions of the act in terms of large tree retention and old growth. (Business representative, personal communication, June 21, 2006)

An interesting feature of the SCWPP is the inclusion of treatment recommendations intended to allow the USFS to take advantage of the provisions for streamlining environmental analysis under HFRA and HFI. The plan includes specific fuel modification and treatment prescriptions for federal lands, clarifying language focusing on the removal of small-diameter material, and maximizing the retention of large trees. The SCWPP explicitly states that the community "strived to identify treatment areas where there were no extraordinary environmental circumstances exist" and that the recommended treatments prescriptions proposed in the plan should be used as the basis for developing action alternatives for analysis under NEPA (Logan Simpson Design 2004a.:47).

We wanted to make sure that when the Forest Service came out with their action alternative that you could very quickly connect the dots between the agency action alternative and the recommendations of the community. So there would be no doubt or chance for misinterpreting whether the Forest was implementing the community's recommendation for fire protection. That we felt we gave the Forest Service all the advantages they needed to take advantage of the expedited NEPA, that the act provided and left little room for argument on the outside whether it was or wasn't implementing the CWPP. It also made it very clear to us what types of treatments we were willing to accept as a community within and adjacent to the community. So we tried the best we could to write the ambiguity out of the plan and

make it very specific. (Business representative, personal communication, June 21, 2006)

Beyond attempting to harmonize the treatment prescriptions for federal land with the applicable federal laws and guidelines, the SCWPP also developed recommendations designed to assist state and local government in taking a more integrated approach to mitigating the wildfire risk. The SCWPP recommended the development of an intergovernmental agreement between the communities to cooperate in other areas important in addressing the wildfire problem. These include developing uniform tree and land treatment policies, purchase of an industrial chipper for residential slash disposal, development of a prescribed fire management plan for the WUI, cooperative training programs for firefighters, and joint educational and outreach programs.

Invocation. The SCWPP was finalized and approved in May 2004 and signed by Apache, Coconino, and Navajo Counties, the city councils of Show Low and Pinetop-Lakeside, and the chiefs of all eight local fire departments. The supervisor of the Apache-Sitgeaves National Forest, the Arizona state forester, and the superintendent of Fort Apache Indian Reservation provided signatures of concurrence (Logan Simpson Design 2004a.).

Application and appraisal. USFS application and appraisal of the SCWPP is tied into the White Mountain Stewardship Project. The White Mountain Stewardship Project is the first large, 10-year stewardship contract in the nation and was awarded to Future Forests Partnership, LLC, in August 2004. The contract is expected to treat approximately 5,000 to 25,000 acres per year and is structured to promote the marketing and utilization of previously unmerchantable material for power generation, lumber, and the manufacture of wood pellets. The USFS began using the SCWPP and adjacent CWPP

treatment prescriptions as the basis for environmental analysis resulting in completed NEPA analysis on more than 70,500 acres, with only one objection being filed as of January 2007. Also, as of January 2007, task orders for thinning more than 27,000 acres have been issued, with 19,000 acres completed and 293,000 green tons of biomass treated (figure 16) (USFS employee, personal communication, April 2, 2007).



Figure 16. A recently treated area outside of the town of Pinetop-Lakeside on the Apache-Sitgreaves National Forest. (Photo by author)

A wood pellet mill in Show Low increased its capacity by 50 percent and the Town of Eagar Office and the Apache-Sitgreaves Supervisor's Office have installed wood pellet stoves. A three megawatt bio-energy plant opened in Eagar in 2004 and there are plans to build a 20 megawatt plant in Snowflake that will use 170,000 green tons of biomass annually. The ability to market and utilize more of the by-product material has had a substantial effect on the costs of conducting material from fuel reduction projects. Prior to the stewardship contract, forest restoration costs were estimated around \$1,000 per acre compared to approximately \$500 per acre today, depending on the treatment



prescription (USDA 2007). Having the stewardship contract in place has allowed the USFS to capitalize on unexpended year-end funds from other forests.

We can afford about 2,500 acres of thinning out of our own budget and that doesn't meet the requirement of the 5,000-acre guarantee [to the contractor]. We are trying now to find ways . . . to spend less marking and cruising and doing the things on the ground . . . so that we can free up more money for the thinning. Another thing we look for is at the end of the year there is always money left someplace. Somebody didn't get their burning done. It was too rainy in California or whatever. They have fuels money they haven't spent. If you offered it to our neighboring Forest, Tonto, they would say . . . we are going to have to advertise a contract for 30 days, pick a contractor and that takes them almost two months to get ready. We say our contract is already in place we just have to sign the task order . . . get it obligated and we can spend money later than anybody else in the country. That has been our big benefit is spending other peoples money. (USFS employee, personal communication, June 21, 2006)

Monitoring is also occurring under the stewardship authority. According to a USFS employee, three percent of task order funding under the stewardship contract is set aside for monitoring (personal communication, June 20, 2006). A 16-member multiparty monitoring board has developed ecological, social, and economic monitoring goals and priorities. The first-year economic, social, and ecological assessments have been completed and results from the initial economic analysis indicate that the 13 businesses directly working on the stewardship contract provided 450 full-time jobs in Arizona, with 318 of those in the local area. Second-year findings should be available soon. There has been some criticism from members of the multiparty monitoring board, as well as from conservation organizations, regarding some of the impacts of some of the CWPP prescriptions and USFS fuel treatments in the WUI on certain species of wildlife.

The CWPPs came up with recommendations for treatments and some of those treatments, because they are easier to implement and cheaper to implement in certain ways, are not necessarily done in ways that are as beneficial for wildlife. So we try to look at site specific things that are going on any particular piece of ground and work with the Forest Service to get their treatments done and in a way that is less detrimental to wildlife. Or on the other hand, try to have them do more good for

wildlife while still meeting those fuel reduction goals. (State agency employee, personal communication, June 20, 2006)

Through an intergovernmental agreement between Coconino and Navajo Counties and the cities of Show Low and Pinetop-Lakeside, a SCWPP administrator was hired through the University of Arizona Cooperative Extension in late-2005. The SCWPP administrator is responsible for implementation, monitoring, and updating of the plan and for community outreach, education, and overseeing NFP grants and cost-share fuel reduction programs for private landowners (state agency employee, personal communication, June 21, 2006). The current priorities for local government are developing a GIS-based database for tracking fuel reduction treatments on private lands that can also be integrated with similar databases on federal- and state-owned lands. The cities and counties are also working to pool resources between fire districts to develop a fuels crew to conduct fuel reduction treatments and prescribed burning in the WUI, modeled after a similar program in Flagstaff, Arizona.

Termination. The SCWPP calls for the CWPP administrator to produce an annual report evaluating the success of SCWPP project implementation and overall progress toward goals. In each annual report, the SCWPP administrator is to provide recommendations to the plan's signatories for updating the community mitigation and the prevention and loss mitigation portions of the SCWPP. This annual report is intended to gain input from all levels of government for developing and prioritizing project recommendations for the following year's work plan. Pending approval by the SCWPP signatories, the annual work plan is to be submitted to the state forester and the USFS for funding through HFRA.

## **Social Process Analysis**

The SCWPP planning process was characterized by broad participation and representation from all levels of government (municipal, county, state, USFS, tribal) as well as all other key stakeholder groups in the communities. Beyond an inclusive planning process, the core team conducted outreach and solicited input from other interests, particularly several important environmental organizations that did not participate in the process. Stakeholder involvement in the SCWPP was facilitated by well-established formal and informal social networks and the generally positive working relationships established through previous collaborative interaction in NRWG. There was also a strong commitment to the value of the collaborative process shared among all participants interviewed in this research.

For me collaboration groups are very, very important because for one thing, even if you have maybe 30 people, they network with other folks. They bring in other citizen concerns, they sponsor field trips for the public, they get information out. So you are able to reach a lot of community folks through the representation with the group. They take our time . . . but the payback is then when you do propose a project a lot of times it will go faster and smoother because you have a sounding board there that you can run the project by and they can get information out to other folks. (USFS employee, personal communication, June 20, 2006)

This commitment to work with communities and collaborate, particularly by leaders in the USFS, has engendered substantial goodwill among those groups and individuals that had previously held unfavorable opinions of the USFS.

I am really hopeful. I think [USFS A-S forest supervisor] has changed a lot of things just by force of her personality and by the way she works with people. So as she symbolizes the Forest Service that kind of attitude will prevail. Just openness and she shows respect for other people and for their opinions and willing to be flexible. I think she is flexible in many ways. . . . I think she has been remarkable to work with. (NGO representative, personal communication, June 22, 2006)

USFS support and participation in the community-led planning effort was important in ensuring its success and fostered a sense that the agency was a “team player” in solving the wildfire problem. It also gave community members a high degree of trust and confidence that SCWPP would be given serious consideration and faithfully implemented to the maximum extent practicable.

There was a high level of trust that the Forest [USFS] really would implement the prescriptions in terms of both the actual prescriptions but also the priorities that the communities established would become the priorities of the Forest. I think it was just a high trust level that if we gave the Forest those opportunities they would take advantage of those opportunities and be a part of the community and follow suit and they have. They have certainly lived up to those expectations that we had. (Business representative, personal communication, June 21, 2006)

Another important value that was held by nearly all participants in the SCWPP was a strong sense of place; a connectedness between the community and surrounding forests. Despite the shifting economic and demographics trends in the region, there was understanding of the importance of the forest to the community and vice versa. This value was manifested in the strategy to develop the SCWPP around the forest boundaries as well as in the consideration that maintaining a viable forest industry was critical to the well-being of the community and key to successful implementation of the plan:

Well I think we are so closely connected with the communities. . . . If you look here, so many of the houses are bordering the national forest, that is why they live here. . . . People move to the White Mountains because they want to be part of the forest, it is the number one reason that people are living here, the forest environment. . . . So you can't live day to day without thinking about the forest and we're associated with that, we're not distant. . . . So we are working really closely with the fire departments, the mayors, everybody in town because everything we do is a big part of their lives. City parks here are on Forest [USFS] land. So I think that is part of it, our employees wanting to do what is right for the communities. . . . (USFS employee, personal communication June 21, 2006)

I think this community is embedded and built around forest industries and it makes its living off the forest, whether it is folks coming to fish on Big Lake, or trees growing as commodities. They still saw that as what it is going to take to police the streets and educate their children. So we just need to make it work. Everyone bit the bullet and made it work; nobody cut and ran halfway through. (Business representative, personal communication, June 21, 2006)

Overall, the SCWPP was supported by a cohesive and integrated social process. The experience of the Rodeo-Chediski and Kinishba fires were defining events that changed peoples' attitudes and provided the motivation and opportunity to complete a comprehensive and integrated plan in a very short time frame. The development of the SCWPP was seen as logical extension of previous work of NRWG and was therefore able to capitalize on established interpersonal networks, positive working relationships, and broad community consensus regarding the types of fuel treatments necessary in the WUI. A sense of place, commitment to collaboration, and an open and inclusive planning process allowed the SCWPP to provide a working specification of the common interests of the community. Thus, it is not surprising that the SCWPP was awarded the 2006 NFP award for excellence in collaboration (National Fire Plan 2005).

### **Wallowa County Community Wildfire Protection Plan**

#### **The Physical Environment**

Located in the northeastern corner of Oregon, Wallowa County is a sparsely populated region of rugged mountains, gentle valleys, and deep canyons. The Wallowa Mountains are the highest and most rugged range in the Blue Mountain Province of northeastern Oregon and are the headwaters of tributaries to the Columbia and Snake Rivers. The tallest peaks exceed 9,500 feet and tower more than 5,000 feet above the surrounding plains. Because of extensive glaciation occurring during the Pleistocene, the range is characterized by numerous lakes and meadows in cirque basins, with steep,

jagged ridges separating deep valleys (figure 17). The area experiences cold winters and hot dry summers that are interrupted by frequent lightning storms. The mean annual precipitation varies between 16 and 80 inches depending on elevation (Cole 1982). The wide variation in both elevation and precipitation creates distinctly different physical environments and localized climatic effects, which sustain numerous and diverse vegetation types from low-elevation grasslands to high-elevation alpine meadows. A large portion of the land in the county is comprised of forested uplands ranging in elevation from 3,500 to 7,000 feet. Ponderosa pine is prevalent on the dry, lower-



Figure 17: View from Wallowa Lake looking into the Eagle Cap Wilderness area of the Wallowa Mountains. (Photo by author)

elevation sites while higher-elevation forests display a mixture of vegetation types dominated by Douglas-fir, grand fir, Engelmann spruce, and western larch (*Larix occidentalis*) (Cole 1982). As a result, this region also experienced a mixture of historical fire regimes with a low-intensity understory regime being typical in the lower elevations dominated by ponderosa pine. A mixed severity regime was common in the

mid-elevations and the high-elevation subalpine forests experienced a high-intensity stand replacement regime (Agee 1993).

### **The Social Context**

This rather isolated area was home to the Chief Joseph band of the Nez Perce Indians. In the 1870s, the first white settlers migrated to Wallowa County to find pasture for herds of livestock, but it was the regions supply of timber that provided the primary base for the economy of Wallowa County. Beginning in the early-1900s, the dominance of the wood products industry continued until the late-1980s. In the later decades, much of the timber supply came from public lands in the region, which comprised more than 60 percent of the land base in the county and most of which is administered by the Wallowa Whitman National Forest (Wallowa County 2006; Wallowa Resources 2006). However remote, the region was not isolated from the broader environmental conflict and “timber wars” of the late-1980s and early-1990s that affected much of the Pacific Northwest. That conflict, combined with the technological modernization in the timber industry and the listing of anadromous fisheries on the Columbia and Snake Rivers as threatened or endangered, brought dramatic changes to Wallowa County. As timber harvests on public lands declined in the late-1980s, frustration in the community grew. Much of the community anger focused on the USFS as the agency responsible for management of the majority of public timberlands in the region. According to a local resident, “the sense among many people living in the community was that the community is made up of ‘the community’ and ‘the Forest Service’” (Synder 2005).

In 1989, lightning struck Wallowa County. This large storm resulted in more than 170 strikes across the Wallowa Mountains. A local logger had his crews working an area about three miles from one of the strikes hitting the Canal Creek area. He radioed in to let the Forest Service managers know that he was close to the area and

was going to take his crews and equipment to put the small fire out. The agency had implemented a new certification program for people and equipment fighting fire. Because his crews and equipment were not certified, the answer was no. The Forest Service personnel prioritized the strikes from this storm and began to mobilize. The Canal Creek strike was not prioritized as an immediate threat. Little did the Forest Service know, two strikes would burn together that night. It was three days before the fire fighting crews began work in Canal Creek. More than 27,000 acres burned and nearly 20 families were evacuated from their homes. This single incident served to broaden the divide between the community and the Forest Service. (Synder 2005)

In 1990, the Columbia River Spring Chinook Salmon became a candidate for listing under the Endangered Species Act. This required the USFS to consult with the National Marine Fisheries Service (NMFS) prior to developing projects. It took almost two years for the two agencies to agree on the consultation process and, in 1994, not a single timber harvest occurred on public lands. All three sawmills in the county closed, leaving hundreds of people out of work and precipitating a period of rapid economic decline (Wallowa Resources 2006). Residents were so angered by federal land management policies that 76 percent of county voters supported an initiative stating that Wallowa County no longer acknowledged federal ownership of public lands within the county (Gunter 2001).

The community felt under siege. Uncertainty, fear, polarization, and insecurity ran rampant. People were scared for their future. These types of feelings can create desperate actions. In 1995, some local people joined others from outside the community and hung the local environmental representatives in effigy and burned the dummies. A few months later, some people tried to start the Forest Service building on fire. (Synder 2005)

According to a 2005 census estimate, just over 7,000 people remain in Wallowa County and the economy consistently ranks at or near the bottom in statewide assessments. Unemployment is as high as 19 percent during winter months, and school enrollments in the county are declining (State of Oregon 2006). Although a focus on



tourism has contributed to an increase in service sector employment, home prices have increased dramatically, making it difficult for local residents to find affordable housing. Agriculture remains an important part of the economy in the county, although agricultural producers are also in distress and many multigenerational farms and ranches are being put up for sale (Wallowa Resources 2006).

After the listing of Chinook Salmon in 1992, the county commissioners appointed a Natural Resource Advisory Committee (NRAC) to develop a salmon habitat recovery plan in consultation with the Nez Perce Tribe. The NRAC included members from federal and state agencies including the USFS, private landowners, timber and grazing interests, environmental interests, and the Nez Perce Tribe. The plan took 18 months to complete and was formally adopted by the county commissioners in 1993 (Wallowa County and Nez Perce Tribe 1993). The success of this planning process led one of the county commissioners to call monthly meetings to continue discussions on the topic. Meeting in the back room of a local bakery, community members began talking about ways to improve the health of the ecosystem while at the same time sustain the social and economic well-being of the community (Synder 2005). The county also initiated a visioning and strategic planning process which articulated the community's desire to retain a natural-resource-based economy (Gunter 2001). Out of these conversations a local nonprofit organization called Wallowa Resources was established in 1996 (Synder 2005). The mission of Wallowa Resources is to "provide leadership on natural resource, economic and community issues, creating opportunities for sustainable land management, ecosystem health, family-wage jobs, and community well-being, and preserving Wallowa County's rural way of life for future generations" (Wallowa Resources 2006).

The establishment of Wallowa Resources had a significant impact on the community and the relationships between the USFS and residents of the county. Using collaborative approaches, Wallowa Resources was successful in establishing numerous cooperative relationships and projects with the USFS and private landowners in the region. Focusing on ecosystem restoration and building community capacity, the group worked on numerous restoration projects including treating noxious weeds, regenerating aspen stands, fish habitat restoration, and surveying plant and animal species (Wallowa Resources 2006).

### **History of Addressing Wildfire Risk**

Beginning in the late-1990s, Wallowa Resources began to address the wildfire risk through emphasis on collaborative restoration forestry and economic development through small-diameter utilization. The group worked with a local timber mill on several projects, including retooling the mill's equipment to handle small-diameter trees. However, the mill was eventually forced to close due to competition and lack of capital (Christofferson 2003).

When the National Fire Plan came along and with the experience we had and the partnerships we had developed in some of these earlier programs it was easy for us to sit down at the table with ODF, U.S. Forest Service, and the county commissioners and be involved in designing some of the first phase projects in response to the National Fire Plan. We ultimately entered partnership agreements with the Forest Service and ODF and they provided their money for the first projects to us. We contributed some private foundation money to that and pooled those resources to hire local contractors to do defensible space work around the Wallowa Lake. (NGO employee, personal communication, August 15, 2006)

Starting in 2003, Wallowa Resources worked with the USFS, ODF, and private landowners to create a fuel break on more than 100 acres adjacent to homes and structures around Wallowa Lake. Then again in 2004, through an ODF cost-share

program, it worked with homeowners to perform fuel reduction and thinning in an area know as Alder Slope, treating approximately 155 acres (Wallowa Resources 2006). At this same time, Wallowa Resources was working with multiple federal and state agencies and the county's NRAC, integrating forest restoration and fuel reduction objectives into a landscape-level assessment project and stewardship contract.

As we got involved in National Fire Plan projects and in the Community Wildfire Protection Plan the rest of our program was also growing. So we were also at the time facilitating, again under NRAC, this big landscape or fifth-level watershed assessment of Upper Joseph Creek. We felt like we'd achieve enough success at the smaller scale field collaborations that . . . if we were really going to have an impact on the ecological issues and the community issues we needed to scale up to a much bigger size so we can deal with the pressing land management problems and also create a bigger and more consistent program of work for the contractors that would be targeting restoration conservation priorities. So we moved from these 2-, 10-, 15-acre Aspen stands, 30-acre wetlands, and 100-acre fuel reduction projects to a stewardship contract which was about 3,000 acres and then to upper Joseph Creek which was a very large scale integrated assessment of 174,000 acres that included both public and private land. It was a lot of lessons learned in that but it also generated some important new data about forest conditions as it related to fuel modeling, fire risk assessment, condition class estimates that we could use to ground truth the remote sensing interpretation that we were doing at the county scale for the Community Fire Plan. (NGO employee, personal communication, August 15, 2006)

### **CWPP Decision Process**

Intelligence. The ODF regional forester initiated the CWPP planning process by assigning a coordinator to work with the counties to facilitate the development CWPPs in northeastern Oregon. With funding through the NFP and what are known as Title III funds made available through the Secure Rural Schools and Community Self-determination Act of 2000 (PL 106-393), Wallowa County was the first to undertake the planning process in the region. In June 2004, the CWPP core planning team was established as subcommittee of the county's NRAC.

... [NRAC] is a committee of 21 members and 21 alternates from all walks of life in Wallowa County, business profession, timber management the whole nine yards. That committee has been appointed by the county commissioners of Wallowa County to advise them on natural resource issues. So when the community fire plan came up it was the responsibility of that committee. . . . Because we operate in a collaborative manner anyway, it was a lot simpler to use that committee then establish an entire new committee. (Business representative, personal communication, August 10, 2006)

The NRAC CWPP core planning subcommittee included representation from USFS, ODF, Oregon Employment Department, Oregon State University Extension Service, County Commissioners and Emergency Services, rural fire districts, forest industry, and private landowners. The committee was chaired by a representative from Wallowa Resources. Additional technical and resource people were invited to participate as resource members of the committee and included the Nez Perce Tribe, the Nature Conservancy, Wallowa County Chamber of Commerce, Hells Canyon Preservation Council, Wallowa County Planning Department, and additional USFS technical specialists. “The membership and outreach went well beyond the membership of NRAC because the task was to have a fairly participatory process. We involved a lot of different stakeholders in the technical analysis and we did a pretty good job of having public meetings” (NGO employee, personal communication, August 15, 2006). The core planning committee established the following six goals for the Wallowa County CWPP:

- To continue to enhance watershed quality while protecting municipal water systems.
- To improve community safety through continued education and awareness in regard to the risks of living, working, and recreating in the wildlands of Wallowa County.
- To continue to improve pre-suppression planning in the event of a wildfire.
- To maintain, enhance, and protect aesthetic, recreational, and cultural values.

- To preserve and promote the custom, culture, and economic health of Wallowa County.
- To engage the local workforce in work related to wildfire prevention and protection and restoration of lands in Wallowa County.

Very early in the planning process in September 2004, a series of five community meetings were held in various locations throughout the county to identify community values and concerns regarding wildfire.

That is kind of how we kicked it off. Trying to figure out what the concerns were of those individual communities. Because there are a lot of those small communities and it helped develop the side boards of what is the extent of the community. There is this old cemetery out here, there are these homesteads out there and these areas that are vital to the history of this community. So unless you grew up there or lived there you would not know. So that kind of help develop the perimeter that we defined as that community. Whereas you might have just drawn a circle around the heart of the community and said that's it and come to find out in most cases, it was much larger than that. (State agency employee, personal communication, August 10, 2006)

Additional public meetings were held later to review an initial draft plan and the draft plan was also posted on the ODF Web site. The community meetings were crucial in identifying community concerns about wildfire and also in understanding additional issues related to emergency communications and gaps in fire protection coverage.

There were a lot of other spin-offs from those meetings in this planning process then just the plan itself. Part of it was just meeting some new folks who are in some of these communities who are the pivot point for information. . . . Because in the past if there was a fire related issue you pass the information a long to one of those folks and the rest of the community knows very quickly. So there were some of those types of benefits of finding out who some of the new folks were in those communities and getting . . . emergency services, the sheriffs department everybody else in the room and finding out what some of the other issues were down there. (State agency employee, personal communication, August 10, 2006)

A technical subcommittee of CWPP core planning team included the USFS, ODF, and county planning department employees with expertise in fire management and GIS-

mapping skills. This subcommittee was responsible for integrating GIS data from both the ODF and USFS and in drafting a wildfire risk and hazard assessment for approval by core planning team. The data used to develop the risk and hazard assessment was primarily based on satellite imagery and aerial photos as well as stand-level data provided by the USFS.

A lot of the stuff came from the Forest Service side and then we just massaged both [GIS] layers to break them down into a similar format so that it was seamless across boundaries. . . . They provided a lot of technical input to that process and some of their folks helped do some of the GIS. . . . The other thing was just them explaining what their data was and how it originated so we knew how well different aspects of their information either would or would not match up with ours. So they would come in and show us this is what we've got, this is how we can manipulate it. . . . So that was nice having the folks there who understood their data and could help us massage all of that stuff to make it work. (State agency employee, personal communication, August 10, 2006)

Promotion. The core planning team also relied heavily on local knowledge and the expertise and experience of members of the committee in identifying high-priority areas for treatment. As opposed to other plans, the WUI is very generally defined in the Wallowa CWPP and included most of the private timberlands in the county.

A lot of early meetings were about what parts of this 2.1-million-acre county should we prioritize? It was interesting because pretty consistently there was a very high response from people that said we're less interested in protecting our homes than our forest, our timber and grazing land because that is where we make our money. You can rebuild a home. But if we burn off our timber lands it is going to take a long time to get that asset back. That value, that attitude, certainly didn't seem to be reflected in a lot of the early discussions about the National Fire Plan for the definitions of Wildland Urban Interface and the priority given to that. Because our committee would say let's try to prevent a larger wildland fire that would lead to short, medium, long term declines in productivity in economic opportunity from our lands. (NGO employee, personal communication, August 15, 2006)

Because of the community's interest in protecting its natural resource base, an additional component of the wildfire risk and hazard included a "consequence layer." Beyond

private timberlands, homes, and infrastructure, this also included protected species, habitat, and riparian corridors.

We looked at what I refer to as the consequence layer. The consequence layer ended up being proximity to private lands or if you got a fire what are the consequences of it burning? Is it strictly resource damage, streams, structures and infrastructure? So we looked at if we got a fire and it spread, what are the consequences of that spread? The more things involved, resources and streams, although very important if you have resources, streams and structures or other things that are going to impact your ability to suppress, then as the values accumulated the consequences got higher. (USFS employee, personal communication, August 15, 2006)

Another additional element important in influencing the format and recommendations contained in the plan was speculation about how effective it would be assisting the community to obtain funds to address the problem. Because of the Wallowa County's remote location and sparse population, many people were resigned to fact that other areas in the state were more likely to attract funding resources. "We're competing for the dollar with others and we don't have the best political clout, so it is kind of tough. Bend, Sisters, we're competing for the same dollars as those folks are and there are more people there and more money, that makes it tough" (business representative, personal communication, August 10, 2006). Nonetheless, there was an effort to ensure that the Wallowa CWPP was integrated into federal and statewide frameworks for CWPPs in order to be as effective as possible in garnering funds for implementation.

At the same time the state was also doing a hazard assessment and I was a part of that process as well. So it made it real easy to make sure we were staying on that same path. . . . Because quite frankly, when it comes to National Fire Plan grant funding and statewide prioritization, if we don't look good . . . then we're not going to get the funding. . . . So we wanted to make sure that we were meeting those criteria so that once we had the plan done not only does it contain a lot of good information that we can use for a variety of different things but it also does a very accurate job of addressing the criteria that the state looks at to say what are the issues, what are the priorities, where should we prioritize? (State agency employee, personal communication, August 10, 2006)

The core planning team’s decisions were based on discussion and consensus and the plan was finalized in April 2005.

Prescription. The prescription function for wildfire mitigation was largely overlooked for the Wallowa CWPP, particularly for federal lands. Compared to other plans examined in this research, the Wallowa CWPP provided only very general guidance about the measures necessary to mitigate the wildfire risk (table 5).

Table 5: Fuel Treatment Prescriptions for Wallowa County

<b>Fuels</b>	<b>Grasslands</b>
Felling, thinning	Grazing
Removal of dead and down trees and slash concentrations	Mowing
Pruning	Plowing
Piling	Irrigation
Burning	Controlled burning
Removal of trees infected by insects and disease	
Whole tree yarding with top attached	

Source: Wallowa County CWPP (Wallowa County 2006:4)

The plan did contain information for homeowners, taken from the Firewise program, and contract treatment specifications for landowners provided by ODF, as an appendix.

However, the lack of treatment prescriptions for federal lands is an interesting feature of the Wallowa plan. There were differing perceptions as to why this occurred and whether or not it was a shortcoming of the plan not to have provided more detailed guidance.

According to a USFS employee the reason was

... to give managers the latitude they need to make a prescription fit a particular piece of ground. We didn’t go out and study every square inch of ground out there. We do that as we develop projects. So here is an area that we identified that because of the hazard and risk is a priority for treatment so then the practitioners go out on the ground and develop a prescription. We haven’t done that yet so it would be premature to put all that in the plan. Also telling private landowners what to do on



their land doesn't go over well in this state. (USFS employee, personal communication, August 15, 2006)

This desire to give maximum discretion to the agencies was also confirmed by a state agency employee.

We didn't want our strategies to be the prescription. We wanted that left to the agency to do whatever they needed to do to conduct fuels treatment in the area, be it us or be it them. Because for us, the only fuels treatment we're going to get done is where there is landowner interest. We aren't going to be able to knock on someone's door and say we're coming in here and this is what we're going to do. We have to have them interested in the process. For the Forest Service . . . they didn't want to publish that in the plan because (a) they didn't know if they would have the funding; and (b) they didn't know how HFRA was going to play out. (State agency employee, personal communication, August 10, 2006)

However, others thought that including more detailed prescriptions in the CWPP, especially for federal land, would have been a good idea.

I think it is a failing. . . . We got close to the finish line and it had taken so long and so much effort that I think we got burnt out. I do think it was a failing with ours that we were not more specific in prescribing different treatments for different places that this broad group of people participating agreed to. I think people thought it would take to long to do it, but I also think there was this sense that was the second phase of collaboration. . . . I think two things, we were a little burnt out but also how much additional value is there to go into that much detail at this planning stage since we already have 15 years of collaborative planning history. We anticipate that when they pick up one of these areas that there will be a collaborative process about the details. But my sense is to some extent it is a mistake in that HFRA does specifically allow the community to suggest some alternatives and that might be a catalyst for the Forest Service. (NGO employee, personal communication, August 15, 2006)

Yet still another perspective was that the plan should have included stronger treatment requirements even for private lands.

My concern with this, we've had fuels reduction programs up around the head of the lake and we solved one third of the problem. If a fire went down through there it would torch that forest right after we did it. . . . So if I were going to be doing anything I would do something to aggressively fire proof it because what I saw in two projects is that they were just feel good projects. They raked up the litter and cut 3 trees out of 50 or 100 on acre and you're looking up there and the crowns are still touching. The trees are still suppressed and not healthy. Then you're going wait

a minute, we spent money on this? The feds spent money on it? They spent money on it and it didn't solve the problem. If you're going to spend money on an acre you need to fix that acre so you don't have to come back. (State agency employee, personal communication, August 16, 2006)

The Wallowa CWPP also had three other interesting features. Although not formal prescriptions for mitigating the fire risk in the community, they were ancillary strategies relating to the wildfire problem. First, the plan included a chapter on wildland fire use. Because large portions of Wallowa County are designated as wilderness and national recreation areas, the CWPP detailed USFS strategies and objectives for allowing lightning-ignited fire to burn in remote areas. Second, a chapter on biomass utilization and economic development promoted the utilization of forest biomass for small-scale heating systems and electrical power generation. This chapter also included a section on job creation through forest restoration, as well as USFS contracting policies that disadvantaged local contractors. Third, the CWPP included a chapter on emergency management. This chapter addressed home site access, emergency notification procedures, evacuation protocols, and community needs relating to the development of emergency action plans, training, and equipment. Many participants in this research reported that the emergency management section was the most valuable component of the plan.

I think the biggest, number one thing that we put in the plan that is really going to help . . . is the emergency evacuation, emergency services and the coordination portion. The fuel load problems, the wildfire problems, the urban interface problems, we knew that prior to doing the fire plan. But this is the first time that we actually got emergency services involved for radio and networking and how to get out. (Business representative, personal communication, August 10, 2006)

Invocation. The Wallowa County CWPP was approved by the county commissioners, the County Emergency Services director, the County Fire Defense Board

chief, and the ODF regional forester in April 2005. A copy of the plan was posted on the ODF Web site and additional copies were placed in local community libraries. The ODF CWPP coordinator was charged with finding the resources to monitor and update plan on annual basis.

Application. The ODF has continued to disburse NFP funds through cost-sharing programs with private landowners in Wallowa County. The ODF reported that in 2005 604 acres were treated and in 2006 an additional 48 acres were added, bringing the total acreage treated through NFP funding since the plan began in 2001 to 1,108. The ODF also assisted the Joseph Fire Department in obtaining three specialized fire engines and conducted a Firewise workshop at the Wallowa Lake Rural Fire Protection District station (Wallowa County 2006).

USFS application of the Wallowa County CWPP is a longer story. The Wallowa CWPP Web site lists USFS accomplishment in implementing the plan at more than 5,000 acres of prescribed burning (Wallowa County 2006). There is disagreement about the extent to which the USFS is taking action consistent with the community's recommendations in the plan. Members of the community planning process expressed the concern that in order to meet annual fuel reduction performance objectives or "targets," the USFS is focusing on areas outside the WUI that can be more easily treated at a lower cost.

The Forest Service is, I want to put this politically correct, is slow in responding to the Wildland Urban Interface area treatments. . . . The main reason is . . . that fire is the only place there is money in the Forest Service; fuel treatments, targets. So what you try to do is take the low-hanging fruit, the easy, quick, large inexpensive targets. The more targets you get accomplished the more you get money for next year. You start dealing in steep ground, heavy fuels and wilderness areas you don't get a lot done, okay, it just doesn't happen. It is too damn expensive. (Business representative, personal communication, August 10, 2006)

The concern about a lack of USFS emphasis on the high-priority WUI areas identified in the plan was shared by another participant in the planning process.

A Forest Service person in the local office told us to date that they aren't really using the Community Wildfire Protection Plan and the priorities set there because they've got other directions for the use of the limited funds that they get to do things. In the past a lot of its been very coarse and simplistically defined as unit cost per acre reduced from condition class 3 or 2 to a lower-condition class. And they are able to achieve that by picking those areas that aren't really high-risk areas or don't have heavy fuel loads that they can do various forms of prescribed burning to quickly achieve on a map a fairly significant acreage goal at low cost. The other thing that they do is typically move in right after a mechanical treatment to treat that area with fire and they count those acres twice . . . that helps them achieve the types of accomplishments that OMB [Office of Management and Budget] and USDA want to see. . . . They said for us to meet our performance goals, 90 percent of our effort needs to be targeted at easy areas and then we'll take 10 percent to achieve the difficult areas that you all have identified in your community process. Then on average we will still come out at the right unit cost. (NGO employee, personal communication, August 15, 2006)

However, according to a USFS employee, the agency was putting substantial emphasis on treating WUI areas and was forced to make difficult choices with limited funding.

They are all good projects and at some point you can only fund part of it or part of the projects and sometimes we have to make those hard choices. . . . Generally speaking we have been able to fund all of the highest-priority projects. But as a consequence of that, areas that may make up the bulk of the forest, areas that aren't WUI, those areas may not get any funding. I guess I shouldn't say any because we're still probably doing at least 50 percent of our work outside of the WUIs. We do all the WUI work available but with the additional money that we have we treat the uplands and outside those communities. But we have a 2.3-million-acre forest and we have about 285,000 acres in WUIs. We've been very active in those WUIs for the last ten years and continue to be so. (USFS employee, personal communication, August 14, 2006)

Yet community members that participated in the CWPP planning process insisted that they understood that the USFS had constraints due to budget and staffing. The frustration stemmed from the perception that USFS concerns regarding the need to achieve fuel reduction targets was not brought forth during the collaborative process.

One of my biggest frustrations in both the Community Wildfire Protection Plan and the Upper Joseph Creek Watershed Assessment Project is that we did not have Forest Service representatives that were saying, wait a minute. The direction that this consensus seems to be moving isn't going to work for us because it isn't in line with the direction we are getting from the regional supervisor, the chief, etc, etc. We never got that. We never got that flag thrown up from the Forest Service that said you know in reality if we're going to be able to spend our financial and human resources on this project we're going to need to have either cheaper unit costs or more commercial value. We didn't get that feedback. (NGO employee, personal communication, August 15, 2006)

The USFS does have one major project in the works that is in a high-priority WUI area identified by the community. The Mt. Howard project is located adjacent to Wallowa Lake and is important for local residents to ensure the water quality of the lake and to tourists because of its scenic vistas.

That one is critical and the Forest Service did make the commitment on that one because Mt. Howard is right there above the lake. It has massive amount of dead material, like 40 percent of the stands are dead up there and it is heavy timber, not just stringers. . . . So they bit the bullet on this and it has taken four years of really pushing because they had to rearrange projects and everything else to do this. They recognize the problem. So the proposal calls for 68 acres of helicopter logging. It won't be of much value because most of it's dead. It actually creates almost like clearcuts but they are artistically designed. A landscape architect designed how they were going to look. Then they want to burn from the top down and they figure it is going to take 10 years to accomplish the project (Business representative, personal communication, August 10, 2006)

Yet the proposed Mt. Howard project precedes the community fire plan and has been controversial. One the one hand, people believe it is because the project is located in potential Lynx habitat adjacent to a wilderness area, and on the other side, people believe it is because the project doesn't go far enough and has not happened fast enough to address the community's concern about fire.

Appraisal and termination. Monitoring and updating of the plan is to be accomplished the ODF CWPP facilitator with assistance from the core planning team. Annual progress reports are to be submitted for approval by the NRAC. The plan was

updated to include minor corrections and 2005 project accomplishments and was re-approved in March 2006. The extent to which further effort is put into monitoring and revising the plan depends in large measure on whether the plan produces results equal to the community's expectations.

There is been a lot of emphasis on participatory planning and a tremendous amount of money spent on participatory planning that seems to dwarf to some extent the results we've achieved on the ground. So you get a little bit of participatory fatigue too. Because if people are going to volunteer their time and their knowledge they . . . are going to want to see results. If they don't see results they are going to stop really paying attention to what you're doing. I definitely think this county has been very proactive and progressive in doing more collaborative participatory approaches to solve problems. But to some extent we get distracted in implementation because there is always some new federal or state designated process we're supposed to do so we are in line for resources that don't always materialize. (NGO employee, personal communication, August 15, 2006)

### **Social Process Analysis**

Overall, the decision functions in the Wallowa CWPP were supported by a cohesive and participatory social process. The development of the CWPP was seen as logical extension of previous work accomplished by the NRAC and Wallowa Resources. The plan was reinforced by the generally positive working relationships established through previous collaborative interaction.

Among each other, we fight like cats and dogs. But we do it internally. We communicate, we continue to communicate and we're friends. We get along sometimes. It is a typical relationship of an organization. We have some unwritten rules among ourselves that we don't want to fight on the front page of the paper, we fight among ourselves. We have differences of opinion but that is how good decisions are made from my standpoint. We bring it to the table, we discuss it and then we kind of keep ourselves and each other on track (state agency employee, personal communication, August 16, 2006)

The experience in collaboration and working together on previous projects has created well-established formal and informal networks, consisting of the "Same Ten People."

When we gather a group here to tackle a task you can bet on who three quarters of the people are going to be in that room before you even walk in. That is kind of the case here. It is a small county and there are certain individuals who are pretty passionate about natural resources and you can pretty much count on those folks to show up to those type of things. (State agency employee, personal communication, August 10, 2006)

As a tight-knit community, interpersonal relationships and leadership were important in overcoming bureaucratic resistance and jurisdiction barriers to accomplish the task of developing the CWPP and ensuring the participation of key players, including the USFS.

We're a small community. We see each other in the store, we see each other wherever. Even at the other district offices that I deal with. I know these people personally. So they aren't going to tell me no. I think that is what has helped us. I just started knocking on everybody's door I knew. Then with the pressure coming from the regional level to get these plans done, they had to participate, there was just no if ands or buts about it. (State agency employee, personal communication, August 10, 2006)

The CWPP core planning team process included balanced representation and active participation from all levels of government (local, county, state, USFS), with the exception of the Nez Perce Tribe. Tribal participation was absent until shortly before the plan was finalized. However, tribal input was incorporated and the plan was updated and re-approved in 2006. One key element that was missing was that, although USFS leadership was a participating member of the NRAC and supportive of the CWPP, it was not sufficiently connected to the planning process. This may explain why USFS concern regarding fuel targets and budgetary constraints was not introduced into the collaborative process. There is evidence to suggest that part of disconnect between USFS leadership and the CWPP planning process may be due to other USFS policies relating to the frequent transfer and promotion of agency personnel.

So I've been here seven years and in the seven years I've been here, there has been three different permanent district rangers and five temporary district rangers. So there have been eight in the seven years that I've been here. And there was a whole

scale transition from forest supervisor on down. . . . So we spent a lot of time just having to reacquaint ourselves with new district rangers to get them briefed on the history of our collaborative effort and get them to buy into this. So it chews up a hell of a lot of our time. On the positive side, we have seen that the Forest Service, in its hiring criteria, has emphasized their experience with collaboration. . . . They even allowed us to suggest criteria for hiring new people. So I mean that to me is very positive. But you can't get to know a community whether it is a human community or a forest community at the speed at which people are turning over around here. (NGO employee, personal communication, August 15, 2006)

Other key stakeholders in the planning process were represented on the core planning team or as a resource to the core team. Input and feedback were solicited and received from organized environmental organizations in the region, with the most active being the Hells Canyon Preservation Council.

A final key factor that was important and clearly evident in Wallowa County was a sense of place. Resident were genuinely connected to, and concerned about, the landscape that surrounded them. They perceived themselves as stewards not only for their own well-being but for the benefit of the nation as a whole.

Some people say that state government can't do anything. But I believe that state government can put pressure on the federal political structure to say you need to be investing in this land that you own. When we talk about the national forest they are nationally owned and everybody in the country owns them. So we don't get to decide what we want to do just because they are next door to us. But we are next door and we can take care of them. We have the skills, abilities, inclination, desire and need if you know what I mean. When logging first went down people were pissed because they couldn't have a brand new four-wheel drive truck and have all of the things that industry provided. But now we just want to survive here. If we can just survive here we're happy. We're not here to get rich. We're just here to survive and protect our custom, our culture, live on the land and have that relationship. (Local government representative, personal communication, August 10, 2006)



## CHAPTER V

### DISCUSSION AND RECOMMENDATIONS

#### **Overview**

This chapter provides a discussion of the key factors and characteristics important in the community wildfire protection plan (CWPP) planning processes across all four case studies presented in chapter IV. Beginning with the communities' histories of addressing wildfire risk prior to the Healthy Forest Restoration Act (HFRA), the seven decision functions of the policy sciences are then used to compare and contrast the CWPP planning and decision-making processes used in each community. This is followed by a discussion of the findings of the decision function analysis integrating the important aspects of the social process which influenced the outcomes of the community planning efforts. This chapter concludes with the summary of the findings discovered in this research and recommendations for future policy and research.

#### **History of Addressing Wildfire Risk**

Each of the communities examined in this research had developed capacity within their communities to address the threat wildfire of wildfire prior to the passage of the National Fire Plan (NFP) in 2001 and HFRA in 2003. In Ashland, the development of the 1992 Ashland Forest Plan identified wildfire as a major issue for the community and recommended community actions to address the threat. The Ashland Forest Plan resulted in the creation of the Ashland Forest Lands Commission (AFLC) and projects to reduce

fuels on city-owned lands beginning in 1995. In the at-risk communities of the Sitgreaves National Forest and the greater Flagstaff area, community actions to address the risk of wildfire were precipitated by large wildfire events. The 1994 Cottonwood Fire led to the creation of the Natural Resources Working Group (NRWG) in the White Mountains. Two large fires outside of Flagstaff in 1996 prompted the formation of the Flagstaff Fire Department Fuels Management Division and the Grand Canyon Forest Partnership, now called the Greater Flagstaff Forest Partnership (GFFP). In Wallowa County, efforts to address the risk of fire began first with a focus on forest restoration and economic development through the creation of Wallowa Resources, a community-based nonprofit organization established after the collapse of the local timber economy in the region.

As landscape-level phenomena, successful mitigation of the wildfire threat must occur at larger spatial scales and across jurisdictional boundaries. In every case examined in this research, addressing the wildfire threat required the involvement and cooperation of the primary landowner surrounding these communities—the U.S. Forest Service (USFS). USFS efforts to address the risk of fire around communities also preceded the NFP and HFRA. However, at the same time communities were organizing to deal with the risk of fire, USFS efforts were generally stymied. Because USFS fire mitigation efforts generally incorporated the sale of commercial timber as a means to fund the work, such projects were targets for challenges from environmental organizations and were often successfully stopped or delayed by appeals and litigation. Each of the four national forests surrounding the case study communities experienced challenges moving forward with fuel reduction projects due to the use of traditional silvicultural approaches and contracting mechanisms. As an example, the “HazRed” project proposed for 1,800 acres

in the Ashland Watershed was delayed for more than six years due to environmental challenges and community opposition (USDA 2001). Thus many of the community-based efforts to mitigate the risk of fire outside of their jurisdictional boundaries began simultaneously, if not primarily, as a method of conflict resolution between USFS and environmental and other community interests. In the Sitgreaves National Forest, the NRWG developed the Blue Ridge Demonstration Project as a way to build trust among diverse community interests and a common vision for forest restoration that would also be effective in addressing the risk of fire. In the greater Flagstaff area, the predecessor organization to the GFFP was similarly founded on building consensus on methods to restore ponderosa pine ecosystems that would at the same time provide community protection from wildfire. In Wallowa County, establishing trust and positive working relationships between the USFS and environmental and community interests was paramount to moving forward with any proposal, forest restoration or not. In Ashland, the city's involvement in mitigating the fire hazard in the Ashland watershed was first initiated as an attempt to mediate between environmental interests and the USFS through the auspices of the Ashland Watershed Stewardship Alliance. The experience and relative success of each of these efforts in managing conflict to enable wildfire fuel reduction and forest restoration projects to proceed on USFS land was an important precursor to the development of CWPPs under HFRA.

The advent of the NFP in 2001 brought an infusion of resources to communities to address the wildfire risk. However, the NFP got off to a slow start. There was considerable bureaucratic wrangling and agency red tape. A substantial focus of initial NFP expenditures was on expanding and supporting the fire suppression infrastructure

and paying for fire suppression costs (Gregory 2005). Much of the NFP funding allocated for hazardous fuel reduction was targeted towards private lands based on landowner willingness and ability to share costs. Therefore, projects funded under NFP tended to be based on opportunity rather than a strategic context. Although cross-jurisdictional cooperation could increase the potential for successfully obtaining NFP funding, there were also disincentives because jurisdictions were competing for limited resources. The Flagstaff Fire Department was very successful in obtaining and using NFP funding to expand the operations of the Fuels Management Division within the city. The City of Ashland was also successful in securing NFP funds and developing cost-share fuel reduction projects with homeowners in the city's interface area. The communities of the Sitgreaves National Forest were slow to take advantage of the NFP during the first two years of the program. However, the experience of evacuating from the path of the monstrous Rodeo-Chediski Fire brought about a dramatic change in perception and these communities began applying for and receiving substantial NFP funding in 2003. Wallowa County received the least amount of support under the NFP. However, the projects accomplished under the NFP, which included a fuel break adjacent to private residents around Wallowa Lake and the Alder Slope project, demonstrated a high degree of cross-jurisdictional cooperation and coordination among the USFS, Oregon Department of Forestry (ODF), rural fire districts, and multiple private landowners. Thus, NFP funding was more important in some communities than others and was based less upon the wildfire risks a community was facing and more on their capacity to develop projects and administer funding. With the exception of Wallowa County, most of the NFP funding was targeted towards addressing needs within jurisdictional boundaries rather than on

strategically linking fire planning and mitigation to a larger cross-jurisdiction landscape. Therefore, the key innovation and advantage of CWPPs is precisely this potential to join efforts at the scale necessary to successfully address wildfire as a landscape-level occurrence and to pool and apply resources strategically at larger spatial scales.

### **CWPP Decision Processes**

#### **Intelligence**

In the view of the policy sciences, it is important to have comprehensive and reliable information available on which to define the problem and make decisions. It is also important that information be widely shared and agreed upon by all participants in the policy process. In two of the case studies examined in this research, Ashland and Flagstaff, there were disagreements among participants in the CWPP planning process over access and validity of the data used in the development of the CWPP. In Ashland, participants representing the city were uncomfortable with the lack of stand-level information to verify the coarse-scale data taken from satellite imagery and aerial photos provided by the USFS. On several occasions the USFS was reluctant to share information with the city for fear of violating legal guidelines related to the disclosure of predecisional information under the National Environmental Policy Act (NEPA) and the Federal Advisory Committee Act (FACA). In Flagstaff, it was the USFS that was unfamiliar with the Forest Ecosystem Restoration Analysis (ERA) databases and modeling protocols and concerned about the lack of stand-level data to verify and support conclusions and recommendations put forth in the CWPP. However, in the remaining two cases, Sitgreaves and Wallowa, information was widely shared and agreed upon by all participants in the planning process. The Sitgreaves planning process was supported by

information provided by the USFS, and its specialists assisted community members in understanding and manipulating the data. In Wallowa, the USFS, ODF, and county employees worked together to integrate their respective data sets to develop a shared database that extended across their various jurisdictions.

Another important aspect of the intelligence function is establishing the goals which the community hopes to achieve. Key differences among the communities examined in this research emerge upon an examination of the goal statements put forth in their respective CWPP (table 6).

Table 6. CWPP Goal Statements

Ashland	Flagstaff	Sitgreaves	Wallowa
<p>Summarize and review regulations, past plans, community values, and actions as they relate to wildfire and forest management in our community and watershed.</p> <p>Present a community vision and plan for restoring resiliency to the forests of the watershed as allowed under the Healthy Forests Restoration Act of 2003.</p> <p>Analyze issues of community wildfire safety and make recommendations for increasing community wildfire preparedness.</p> <p>Identify actions to decrease community wildfire hazards.</p>	<p>Protect Flagstaff and surrounding communities, and associated values and infrastructure, from catastrophic wildfire by means of</p> <p>a) An educated and involved public.</p> <p>b) Implementation of forest treatment projects designed to reduce wildfire threat and improve long-term forest health in a progressive and prioritized manner.</p> <p>c) Utilization of Firewise building techniques and principles.</p>	<p>Improve fire prevention and suppression.</p> <p>Reduce hazardous forest fuels.</p> <p>Restore forest health.</p> <p>Promote community involvement.</p> <p>Recommend measures to reduce structural ignitability in the CWPP area.</p> <p>Encourage economic development in the community.</p>	<p>Continue to enhance watershed quality while protecting municipal water systems.</p> <p>Improve community safety through continued education and awareness in regard to the risks of living, working, and recreating in the wildlands of Wallowa County.</p> <p>Continue to improve pre-suppression planning in the event of a wildfire.</p> <p>Maintain, enhance, and protect aesthetic, recreational, and cultural values.</p> <p>Preserve and promote the custom, culture, and economic health of Wallowa County.</p> <p>Engage the local workforce in work related to wildfire prevention and protection and in restoration of lands in Wallowa County.</p>

For example, the CWPP goal statements of the City of Ashland focused on planning actions with a desire to *summarize* and *review* the ordinances, plans, and values of the community and *analyze* and *make recommendations* relating to wildfire safety and preparedness. In contrast, the goal statements of the Sitgreaves CWPP emphasized outcomes (e.g., *reduce* hazardous fuel, *restore* forest health, *promote* community involvement). Also revealing are the inclusion of economic development goals in Sitgreaves and Wallowa plans and the absence of similar goals in Ashland and Flagstaff. Given the efforts of the GFFP to encourage biomass and small-diameter utilization, the absence of economic development goals in the Flagstaff CWPP is curious. However, the goal statements reflect the differing values of each community and strategies deemed appropriate to address the wildfire problem.

Another interesting difference between the CWPPs examined in this research was the approach to involving communities in the intelligence function. In Wallowa County, the core planning team held a series of five public meetings early in the planning process as a way to identify community issues and concerns about wildfire. The information gained from these meetings was then incorporated into the planning process and used to delineate the WUI. In the Sitgreaves CWPP, two CAGs were formed at the outset of the planning process and given responsibility for the intelligence function, including identifying community values and developing a wildfire hazard and risk assessment. In the Ashland CWPP, the interests of the community were presumed to be represented by the participants in the planning process. And although meetings were open and information was widely shared though a Listserv, there was little effort to bring unrepresented interests to the table. This was similarly the case in Flagstaff, where a

small group of individuals were responsible for making decisions about what information was to be included in the plan. The interests of the communities covered by the plan were thought to be represented by the periodic input received from the organizations and agencies participating in the GFFP and Ponderosa Fire Advisory Council (PFAC). And although there was significant representation present in these two organizations, at least one key stakeholder—the USFS—was for all practical purposes absent in the intelligence function.

One final characteristic of the intelligence function in the Sitgreaves CWPP is important to mention. There was a specific emphasis on bringing other relevant plans and documents into the planning process. This was done in order to ensure consistency between the CWPP and various plans and guidelines developed at all levels of government. While other planning process did this to lesser and varying degrees, the emphasis placed upon this aspect in the Sitgreaves CWPP is notable.

### **Promotion**

The promotion function ideally is where open debate and discussion should occur regarding the merits and costs associated with various policy alternatives. Through the promotion process participants clarify, reject, or accommodate value demands and form expectations for specific courses of actions. Therefore, the promotion function is largely shaped by the individuals and groups participating in the planning process as they advocate for specific strategies or methods to address the problem. The Ashland CWPP promotion function was significantly influenced by the presence of organized environmental interests, the absence of the USFS, and the scientific and technical expertise of planning committee. Representatives from environmental interests were



generally effective in advocating for strategies consistent with the policy agendas of their organizations. This included constraining management activities in the watershed by restricting the size of the WUI and by reducing or eliminating commercial timber removal and mechanical fuel reduction treatments. The scientific and technical expertise of the community's planning team resulted in a scientifically credible alternative for management of the watershed. Yet, coupled with the lack of a USFS presence in the process, the community alternative paid little attention to more practical concerns related to economics or project administration. Similarly, the Flagstaff planning process had a strong scientific bias and a lack of USFS presence in the promotion function. Decisions regarding the size of the WUI and the strategies for modifying fire behavior at the landscape level were made by a small group of individuals using a multicriteria decision analysis framework and the Forest ERA databases and computer models. The lack of USFS involvement into the promotion process later resulted in disputes about the validity of the Forest ERA data and modeling protocols as well as the prescriptions and designation of priority areas that resulted from the Forest ERA analysis. In contrast, both the Sitgreaves and Wallowa planning processes contained a much more balanced representation of community interests at all levels of government, as well as scientific expertise and local knowledge. In the Sitgreaves planning process, the WUI was defined by the CAGs, which relied on the knowledge and expertise of the local fire chiefs and USFS resource specialists and their experience of the Rodeo-Chediski fire. Environmental organizations outside of the planning process were consulted and the strategies that were promoted to address the wildfire problem attempted to balance environmental concerns with a desire to expedite projects in the interface. In Wallowa,

there was also significant representation from all levels of government and community interests in the planning process. Although the Wallowa wildfire risk and hazard assessment was in large part data driven, the strategies that were promoted focused more on obtaining funding and efforts towards economic and workforce development.

### **Prescription**

The prescription function represents a specific expression of the rules and norms that the community views as appropriate to solve the problem under consideration. In the context of CWPPs, this is manifested in the specific treatment prescriptions and guidelines for hazardous fuel reduction and the recommendations for other wildfire mitigation measures to be taken by the community. The Ashland CWPP contained the most specific treatment prescriptions and priority designations for hazardous fuel reduction and forest restoration treatments in the Ashland watershed. The Ashland CWPP delineated 12 levels of priority with detailed treatment prescriptions based on the eight different Plant Association Groups (PAGs) occurring within the watershed. The community alternative also described extensive protection and mitigation measures for soils, geologically sensitive areas, riparian values, wildlife, retention of snags, and downed woody debris. In addition, the city called for a more detailed inventory of vegetation and soil conditions throughout the watershed, extensive research, monitoring, and involvement of representatives from the city in all phases of project planning and implementation. Ironically, the detailed prescriptions provided by the CWPP do not have as much weight as they potentially could have under HFRA. This is because most of the areas to which the treatment prescriptions apply were excluded from the WUI. Also, the Ashland CWPP did not produce many substantive new mitigation measures to address

the wildfire threat within the city. To a lesser extent, both the Flagstaff and Sitgreaves CWPPs contained reasonably detailed prescriptions for hazardous fuel and forest restoration treatments specific to the ponderosa pine ecosystem that dominates the region. The primary differences between the two plans were in the expectations for application of the prescriptions by the USFS. The Flagstaff CWPP included an additional section that generalized its treatment prescriptions and priority designations on federal land to accommodate USFS concerns regarding validity of the Forest ERA analysis. Whereas the Sitgreaves CWPP specifically stated that the prescriptions contained in the plan were to be used by the USFS as the basis for the action alternative when developing projects for environmental analysis under NEPA. However, both the Flagstaff and Sitgreaves plans did propose numerous new and additional community mitigation strategies focused on strengthening codes and ordinances, inter-jurisdictional cooperation, biomass and small-diameter utilization, and public education and outreach programs. Prescriptions for the treatment of federal lands was absent from the Wallowa County CWPP, although the plan did contain an example of contract specifications for fuel treatment on private lands as an appendix. Participants in the Wallowa planning process generally deferred to USFS expertise and held the perception that the USFS would collaborate with the community as projects based on the plan were proposed. Although few specific prescriptions for action were included, the Wallowa CWPP also contained sections addressing emergency management issues and needs, wildland fire use, biomass utilization, workforce development, and USFS contracting procedures.

## **Invocation**

The invocation function involves the first steps taken to put a plan into action, including the establishment of administrative arrangements and the distribution of resources. All of the CWPPs examined in this research were formally invoked through the approval and signatures of the three primary agencies responsible for CWPPs under HFRA: the applicable local government; the local fire department(s); and the state entity responsible for forest management. Ashland provides a unique case due to the inclusion of the community alternative for the watershed within the CWPP. Because the USFS has decision authority for the management proposal in the watershed, invocation for that portion of the CWPP remains the USFS's prerogative and is still under analysis. Both the Sitgreaves and Flagstaff CWPPs also included signatures of concurrence from the local federal authorities, which included the USFS and Bureau of Indian Affairs on Sitgreaves, and the USFS and National Parks Service on Flagstaff. However, the four CWPPs differ in the administrative arrangements and resources provided to oversee and implement the plan. The City of Ashland provided funding within the city budget to retain a coordinator responsible for administering the CWPP within the city. Similarly, the counties and the cities covered in the Sitgreaves CWPP pooled funding to hire a CWPP administrator through a cooperative agreement with the University of Arizona Extension Service. In Wallowa County, the ODF designated an individual in its northeast regional office to coordinate and oversee the CWPPs for the region; however, no resources have yet been identified to fund this work, and the coordinator's first task is to identify and secure funding. The Flagstaff CWPP did not provide for any overall administrative

arrangements or resources. Those responsibilities remain to be developed by the individual entities participating in the plan.

### **Application**

The application function is more commonly referred to as implementation and includes those actions which manifest the community's prescriptions in specific situations. It also includes processes for the resolution of disputes and sanctions for noncompliance. As all of the CWPPs examined in this research were approved in mid- to late-2004 or early-2005, they remain in the early stages of implementation. Yet some plans have been applied more successfully than others. The Sitgreaves CWPP has been the most successful in its application in part due to the fact that implementation of the plan on federal lands is tied into a long-term stewardship contract on the Apache-Sitgreaves National Forest. The White Mountain Stewardship Project is the first large, 10-year stewardship contract in the nation and is expected to treat approximately 5,000 to 25,000 acres per year. Using the treatment prescriptions identified in the Sitgreaves CWPP, as well as a similar CWPP covering the adjacent Apache National Forest, the USFS has completed a NEPA analysis on more than 70,500 acres with only one objection being filed as of January 2007. Also as of January 2007, task orders for thinning on more than 27,000 acres have been issued with 19,000 acres completed and 293,000 green tons of biomass treated. For the community's part, the Sitgreaves CWPP administrator has continued to oversee NFP grants and cost-share fuel reduction programs for private landowners. The CWPP administrator is working to develop a GIS-based database for tracking fuel reduction treatments on private lands to allow integration with similar databases on federal- and state-owned lands. The cities and counties covered by the

Sitgreaves plan are also working to pool resources among fire districts to develop a fuels crew modeled after the program in the Flagstaff Fire Department. Application of the GFCWPP has produced mixed results. The Flagstaff Fire Department has continued to move forward with an impressive program of wildfire hazard mitigation. Although this program preceded the development of the CWPP, in 2004 and 2005, the fire department completed an additional 1,800 forest stewardship and prescribed burning plans, thinned in excess of 1,200 acres, and conducted prescribed burning on more than 1,600 acres in the city. The Flagstaff Fire Department has also implemented several of the community mitigation plan measures identified in the CWPP. These include completing a neighborhood threat assessment map and hiring a Firewise coordinator to improve fire preparedness, planning, and code enforcement. However, USFS application of CWPP is less clear, although the agency has begun to reference the CWPP in its planning documents. A review of USFS proposed actions from April 2005 to December 2006 lists six new proposed fuel reduction and planning projects with environmental analysis covering approximately 20,000 acres. Yet two of these projects were developed under the cooperative planning efforts with the GFFP and preceded the CWPP. The GFFP has continued to work on biomass and small-diameter utilization initiatives as well as cooperative planning of fuel reduction and forest restoration projects with the USFS. It has also worked with the USFS to attempt to reconcile the differences between the Forest ERA and USFS data. However, the GFFP is currently struggling with maintaining cooperative relationships with members of the GFFP, as well as with the USFS, and has initiated a strategic planning process in part to revitalize its collaborative interactions. Application of the Wallowa County CWPP has been slow. The ODF reported it assisted

the Joseph Fire Department to obtain three specialized fire engines and, in 2005 and 2006, 652 acres of private land were treated through NFP funding. The ODF also conducted a Firewise workshop at the Wallowa Lake Rural Fire Protection District station. The USFS reported accomplishing more than 5,000 acres of prescribed burning in Wallowa County in 2005. However, participants in the planning process have complained that the USFS has not yet proposed projects in the high-priority areas identified in the CWPP. Residents perceived that the USFS is choosing instead to focus on lower-priority areas that are easier and less costly to treat, thus allowing them to demonstrate substantial progress towards annual fuel reduction performance objectives established at higher levels in the USFS. There has been one project proposed by the USFS in the high-priority WUI areas of Wallowa County; however, this project preceded the development of the CWPP.

### **Appraisal and Termination**

The appraisal and termination functions include an overall assessment of the efficacy of the plan and the processes for modifying, adapting, or ending prescriptions in order to be more effective in achieving the goals of the community. Of all of the CWPPs examined in this research, only the Sitgreaves plan established a working process to accomplish the appraisal and termination functions. Monitoring and assessment are accomplished through a 16-member all-party monitoring board established in conjunction with the White Mountain Stewardship Project. Three percent of task order funding under the stewardship contract is set aside for monitoring and economic, social, and ecological assessments have been completed in the first year. There has been some criticism regarding CWPP prescriptions and USFS fuel treatments in the WUI, and the monitoring

board is currently working with the USFS on modifying prescriptions to produce more favorable results for certain species of wildlife. The GFCWPP included an extensive monitoring framework developed by the GFFP and has established a CWPP review team that has met several times since the plan was adopted. However, most of the Flagstaff appraisal effort has focused on the ancillary mitigation strategies identified in the CWPP. There is also a perception among some participants in the planning process that lacking USFS commitment and support there is little incentive to monitor and adapt the plan over time. This is similarly the case in the Wallowa CWPP. Although the plan has been updated once and accomplishments recorded, participants see little incentive to substantially revisit the plan, unless there is greater USFS investment in addressing the community' recommendations.

#### **Discussion of Key Decision Function and Social Process Factors**

A review of the case study CWPPs examined in this research reveals that only one CWPP substantially addressed each of the seven decision functions (table 7). The Sitgreaves CWPP was very successful in creating an inclusive and multi-jurisdictional planning process that established effective procedures for gathering and sharing intelligence and promoting community consensus around appropriate mitigation prescriptions. Through connections to the White Mountain Stewardship Project, the Sitgreaves CWPP also established adequate methods to ensure application, appraisal, and termination of the plan over time. The Sitgreaves plan was widely supported by the community and the USFS and, as such, was an effective expression of the community's common interests. The Sitgreaves plan was able to build off of the previous collaborative interactions and positive working relations established through the NRWG. The



Table 7: Key Factors in Decision Functions across Cases (gray shading indicates problem areas in decision process)

	Ashland	Flagstaff	Sitgreaves	Wallowa
<b>Intelligence</b>	<ul style="list-style-type: none"> <li>USFS distant</li> <li>Mixed history of collaboration</li> <li>Disagreement between USFS and city over data/tech sharing of data</li> <li>Emphasis on scientific and technical expertise</li> </ul>	<ul style="list-style-type: none"> <li>USFS distant</li> <li>Mixed history of collaboration</li> <li>Small group with periodic updates and input from GFFPPAC</li> <li>Disagreement between USFS and planning committee over NAC Forest ERA data modeling</li> </ul>	<ul style="list-style-type: none"> <li>USFS present</li> <li>Successful history of collaboration</li> <li>Community action groups (CAGs)</li> <li>Science/local knowledge</li> <li>Data and technical assistance from USFS</li> </ul>	<ul style="list-style-type: none"> <li>USFS present</li> <li>Successful history of collaboration</li> <li>5 community meetings</li> <li>Science/local knowledge</li> <li>Data integrated between USFS, ODF, and county</li> </ul>
<b>Promotion</b>	<ul style="list-style-type: none"> <li>Lack of data</li> <li>Organized environmental interests</li> <li>USFS absent</li> <li>Emphasis on unassigned</li> </ul>	<ul style="list-style-type: none"> <li>Small group</li> <li>Science/computer modeling</li> <li>USFS absent</li> </ul>	<ul style="list-style-type: none"> <li>Balanced representation</li> <li>Multi-jurisdictional</li> <li>Balance action with environmental concerns</li> <li>Economic development</li> </ul>	<ul style="list-style-type: none"> <li>Resource protection</li> <li>Forest restoration</li> <li>Community protection</li> <li>Economic development</li> </ul>
<b>Prescription</b>	<ul style="list-style-type: none"> <li>Not explicit</li> <li>Not binding/ODF WOL</li> <li>Priority levels defined</li> </ul>	<ul style="list-style-type: none"> <li>Explicit/generalized for USFS</li> <li>Partially binding</li> <li>Priorities vaguely defined</li> </ul>	<ul style="list-style-type: none"> <li>Explicit</li> <li>Binding</li> <li>Priorities defined</li> </ul>	<ul style="list-style-type: none"> <li>Not explicit</li> <li>Not binding</li> <li>Priorities defined</li> </ul>
<b>Invocation</b>	<ul style="list-style-type: none"> <li>Required signatures</li> <li>Community alternative USFS responsibility still in analysis</li> <li>City/CWPP administrator at USFS</li> </ul>	<ul style="list-style-type: none"> <li>Required signatures</li> <li>Concurrence signatures from USFS/NPS</li> <li>Responsibility of individual agencies</li> </ul>	<ul style="list-style-type: none"> <li>Required signatures</li> <li>Concurrence signatures from USFS/Tribal</li> <li>CWPP administrators for cities and counties</li> </ul>	<ul style="list-style-type: none"> <li>Required signatures</li> <li>ODF coordinator for region / no funding</li> </ul>
<b>Application</b>	<ul style="list-style-type: none"> <li>City wildfire evacuation plan</li> </ul>	<ul style="list-style-type: none"> <li>USFS not clear</li> <li>City actions</li> </ul>	<ul style="list-style-type: none"> <li>USFS White Mountain Stewardship Contract</li> <li>City and county actions</li> </ul>	<ul style="list-style-type: none"> <li>ODF actions</li> </ul>
<b>Appraisal/ Termination</b>		<ul style="list-style-type: none"> <li>CWPP review team</li> </ul>	<ul style="list-style-type: none"> <li>USFS White Mountain Stewardship Multi-party Monitoring Board</li> </ul>	

experience of the Rodeo-Chediski and Kinishba fires changed the perception of the wildfire risk. This combined with effective leadership provided by the USFS, other community leaders, and staff from Logan Simpson Design plan allowed a comprehensive and credible plan to be produced in a relatively short time frame. There was also a strong commitment by USFS leadership to engage in the collaborative process and act on the community's recommendations.

The Wallowa County CWPP similarly benefited from a past history of successful collaboration and positive working relationships established through the efforts of Wallowa Resources and the county's Natural Resource Advisory Committee (NRAC). Strong leadership was present in the community and in ODF, which helped to create an inclusive multi-jurisdictional planning process. The Wallowa CWPP process was equally effective as the Sitgreaves in the early stages of the decision process. Intelligence was widely shared and agreed upon and the promotion process created shared expectations for action. However, the Wallowa planning process ran out of steam at the prescription function. The plan lacked treatment guidelines for federal lands and for the most part specific action steps to be taken to address other mitigation strategies. Therefore, when the plan was invoked there was little of substance to be implemented except USFS treatment of the areas designated as priority in the WUI. Although there was a strong USFS presence in the Wallowa CWPP, USFS leadership was not directly connected to the planning process. This led to community expectations for action that were not consistent with USFS directives relating to annual fuel reduction performance objectives or "targets." The lack of USFS commitment to act on the community's recommendations substantially decreases the likelihood that the appraisal and termination functions will be

in any meaningful way addressed. This raises questions regarding the validity of the entire CWPP planning effort and has implications for future collaborative interactions between the USFS and the community. Thus, it is important to not only have USFS personnel involved in community planning processes, but to also ensure that the commitments made in such efforts will be honored by USFS leadership.

The relationship between the USFS and the community was also paramount in the Ashland CWPP—but in a different way. The collaborative history in this community has produced mixed results. A formalized and consultative approach to developing the CWPP was taken, in which the USFS, as a primary stakeholder, was perceived by the community to be distant and reluctant partner. The lack of USFS presence in the collaborative process reinforced this perception and resulted in key missteps in the intelligence function. In Ashland, the reluctance of the USFS to share information with the city and the disagreements over the reliability of the data introduced tension into the process that was not adequately resolved. This, combined with the USFS insistence on a tight timeline and the framing of the community's proposal for the watershed as a formal NEPA alternative to the USFS action, established an adversarial rather than collaborative atmosphere. This had implications for the entire planning process that is evident in all stages of the decision functions. Viewing the community alternative as formal NEPA counter-plan to the USFS proposal emphasized the role of science and technical expertise. And, because it was the view of the city that it lacked sufficient data, this made scientific justifications for management actions difficult and conservative. The adversarial atmosphere surrounding the plan, the emphasis on science, and a lack of data inevitably favored the special interests of environmental organizations rather than the

common interests of the community. The lack of a USFS presence and other counterbalancing community interests led to the promotion of strategies which attempted to restrict, as much as possible, the management options to mitigate the fire hazard watershed. This resulted in the adoption of a narrow WUI and detailed prescriptions designed as much, if not more, to constrain management rather than to facilitate it. Also, the time delays that hindered the ability to adequately address the application function and USFS resistance to consider arrangements for the appraisal and termination functions favored the special interests of environmental organizations. The time delays favored the environmental preference for as little management as possible to occur in the watershed, while at the same time kept the threat of USFS action imminent, which helped to rally the support and funding from their constituents. The USFS reluctance to discuss monitoring arrangements with the city as part of the CWPP process reinforced the perception that the USFS would act independently and was not to be trusted. Thus, the Ashland CWPP case study brings forward three important issues. First is the importance of considering CWPPs outside of a formal NEPA process. Second is the significance of having USFS representation and broad-based participation from all interests the community in the CWPP planning process. Third is the need to examine the role and influence of special interests, in this case environmental organizations, in a collaborative community-based effort to address the wildfire problem.

The Flagstaff CWPP planning process was similarly plagued by a distant and skeptical federal partner. Because the USFS is a member of the PFAC, a cooperator in the GFFP and had a designated liaison participating in GFFP meetings, it is difficult to understand the USFS absence in the intelligence function for the Flagstaff CWPP. It is a

shortcoming in this research that more data were not available to adequately explain why this occurred. Regardless, the lack of a USFS presence and the conscious decision by the greater Flagstaff planning team to not use USFS data in the intelligence function led to key disagreements that compromised the remaining decision functions. The promotion and prescription function in the CWPP planning process was primarily carried out by a small group of individuals using Forest ERA predictive computer models to determine the effectiveness of different treatment prescriptions in changing fire behavior at the landscape level. However, USFS concerns regarding the validity of the Forest ERA data and modeling protocols and the differences between USFS and Forest ERA data resulted in the need to modify the prescriptions to make them less prescriptive and therefore less binding on the USFS. Thus, there is little accountability or incentive on the part of the USFS to adhere to community-derived treatment guidelines in the application function. And, lacking any method by which to hold the USFS accountable, little motivation was provided for the community to engage in monitoring. This virtually ensures that appraisal and termination functions will not be substantially carried out. The Flagstaff case reinforces the importance of a USFS presence as a primary stakeholder in all stages the CWPP decision process. It also underscores the importance of the intelligence function and having information that is widely shared and agreed upon by all stakeholders to provide a solid foundation for the entire decision effort.

### **Conclusions and Recommendations**

This research examined two primary questions: (1) To what extent is the development of CWPPs occurring using the collaborative social processes envisioned in HFRA; and (2) to what extent are communities developing effective decision processes to

advance a more integrated and comprehensive approach to wildfire planning and management at the community level? Of the four CWPP planning processes examined in this research, only two were developed using collaborative social processes envisioned in HFRA. Both the Sitgreaves and Wallowa CWPPs employed collaborative multi-jurisdictional planning processes that included participation by all levels of government and broad stakeholder representation. The remaining two CWPPs, Ashland and Flagstaff, lacked participation from key stakeholders including the USFS. In these two plans, interactions between the USFS and the community occurred through formalized and restricted processes. In Ashland, communication between the USFS and the community occurred through designated liaisons and there was little direct participation by the USFS in the community planning process. In Flagstaff, the USFS input into the planning process came through attendance at public meetings, individual meetings with members of the community planning team, and formal written comment provided as the plan was being finalized. Although the relationship with the USFS in the Ashland and Flagstaff CWPPs might be fairly characterized as consultative, it was not collaborative. The Ashland and Flagstaff plans also had other shortcomings in their collaborative processes. In Ashland, the planning process emphasized scientific and technical expertise, was significantly influenced by the presence of organized environmental groups and lacked representation from other interests and levels of government. In Flagstaff, although the process was open, the primary authorship of the plan was the responsibility of a few individuals. Although the stakeholders represented in the GFFP and PFAC received periodic updates and provided input into the plan, it was not a collaborative process.

Out of the four CWPP case studies examined in this research, only one had effectively and substantively addressed each of the seven decision functions. The success of the Sitgreaves CWPP process was in large part due to USFS support and cooperation in each stage of the decision process. This included providing information, personnel, and expertise to support the intelligence, promotion, and prescription functions of the Sitgreaves plan. It also included a commitment to the application of the community's prescriptions and establishing a framework through the White Mountain Stewardship Project for the appraisal and termination functions. As important as the USFS was in ensuring the success of the Sitgreaves plan, it also bore considerable responsibility for the inability of the remaining efforts to achieve the stated goals. Although the USFS engaged in the collaborative process and was instrumental in the early stages of the Wallowa CWPP, the lack of commitment and follow-through by the agency to implement the community's recommendations brings the entire wildfire planning effort into question. Similarly, the Ashland and Flagstaff CWPPs suffered for a lack of USFS involvement and support in working through the decision functions. In these two processes, turbulence between the USFS and the community began in the intelligence function and persisted throughout the entire decision process. If the USFS and the communities cannot agree on the basic information necessary to develop a CWPP, then prospects for the future success of such planning efforts are dim.

The fact that most of the communities examined in this research had not established effective decision processes to address the risk of wildfire is not to say there was no value in the CWPP planning process. Indeed, participants in each of the communities identified positive benefits accrued from the CWPP. In Wallowa, the

planning process created an awareness of emergency management issues that needed to be addressed. In Flagstaff, additional mitigation strategies were identified. In Ashland, there were perceived compromises from environmental organizations to allow some management action to occur in the watershed. These are all benefits that will enhance the wildfire mitigation efforts in these communities. However, as wildfire occurs at the landscape level and each of these communities is connected to, if not ensconced within, national forests, their efforts in isolation will remain insufficient to address the problem.

The primary finding of this research is the critical role played by the USFS in the success or failure of CWPP planning efforts. In each case examined in this research, the USFS was a key stakeholder in mitigating the wildfire risk and therefore had substantial influence in the success or failure of collaborative CWPP social and decision-making processes. Therefore, the following four recommendations are offered to address the policy implications of this research. First is that collaboration cannot be mandated by Congress. The two cases examined in this research in which collaborative planning processes were successfully employed resulted from long-term efforts to develop positive working relationships and trust between diverse community interests. As seen in the cases of Sitgreaves and Wallowa, these efforts entailed substantial amounts of time, persistence, and leadership within the community and the USFS. Efforts to require collaboration can result in deepening the divide of mistrust and resentment between divergent community interests. And where such divides exist, collaboration will seldom result in expeditious actions to solve the wildfire problem. Also, as was the case in Ashland, requiring collaboration invites strategic participation from special interests whose goals and objectives may be incongruent with the common interest of the



community. Second, when collaborative processes are used, it is important to have broad stakeholder participation and commitments made in such efforts must be honored. Failure to follow through on the commitment made through a collaborative planning process in Wallowa County violated the community's sense of trust and has implications for collaborative interactions beyond the CWPP process. In this regard, it is important that USFS re-examine policies relating to annual performance "targets" and allow flexibility and provide incentives for local USFS leaders to be responsive to community concerns and priorities. Third, CWPPs were intended to be multi-jurisdictional planning documents and as such are not appropriate for simultaneous use in the NEPA process. As in Ashland, when conflicts exist between proposed projects and developing CWPPs, those projects should be withdrawn until the plan is completed or should be conducted as separate planning process. Fourth, the policy changes that were adopted under the NFP to require CWPPs as a condition of receiving grant funding should be reconsidered. The effect of this policy undermined the overall intent of the CWPP process, which was to develop a comprehensive multi-jurisdictional strategy to address the risk of wildfire. However, as was the case in Flagstaff, and to some extent in the other communities as well, the focus was on finalizing the plan in order to obtain funding rather than on establishing an effective community decision process for mitigating the wildfire threat.

The annual threat of wildfire will remain a fact of life for communities in the West for the foreseeable future. While there has been considerable investment in assisting communities with hazardous fuel reduction and obtaining improved fire suppression and response capabilities, much less attention has been paid to assisting communities in developing effective social and decision-making processes to facilitate multi-

jurisdictional cooperation to strategically address the risk of fire at the landscape level. This research demonstrated how social and decision processes in a community can reinforce or impede the development of effective responses to mitigate the wildfire threat. If, as Pyne says, “the epoch of big government fire protection has ended,” then investments in assisting communities to develop the social and decision-making capacity necessary to make the most of increasingly scarce resources is warranted (Pyne 2004:128). Additional research to identify effective cross-jurisdictional strategies to address wildfire can provide necessary and timely examples for other communities to follow. Much of the promise of community-based approaches to solving the wildfire problem remains to be realized. Yet, there is tremendous benefit to be gained by helping those communities standing closest to the flame.

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## APPENDICES

APPENDIX A

WRITTEN CONSENT FORM

Community Wildfire Protection Planning and the Healthy Forest Restoration Act of 2003.

To participants in this study:

The purpose of this research is to understand the influence of institutional relationships and community participation in the planning, decision making, and implementation of Community Wildfire Protection Plans (CWPPs). The goal of these interviews is to understand the differing approaches to developing CWPPs and assess the various approaches these plans take in addressing the wildfire problem. The information gained through the course of this research will be used to suggest improvements to collaborative community wildfire planning and decision making processes. Participants in this research include local citizens, members of non-governmental organizations and employees of federal and local government involved in the development and implementation of CWPPs.

You are being asked to participate in a focused interview lasting approximately one hour. Further contact might be necessary in order to ensure that your responses have been accurately interpreted. I will take written notes during the interview, but I also request your permission to record the data in an audiotape. You will be able to cease the interview at any time. I will quote you by name only with your written permission. In the intermediate future, all data will be stored in a secure location and then destroyed after a period of ten years. My advisor, Dr. Mimi Becker and I, William Fleeger, can be reached, for future questions and/or clarifications, at the University of New Hampshire, Department of Natural Resources, 215 James Hall, Durham, New Hampshire, 03824. We can also be contacted by phone [(603) 862-3950], fax [(603) 862-4976], or e-mail [(Dr. Mimi Becker: [mimi.becker@unh.edu](mailto:mimi.becker@unh.edu)) and/or William Fleeger: [wfleeger@unh.edu](mailto:wfleeger@unh.edu)]. If you have any questions about your rights as a research subject, you may contact Julie Simpson in the UNH Office of Sponsored Research at (603) 862-2003 or [Julie.simpson@unh.edu](mailto:Julie.simpson@unh.edu) to discuss them.

I have read the above statement and agree to participate as an interviewee under the conditions stated above. I am aware I can discontinue participation at any time without penalty.

\_\_\_\_\_  
Signature of participant

\_\_\_\_\_  
Date

I agree with the use of audiotape recorder under the condition that I may request that it be turned off at any time during the interview.

\_\_\_\_\_  
Signature of participant

\_\_\_\_\_  
Date

APPENDIX B

Community Wildfire Protection Plan (CWPP)

Focused Interview Form

**I. Interview information**

- A. Time: \_\_\_\_\_
- B. Date: \_\_\_\_\_
- C. Place/CWPP: \_\_\_\_\_

**II. Participant Information**

- A. Name: \_\_\_\_\_
- B. Title and/or Professional Position: \_\_\_\_\_
- C. Address: \_\_\_\_\_
- D. Phone: \_\_\_\_\_
- E. E-mail: \_\_\_\_\_

**III. Participant's Role and History of Involvement in Community or Wildfire Planning**

1. Before your participation in the CWPP, what roles have you played in relation community or wildfire planning?
  
  
  
  
  
  
  
  
  
  
2. How did you get involved with CWPP and what was your role in that process?

#### **IV. CWPP Participation**

3. Who else participated in the CWPP process and how or whom determined who should participate?
  
  
  
  
  
  
  
  
  
  
4. Was there any group or interest that should have been represented but wasn't? And if so, why not?
  
  
  
  
  
  
  
  
  
  
5. How, if at all, were the interests or ideas of the broader community incorporated, i.e., those not directly participating in the planning process?

#### **V. USFS and Community Collaboration**

6. What roles, if any, did USFS personnel play in the development of the CWPP and what influence did they have on the planning process?
  
  
  
  
  
  
  
  
  
  
7. What resources or funding were given to USFS personnel to support collaboration and participation in the planning process?





APPENDIX C

INSTITUTIONAL REVIEW BOARD APPROVAL



UNIVERSITY of NEW HAMPSHIRE

April 3, 2006

William Fleeger  
Natural Resources, James Hall  
70 Old Center Road  
S. Deerfield, NH 03037

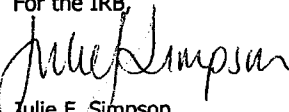
**IRB #:** 3683  
**Study:** Standing Closer to the Flame: Community Wildfire Protection Planning  
and the Health Forest Restoration Act of 2003  
**Approval Date:** 03/31/2006

The Institutional Review Board for the Protection of Human Subjects in Research (IRB) has reviewed and approved the protocol for your study as Exempt as described in Title 45, Code of Federal Regulations (CFR), Part 46, Subsection 101(b). Approval is granted to conduct your study as described in your protocol.

Researchers who conduct studies involving human subjects have responsibilities as outlined in the attached document, *Responsibilities of Directors of Research Studies Involving Human Subjects*. (This document is also available at <http://www.unh.edu/osr/compliance/irb.html>.) Please read this document carefully before commencing your work involving human subjects.

Upon completion of your study, please complete the enclosed pink Exempt Study Final Report form and return it to this office along with a report of your findings.

If you have questions or concerns about your study or this approval, please feel free to contact me at 603-862-2003 or [Julie.simpson@unh.edu](mailto:Julie.simpson@unh.edu). Please refer to the IRB # above in all correspondence related to this study. The IRB wishes you success with your research.

For the IRB,  
  
Julie F. Simpson  
Manager

cc: File  
Mimi Becker

Research Conduct and Compliance Services, Office of Sponsored Research, Service  
Building, 51 College Road, Durham, NH 03824-3585 \* Fax: 603-862-3564