

No One Cares What Color The Fire Truck Is: A Case Study of  
Interagency Cooperation In Fire Management in Central Oregon

by  
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AN ABSTRACT OF THE ESSAY OF

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The purpose of this study is to identify the aspects of successful collaboration within an inter-organizational context. This essay is a case study of a tightly niched network of fire chiefs in central Oregon situated within multiple contiguous boundaries of federal and state agencies, county and municipal governments, industrial forests, non-profit interests, and small private landowners. The study consists of a content analysis of policies, statutes, strategic / operating plans, and mutual aid agreements. The content analysis is coupled with in-depth, open-ended interviews with four of the ten fire chiefs in the Central Oregon Fire Chief's Association (COFCA) that compose urban and wildland task forces operating within the Deschutes National Forest. The results suggest that: 1) informal ties and the flexibility of mutual aid agreements at the local, state, and federal level are reinforced with a service oriented attitude and rapport among members; 2) the support of nonprofit public outreach guided by open communication with COFCA plays an important role in facilitating collaboration among stakeholders outside the fire management response network; and 3) formal policies, such as statutes and response plans that delineate operational roles, provide access to state and federal support in funding mitigation, suppression, and recovery efforts.

## **INTRODUCTION**

Fire management in the wildland urban interface takes place within a political arena influenced by the dynamics of a natural, social, and economic environment. Anthropogenic systems are complex, interdependent, and fragmented among a myriad of stakeholders that each measure value differently. The dynamics of competing values, priorities, and management objectives can conflict and complicate policy decisions with difficult tradeoffs. The inter-organizational context of fire management in the wildland urban interface epitomizes this challenge of aligning different values, priorities, protocols, and management objectives.

Collaboration is a buzzword in many policy domains. It is somewhat of a panacea to issues of fragmentation. Collaboration, “the process of facilitating and operating in multi-organizational arrangements to solve problems that cannot be solved, or solved easily, by single organizations,” (Agranoff and McGuire, 2003) can streamline objectives, coordinate resources and capabilities, and ameliorate tensions between groups for mutually beneficial solutions (Kickert et al., 1997).

In the last few decades the federal government has stressed the importance of collaboration in policy implementation (Hall and O’Tool, 2000). Natural resource management and emergency management alike have both put forth a concerted effort to include stakeholders in decision-making and improve the interoperability of agencies and organizations. To reduce conflict and improve efficiency, local communities are developing informal ties in addition to formal agreements to coordinate their resources. A solid understanding of the aspects of such collaborative efforts within these informal ties, however, is still in nascent form (Andrew, 2010).

The task of maintaining collaborative networks can be difficult to achieve with consistent success. Collaborative networks can facilitate coordination, reduce transaction costs, and mitigate conflict (Lubell, 2000; Weible, 2010). However, despite attempts to create and maintain collaboration within political arenas surrounding resource

management, effective collaboration still lacks benchmarks for success and a solid understanding of what works and under what conditions (Robinson and Gaddis, 2012).

This research is aimed at understanding the contributing factors of successful collaborative networks and the organizational structure of these networks in terms of formal and informal policy and points of access to the decision making process. This is a case study of a tightly niched association of fire management agencies in central Oregon. This case study seeks to identify the cultural aspects of a highly cohesive group that has evolved in an inter-organizational context where the balance between top-down control and the informal ties of horizontal networks has facilitated effective collaboration among local, state, and federal partners.

The study took place in the summer of 2012 and consists of secondary research of statutes, mutual aid agreements, strategic and operational plans and is coupled with semi-structured / open ended discussions with members of a network of task forces responsible for fire suppression in the Deschutes National Forest. The study is designed to identify the functional traits of the organizational culture attributed to effective collaboration. Specifically, the secondary research describes the organizational structure of fire management agencies, the formal and informal policies guiding fire management, and stakeholder access to decision making. The secondary research and the responses from the interviews in order to assess the adaptability to top down control combined the influence of horizontal pressures at the local level.

Many important studies on collaboration have attempted to identify the contributing variables on a broad generalizable level (Agranoff and McGuire, 2006; Bingham and O'Leary, 2006; Hardy and Koontz, 2009). Conclusions have been drawn from these studies that expand our understanding of what combination of elements engender success and what some of the limitations of these networks have been in the past. This case study is intended to enrich what has already been identified as contributing factors of successful collaboration with an understanding of the attitudes and beliefs that have allowed adaption to change within a particular policy subsystem as well as the cultural ramifications.

Because the outcomes of attempts at policy implementation in multi-organizational contexts depend on the ability of actors to collaborate, the study focuses an interest on who composes the network, how the actors perceive their network, how they communicate with one another, the level of trust and rapport influencing the depth in which they communicate, and the symbols exchanged signifying shared beliefs and attitudes regarding collaboration.

The case study provides a basis for a microanalysis of the social cohesion among key actors in the fire management system in central Oregon. The microanalysis is intended to shed light on the unique bond that ties a small group together by a shared identity and shared the meaning of symbols they use to communicate exclusively within their group, and how responsive this group may be to perceived outsiders. The basic approach undergirding this exploratory study was to begin by developing descriptions based on the accounts of actors within the network. The respondents were asked to identify their network and discuss the elements of successful collaboration within their network, the type of external pressures outside their group, and how they resolve conflicts of interest.

Multiple case studies describing collaborative networks on a case to case basis can augment our understanding of how to engage stakeholders, coordinate projects, and utilize resources most efficiently. The benefits of this understanding of the cultural aspects of organizational networks can be used to create more adaptive management structures that prevent, prepare for, respond to, and recover from unpredictable emergencies and disaster events.

Policy implications following these accounts are discussed in the context of current federal objectives designed to standardize a cohesive approach to fire management and how these objectives might be integrated into the existing network of fire managers in central Oregon.

### **Key Assumptions**

There are two primary assumptions of this research: 1) there is a delicate balance

between restrictive federal standards in fire management that can impede local efforts and a lack of federal standards that can create a disjointed and uncoordinated management system; and 2) the optimal solution to the dilemma is to increase the efficiency and the sustainability of community resources, while at the same time decrease federal dependency. By enhancing coordination at the local level, government at all tiers are able to adjust to shifts in the availability of resources at the federal level. These two assumptions were based on the following notions:

*Inter-organizational partnerships can improve efficiency*

Inter-organizational partnerships can improve efficiency by reducing transaction costs through informal policies that link organizations and their resources (Arganoff and McGuire, 2003). Collaborative solutions that combine the resources of multiple actors may be at an advantage to assess and adapt to the demands of diverse groups of stakeholders and mitigate a conflict of objectives.

*Scarce resources among diverse interests*

Multiple stakeholders with different values, policies, and goals typify the policy arena surrounding natural resources. Natural resource management requires the collaborative effort of multiple stakeholders for sustained use and protection from fire hazards. Federal, tribal, state, local government must operate in a joint effort in response to fire. Advocacy groups and industrial leaders have the potential to thwart the efforts of resource managers and must be brought to the table in decision making processes to assuage potential conflict related to fuel reduction and fire response. Homeowners must be stewards of the land and comply with ordinances and laws that prevent fire.

*Coordination and collaboration are key to mitigation*

Coordination and collaboration can mitigate the deleterious effects of fire hazards and the complications caused by break downs in communication in large multi-agency responses to conflagrations. In this sense, natural resource management is emergency

management. Reciprocally, emergency management is resource management—maintaining coordination within the supply chain and sustaining productive coordination among actors. Collaboration among emergency management services can potentially extend capabilities if properly coordinated (Lindell et. al., 2007).

*Resources are allocated through processes shaped by values*

The organizational structure of entities and the type of information exchanged between these entities are based on what is at stake, or what is valued. The internal administrative processes of our national emergency management system determine its capability to communicate with states, tribes, local government, nongovernmental organizations, and individual citizens. The capacity to respond to emergencies and disasters is contingent on the ability to coordinate organizational structures, share information, and manage conflict through negotiation and collaboration. Values determine the mission, management, priorities, and tactics of agencies. Differences in values among actors can potentially clash in each of these dimensions. Anecdotally, communication can mediate conflicting values and collaboration can produce mutually beneficial solutions.

## **THE POLITICAL CONTEXT**

### **Wicked Problems And The Autonomy-Accountability Dilemma**

Implementing federal policy at the local level can be challenging. The federal approach proffers the potential for disconnection between expectations, capabilities and willing compliance among stakeholders at the local level. In policy subsystems where there is a history of conflicts of interest among actors with different values, management tactics, and priorities, this potential may be even greater.

“Wicked problems” tend to emerge when there are multiple stakes, divergent values, and agendas in a highly politicized environment (Shindler and Cramer, 1999). Federal forestland supports multiple uses as well as multiple management paradigms, each bearing different costs and benefits relative to the stakeholder (Dwyer and Chavez, 2005).

Diverging objectives among the myriad of actors devoted to protecting their livelihood, human life, private property, commercial property, or the integrity of the environment are nearly an integral component in forest management.

Planning and policy implementation can mediate competing demands by establishing boundaries and expectations, but such efforts are far from a panacea (Schlager and Ostrom, 1992). Fragmentation, the product of multiple plans and policies within the political arena, sets the stage for institutional collective action issues (ICA) that can delay or derail policy solutions.

Stakeholder involvement in the planning process can prevent issues caused by the lack of communication and competing demands; however, their involvement inherently poses certain drawbacks. A diverse array of perspectives can impede the decision making process, while exclusivity can leave out key actors and generate outcomes that benefit a select few (Chambers, 1994). Oftentimes it is not possible to include all stakeholders and there must be a balance to achieve inclusivity (Clarke and Clegg, 1998). In addition, collaborative efforts must balance transaction costs with the risks involved in maintaining relationships subject to social, political, and economic dynamics. Natural resource issues affect everyone, but to different degrees at different times. An adaptive strategy is needed to allow flexibility in stakeholder participation, diversity of insight and resources, and the appropriate level of commitment based on specific project demands and current risks.

### **Fire in a Hollow State: Fragmentation and ICA Issues**

Decentralization and sharing power in collaborative networks has the potential to engender innovative solutions with a diverse array of resources and expertise. It can also, however, generate competition and sever communication ties (Lee et. al., 2011).

According to theory and a profusion of empirical evidence, groups with similar beliefs are more likely to coalesce into networks (Weible et. al., 2009). Horizontal connections among agencies and organizations self-organize and wield significant influence over the outcomes of policy implementation. Groups with diverging beliefs, however, require more time to negotiate to reach consensus and implement policy (Lubell, 2000; Weible,

2010).

The policies and plans of the myriad of institutions involved in natural resource management create what is sometimes called a “hollow state” where the core of public administration is enmeshed in a policy arena comprised of entities from different sectors (Milward and Provan, 1998). Generally speaking, the realm of public administration is fragmented among many agencies and organizations pursuing their own interests, sometimes at the expense of an underserved public. Externalities produced by the choices of multiple uncoordinated autonomous entities in an interdependent system often produce institutional collective action (ICA) issues (Feiock and Scholz, 2010).

In response to coordination issues in past incidents, the federal government is restructuring itself and taking more of a collaborative approach. For example, the US Department of Agriculture and Interior are currently planning on rolling out new metrics that will determine the trade-offs involved in funding fire management. The goal is to lessen state and local dependence on federal resources by creating regional standards and protocols that will facilitate collaboration and guide decision making in funding fire management, particularly in high risk areas known as the wildland-urban interface.

### **The Fragmented Wildland-Urban Interface**

The wildland-urban interface (WUI or I-zone) “exists where humans and their development meet or intermix with wildland fuel” (USFS and USDA, 66 FR 751). The Federal Register categorizes three types of communities that fit this criteria: 1) the interface community where there is a distinct boundary between wildland areas and structures; 2) the intermix community where structures are scattered in wildland areas and there are no clear lines demarcating developed areas from wildland areas; and 3) the occluded community that encompasses an island of wildland fuel. The definition of the WUI at the federal policy level is somewhat vague endowing states and local communities the legal authority to classify land use according to their own definition. In the State of Oregon, the boundaries of the WUI are determined by a committee of five members composed of three appointees provided by the county, one by the state fire

marshal, and one by the state forester. The forestland-urban interface is defined as a “geographic area of forestland inside a forest protection district where there exists a concentration of structures in an urban or suburban setting” (OregonLaws.org, n.d.).

The federal government’s lack of stringent guidelines permits state and local government the autonomy to determine their own classification standards based on their agency’s capacity. Variation in classification of the WUI among states, however, has made it difficult to standardize a national approach to risk management creating, what Platt (2010) calls, the “definition effect.” The inability to classify areas designated as the WUI obscures the ability to assess the risks on a national level making it difficult for the federal government to formulate a response (Platt, 2010). Without a formula for consistency, it is difficult to maintain accountability and efficiently appropriate funds to reduce the risks of wildfire.

### **The Risk of Wildfire**

Each year the cost of fire suppression on federal lands multiplies at an average of 11 percent (Headwaters, 2009). There are a number of contextual factors driving this increase in the risk of wildfire. Cohen (2008) describes the context of a wildland urban interface fire as a “set of contingencies” that include: 1) severe wildfire conditions; 2) extreme fire behavior; 3) residential fires; 4) fire protection resources; and 5) fire protection effectiveness. These contingency factors are interrelated and collectively contribute to the risk of wildfire.

Humans have had effect on forest health. Felled trees left rotting in the forest and piles of slash are the most obvious sign of the deleterious effects of human activity. The needles on the trees on the fringe of the forests lining the highways are dry and brown. Signs posted by the USFS on the highways are used indicate current forest conditions and to keep locals and visitors aware of the relative risk of fire. Locals in the area do not speak in terms of the possibility of a wildfire occurring, they say it is inevitable and just a matter time before another big fire. The question is where it will happen next.

Severe wildfire conditions are often associated with forest fire policies of the past,

invasive species of plants and insects, and logging practices. These factors and expected changes in climate engender the risk of extreme fire behavior. Development in the wildland urban interface where there is an increase in risk of wildfire aggravates the potential for disaster. These issues are interrelated and compound the effects of one another.

#### *Fire Suppression Policies of the Past*

Fire suppression policies formally adopted by the U.S. Forest Service and practiced over the last 50 to 100 have left the forests at greater risk of wildfire (Dombeck et. al., 2004; Pyne, 1982; Trego, 2012). Practices, such as the “all fires out by 10 AM” policy prevented the advantageous effects of smaller fires burning understory growth leaving an abundance of hazardous fuel loads (Calkin and Gerbert, 2009).

#### *Overstocked Forests, Invasive Species, and Climate Change*

The overstocked forests and invasive species exceed forest carrying capacity and, as a consequence of a shortage of water and nutrients, the trees are unable to produce a healthy supply of sap. This leaves stands susceptible to invasive species and disease. Scientists postulate that the already declining health of forests will be negatively impacted by changes in humidity and precipitation and it is predicted that this combination of factors are likely to lead to larger more destructive conflagrations (Heyerdahl, 2002; McKenzie et. al., 2004).

#### *Fire Protection Resources*

Wildfire management is expensive. The equipment and training provided for one fire fighter is hundreds of thousands of dollars. Part of the increase in cost is due to the privatization of firefighting (Canton-Thompson, et. al., 2006). In 2000, the USFS spent an average 14 percent of its budget on fire management and by 2007 this figure jumped to 49 percent (Stewart, 2010). Stewart (2010) explains that private contractors will contribute money to political campaigns and in return expect competitive federal

contracts. These expensive crews are paid to sit on standby, usually within city limits. Budget cuts are needed to support this extra manpower, which tend to come from the budget of USFS Ranger Districts. In response, fire protection resources are cut back resulting in a lack of funding for field work and a lack of manpower at ranger stations leaving the guard posts unattended or in some cases the stations are closed. Without surveillance at the ranger stations, initial attack is delayed and a fire has a greater potential to grow into a conflagration (Stewart, 2010, p. 154).

### *Industry and Development*

The risk of wildfire precipitated by forest conditions and a lack of fire protection resources is amalgamated with development in wildland urban interfaces and expensive residential fires. Loggers were once considered the bane of the forests due to overharvesting and leaving flammable slash behind. Policies to protect the spotted owl, the “poster child” for biodiversity, resulted in stringent regulations on timber harvesting (Hanson et. al., 2009). With the devastation of the bust in the timber industry, many of these lands have shifted ownership. Development equates to jobs and revenue. In these economic times, where schools are closing down due to losses in revenue and a collapsed timber industry, a repressed economy proffers the incentive to allow development. As a result the new threat has shifted to real estate investment trusts. Forests are clear cut, the timber is cashed in and the land is replaced by high dollar development (Stewart, 2010, p. 133). Conversion of forestland increases the risk of expensive wildfire in the wildland urban interface. As amenity driven development in the west continues to expand, the wildland urban interface faces a greater risk of expensive wildland urban interface fire (Hammer, et. al, 2009; Theobald and Romme, 2007). In a study conducted by the Office of the Inspector General (2006), 50 to 95 percent of fire suppression costs sustained by the U.S. Forest Service were related to fighting fire on private property adjacent to federal land. Consistently the costs of fire suppression outweigh federal appropriated funds for fire protection and will continue to escalate as the WUI attracts development in fire prone areas (Headwaters, 2009).

## **Federal Interests in the Wildland Urban Interface**

Reducing the risk of wildfire along the WUI is of particular concern to the federal government because it incurs exorbitant costs (FEMA, 2010; OIG, 2006). Federal appropriations to the U.S. Forest Service and the Department of Interior agencies more than doubled from an average of \$1.2 billion in 1996 through 2000 to \$2.9 billion in 2001 through 2007 (GAO, 2009). The high costs of response and recovery often exceed local capabilities within a fragmented policy subsystem of many different groups each requesting federal assistance (GAO, 2004). As a result, the federal government bears a disproportionate share of the costs of fire suppression. According to a financial analysis of the rising costs of fire management, Headwater's Economic Analysis (2009) found a majority of these costs are incurred protecting private property on the wildland urban interface. Typically, 75 percent of the costs of fire suppression on federal lands are borne by the U.S. Forest Service and the Bureau of Land Management (Headwaters, 2009).

In the past, the U.S. Forest Service compensated its shortages in funds for fire suppression by transferring funds from other programs. Some of these programs were, in fact, restoration projects that could prevent or mitigate wildfire. The fund transfers position government for reaction to incidents during response and recovery thus neglecting the use of more cost efficient methods, such as prevention and mitigation through restoration and decreasing fuel loads. As a result, cancelled and delayed projects and unfulfilled commitments in grant funding resulted in tension between states, nonprofits, and local communities in addition to the lack of attention to the source of the problem.

In 2004 and in 2009 the United States Government Accountability Office (GAO) issued reports reifying actions needed to address the problems associated with wildland fire management. The reports identified needed improvements in performance, accountability, and coordination and suggested the need for a cohesive strategy to improve efficiency in the management of resources. Specifically, the GAO recommended the U.S. Department of Agriculture (USDA) and the Department of the Interior (DOI): 1)

develop a cost-benefit analysis of various approaches and their estimated trade-offs; 2) clarify financial responsibility among agencies for fires crossing federal, state, and local jurisdictions; and 3) develop a plan to contain costs in a competitive environment of conflicting objectives (US GAO, 2004).

Congress's recommendations to the USDA and DOI resulted in a focused effort to develop a collaborative approach among federal, state, local, tribal agencies, and nongovernmental organizations. In 2009, the Obama Administration initiated the Federal Land, Assistance, Management, and Enhancement (FLAME) Act of 2009 to address the recommendations delineated in the GAO report (Forests and Rangelands, n.d.). Congress and the Department of the Interior implemented the FLAME Act to set aside funds to supplement fire suppression efforts and prevent transferring funds from other programs to potentially offset the expenses of fire suppression.

### **The National Cohesive Wildland Fire Management Strategy**

Along with the FLAME Act, the Department of the Interior and the Department of Agriculture promulgated the ambitious endeavor of a National Cohesive Wildfire Management Strategy aimed at restoring and maintaining resilient landscapes, creating fire-adapted communities, and responding to wildfires (Forests and Rangelands, n.d.). The strategy was borne from the need for collaborative planning among stakeholders from different agencies and organizations with different values and management objectives. The plan consists of three phases. In the first phase, 15 forums were held across the country to engage stakeholders at all levels of fire fighting agencies and all tiers of government to discuss and identify values and critical issues at the local level. Based on this assessment of each of the regions, the second phase of the plan entailed developing a profile of each region along with regional specific goals and objectives. The third phase of the plan will use the qualitative data gathered in phase two to develop quantitative models designed to calculate the trade-offs that will inform management decisions on the ground.

The Cohesive Strategy uses qualitative data collected at the local level to establish a

core set of values and principles to guide priorities of the myriad of stakeholders involved in wildland fire management. The stakeholders include response organizations, land managers, governmental and non-governmental organizations, businesses and industries, watershed councils, environmental and conservation groups, scientists and academic institutions, local collaborative groups, forest and rangeland users, rural economic development organizations, wildland-urban interface residents, and landowners on a regional level. In a series of discussions with federal, tribal, state, and local governments, and nongovernmental organizations, these guiding principles along with national goals and performance measures were designed to address the issues caused by fragmentation among different entities with different agendas (Western Regional Strategy Committee, 2011).

Despite past efforts that have greatly enhanced coordination, improvements in performance and accountability in the use of wildland fire funds are still needed to strengthen program efficiency (US GAO, 2011). This strategy is designed to centralize leadership under the Secretaries of Interior, Agriculture, and Homeland Security within an intergovernmental council consisting of federal, state, tribal, local, and municipal government officials. Regional assessments standardizing the risk assessment process are intended to provide a template to guide decision making guided by a profile of social, economic, and environmental values. This assessment will inform the national trade off analysis of the most cost efficient method to allocating assistance. A regional approach to fire management is intended to streamline objectives and coordinate funding mechanisms to mitigate a surge in costs due to increases in the frequency and intensity of wildfire. Such an effort will require the “buy in” of multiple agencies and public support.

### **The Debate of the Costs and Benefits of Fuel Reduction**

As trends in spending escalate, more effective collaboration has become critical and demands a restructuring of networks for more efficient use of resources. The National Cohesive Wildfire Management Strategy is a response to this demand. Research has shown that mitigation, taking adaptive action prior to a hazardous impact, reduces costs

and expedites recovery after disaster (Rose et al., 2007). Central to the Cohesive Strategy is the focused effort to mitigate the effects of catastrophic fires by creating fire-adapted communities at the local level that can survive wildfire with little or no assistance from fire fighters.

According to the 10 Year Strategy Implementation Plan, key to this goal is implementing a collaborative framework to eliminate hazardous fuels (WFLC, 2006). A body of research has shown that fire is a vital element of healthy forest ecosystems (Dombeck, et al., 2004; Graham, et al., 2004) leading to a paradigm shift among forest management entities, that now incorporate wildland fire use into fuel reduction practices. Not everyone accepts this approach, however. While the benefits of fire in wildland areas are known among the research community and practitioners, fuel reduction programs, such as the “let it burn” policy and prescribed burning can be costly. The “let it burn” policy, which allows wildfire to run its natural course, has instigated conflict over the risk of the fire burning out of control and destroying wildland areas and residences. In a case where wildland fire is used to eliminate fuel loads, possible damage will not be compensated. Prescribed burning, intentionally burning forestland to reduce hazardous fuel, is effective, but considerably more expensive bearing greater risks in the wildland urban interface (Berry et. al., 2006).

Studies have shown, however, that despite the discrepancy over the costs of fuel treatment, taking a proactive approach mitigates negative wildfire effects and increases ecosystem resilience (Fitzgerald, 2002; Reinhardt et. al., 2008). A cost/benefit analysis of forest fuel reduction treatments revealed that the costs of fire fighting, fatality, facility losses, destruction to marketable timber, recovery and rehabilitation losses, and destruction to the ecosystem far outweigh the costs of wildfire mitigation (Mason et. al., 2006). Research has demonstrated the benefits of the use of wildfire, however, effective fuel reduction programs require the coordinated effort of government agencies, institutional and public support (Dale, 2006). The difficulty in aligning objectives and reaching consensus of priorities is, in essence, cultural and guided by the capabilities of the organizations that take part in managing forest resources.

## **ORGANIZATIONAL STRUCTURE**

The Cohesive Strategy is designed to assess issues on a regional level from the “top down and from the bottom up” utilizing the networks already in place. On a local level, coordination will require conforming to federal standards. On a federal level, collaboration must allow local agencies the flexibility to work within existing local networks.

In a self-organizing policy arena consisting of contractual ties and mutual aid agreements, federal standards may challenge established systems on the local level. The impetus of this contention is, in a sense, a normative argument of the role of government. Cultural differences between organizations and regional priorities may pose conflict as to what this role should be. While autonomy is necessary for local entities to respond to local issues, standardization is necessary for efficiency of federal programs thus creating an “autonomy-accountability dilemma” (Huxham, 1991). Incorporating diverse interests of multiple stakeholders will be challenging in that it forces change upon existing systems. Including stakeholders in planning may assuage some of the conflict among competing interests and palliate the resistance to change. However, regardless of the potential benefits, the process will require fundamental changes in the way stakeholders involved conduct business internally and externally. In general, such changes are cultural and lack a formula for their success.

### **Managing Fire Among Multiple Boundaries**

Government operates in a paradox. On one hand stakeholders expect government services to protect their interests and assets and on the other hand they demand autonomy and protection of individual property rights. Issues involving the risk of wildfire exemplify this paradox from the perspective of at least three different groups of stakeholders. “Stakeholders” is an equivocal term that can be applied in different ways depending on the context and the subject of research. In this case stakeholders include: 1.) government agencies; 2.) environmental advocates; and 3.) private landowners. The

organized response of each play a different role in land management and wield variable degrees of influence over land use practices.

### *Government Agencies*

Government agencies have the incentive to maintain healthy economic growth while providing services for its citizens. Governments employ various methods to mitigate wildfire risk including restoration projects and educational outreach. General funds and grants pay for equipment and training for increased preparedness to respond and recover from incidents. The government offers programs that provide assistance in the event of an emergency or disaster. Government agencies are dedicated to serving its constituents at the lowest cost. Wildfire is a complex issue that is approached in different ways by different government agencies. As such, efficiency is always a primary objective, but not always easily attained. For example, the Department of Interior and Agriculture might have the same goal but their methods of achieving that goal may not be collaborative or even conducive to cooperation.

### *Environmental Groups*

Environmental groups have the incentive to protect the ecosystem by preserving species and their habitats. Advocates of these groups oppose human processes that disrupt the balance of biodiversity. Many environmental groups view fire as a natural process of the environment and support prescribed burning and thinning in wildland urban interfaces. They do not support all restoration projects, however, and have a history of litigating USFS activity.

### *Private Landowners*

Private landowners have the incentive to protect their property and autonomy at the lowest cost and, in the case of industrial and small business owners, the incentive is to protect autonomy for greater profit. Citizens mitigate by creating defensible space on their property. Commercial loggers participate in stewardship contracting and restoration

projects that remove hazardous fuel. Logging bears the stigma clear cutting, over harvesting, and increasing the risk of wildfire. The perception of their contenders is that they must be regulated at the expense of profits.

### **The Paradox: A Tragedy of the Commons**

The influence and actions of these groups are contributing variables to how fire management agencies are able to manage risk. Wildfire does not recognize ownership or jurisdictional boundaries. The risk of wildfire is shared and epitomizes a tragedy of the commons within collectively owned federal lands and along contiguous boundaries dividing ownership. Each group of stakeholders contributes to the fire management system in some way and expects protection of their interests, yet do not always trust or agree that the management decisions made by the agencies responsible for providing this service do so effectively or ethically. From the paradox emerges the dilemma of a need for the consistent application of management standards that protect collective interests and, at the same time, the protection of property rights on privately owned land.

### **The Vertical Approach and Horizontal Networks**

The relationship between funding agents at the federal level and their recipients at the local level can be a double edged sword in that a centralized system that enables coordination lacks the flexibility to quickly respond to localized needs, but a decentralized system is fragmented and lacks formal systems of accountability. The trade offs in gaining or losing autonomy change with the circumstances and players involved making it difficult to formulize an approach to collaboration on a broad scale (Feiock and Scholz, 2010).

Typically, the bureaucracy at the federal level employs a top-down approach to resource management decisions. The top-down approach to issues of efficiency of governmental services is designed to be consistent, coordinated, and capable of measuring outcomes. However, research has shown that historically the bureaucratic top down approach in resource management generates distrust and resistance among

stakeholders (Knopp and Caldbeck, 1990; Steel et. al., 1992). Nested in the dynamics of anthropocentric systems subject to natural, social, and economic change, the consistency and lack of flexibility of federal policy can pose barriers at the local level.

In response to the weaknesses of the top-down approach, the federal government has encouraged many of its agencies to employ a collaborative approach allowing the influence of input from the local level, or bottom up. Natural resource management and emergency management alike have both put forth a concerted effort to increase efficiency through collaboration to improve the interoperability of agencies and organizations and to include stakeholders in decision making. In fire management, the US Department of Agriculture and Interior have implemented strategies among their agencies that incorporate a top-down and bottom-up cohesive strategy designed to be more responsive to the dynamics of local communities, in particular those in the wildland urban interface where different values converge and sometimes conflict.

### **Public Access to Federal Resource Management**

Fuel reduction on federal forest land, one of the cornerstones of the USFS forest management program, resulted in 1,415 decisions throughout fiscal years 2006 through 2008 impacting 10.5 million acres of US forestland. Of these 1,415 decisions, 1,191 were subject to appeal, of which 217 were appealed (US GAO, 2010).

While the appeals process promotes accountability by granting “watchdogs” entry into the decision making process from the bottom up, the cost diverts resources from forest management to social management through court settlements. In 2002 the US Forest Service reported spending \$250 million per year on planning and assessment required for NEPA compliance (Richards, et al., 2007).

While decentralization endows greater latitude in decision making, there also lies a greater potential of fragmentation of objectives among local entities, that portend problems, particularly in issues surrounding common resources. Openings in decision making, such as voting, veto points or appeals, by design allow opposition adding to the complications of the policy implementation process.

Pressman and Wildavsky (1973) expounded the notion that difficulties tend to arise in policy implementation when actors reach decision points throughout implementation. In their case study entitled, “Implementation: How Great Expectations in Washington are Dashed in Oakland; Or, Why It’s Amazing that Federal Programs Work at All, This Being a Saga of Economic Development Administration as Told by Two Sympathetic Observers Who Seek to Build Morals on a Foundation of Ruined Hope,” Pressman and Wildavsky demonstrate the ineffectual and protracted process of policy implementation at the federal level based on a probabilistic model. The model basically calculates the probability of actors reaching agreement of decisions at each point in the implementation process. Their conclusions are rather pessimistic and suggest that despite intentions to implement policy, at each point where collaborative decisions are made, there is a strong probability that consensus will not be achieved, hence the probability of perception of government failure (Bowen, 1982; Sabatier, 1986).

The implementation of the National Environmental Policy Act (NEPA) demonstrates how opening the decision making process within a federal agency can result in perceptions of inefficiency and ineffectiveness. In 1969, the U.S. Forest Service modified its management paradigm from a hierarchical bureaucracy to a more decentralized approach aimed at engaging public involvement. Though NEPA is designed to open the decision making process on federal land to a wide array of stakeholders, it has been criticized for the increase in cost, time, and complexity associated with the appeals process (Ackerman, 1990). In his discussions with people involved with the Forest Service’s implementation of NEPA throughout a span of 20 years, Ackerman (1990) teased out 19 observations. Relevant to this discussion, he found that the NEPA process, in conjunction with liberal forest service appeal regulations, led to an increase in appeals hindering forest management operations.

In 2002 the NEPA Task Force was formed to address the issues with time and costs associated with the increase of appeals. The task force sought ways to improve cooperation and better inform policy through interagency collaboration. According to the NEPA Task Force’s (2003) report to the Council of Environmental Quality (CEQ),

collaboration among local, state, federal, and tribal agencies was deemed necessary, but that the process lacked standards and a uniform methodology. Chapter two of the task force's report, dedicated to federal and intergovernmental collaboration, identifies key attributes to effective cooperation in a partnership approach based on the results of interviews conducted with governmental staff and the public (NEPA Task Force, 2003, p. 25). These attributes included vision, trust, communication, when a how to create collaborative agreements, as well as recommendations on training.

While a focused effort was made to update the NEPA process to improve coordination and efficiency, these efforts have not gone unchallenged in the public sphere. Various stakeholders raised issue with some of the task force's recommendations, such as putting limitations on who is permitted to legally challenge federal decisions, imposing time limits on taking legal action, and requiring plaintiffs to provide proof that federal agencies did not use the "best available science." The recommendations of the task force, to "streamline" NEPA, stirred alarm, particularly among environmental groups. Initially the NEPA process was implemented to encourage public involvement, but these efforts to minimize opposition in a highly politicized environment seemed to some to undermine the foundations of the NEPA process.

In "the commons" centralization of resource control is up against a public instilled with individual rights and entitlement to public resources. The integrity of the system wholly depends on the probity of actors, the trust they share, and support they provide in collective action. Stakeholder representation and collaboration are ideal, but, as in the case of NEPA, are difficult to achieve among a diverse array of interests.

### **The Vertical Approach: NIMS and ICS**

The emergency management system, however, operates relatively unnoticed in the public sphere, unless something goes wrong. In the past emergency management and disaster planning have conducted their affairs in isolation from the public. In times of disaster, however, the critical moment when expectations are brought into the public eye, the expectations of the public do not always met with the capabilities of emergency

management agencies. FEMA, state, and local emergency management agencies have made attempts in the last few years to bridge this gap. Much of these changes occurred after the establishment of the Department of Homeland Security.

### *Federal Emergency Management System*

In the wake of 9/11 the federal government reprioritized and restructured itself to protect American values in reaction to the threat of global terrorism. This was one of the largest transformations of the federal government in over half a century (DHS, 2002). The Homeland Security Act of 2002 centralized power under the Department of Homeland Security and Presidential Directive 5 instituted the National Incident Management System (NIMS) to provide common organizational structure and terminology. The 9/11 attacks invoked the realization that coordination on a national level was needed to manage a threat on this scale. The NIMS system is designed to facilitate communication among multiple agencies at multiple levels of government and coordinate the management objectives for the efficient allocation of resources.

Restructuring the United States emergency management system under the Department of Homeland Security contributed to the issues that followed Hurricane Katrina (Mitchell, 2003; Tierney, 2006). The Federal Emergency Management Agency (FEMA) organizational structure had been altered three years prior to Katrina. Staff and funding were cut, and FEMA lost its cabinet position. Risk assessment and operations changed their focus from an all hazards approach to a focus on terrorism. Beliefs about national security changed resulting in alterations in the protocols and culture of FEMA. The decision making process once managed on a regional level was now administered from Washington DC. This administrative change introduced new actors with different agendas and management protocols that, in turn, affected intergovernmental communication.

The potential disconnection between planning, initiating policy, and the outcomes can have unintended consequences of disastrous proportions. Effective policy implementation requires an understanding of how networks maintain cohesion and what

pressures affect their ability to perform. Organizational structure, culture (Stinchcomb and Ordaz, 2007), and beliefs (Weible et. al., 2009, p.122) guide policy implementation and, relevant to this discussion, the outcomes of interaction with other organizations. The emergency management system in the

### *The Incident Management System*

Homeland Security Presidential Directive 5 established the National Response Framework and the National Incident Management System (NIMS) to prevent conflict among response agencies. The system was modeled after the Incident Command System (ICS) developed 30+ years ago under a Congressional mandate issued in response to the lack of coordination and communication during a wildfire in California. Based on the need for unity among agencies with different protocols, the management strategy was implemented to standardize the entire industry.

These systems are the management tools of all emergency management systems within the United States. Their management structure features unity of command, chain of command, management by objectives, modular organization, manageable span of control, and incident action planning. They are designed with a common organizational structure and protocols so that personnel, facilities, equipment can be integrated in a scalable, flexible, and coordinated fashion.

The integrity of this system and its ability to execute a coordinated and effective response lies in how the system is structured. Operations are conducted within a hierarchical system of command and control. In theory, a centralized administrative system possesses inherent advantages within its management structure that readily allows the consistency necessary for maintaining coordination. Sabatier and Manzamanian (1979) outline some of the attributes that contribute to effective policy implementation within hierarchical structures. These include 1.) clear and consistent objectives that provide standards; 2.) policy levers that can produce social change; 3.) legitimate authority; 4.) committed and skillful officials; 5.) the support of interest groups and sovereigns; and 6.) stable socio-economic conditions.

The top down approach of asymmetrical systems endows a single entity the efficacy to implement policy with limited barriers posed by multiple boundaries and conflicting interests. Asymmetrical systems are not exempt from coordination issues, however. In essence, a hierarchy is a symbiotic relationship. The internal operations of the system are compromised when there are trust issues and or communication breakdowns resulting in disconnection between the principal and agent (Milward and Provan, 1998).

Asymmetrical systems, such as NIMS and ICS, are based on formality and tend to be rigid in that in order to perform administrative functions, each constituent part of the system must adhere to a single set of operational principles and objectives. Compliance cannot be assumed, however, when power differentials are more or less leveled among many agencies. External pressure in associations among horizontal relationships can result in deviation within the system resulting in disconnection between authority and subordinates within the system (Lipsky, 1980).

Scholars argue that the systemic limitations to the Incident Command System stem from the convergence of horizontal relationships in the event of an incident. Buck, Trainor, and Aguirre (2006) conducted eleven interviews with key emergency management personnel, ten focus groups with 83 active members of USandR task forces representing typical response agencies, such as the local fire department, local police department, local emergency management, FEMA, FBI, and state police agencies, all who utilize and depend on ICS. The results of their study indicated that, while ICS works well in first response for single incidents, it tends to fragment in large catastrophic events and has limitations in the midst of competing interests.

### **Limitations of Command and Control**

The hierarchical system embodies the traditions of public administration in the United States. The command and control modus operandi of implementing policy, however, is inapplicable in the case of interagency and intergovernmental institutional settings where the locus of control is decentralized. The environment in which local

government agencies operate is interdependent, decentralized, and demarcated by boundaries. Boundaries tend to be the platform for tensions associated with a divergence in mission, competition for resources, limitations in capacity, undefined responsibility, and a lack of accountability (Kettl, 2006).

While the intent of implementing ICS was to enable coordination on a national level, the lessons learned from the aftermath of Katrina stress the importance of a community identity and collaboration at the local level (Waugh and Streib, 2006). After Katrina the Department of Homeland Security has implemented new policies that are geared toward a “whole community approach” (DHS, 2012). These horizontal networks surrounding local emergency response entities have the potential to augment public management agencies capabilities and improve efficiency, however, they operate differently than the command and control approach of NIMS and ICS and have the potential to fragment in objective and conflict in beliefs regarding what is of value.

### **Horizontal Approach: Fire Management in Central Oregon**

Fire management in central Oregon has developed innovative collaborative structures. While the system is not perfect, it, as any system, demands adaptations to changing circumstances and resolution to conflicting values. In many ways, however, it has managed to address the issues with fire management in a collaborative way.

Central Oregon provides an interesting case to study because of the cultural changes it has witnessed in the last few decades as a result of changes in land use management policies and catastrophic fire. Fire management in central Oregon is encompassed in the dynamics of regional politics surrounding common resources. Mitigation of forest fire occurs in a complex web of policies and plans. Forest management agencies, environmental groups, private industry, recreationalists, and homeowners all have a stake in national forests and a history of land disputes.

In many ways the culture of central Oregon has already embraced a cohesive strategy and set the bar for a successful fire management programs nationwide. Many of the goals outlined in the National Cohesive Strategy are already common practice in the

communities and fire management agencies in central Oregon. The configuration of organizations connects multiple levels of government and the public in long-term relationships. Informal ties and mutual aid agreement contracts in place have created a functional collaborative fire system.

### **The Universe of Fire Suppression Agencies**

There are a myriad of agencies involved in the success of wildfire management in the state of Oregon each of whom are interdependent and can complement or complicate the efforts of the other agencies. The Oregon Board of Forestry works in conjunction with the State Fire Marshal, rural fire protection districts (RFPD), county governments, the U.S. Forest Service, the Department of Interior, the Pacific Northwest Wildfire Coordinating Group (PNWCG), Oregon Emergency Management, Military Department, FEMA, and other state resource agencies as well to maintain a complete and coordinated fire protection system.

The Pacific North West Coordinating Group (PNWCG) provides research and training standards that inform fire fighting units in the USDA-Forest Service, USDI-Bureau of Land Management, Bureau of Indian Affairs, National Park Service, Fish and Wildlife Service, Oregon Department of Forestry, Washington Department of Natural Resources, Washington Association of Fire Chiefs, and the Oregon Fire Chiefs Association to provide interagency wildfire management in the Pacific Northwest. The NWCG is divided into subgroups and working teams and is dedicated to fighting wildfire by supporting leadership among local, tribal, state and federal agencies (PNWCG, n.d.).

The Oregon State Fire Marshal manages state resources used in fire suppression and acts as a coordinating agency among local fire departments in multi-jurisdictional fires. The Conflagration Act delineates the procedures in times of emergency when local capabilities are overwhelmed. The plan assumes mutual aid agreements among fire departments and districts are in place, and it provides the proper protocol for deploying state resources (Oregon.gov, n.d.). The protocols are assumed under the National Incident Management System and Incident Command System.

Approximately 60 percent of the forestland in Oregon is federal land. The U.S. Forest Service, Ochoco and Deschutes National Forests and the Bureau of Land Management, Prineville District have an offset agreement. Under this agreement the agencies provide protection in the central Oregon area. The Oregon Department of Forestry, Central Oregon District and Sisters sub-unit covers portions of Crook, Deschutes and Jefferson Counties.

### **Overview of the Policies of Fire Suppression**

Under Oregon Revised Statutes (ORS) chapters 477 and 526, the Oregon governor and state legislature legally mandate fire suppression in Oregon. ORS 477 declares that the State Board of Forestry and the State Forester take a lead role in a statewide coordinated fire protection system within the forestland-urban interface to ensure the safety and livelihood of Oregon citizens.). According to ORS 526 the State Forestry Department is led by the State Forester and deputy and is governed by the State Board of Forestry. The State Board of Forestry consists of seven members appointed by the governor serving for no more than two four year terms. These members are responsible for supervising “all matters of forest policy and management under the jurisdiction of this state and approve claims for expenses incurred under the statutes administered by the board except as otherwise provided by law” (OregonLaws.org, n.d.).

Policy at the community level is primarily based on the Oregon Forestland-Urban Interface Fire Protection Act (SB360) and the Health Forest Restoration Act (HFRA). Senate Bill 360 was implemented to fight fire at a household level by bringing community members into the policy framework. The act specifically defines risk and establishes standards that require homeowners to help prevent the spread of wildfire by reducing fuels around the structures on their property and along their driveways and, in some cases, create fuel breaks along property lines and roadsides. Every five years a committee convenes to map out high risk areas and hold public hearings on the matter to get input from landowners in the community. Once forestland-urban interfaces are classified, the Oregon Department of Forestry (ODF) mails out certification forms to

property owners that are to be signed and returned to the ODF relieving a property owner of fire cost-recovery liability capped at \$100,000 (Oregon Department of Forestry, n.d.).

In addition, the HFRA was implemented to address issues on a grassroots level within communities. Under the HFRA the guidelines for Community Wildfire Protection Plans (CWPP) are delineated. A CWPP is a plan established to develop collaboration among members of a community to reduce the risk of fire. Typically a CWPP has three components. The first component is written in a joint effort with the local and state government. Second, the plan must contain specifics of how wildfire risk will be reduced within the community. And third, the plan must identify ways landowners can reduce on their own property. Local government, the local fire department and the OFD then approve the plan.

In the event of a large scale disaster where local and state resources are exceeded, the Governor may request assistance from the Federal Emergency Management Agency (FEMA) regional office in Bothell, Washington. Prior to the Governor's request, state and Federal officials conduct a preliminary damage assessment (PDA) and determine the extent of damage and the amount of assistance necessary to supplement the state. If approved, the President of the United States then declares a disaster and appropriates funds. If the state meets Federal requirements, which usually entail maintaining a hazard mitigation plan, then under the Stafford Act 401 the state receives funding once the Governor agrees to share a percent of the cost (FEMA, 2010).

### **Informal Ties and Mutual Aid**

Collaboration is an effective strategy that can address issues that demand more governmental services and at the same time less government involvement (McGuire, 2006). Pooling resources in a regional or district approach to government is a viable option to provide this balance of service, however, competition and distrust must be overcome in order for the system to function (Lee, Feiock, and Lee, 2011).

Andrew (2009) examined social capital through bridging and bonding ties among law enforcement agencies to discern the influence of status and rapport on the decision to

enter into mutual aid contracts. In support of the bridging hypothesis he found that municipal agencies are more likely to enter into contracts with their county counterpart and less likely to form these type of agreements with other municipal governments because of the availability of resources and the tendency for competition among municipal governments. In support of the bonding hypothesis, he found that local agencies are more likely to enter into contracts with existing partners. The conclusion of Andrew's study suggests that the informal mutual aid contracts are formed within boundaries based on trust and proximity. The trust necessary in maintaining accountability among agencies with little contact is influenced by the status position of the potential partner, which leads locals to form relationships with those with higher status. Local agreements where the relationship between the input and outcomes are difficult to measure, local agencies are more likely to enter into informal contracts with agencies in which they have rapport built from closely knit ties and a history of partnership.

The mutual aid is authorized under Oregon Revised Statute 190.010. The Central Oregon Mutual Aid Agreement outlines the protocols for interagency collaboration among municipal and rural fire districts. The agreement is designed to provide guidance with flexibility. The contract is binding, but designed with some flexibility so that agencies have the power to make discretionary decisions. For example, the contract at one point stated that an agency would be provided services from neighboring jurisdictions for 24 hours without compensation. This stipulation, however, was conditional in that recipient agencies were often provided service beyond this time limitation without incurring a cost from their supporting task force partners. The flexibility allows the local agencies to exercise discretion based on need and available resources.

In addition to the mutual aid agreements each member of COFCA pays a membership fee of \$100.00. The collection of dues is used to address any concerns within the region, such as a restoration project, equipment needs, or a training program. Other informal ties sometimes include sharing equipment and staff.

If an issue requires grant funding, the members of COFCA often pull their resources and collectively apply for federal grant monies. The agencies share the task of managing the project, dividing the labor and working as a team.

### **Interdependence**

The interdependent nature of disaster phenomena also transcends placement in time. There is a temporal divide that affects the potential to collaborate. The capabilities of fire management agencies are somewhat limited to response. The severity of fires stems from pre-event land management and extends into sectors outside of emergency management. Nongovernmental organizations and the timber industry, for example, are key players in fire mitigation that can address local issues that traditional fire management agencies lack the capacity. While they do not necessarily have any interaction with first response agencies like fire departments, their actions influence the set of contingent factors that determine risk and the fire agencies' ability to respond.

The interdependence within the WUI produced a fire management system in central Oregon that is integrated at multiple levels of government, linked to local industry, nongovernmental organizations, and homeowners. The blend of service providing protection from fire is coordinated within formal policy and informal collaborative networks. The local, federal, and state fire response system, the Central Oregon Fire Management System (COFMS), was the first in the nation to develop a system that incorporated resources from the local level. The members of COFCA are part of this network and serve as a bridge in the gap between federal and local response to fire. By building response networks composed of entities at the federal, state, and local levels coordination is improved through immediate communication ties. The concept of partnership was embraced by all levels of organized response to fire in recognition that the problem of fire is multijurisdictional and can be mitigated with joint efforts among agencies, organizations, industry, and the public.

Nonprofit organizations provide services where the private sector lacks the incentive and the public sector lacks the capacity and / or public support. Public outreach

provided by nonprofits complement traditional fire services. Respondents from multiple agencies told the story of one man that implemented a public outreach program that created this link between traditional fire response agencies and homeowners. In the aftermath of the Skeleton fire in 1996 Safeco Insurance offered Bend's Fire Marshal, Gary Marshall, a generous contribution toward the cost of new equipment for the station. Marshall politely declined and asked instead for the seed money to implement a public outreach program. His thoughts were that a culture of preparedness and resiliency would save more homes than equipment with a limited lifespan. The program then was called FireFree. It was designed as an interdependent system that engaged homeowners in creating defensible space. Homeowners would collect biomass on their property and drop it off for a curbside pick up provided by the Deschutes County Solid Waste and Deschutes County recycling. The biomass and solid waste were combined to create compost that was sold to cover the costs of the service. This chief's actions served as a symbol of the mentality that is shared among the fire chiefs in central Oregon, which is reflected in the encouragement for building a first line of defense to fire among home owners and to address problems collaboratively with creative solutions.

## **RESPONSE TO DISASTER PHENOMENA**

### **The Temporal Aspects of Stakeholders**

Quite often the agencies, organizations, firms, and individuals that hold a stake in fire management have little to no contact except in the event of a disaster. The convergence is temporary and plays out according to the how plans were or were not implemented. Emergency management is conceptualized as a cycle of mitigating, increasing preparedness, responding to incidents, and recovering from events. Mitigation practices might include prescribed burns, thinning, building codes, or insurance policies. Preparedness enhances the readiness for response to an incident through planning, training, and exercising. Response consists of the actions taken to contain the impact of an event to prevent further loss. Community recovery is defined as "the process of restoring, rebuilding, and reshaping the physical, social economic, and natural

environment through pre-event planning and post-event actions” (Smith and Wenger, 2006; p. 237), which typically consists of debris removal, a restoration of infrastructure, economic development, rebuilding housing.

Priorities and stakeholder roles change within this cycle adding a dimension to consider in coordination and collaboration. Fire fighters are primarily first response agencies. They do plan prior to an event, but they do not necessarily collaboratively plan with every entity that will potentially affect their ability to perform during the event. As such, other entities do not always coordinate their plans with fire fighting agencies, which may create problems in response. To illustrate this, one of the informants in this interview recalled a coordination issue with the water company. The water company and fire department each assumed the other is responsible for maintaining the city’s fire hydrants, and thus when there was a technical problem that affected the operability of the hydrant, questions of responsibility and accountability arose and created conflict. In another discussion with another informant in the neighboring town, a similar issue was discovered in a couple of table top exercises. Both the postal service and the local hospital incorporated the fire department into their emergency response plans based on a presumption that the fire department had the capability to assist in response. The presumption, however, was not based on collaborative planning and did in fact assume the fire department would have the capacity to take on responsibilities that were well beyond the department’s staffing. A disconnection between agencies involved in response and those entities that support first responders, such as public works, are not always at the table in the planning process, which can result in unrealistic expectations and create coordination problems (Boin and t’ Hart, 2003).

Part of the difficulty in formulating plans prior to an incident is the enormous amount of time and resources required to engage stakeholders. Natural resource issues affect everyone, but to different degrees at different times. It is difficult to determine the proper level of involvement in a dynamic environment where the responsibility of key actors changes. Stakeholders each have their own set of constraints in terms of available time, resources, or policy restrictions.

## **Rapport**

The temporal dimensions of emergency management increase the difficulty in managing potentially conflicting priorities. A robust understanding of collaboration should take into consideration that many agencies forced into the political arena surrounding a hazard may affect the capabilities of other agencies that they have little or no contact except in the event of emergency.

Buck, Trainor, and Aguirre (2006), found that familiarity with the people involved in pre-existing relationships enhance the ability to communicate. In the event of a disaster when integration is essential, collaborative networks already established enhance operability. This is why, they explain, fire departments tend to work well together; they always work in teams. To contrast, they add, professionals within law enforcement agencies often work independently. Although there is a chain of command established within each department, members of the law enforcement community have the authority to act individually. In a disaster situation, this independence to interpret the law can impede efforts to work in collaboration with other agencies. Without the structure of communication norms and established rapport that team membership provides, clashes in organizational culture can create conflict.

## **HOW DO WE CHANGE CULTURE?**

An exploration of the concept of “forest health” invokes different meanings for different groups. These differences are associated with primary commitment values, notions of institutional legitimacy, and views of the appropriate relationship between people and nature (Warren, 2007, p. 102). Fire and the issues surrounding its management are perceived through the lens of the beholder. The aperture of this lens is demarcated by the impressions of metaphors and the meaning assigned to them. Symbols convey meaning and shape culture. Organizational structures are formed on the exchange of symbols. Power, reduced to its most elementary form, are the differences in values and the meaning of symbols used to impart those values.

Positions of power, communication systems, and the ideals and values that influence behavior are conveyed in symbols. It is the symbolic meaning ascribed to phenomena that guides one's interpretation of right and wrong and motivates them to take a what is believed to be a proper course of action. If the symbols change, the ideological perspective can also change, power structures can shift, and language and social interaction may be expressed in new ways.

According to Sandstrom, Martin, and Fine (2010) the social order generated by cooperative behavior requires a shared identity, compatible roles, and collective focus on a joint goal. Cooperation is the process of aligning one's behavior with the actions of others to make joint action possible (Sandstrom et al., 2010). Identity, roles, and goals are shared symbols that signify power, cohesion, and purpose. Symbols are the infrastructure of social systems. They wield control of each constituent of a particular system, but they can change and quite often do producing new ideas, norms, structures, and relationships.

The National Cohesive Strategy is more than federal mandate; for some it is a lifestyle change that will take time and a strategic use of resources to reach sustainable results. Social changes, such as reconfiguring institutions into collaborative networks, can be a slow process influenced by many unpredictable factors. The capacity to collaborate on a organizational level is contingent on many cultural attributes, such as the: 1.) values, attitudes, and beliefs underpinning the priorities of organizations (Tjosvold and Tsao, 1989) and 2.) their organizational structure (Martin-Rodriguez, et. al., 2005). As Ouchi and Wilkins' (1985) once asked, this essay examines the implications of the National Cohesive Strategy and asks, "if culture can be intentionally managed."

Policies implemented to produce collaborative solutions can fail due to a lack of understanding of cultural differences between entities. Implementing a cohesive strategy will require collaboration among all strata of government and between sectors, as well as public support. It will require an understanding of how to configure the resources and operational structures of many different types of entities and how to use symbols to convey shared meaning among the different perspectives and value systems.

An example is needed to demonstrate how such a system actually works in the real

world. A case study can provide some of the benchmarks needed to create a sound methodology in developing these types of systems quickly, efficiently, and on demand in response to a dynamic environment.

## **METHODS**

Research for this project began with a stakeholder analysis. The methods of the stakeholder analysis were derived from techniques used by the United Nations. The process was initiated by identifying key actors and stakeholders within geographic areas arbitrarily plotted on a fire protection district map issued by the Oregon Department of Forestry. The criteria for choosing these points were based on two factors: 1.) the area had to be a wildland-urban interface in the Deschutes National Forest; and 2. ) the area had to consist of multiple overlapping jurisdictions.

The next phase of the secondary analysis consisted of determining which agencies were responsible for maintaining these areas, then assessing their partnerships, protocols, and priorities. Referencing the Oregon State Fire Marshal's (OSFM) website as a key source, I obtained a list of all the fire districts and their chiefs in the state of Oregon and began to develop an understanding of the structural fire resources in place. I then began a search through the Oregon Department of Forestry's website that provided an organizational chart and functional flow chart mapping the organizational structure of the wildland fire protection program for the state. In order to identify a comprehensive list of all the stakeholders involved, I also searched through the websites of the following:

- Pacific Northwest Coordinating Group
- US Forest Service
- Department of the Interior
- GAO's report containing a list of appellants
- Members of coalitions and collaborative projects

Once the actors were identified, the second part of this analysis entailed identifying the statutes, policies, and plans to learn the basics of the delegation of authority and protocols in order to help solidify my understanding of the roles and

responsibilities of the different agencies that fight fire in the wildland urban interface and their partnership agreements in place.

Through a process of purposive selection, I then called members of the central Oregon fire chief's association to schedule interviews. As I progressed through my interviews I was referred to speak with particular chiefs. Through snowball selection I interviewed four of ten chiefs that work closely together in task forces, which are groups composed of different resources that include particular types of equipment and trained personnel. I interviewed 2 of the 4 task force leaders, 2 members of an interface task force, one of which currently serves as the Fire Defense Board Chief, which is the leader of the district Fire Defense Board elected by the board and confirmed by OSFM.

The formal interviews lasted from one to two hours. Central to each interview, I asked the fire chiefs to identify what in their mind were the contributing factors of successful collaboration in central Oregon's fire management system. This way of approaching the question allowed me unobtrusively discover who they networked with as well as describe the system in place that facilitated reciprocity between members of the organization as well as symbols that are exchanged that have particular meaning to this group.

## **FINDINGS**

When the fire chiefs were asked to identify the attributes of successful collaboration, the key themes that emerged included:

- Flexible Mutual Aid Agreements
- The shared threat of fire
- Training and ICS
- Trust and Rapport
- Service oriented attitude

### *Flexible Mutual Aid Agreements*

When money's tight. When staffing is tight... collaboration is the best resource that

you have. Why invent something when your neighbors next door have possibly already been there or you can join forces and solve the problem together. And I think that is the spirit of what goes on here. (Deputy Fire Chief, City C)

The mutual aid agreement was described as more of a “gentleman’s agreement” than a formal policy. The agreement is not a legally binding contract. It provides guidance in protocol, designating which agency will manage the incident, that this agency will have the support from neighboring jurisdictions in their task force, and how cost share will be divided. The document is flexible in that it leaves room for support to be provided at the discretion of supporting agencies. If an agency lacks the capability there are no legal repercussions or sanctions. This goes to the question, “What then is the incentive to assist the agency in command with staff, resources, and equipment?” The answer was simple; every chief agreed that no one agency can fight fire in central Oregon alone and that it is their obligation to the public they serve to assist their neighbors in time of need.

If something pops [here] we don’t have to call the Forest Service or the Department of Forestry, they’re coming. And if something pops in a five mile radius of [us] we know they’re coming. ...to the root of your question, ‘why does it work?’ that’s why- because everybody cooperates. Everybody understands none of us can do it alone. (Fire Chief, District A)

...we can’t do it on our own. And we shouldn’t. The public demands us to be fiscally responsible, doing the right thing. And it shouldn’t matter if your wearing a white uniform and I’m wearing a blue uniform and we’re across town, it doesn’t matter... (Deputy Chief, District D)

The US Forest Service is nationwide. Their forests far exceed our fire district boundaries. Their partner agreements are different. They have agreement specialists. They have strict rules on what they can and cannot do. But the boots on the ground and the first line supervisors and our first line supervisors are extremely collaborative. They have each other’s cell phone. They have each other’s back. We have mutual aid and auto aid agreements that are in place in contract format. On [one] side of town, not only is it our fire protection responsibility, it also has an Oregon Department of Forestry overlap component in their fire protection zone and it also has the Forest Service overlap. (Deputy Fire Chief, City C)

This minimizes the risk of larger more destructive fires and that when they need assistance in their own localities, their neighbors will reciprocate and provide them with support free of charge for at least 24 hours. The “gentlemen’s agreement” is flexible. Though the mutual aid agreement explicitly states a 24 hour grace period, if crews of one jurisdiction are assisting another for an extra hour, it is at the chief’s discretion to allow an extra hour of assistance without compensation for services.

If [another district] has a fire this afternoon and we send a task force down there, they've got it for 24 hours. They've got it for 2 operational periods before they have to start paying for anything. And so that's part of that mutual aid agreement we all sign... for 24 hours we'll charge a dollar, and maybe next month I'll need it and we'll be charged a dollar... sometimes we have turn a blind eye on some things. What I mean by that is just... we sent our guys to [another district] and they're on hour 25, I'm not going to send them a bill for bedding my guys down for an hour... (Deputy Fire Chief, District D)

In the event a task force partner requests assistance from an agency already extended beyond capacity, the request may be denied. The contract is designed to allow agencies the autonomy to act on behalf of their own interests. This prevents legal obligation on the part of any agency to respond at the expense of their jurisdiction. The trade off to this flexibility could potentially be a lack of accountability, however, this is rarely the case according to the respondents. In nearly every emergency where mutual aid is requested from neighboring jurisdictions, agencies respond in support of one another. These agencies indicated that support from the state was not guaranteed and this put pressure on the locals to pool their resources before requesting assistance from the state. In the event there is an issue with reciprocity, the group holds a meeting to discuss the issue. This provides some accountability, but according to the respondents of this interview this rarely happens. It is widely recognized among fire managers that the next fire might be within their jurisdiction and that they will have to request assistance.

### *The shared threat of fire*

The respondents reflected on fire management in central Oregon in the past and

explained how it evolved from a zero-sum game that was once common prior to the swath of destruction caused by large fires in 90's. Prior to the 90's before the mutual aid agreements had been established, the fire chiefs described fire management as riddled with turf wars; issues of jurisdictional responsibility and accountability were more common. As one of the fire chief's put it, "that's not our fire; that's your fire," had once been the mindset, which typically resulted in larger more destructive fires.

I think it [collaboration among fire management agencies] kind of started, at least regionally here, with the Aubrey Hall fire. People don't like to talk about it, but I happen to know that when the fire first started there were arguments going on between the fire department... the forest service... about who's fire it was, who had jurisdiction. And while they're arguing the fire's raging... (Fire Chief, District A)

Large multijurisdictional fires brought into conscious awareness of land management agencies and citizens alike the concept of "neighbors" as a key variable of risk and resilience. Fires have no jurisdictional boundaries. Witnessing the powerful destructive nature of wildland-urban interface fires instigated change with the realization that "no one can do it alone." Fire management agencies repeatedly attributed this belief to the need to collaborate.

Large interface fires, such as the Aubrey Butte, Skeleton, BandB, Shevlin Park fires were noted by every respondent as a major contributing factor to the cultural change of central Oregon's fire management system. The formation of the mutual aid agreement and the change in mentality not only occurred among the traditional fire fighting agencies, but also among the public. When asked if citizens were cooperative in their jurisdiction and SB 360 compliant, the chief's in the more affluent communities all agreed that citizens in their jurisdiction understood the risk and maintained their property. The communities with more disparity in wealth indicated a mix of compliance and noncompliance in their communities.

When asked if the local fire department played a role in monitoring compliance, surprisingly the answer was no. The chief's explained that most residents understood the risks of where they live and maintained their property. In the affluent planned

communities, a clause in the protective, covenants, conditions, and restrictions of homeowner associations stipulates standards homeowners are expected to comply. There are many planned communities in central Oregon managed by homeowner associations (HOAs). The HOAs often include assessments that assure homeowners contribute their share to the maintenance of common areas. Some homeowner associations include restrictions, such as banning shake roofs or may impose fines for failing to comply with the HOA's rules maintaining vegetation on the property. Residents living in the wildland urban interface depend on the provisions of their local fire department, homeowner association, and their neighbors to do their part to protect the commons in that the security and value of their property depends on the security of the adjacent property. The mutual aid agreements and SB 360 reflect a change in conscious awareness of the dependence on one's neighbors to mitigate the risk of fire.

### *Training and ICS*

Planning, training, and exercising are critical to preparedness- the ability of agencies to mobilize in a coordinated fashion. The training standards of all fire fighters in the Pacific Northwest are established by the Pacific Northwest Coordinating Group. A single set of standards and the emphasis on teamwork provided by training and ICS were sited as key factors in the ability to collaborate with any emergency management system in the country.

If you come down here during fire season in July and August, you'll probably see ODF rigs parked right outside this fire station... We don't do a lot of training together [with ODF and the Forest Service]. We do some; we don't do a lot, but we do some... but we have identical training backgrounds. While they're training with the Forest Service, all our structural guys are going through that same training. Everybody here is certified for wildland urban interface fire. (Fire Chief, District A)

I was a chief back in [the valley], but wildland firefighting here... just to respond I was back in school again. The old requirements just weren't there. That's the difference between there and here... First thing they train central Oregon

firefighters in is wildland firefighting... in almost all of the academies, and then structural firefighting after that. (Assistant Chief, District B)

The Incident Command System depends on compliance. Common concepts and terminology provided by training and ICS allow seamless integration in training and response. Having the system firmly established, where all response agencies know it and use it, is fundamental to its success. Reverting back to an example provided earlier, public works, power companies, hospitals are entities that often share an important role in response, do not operate under ICS and the ability to coordinate relies on preplanning. Coordination with these entities must be discussed prior to an incident to assure responsibilities are understood.

Everybody has their own agency mandates. So we're all being pulled, and a lot of it had to do with time management. So my ultimate goal was lets all open up our disaster plans and pick a scenario... and let's see where we are in conflict with each other. And some of what was found... for example a post office drill where the post office was expecting if they had an anthrax emergency that they would have local police provide security for that building and the fire department would help take care of patients and transport them to the county health department. And yet there was no local post office response because they are not based here; their postal inspectors come out of Portland. So the expectation was local resources would just move on in and help out as if we had plenty of resources to do that and no other conflicts. But that was their plan. And the hospital was another one. If they had a fire they would call the fire department to help evacuate the people. Wait a minute folks. We're going to busy with the emergency. We're not going to have the staff to move the people. You have far more staff than we do. So we were able to provide them, here's what we have, here's what we bring to the table and they changed their disaster plans. Whoa we need to rethink this. It was very, very interesting. And then, of course, our group kind of fell apart for awhile. Now we just revised it again and brought in some bigger players. (Deputy Fire Chief, City C)

In other cases, an entity may be training in ICS, but operate under another system that is not compatible.

Well, there are various forms of ICS floating around all over the country. It wasn't until 2005 the Department of Homeland Security said this is the system

use, did everyone start using one program. But I can tell you with absolute certainty... that's not the case. Everybody doesn't. Because really what it boils down to, if you want federal money for anything, you better be NIMS compliant. But if you don't want federal money... do what you want. (Fire Chief, District A)

One of the chief's recalled a training exercise that included military personnel that were trained and understood the concepts and language ICS, but operated in a ranking system that clashed with ICS operations. The reporting protocols of the two systems were different, and thus when the chief would try to obtain pertinent information from an individual in the military, which is clearly delineated in the roles of and responsibilities of ICS, this individual under the protocols of the military would have to obtain clearance from their superior before sharing that information. This glitch in reporting can cause delays that are seemingly small, but can create serious issues in response.

### *Trust and Rapport*

The Oregon Fire Chiefs Association's (2011) constitution and bylaws explicitly state that purpose of the association is to:

“Bring together persons interested in the purposes of the Association to develop a bond of friendship and understanding among the members of the fire service of this State.”

In the interview respondents were asked if the relationships they had with the other members of COFCA could be described as friendships. Each of the respondents confirmed that their working relationships with the other members were close and could be considered friendships that went back many years.

...here in Deschutes County we all get along. People understand that resources are limited so they are willing to help. If you need us, call us. We've got people. That's the mentality here. It really is just a... we're all here to help each other and we're going to get the job done. And last year with their new deployment system... with that strong hit... What did they have... 50 fires in, like, 2 hours... it went so

smoothly I was just sittin' back going, "Wow! This system is really working!" I was amazed. (Assistant Chief, District B)

We all know each other. We make an effort to know each other. It's been that way as long as I can remember. It's your peer group. It's who you are. You're never alone. We got this whole group out there and we work together. It's what keeps you going regardless of what your individual agency needs are. You can pick up the phone and call that partner next door and say, hey! And they know my name. And I can say, I'm going through this what do you think? Well, let's bring it to our next meeting and talk about it as a group. I think you're on to something. It's a great way. (Deputy Fire Chief, City C)

In one conversation the respondent discusses the new system about to roll out nation wide that will 'shuffle' the wildland partners. The respondent talks about the importance of rapport and is concerned that this may be sacrificed in this new way of operating.

They've now got the type one and type two teams in the nation. And what they've done now... with prioritization... we've got a central Oregon type 2 team and they type 2 team goes out and, typically, if there is a fire in central Oregon they're assigned to that incident. They come in our community, we know them. Now what you're looking at is they're (the US Forest Service) not going to do that. It's going to come up on a list and then their name drops to the bottom. So most likely we're not going to get our whole team. That's what they're planning on doing. And it's like 'wait a minute' these people know the area and they know the people and the collaboration is there. Not that we wouldn't want another team coming in here, but it's going to take a while. Do I trust you? Do I respect you? I don't have that working knowledge of what you're thinking or how you're going to do it. (Deputy Fire Chief, District D)

The responses as to how these relationships were forged were traced to a mentality established by the predecessors of this group. The current members of COFCA explained that the original members formed the group to address the issue of fragmentation through cost share and camaraderie and that it was part of their duty to honor these partnerships.

Well, like tomorrow I'm going to a preseason get together. And all the players will be at the fairgrounds with a keynote speaker from aviation in charge of wildland fire. And then they're going to break for lunch and come back and

they're going to talk about the fire season potential and... All the players from central Oregon will be there. That is how they come together and plan. (Assistant Chief, District B)

We call that our preseason meeting. It's something that we do annually here sponsored by the Central Oregon Fire Chiefs. And the members of that are all agencies, we have Forest Service, BLM, Oregon Department of Forestry, and all the municipal fire agencies are all partners within this. And they each have a voting member of the constitution and bylaws and we have officers and meeting every other month throughout the year. And we have a lot of partner agencies and agenda reports on those, such as National Guard, Red Cross, and subcommittees of that group that deal with fire prevention, operational level folks, fire investigation folks and so forth. So that meeting that we do annually is to get together just before fire season and talk about our resources and look at weather predictions. And brought in a guest speaker this year. He's an aviation officer from the Forest Service to talk about the air tankers, air resources. And the main goal of this is a meet and greet and try to make sure we put faces to names and allow our crews to actually meet one another before they actually run into one another out on the fire line. (Deputy Fire Chief, City C)

As the fire chiefs above stress, partnerships are important to knowing the people they work with on the front line. The fire departments build these relationships in informal settings to get to know one another prior to response on the fire line. The preseason meeting, a discussion of the fire outlook for the season and overview of capabilities, and informal cookouts are a way to build rapport among team members so that when they are in the field fighting a fire they know with whom they are working.

#### *Service oriented attitude*

What seemed to be fundamental to this group's cohesion was the attitude that they shared. They embraced the concept of the common good in statements such as, "When there is a fire tax payers do not care what color the truck is, they just want it out. And it is our duty to serve the public." The trust is generated in a common value of what is right. Firefighters share a mission in protecting the safety of their fellow firefighters, life, and property. The common sense of value binds this group to a single set of values creating a tight cohesive bond. This bond is based on service and thus does not engender

impermeable barriers between in and out groups. The chiefs expressed that they serve the public and this opens the system to other organizations with the same goal. Collaboration is possible because of this service oriented attitude that is seemingly pervasive in administration systems in the Pacific Northwest.

I think that is one thing here... we all have the same information, the same plans. It's not like I have access to some information or cool idea that I don't share. That is one of the other things that really works in central Oregon. We share information and ideas. If someone calls for help in central Oregon, they really don't care who it is. They need help. And that is the baseline attitude here in central Oregon- we're here to help. (Deputy Fire Chief, District D)

Our public educators have all our brochures and take that to the groups as well. Perhaps this gets back to collaboration, there are a number of individual organizations... we have central Oregon wide there is an arson investigator group. There is a public education group. There is an operations group. There is the Central Oregon Fire Chiefs group. There's the medical group. They call them EMOC. .... And our wildland partners come to our meetings as well. So when we are talking about something like Project Wildfire, our public fire educators talk about that all the time... and they're in the schools with our wildland partners doing Smokey Bear campaign. And then the wildland folks are in with our folks helping out with smoke detector alarms. And it's through those monthly meetings and quarterly meetings they go to and they collaboratively going after grants to help fund fire safety throughout central Oregon, not just the cause for the Forest Service on defensible spaces. It's all inclusive. (Deputy Fire Chief, City C)

In two of the four interviews the “alpha-male syndrome” was discussed. An alpha typically represents the leader of a group. In first response, traits of the alpha male, such as the ability to maintain control and confidence, is an asset to the team. The alpha-male syndrome, characterized by internalized feelings of superiority and an uncompromising ego, however, can be at the detriment to collaboration and team efforts. The chiefs conveyed the alpha as part of the job as a first responder, but the mentality associated with being an alpha was not.

...egos and turf wars.. we don't have them. I mean, obviously we're all type A personalities in fire service and we're all gung-ho, and so there's always some ego

out there, but really, not when it's time to hit the ground running and set up the Incident Command Structure and unified command and get the work done... (Deputy Fire Chief, District D)

When we get the human factor, as you called it, the human factor is the factor where people don't want to get along; they're not working under unified command... that's the only thing I think that could break down the system. (Assistant Chief, District B)

The members of COFCA emphasized the importance of inclusion and sharing information and ideas. They stressed that a cooperative attitude focused on serving the public was key to coordination. And finally, while confidence is part of the job description, the ego is not and is considered an obstacle to collaboration.

It's the right way to do it. And I think I can speak for everybody when I say it is what our public expects us to be doing. It's what I expect is going on... (Deputy Fire Chief, City C)

### **Diffusion of Federal Mandates in Central Oregon**

Unlike the NEPA process where the general public is informed with a proposal for action, emergency management often makes its planning decision behind closed doors. One of the fire chiefs acknowledged that this is the reason he has been working to establish monthly meetings with stakeholders that are not part of the traditional emergency management structure per se, but whose priorities and management decisions can have a profound effect on mitigating or escalating risk. The difficulty with administering such a group, he explained, was keeping the stakeholders engaged in discussion topics that do not relate to their interests. While access to the decision making process needs to include a diverse set of stakeholders that have different interests, resources, and cultural values, it is difficult to maintain these type of groups over time on a consistent basis.

Federal policy implementation fails when there is a perceived lack of balance between stakeholder involvement and top down decision making at the federal level. Locals will likely resist new reporting structures and the adoption of new terminology to produce standardized approach. When respondents were asked about the FLAME Act

and the Cohesive Strategy, most admitted to not knowing much about either. When asked how a top down approach from Washington DC would be received in a major disaster, the respondents, not surprisingly, indicated that they would prefer to maintain autonomy.

A holistic approach has the advantage of assessing a problem from multiple angles. This mitigates unintended consequences that might be avoided if the issue by an approach from multiple perspectives. The federal government has now adopted a self correcting mechanism- stakeholder involvement. Stakeholder involvement in decision making is encouraged through NEPA, which can assuage tensions and prevent legal action. Because central Oregon works with partners outside their niche, it is open to the input from different angles allowing it to be more adaptable to changes in the social, political, and economic environment. The National Cohesive Strategy will likely be more of a success in central Oregon if it too embodies the flexible components of informal agreements facilitating creativity and open communication and brings resources to the table to exchange.

#### **LIMITATIONS TO THIS STUDY**

The study lacks time. A cross sectional analysis of culture portrays a glimpse of the moving picture of the interplay of dynamics among differing values. It is difficult to say with confidence that the symbols will hold the same meaning over time or that the values attributed to effective collaboration are the defining aspects of a culture that will be passed to the next succession of fire chiefs. It is possible that when the leaders of COFCA retire the prevailing beliefs and attitudes that shape this collaborative network will be forgotten or challenged by their successors. Future study is needed to determine if the observations are indeed cultural attributes and not just the attitudes of a small group of individuals. Discerning the difference is an important factor in the ability to maintain cohesion in a collaborative network. A measure of the degree of change within the organizational structure in terms of policies delineating leadership, the level of interaction, trust, and rapport among members, the memory of stories that convey meaning and convention could fade and dissolve the bonds of this collaborative network.

Furthermore, to fully explore the context more interviews with entities outside the realm of fire management, such as members of environmental groups and representatives from the logging industry, would provide more clarity of the pressures from the environment outside COFCA influencing community attitudes and support toward fire mitigation. An assessment of the interests of other stakeholders would be useful in determining if efforts to engage stakeholders have indeed ameliorated conflict regarding forest management practices.

Nongovernmental organizations serve a number of interests. They can exercise their right to appeal restoration projects. The USFS record of appeals from 2005-2012 indicated that there had been 31 different appeals to 21 projects total. Eight projects were related to fuel reduction with 16 appeals, 4 of which all lead appellant/s withdrew their cases leaving a total of 10 appeals. While this number does not provide conclusive evidence of the change in attitude toward methods of mitigation, the withdraw of appeals does suggest that there might be a growing acceptance of the need for fuel reduction among the public. Provincial Advisory Committees, a group representing the different views of stakeholders that convenes to determine priorities and projects, was established in central Oregon for the purpose of reducing conflict by involving stakeholders early on in the planning process. The establishment of PACs may have attributed to the withdraw of these appeals.

Industrial leaders in the timber industry also play an active role in the reduction of hazardous fuels in wildland-urban interfaces. They are contracted out in stewardship programs by the USFS that are designed to mutually benefit both the federal government and local industry. However, this interdependent network does not operate without conflict. Timber companies also litigate the stringent regulations on harvesting forests.

The issue of fire management requires the input of stakeholders representing different values and different cultural norms. For example, in central Oregon there is a particular coalition put together to specifically address fire management in the forest is comprised of different stakeholders that meet and discuss their concerns relating to forest restoration. In this one particular group, meetings are held once a month where

stakeholders can discuss their perspectives in an attempt to gain an understanding of the different values invested in this common resource. The meetings are designed to provide a platform for the presentation of different views, which is not always a smooth process-forest restoration affects many conflicting interests.

While the federal government stresses collaboration, it seems nearly impossible to completely satisfy every demand. Some entities in these meetings lack the incentive to compromise their values in the interests of others. Environmental groups feel they cannot compromise the welfare of the ecosystems they are chartered to protect. Lumber mills supporting the workforce of entire communities cannot support the industry compromising with environmental demands. Although programs, such as biomass removal programs, are geared toward offsetting the regulations on harvesting, loggers argue they are not enough to compensate the loss of revenue.

Collaboration is a learning process. The two conflicting parties of this particular coalition both expressed disappointment with the federal mediator in that neither group was completely satisfied with the outcomes of the collaborative process. When asked to discuss the outcomes of this meeting, it was stated that the effort was a “waste of time.” One of the two conflicting parties expressed that compromise has in the past been at a loss. While one group expressed that they had learned more about the perspective of the other group, there was no change in behavior toward a mutually beneficial solution because in the end they both still had conflicting objectives.

While this study is not conclusive, it is possibly the foundation of a larger study that can more accurately measure the effects of changes in culture in terms of organizational structure, interaction, and access to decision-making on effective collaboration. There is more to the story than what this study was able to capture in the limited time frame.

## **CONCLUSION**

The Wildland Fire Leadership Council (WFLC) developed the National Cohesive Wildland Fire Management Strategy as a “proactive” approach to address the increasing

costs of wildfire in recognition of the difference in values across the nation. It is designed to assess the cultural aspects of a community in order to determine risk reduction strategies. The assessment is constructed on a regional level using the analyses of smaller local areas based on the input of tribal, state, county, and community leaders and the expertise and information of existing entities within the region.

### **Policy Implications of the National Wildland Cohesive Strategy**

The approach of this strategy recognizes the need for balancing a standardized approach with local values. The approach, however, is innovative in nascent form and still in development. In order for this type of approach to work, the federal government will have to create a system that can interpret colloquial knowledge and translate it into meaningful data that can be used to determine the cost effectiveness of trade-offs. The system will need a way to consider the relative importance of priorities from a local perspective and compute the tradeoffs.

#### *Changes in Natural Resource Management Must Take a Holistic Approach*

Cost effectiveness must take more into account than the costs of a project; it must consider a community holistically and how social, economic, and environmental values of a community will be affected by any given approach. Most importantly federal “trade-offs” must consider that the social, political, and economic structures in place have cultures built around the resources upon which they operate. Sudden shifts in these resources can have adverse affects in a community tied to their value. These resources provide security. Socially, they provide a sense of place and identity that people share. Fuel reduction can disrupt this symbolically significant space. The paradoxical culture of mutual dependence and independence can be used to mitigate conflict and avoid legal issues and civil unrest, such as that occurring when the USFS decided to protect the habitat of the northern spotted owl at the expense of the timber industry.

#### *The Cohesive Strategy Should Not Be Measured in Terms of Instant Gratification*

Cultural change is a slow process, especially when it is resisted by a lack of compliance or lawsuits. The process is slow, but pays off in greater return in that it reduces risk using resources already available at the local level.

Locals adopted the FireFree program because of their perception of vulnerability after seeing the effects of disastrous wildfire. While the local fire departments have the authority to enforce illegal activity, such as burning after burning season, they do not feel that they need to force people to comply with SB360. People recognize the risks and they willingly create defensible space in many cases. In other cases residents in planned communities are obligated by homeowner associations to comply with SB 360.

Local fire departments, the Oregon Department of Forestry, the USFS, and Project Wildfire have created programs to target homeowner associations and educate them on how to create fire adaptive communities who in turn impose rules in their protective covenants, conditions, and restrictions. However, firefighters in planned communities admitted that people “know where they live” and take the initiative to take care of their property. Resources were used to create a culture centered on community awareness and fire preparedness that is still evolving into a culture of resiliency.

This is the purpose of the Cohesive Strategy and central Oregon, an area that experiences wildfire seasonally, has already begun establishing this culture of resiliency. The dependence on neighbors to maintain their property has slowly created a self aware and self sufficient system. It takes time to build cultures, but they are more effective than implementing policy from the top down only to have to invest resources later to fix unintended consequences or address conflict. Building a Cohesive Strategy will take many years and policy analysts must be patient and not impose unrealistic timeline to measure its effectiveness.

#### *Use Existing Structures, Focus on the Ends Rather than the Means*

Furthermore, the WFLC should take into account existing structures that serve their end goals rather than focus on the means in compliance with standards. The missions, objectives, and operational protocols of COFCA are guided by values. Values

determine the priorities of these activities and shape the behavior within the organizations and the communities they are nested. Values centered on mutual dependence, a service oriented attitude, and regional independence determine how a fire is sized up, the use of resources as a collaborative unit, the level of engagement with stakeholders. The culture built upon these values will determine how this group will report from the bottom up and respond to external influence from the top down. Instead of employing a system that requires compliance and reporting, the WFLC should employ personnel that work on the ground with local entities and report back to headquarters. The Central Oregon Fire Management System, a collaborative fire fighting structure composed of the USFS, ODF, and the agencies in COFCA. The Central Oregon Fire Chief's Association has a well-developed relationship with their federal and state partners that can be an asset to meeting the end goals of the Cohesive Strategy. Implementing policy changes that may impose new standards or break up existing relationships would be wasteful and could have the opposite of the intended effect. Flexibility is key to creating adaptable organizational structures that are able to collaborate and address a dynamic environment.

### **The Challenge of Changing Culture**

The challenge will inevitably be the conflict among organizations with different protocols and priorities, such as the example above where the coalition in central Oregon designed to reduce the risk of wildfire through collaborative restoration projects, had difficulty in getting past parallel play and communicating on a collaborative level. The contention between the environmentalist and the members of the timber industry created tension with the mediator. There is no "one-size-fits-all" solution to addressing conflicting values. Putting groups together to talk is sometimes not enough- the mediator in this case was perceived by both groups as partial to the other's interests. Attempts at collaboration had the opposite effect of marginalizing one group in favor of another. The Cohesive Strategy must have the capability to assess such conflicts on a local level and be able to provide innovative solutions formulated in negotiations. This challenge is that

negotiations on a cultural level can take a long time to develop. Furthermore, innovative solutions are difficult to produce in bureaucracies that rely on standardization.

Cultural changes are lifestyle changes that affect nearly every aspect of a community. As environmentalists posit, the environment is an interdependent ecosystem. Loggers would agree, but would include economic stability of a community as a component in the ecosystem. These fundamental ideological stances do not change without disruption. Holistic solutions are needed to address change on multiple levels to avoid external shocks to the entities that make up an interdependent network. Holistic changes are cultural and can be achieved by changing the meaning of phenomena, creating symbols that represent shared values. Reality is consensus. Collaboration is necessary to reach consensus, collectively assign meaning, and produce adaptive social networks that can respond to rapidly changing phenomena of disasters.

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## **APPENDIX**

### **Appendix A**

#### Interview Protocol

##### *Introduction*

Hello. Thank you for agreeing to participate in this study. I appreciate your time. The interview should take about one hour, depending on your time availability. However, you may end the interview for any reason at any time. With your permission I would like to tape-record the session so that I can review our discussion at a later date and make sure I capture your responses accurately. You may request to stop the recording at any time during the interview. Our conversation is confidential; and if I use any of your responses as direct quotes, I will not use your name or any details that may reveal your identity. Is this okay with you?

Fire management in central Oregon is widely recognized in the emergency management community as a model of an effective collaborative network. This interview is intended to identify from your perspective the contributing aspects of your interaction with other agencies and organizations that facilitate cooperation and successful collaborative efforts. In essence, this study is aimed at determining what works in maintaining cohesiveness in this network in terms of policies and practices and the effectiveness of this network in reducing the risk of conflagration.

#### *Internal components*

1. What operational guidelines does your agency follow?

##### Narrative prompts

- Can you explain the protocols of response to incidents?
- How do you determine incident command in multi-jurisdictional fires?
- How do you determine priorities in reducing the risk of conflagration?
- Do you monitor and enforce compliance with SB360?
- Who establishes the standards for training?
- Discuss the availability of resources affecting your agency's performance.

2. What are the contributing factors of successful cooperation within your network?

##### Narrative prompts

- Who are your partners?
- Can you describe the rapport you have with your partners?
- How do you manage conflicting interests in your network?

#### *External influences*

1. Do you feel that your community supports your efforts to protect them from fire hazards?

##### Narrative prompts

- Do the residents in your jurisdiction comply with SB360?
- Why or why not?

2. What effect might the Cohesive Strategy have on your agency?

Narrative prompts

- What federal policies have the greatest impact on fire management?
- Are you familiar with the FLAME Act?
- Are you familiar with the Cohesive Strategy?
- If so you feel that this new approach will enhance collaboration?

3. Can you describe the level of financial support you receive?

Narrative prompts

- State support?
- Federal support?

