
Wildfire Management in the United States: The Evolution of a Policy Failure

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Abstract

Wildland fires constitute a major crisis in American environmental policy, a crisis created by a long-standing policy failure. This article explores the political processes that generated and reinforced this policy failure over time. The concepts of bounded rationality, punctuated equilibria, and self-reinforcing mechanisms are applied to study the evolution of American wildfire policy between 1905 and the present. This study finds that a self-defeating wildfire suppression policy was established in the period 1905 through 1911, and subsequently reinforced for more than five decades. This policy did not include a complementary program to counteract the gradual accumulation of flammable organic materials (fuels) that occurred in many ecosystems when fires were suppressed. The resulting fuel accumulations have greatly increased the risk of damaging, high-intensity wildfires in a range of American wildlands. A combination of fire suppression and fuel reduction programs will be needed to manage this risk in the future.

Introduction

Wildland fires pose severe threats to many ecosystems and communities in America today. Wildfires are capable of burning millions of acres of land in a single year, thereby causing damage on a regional scale. For example, the wildfires of 2000 burned an estimated 8.4 million acres of land in the United States. The wildfire crisis in America was created by a longstanding policy failure. For more than nine decades, the central goal of American wildfire policy was to protect natural resources and human communities from damages caused by wildfires (such as losses of timber and homes). Yet the consequences of this wildfire policy greatly increased the risk of wildfire damages in America. The goal of this study is to explore the political processes that led to the failure of American wildfire policy, and to examine the possibilities for the future management of this national crisis (Pyne, 1982; US Department of Agriculture [USDA] Forest Service and US Department of the Interior [DOI], 2000; USDA Forest Service, 2000; US General Accounting Office [GAO], 1999a, 1999b; Western Governors' Association [WGA], USDA, and DOI, 2001).

The failure of policies to achieve their goals is a recurring theme in policy studies that has not been fully explored (Ascher, 1999; May, 1992). This article explores some of the political processes that can generate and propagate policy failures. Policy failures (or policy errors) are defined here as cases where policies fail to achieve their central goals. The propagation of policy failures is defined here as a process in which policy errors persist (with mounting impacts) over long periods of time. This article proposes that policy errors can originate from decisions that focus attention on only one facet of a multifaceted policy problem. Such policy errors can persist when incorporated into the issue definitions and supporting institutional arrangements established in a policy domain during a period of policy formation. Policy errors can subsequently propagate as agencies seek out new resources and influence to reinforce established issue definitions and institutional

arrangements. These self-reinforcing actions can cause the impacts of policy failures to gradually escalate over long periods of time.

This article is the first to apply these concepts to the topic of American wildfire policy. The origins of this policy failure can be traced back to the period 1905 through 1911, when the federal government established an issue definition of aggressive wildfire suppression and the institutional arrangements necessary to implement this policy (Pyne, 1982). This wildfire suppression policy did not include a complementary program to reduce the gradual accumulation of flammable organic materials (fuels) that occurred in many ecosystems when fires were suppressed. In essence, this policy choice focused attention on wildfire suppression while failing to focus attention on wildland fuel reduction. The wildfire suppression policy was ultimately self-defeating, because the resulting wildland fuel accumulations would eventually increase the risk of fire damages. Yet this policy error was subsequently reinforced for more than five decades, as the agencies involved gradually gained new resources and influence to support the wildfire suppression policy. The result was a massive fuel buildup that greatly increased the risk of damaging high-intensity fires in American wildlands (USDA Forest Service, 2000; USDA Forest Service and DOI, 2000; GAO, 1999a, 1999b; National Commission on Wildfire Disasters, 1994).

In sum, this study traces the political processes that generated and propagated a damaging policy error for many decades. The theoretical and empirical basis of this argument is presented below.

The Origins and Propagation of Policy Failures

One approach to understanding the origins of policy failures is to apply the concept of bounded rationality. Bounded rationality refers to decisions made with selective (rather than comprehensive) attention to relevant information. In complex decisions, the processing of relevant information creates significant costs of time and effort. To reduce these costs, individuals making complex decisions often pursue a decision strategy in which they pay selective attention to relevant information. Furthermore, individuals often focus disproportionate attention on information that supports their prevailing beliefs. Given that policy decisions are often complex and value-laden, the practice of selective attention can lead to policy choices that are not fully informed. In particular, bounded rationality can lead to policy choices that focus attention on only one facet of a multifaceted policy problem. The concept of bounded rationality therefore indicates that policy decisions will often be characterized by selective attention to relevant information, creating the potential for policy errors (Jones, 1994, 2001; Lindblom, 1959; Ostrom, Gardner, & Walker, 1994; Sabatier, 1999; Simon, 1947, 1982, 1985).

The persistence of policy failures over long periods of time can be understood by applying the punctuated equilibrium theory of policy change (Baumgartner & Jones, 1993). This theory proposes that equilibrium periods in a given policy domain (marked by incremental policy change) will be punctuated by critical periods (marked by major policy reforms). Critical periods can establish new issue definitions and supporting institutional arrangements that endure in subsequent periods, and that shape the decisions of the associated policy network (the network

of organizations and individuals normally active in the policy domain). Therefore, policy errors can have lasting consequences when incorporated into the issue definitions and institutional arrangements established in a policy network during a critical period. In essence, policy failures can persist for decades as the institutional legacies of critical periods.

The ability of policy failures to propagate (to persist with mounting impacts over time) can be understood by applying the concept of self-reinforcing mechanisms. Over time, the members of a policy network will often seek additional resources and influence to pursue their established policy goals. These actions gradually reinforce the issue definitions and institutional arrangements of the network, thereby reinforcing the policy errors that have been incorporated into those ideas and institutions. The self-reinforcing actions of the policy network can therefore cause policy failures to propagate over long periods of time (Arthur, 1988; Baumgartner & Jones, 1993; Jones, 1994; Klyza, 1996; North, 1990).

Based on the concepts discussed above, this study introduces a model of the origins and propagation of policy failures. The elements of this policy failure model are as follows. In any given policy domain, the bounded rationality of the participants can result in policy errors or failures (policies that do not achieve their goals). Such policy errors can be incorporated into the fundamental issue definitions and supporting institutional arrangements established in a policy network during a critical period of policy formation. The self-reinforcing actions of the policy network can then propagate these policy errors in subsequent periods. As a result, policy failures can persist (with mounting impacts) over long periods of time.

This article applies the policy failure model to explore the evolution of US wildfire policy, using data from the extensive documentary record on the development of this policy. This record includes a monumental history of wildland fire in America by Pyne (1982) as well as a series of other academic works and government reports on the topic of wildfires. Together, these documents provide a highly detailed chronology of events in this policy domain over the past century.

Wildfires as a Policy Failure

Human actions have played a pivotal role in creating the current wildland fire conditions in America (USDA Forest Service, 2000). For much of the twentieth century, the dominant issue definition of US wildfire policy focused on wildfire suppression. The wildfire suppression policy gave strong support for wildland firefighting, but did not give strong support for programs to reduce wildland fuels (such as dense structures of living and dead vegetation). Yet these fuels would gradually accumulate in many American ecosystems when not removed by fire or other means. As a result, the wildfire suppression policy led to the large-scale accumulation of fuels in many American ecosystems over a period of many decades. For example, ecological research on a ponderosa pine forest site in Arizona found that average tree density on the site increased more than eightfold under fire exclusion (rising from 148 trees per hectare in 1883 to 1,265 trees per hectare in 1994–1995). The dense fuel structures found on this site in 1994–1995 could support high-intensity fires (Fulé, Covington, & Moore, 1997). Fuel accumulations of this type are now commonly observed in the ponderosa pine forests that are widely distrib-

uted across the American West. These dense fuel structures greatly increase the risk of large, high-intensity forest fires in the West (Carle, 2002; GAO, 1999a; Pyne, 1982, 2001; USDA Forest Service, 2000; USDA Forest Service and DOI, 2000; Wright & Bailey, 1982).

Many ecosystems can survive low-intensity fires, but can suffer massive and lasting damage from high-intensity fires. For example, ponderosa pine forests historically survived frequent low-intensity fires. These low-intensity fires periodically reduced fuels while leaving some trees alive, thereby maintaining healthy forests with limited fuel-loads (Covington & Moore, 1994; Wright & Bailey, 1982). By contrast, high-intensity fires can kill virtually all vegetation on a forest site and disturb the underlying soils. Severely burned areas are therefore prone to soil erosion during subsequent rains, compromising both soil and water quality in those areas. High-intensity wildfires are often difficult or impossible to control, and recent experience demonstrates that wildfires are capable of burning millions of acres of land in a single year. This problem has become acute in the ecosystems of the interior West, where an estimated 39 million acres of national forest lands face a high risk of catastrophic wildfires (GAO, 1999a, 1999b; USDA Forest Service, 2000; USDA Forest Service and DOI, 2000). These severe wildfires pose grave threats both to ecosystems and to human communities located in or near wildlands. Thousands of homes have been lost to wildfires in recent years, even as the number of people living in or near wildlands continues to grow (Carle, 2002; Pyne, Andrews, & Laven, 1996; GAO, 1999b; USDA Forest Service, 2000).

In sum, the wildfire suppression policy has created a major policy problem in the form of a massive fuel-load that now feeds severe wildfires. These fires threaten both ecosystems and human communities, and are the source of escalating social and ecological costs (USDA Forest Service, 2000; GAO, 1999a; USDA Forest Service and DOI, 2000). The sections that follow examine the political processes that generated (and propagated) this important policy failure.

Policy Origins

The origins of the wildfire suppression policy are explored here by applying the concepts of critical periods and bounded rationality. First, this article proposes that the years 1905 through 1911 constituted a critical period in the formation of federal wildfire policy. The issue definitions and institutional arrangements established in this period structured US wildfire policy for much of the twentieth century. It was during this critical period that the federal government established the issue definition of wildfire suppression, and created the basic institutional arrangements that would allow the policy of wildfire suppression to be implemented throughout the nation. Second, this study proposes that the choice of the wildfire suppression policy displayed a pattern of selective attention to relevant information (bounded rationality). This choice focused attention on fire suppression while failing to focus attention on fuel management, thereby establishing a self-defeating public policy.

In 1905 Congress passed the Forest Transfer Act which transferred the federally owned forest reserves from the US Department of the Interior (DOI) to the US Department of Agriculture (USDA). The USDA Forest Service then assumed

responsibility for the management of the national forests. This jurisdictional shift occurred in the midst of a series of presidential proclamations that greatly expanded the size of the national forest system. This process of expansion was restricted by Congress in 1907, but nevertheless placed a vast area of American forestlands under the jurisdiction of the Forest Service (Andrews, 1999; Gates, 1968; Hays, 1959).

In managing the national forests, the Forest Service pursued a strategy that was consistent with the general direction of the Progressive Conservation Movement (Hays, 1959). In essence, the Forest Service sought to promote the efficient use of natural resources through coordinated, centrally directed decisions made by forestry professionals. An early focus of this strategy was to protect natural resources from damages caused by wildfires. Congress subsequently gave the Forest Service the fiscal and legal means to pursue wildfire suppression on a national scale.

In 1908 Congress passed an appropriations bill (35 Stat. 251) enabling the Forest Service to receive advances of funds (under any appropriation for the Forest Service) to support forest firefighting in emergency cases. This emergency-spending provision provided a method for the Forest Service to expend funds for firefighting that far exceeded its annual appropriations for that purpose. The Forest Service could then ask Congress to pass additional appropriations to cover this deficit spending. This provision gave the Forest Service the budgetary flexibility it needed to pursue aggressive wildfire suppression throughout the nation, even when wildland firefighting costs exceeded the limits of its conventional budget (Pyne, 1982, 2001).

While Congress had created a fiscal tool that would allow the Forest Service to pursue wildfire suppression on a national scale, the appropriate role of fire in American forests remained the subject of public debate in this period. Some authors in this period argued for a policy of light burning, in which periodic low-intensity fires would be used to reduce fuel-loads in forests. A central goal of light burning was to decrease the risk of damaging high-intensity wildfires through a program of fuel reduction. Today, this preventative strategy is usually referred to as prescribed burning. Light burning carried serious risks, in that low-intensity fires could escape control and cause unintended damages to natural resources and human communities. Due to this risk of fire damages, the Forest Service generally opposed light burning as a fire management strategy. Rather than light burning, the Forest Service supported a policy in which most or all wildfires would be swiftly extinguished to prevent fire damages (Carle, 2002; Pyne, 1982, 2001).

The first major test of deficit spending for wildland firefighting occurred in the 1910 fire season. An estimated 10,000 firefighters were deployed to fight the severe wildfires of that year. The Forest Service generated a deficit of \$1.1 million in fighting these fires. Nevertheless, the 1910 fires caused extensive damage and loss of life. This disaster became a symbol of the Forest Service's war on wildfires (Pyne, 1982, 2001).

The great fires of 1910—and subsequent legislation in 1911—marked the end of a critical juncture in federal wildfire policy. In this period the Forest Service established an issue definition focused on wildfire suppression rather than an issue definition that balanced wildfire suppression with wildland fuel reduction (Pyne,

1982, 2001). In 1911 Congress gave the Forest Service the ability to further expand the national forests, and the ability to influence the fire management of lands not owned by the federal government. The Weeks Act of 1911 enabled the Forest Service to acquire land on the headwaters of navigable streams as national forests. The Weeks Act also enabled the Forest Service to cooperate with the states (and provide matching funds) for fire protection on forested lands in state or private ownership, provided that these lands were located on the watersheds of navigable rivers. The Weeks Act set a precedent of cooperative fire protection that would give the Forest Service far greater influence over national wildfire policy than was possible through the enlargement of the national forests alone. The prospect of federal aid created an incentive for states to join in these cooperative agreements, while the federal standards associated with the agreements provided a mechanism to bring state wildfire protection programs into conformity with federal wildfire policy (Davis, 2001; Hays, 1959; Pyne, 1982, 2001).

From the beginning, wildfire suppression created a series of opportunities for the Forest Service to justify the expansion of its resources and influence. However, these opportunities alone cannot fully explain the choice of the wildfire suppression policy. The Forest Service could also have expanded its resources and influence through an alternative policy that balanced wildfire suppression with wildland fuel reduction. For example, a policy emphasizing light burning would have required significant resources for fire planning and fire control (due to the constant threat of light burns escaping control). The overarching goal of preventing wildfire damages could have readily been used to justify this alternative wildfire management policy. The alternative policy would also have reduced the risk of severe wildfires, which threatened to damage both natural resources and the reputation of the agencies that managed those resources (Nelson, 2000). Furthermore, the wildfire suppression policy cannot be explained as a rational choice to pursue goals other than wildfire management. The long-range consequence of the wildfire suppression policy was an escalating risk of severe wildfires, a risk that was not compatible with the other goals of the Forest Service (Pyne, 1982). Indeed, severe wildfires threatened to damage virtually all of the natural resources valued by the Forest Service (timber, watersheds, wildlife habitats, scenery, and recreational opportunities).

The choice of the wildfire suppression policy is consistent with the concept of bounded rationality, in that the choice focused attention on only one facet of a multifaceted policy problem (Simon, 1982, 1985). In essence, this choice focused attention on wildfire suppression while failing to focus attention on wildland fuel reduction. The concept of wildland fuel reduction was clearly articulated in the period 1905 through 1911, as was the potential threat posed by wildland fuel accumulations. But the Forest Service generally opposed light burning, which was the principal fuel reduction strategy proposed at the time. Furthermore, the immediate risk of wildfire damages was a more urgent and visible concern in this period than the eventual risk posed by gradual fuel accumulations. Wildfire suppression therefore commanded the attention of the Forest Service during this critical period of policy formation (Agee, 1993; Carle, 2002; Pyne, 2001). For more than five decades thereafter, fire suppression (rather than fuel reduction) would remain the central focus of attention in the Forest Service's fire management and research programs (Pyne, 1982).

The critical period defined in this study began with the passage of the 1905 Forest Transfer Act and ended with the passage of the 1911 Weeks Act. These years marked the coincidence of a critical period of policy formation and a major policy error. The period was critical because the events therein established an issue definition focused on wildfire suppression and the basic institutional arrangements that would be used to implement that policy. For more than five decades thereafter, the Forest Service would pursue a national policy of wildfire suppression using advances on its appropriations and cooperative agreements with the states. The policy was in error because its strategy was self-defeating. By failing to balance aggressive wildfire suppression with wildland fuel reduction, the Forest Service set the stage for wildland fuel accumulations that would eventually increase the risk of wildfire damages. As shown below, the resulting imbalance in policy would be propagated for decades into the future.

Policy Propagation

The following discussion explores the role of self-reinforcing mechanisms in propagating the wildfire suppression policy. The policy network involved in American wildfire management gradually expanded its influence and resources for more than five decades, thereby reinforcing the policy of wildfire suppression for much of the twentieth century.

In the decades following the critical period described above, the Forest Service formed the core of the wildfire policy network in America. Over time, this network grew to include cooperative fire protection arrangements between the Forest Service and all the states. The Forest Service also formed cooperative fire protection arrangements with other federal agencies managing public lands (such as the National Park Service). Between 1911 and 1968 the dominant issue definition in this policy network remained focused on wildfire suppression. The cooperative fire protection program established by the 1911 Weeks Act was extended by the 1924 Clarke-McNary Act, which enabled cooperative fire protection on any timbered or forest-producing lands in the cooperating states. The process of cooperative fire protection that began in 1911 brought wildfire suppression (consistent with federal standards) to a vast range of forestlands that were not owned by the federal government (Pyne, 1982; Pyne et al., 1996; van Wagtenonk, 1991).

In the decades following the fires of 1910, a series of innovations and new resources enabled the Forest Service to progressively advance its policy of wildfire suppression. The Forest Service supported an extensive program of research focused on the practical problems of wildfire suppression (Pyne, 1982, 2001; Schiff, 1962). Beginning in 1933, the Forest Service made use of Civilian Conservation Corps (CCC) volunteers to build a network of trails, roads, communication lines, fuel breaks, and observation posts in American forestlands. In addition to building its firefighting infrastructure, the Forest Service made use of the CCC to create large, organized wildland firefighting crews (Andrews, 1999; Pyne, 1982). In 1935, the Forest Service set a goal of suppressing all wildfires rapidly (Pyne, 1982).

Following the Second World War, the Forest Service pursued an aggressive program of mechanized wildland firefighting by air and land. In particular, the use of airplanes and helicopters created new possibilities for airborne wildland firefighting throughout the nation. The Federal Excess Property Program gave the

Forest Service access to surplus federal equipment (such as military hardware) and the ability to pass that equipment on to its cooperators. Fears of mass fires set by nuclear weapons led the Forest Service into cooperative fire research efforts with the US Office of Civil Defense. Massive road-building projects in the national forests simultaneously aided timber-harvesting operations and gave the Forest Service a land-based transportation network that could be used to fight forest fires (Carle, 2002; Pyne, 1982).

Through cooperative fire protection arrangements with the states and other federal agencies, as well as its prominent position in the field of fire research, the Forest Service extended its influence far beyond the national forests (Pyne, 1982; Schiff, 1962). In essence, the wildfire policy network engaged in a series of self-reinforcing actions that propagated the policy of wildfire suppression. Indeed, each of the decisions discussed above moved US wildfire policy further in the direction of virtual wildfire exclusion (Pyne, 2001; USDA Forest Service, 2000).

Even as the methods of wildland firefighting became increasingly effective, a growing number of studies in fire ecology indicated that low-intensity fires often played a key ecological role in recycling nutrients and reducing the risk of high-intensity fires. This research gradually began to influence the dominant issue definition in this policy domain. That issue definition shifted from an overwhelming focus on wildfire suppression to a more balanced strategy that pursued both wildland fuel reduction (often through prescribed burning) and the suppression of damaging high-intensity wildfires. In the years 1968 through 1978, the National Park Service and the Forest Service enacted policy reforms that allowed prescribed fires to burn under certain conditions (Carle, 2002; Pyne, 1982; van Wagtenonk, 1991). However, the longstanding imbalance between wildland fire suppression and fuel reduction left an important ecological legacy. As described below, the accumulation of wildland fuels has created a policy crisis that remains essentially unresolved to this day (GAO, 1999a, 1999b; USDA Forest Service and DOI, 2000).

Policy Consequences

The following discussion examines the enduring consequences of the wildfire suppression policy, as well as the future possibilities for wildfire management in America. Massive fuel accumulations have greatly increased the risk of catastrophic wildfires in America today. An effective response to this crisis will require sustained investments in wildland fuel reduction programs (GAO, 1999a; USDA Forest Service, 2000).

It is now generally accepted that the wildfire problem cannot be solved through more aggressive firefighting (USDA Forest Service and DOI, 2000). First, firefighting is not an effective tool for reducing the fuel-load that is the source of the problem (in fact, it is firefighting that allowed the fuel-load to build up to dangerous levels). Second, some severe wildfires can overwhelm all attempts at suppression. These uncontrollable fires are eventually extinguished by weather or lack of fuel rather than by firefighting. Therefore, firefighting cannot provide complete protection against wildfire damages (USDA Forest Service, 2000).

Wildland fuel reduction is now generally recognized as a key strategy for resolving the wildfire problem (GAO, 1999a; USDA Forest Service, 2000; USDA Forest

Service and DOI, 2000). However, fuel reduction presents significant practical challenges. The principal alternatives for fuel reduction include mechanical fuel removal (in which fuel is removed by machine or hand) and prescribed burns. Smoke generated by prescribed burns can cause air pollution problems. Furthermore, heavy accumulations of fuel increase the risk that prescribed burns will escape control and cause unintended damage to ecosystems and human communities. In 2000, a prescribed fire escaped control and led to a fire in the community of Los Alamos, New Mexico. The Los Alamos fire destroyed or damaged hundreds of homes and other structures, resulting in estimated fire damages of \$1 billion (Carle, 2002; GAO, 2000). The successful use of prescribed fire therefore requires considerable resources for fire planning and fire control. Mechanical fuel removal poses fewer fire hazards than prescribed burning, but also creates major demands for personnel and equipment to remove the fuels (and generates enormous loads of organic materials that must be disposed of). Overall, any effective fuel-reduction strategy will require major investments to support personnel and equipment over a period of many years. Indeed, the US General Accounting Office (GAO) estimated in 1999 that fuel reduction on national forest lands at high risk of fire could cost a total of \$12 billion by the end of fiscal year 2015 (GAO, 1999a, 1999b).

The success of such a fuel reduction program may well depend on a process of learning and adaptation over time, since no comparable program has been attempted before. Furthermore, wildfire management raises transboundary policy issues (since wildland fires and fuels often cross boundaries of ownership and jurisdiction). Therefore, the development of a sustainable wildfire policy will require collaborative partnerships between the many different organizations and individuals affected by wildfires (Busenberg, 2001; Davis, 2001; WGA, USDA, and DOI, 2001).

The environmental consequences of future wildfire policies remain in question. It is possible that future policy responses to the wildfire crisis could generate more ecological damage than they prevent. One such possibility is that fuel reduction programs could be used by the timber industry as a pretext to justify greatly expanded logging in the national forests. Another possibility is that the opposition of environmental groups to expanded logging could inhibit mechanical fuel reduction projects on a large scale, thereby exacerbating the wildfire problem. Budget constraints could also inhibit large-scale fuel reduction programs. Any of these possibilities could increase the risk of future environmental damage in the national forests.

In sum, it is clear that the resolution of the wildfire problem will be a complex, lengthy, expensive, and risky process. This policy failure is remarkable not only for the institutional legacy that helped propagate it, but also for the ecological legacy that it created.

Conclusions

For much of the twentieth century, American wildfire policy persistently focused attention on wildfire suppression rather than on wildland fuel reduction. This imbalanced policy choice was first established in a critical period of policy forma-

tion in the early twentieth century. During that critical period, the wildfire suppression policy was incorporated into the basic issue definitions and supporting institutional arrangements established in the wildfire policy network. In subsequent decades, this policy network gradually expanded its resources and influence in support of the wildfire suppression policy. These self-reinforcing actions propagated the wildfire suppression policy on a nationwide scale. The ecological result was a massive accumulation of fuels in many American wildlands. Despite gradual policy reforms that seek to balance wildland fire suppression with fuel reduction, the ecological legacy of past policy actions has created a mounting risk of severe wildfires in America.

Wildfires now pose a major policy dilemma for the US. The effects of this problem encompass threats to public safety, the massive costs of firefighting (which rose to more than \$2 billion in 2000), property damage, commodity damage (through timber and tourism revenues lost to fires), compromised ecosystems and watersheds (due to excessive burning and erosion caused by severe fires), air quality problems due to smoke generated by fires, and the costs of rehabilitating communities and ecosystems damaged by fire (GAO, 1999a, 1999b, 2000; USDA Forest Service, 2000; USDA Forest Service and DOI, 2000).

An effective policy designed to counteract the escalating risk of severe wildfires will require sustained investments in both fire suppression and fuel-reduction programs. Wildfire risks will remain high until the heavy accumulations of fuel in American wildlands are reduced, and effective fuel reduction will require a major investment of resources over a period of many years (GAO, 1999a; Pyne, 2001; USDA Forest Service, 2000). Therefore, an effective response to the wildfire problem will require sustained effort in the areas of both crisis prevention and crisis management. In sum, wildfires pose a major challenge for natural resource management in America.

The history of wildfire policy in America reveals an observable process of policy failure. The concepts used in this study to explore that process might also be used to explore other cases of policy failure. These concepts are not unique to American politics, and might therefore be applied to study policy failures in other nations. Such research can be accomplished by identifying other policies that have failed to achieve their goals for long periods of time, and by tracing the chain of historical events that have generated and propagated these errors in the policy process.

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George Busenberg is an assistant professor in the Graduate School of Public Affairs, University of Colorado at Denver. He received his PhD from the University of North Carolina at Chapel Hill in 1997. The topics of his previously published research include processes of policy change, learning and innovation in public affairs, collaborative approaches to environmental decisions, citizen participation in environmental policy, and the prevention of oil pollution at sea.

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