WILDFIRE MITIGATION LAW IN THE MOUNTAIN STATES OF THE AMERICAN WEST: A COMPARATIVE ASSESSMENT

A White Paper

compiled as a group research project in

PUAD 5450. Law of All-Hazards Management

Fall term, 2012.

School of Public Affairs
University of Colorado Denver

Lloyd Burton, PhD.
Course Professor and Author/Editor

Posted online
July, 2013.

Executive Summary

Wildfires are an increasingly destructive force of both public resources and private property in the Mountain West. With the rapidly growing population in the Wildlands-Urban Interface (WUI), the number of lives lost (of both WUI residents and the wildland firefighters risking their lives to protect them) and the amount of personal property destroyed increases from year to year.

We are also losing unprecedented acres of national forests to fires of almost unprecedented size. Moreover, with climate change predictions continuing to be verified, the WUI is becoming a more dangerous place to live than it used to be, as prolonged drought, record-breaking high temperatures, and disease ravaged dead and dying forests combine to create conditions favorable for ever-larger and more destructive fires—"perfect firestorms."

In this study, the laws of seven fire-prone states in the Mountain West regularly struck by catastrophic wildfires—Arizona, California, Colorado, New Mexico, Nevada, and Utah—were assessed to determine what the legislative responses to these catastrophes have been. We sought to learn whether states relied principally on "soft law" (public education and encouragement to adopt proven homeowner wildfire mitigation techniques) or "hard law" (regulatory mandates to effect wildfire mitigation).

We also wanted to find out whether it is state agencies or local governments that have the lead role in implementing WUI wildfire mitigation programs. Once information on these points of law were collected for each state, we performed a comparative assessment of these statutory provisions, seeking areas of both similarities and differences in legislative strategies.

We researched five subject areas in the states' laws: WUI Wildfire Research and Planning, Public Notice and Public Education, Intergovernmental Relations and Mitigation Assistance Programs, Land Use Regulation, and Regulatory Enforcement. All seven states conducted some form of WUI research and planning, and fostered cooperative agreements to assist home owners with mitigation practices.

All states have also adopted legislation or administrative rules enabling them to partner with the federal government under the purview of the 2003 Healthy Forests Restoration Act. This in turn enables them to receive federal funding to facilitate voluntary participation in federally sponsored mitigation programs, by adopting a Community Wildfire Protection Plan as called for in the act.

But we also discovered significant variation across states on the two dimensions of legislative strategy described above: "hard law" versus "soft law", and state level versus local level mitigation program implementation and enforcement. From this analysis, we learned that there are two distinctly different forms of legislative approach to wildfire mitigation law in our sample states: *common standard*, and *local option*.

Common Standard states are those adopting enforceable statewide wildfire mitigation standards for all property owners in the WUI. The term 'common standard' was applied for two reasons. First, in these states, mitigation requirements are uniform throughout the WUI, sometimes gradated in accordance with the severity of the risk. The second reason is based on the rationale for this form of law, which is that forested areas are a form of ecological commons, regardless of whether they are on public or private land; and that mitigation efforts will be ineffective unless all property owners in a forested area mitigate.

By contrast, *Local Option* states have no binding statewide WUI wildfire mitigation regulations. Instead, they empower local governments to decide for themselves whether or not they wish to require property owners within their jurisdictions to mitigate.

The common standard states in our sample are California and Oregon, while the local option states are Arizona, Colorado, and New Mexico. Nevada and Utah we termed 'hybrid' states, in that their laws contain elements of both legislative models.

One important factor we discovered that can account for these interstate variations in regulatory approach is *political culture*: the hierarchical ordering of core political values. The local option states place more emphasis on the values of personal autonomy, direct participation in rule making, and individualized, localized approaches to threat mitigation. These states then put correspondingly less emphasis

on the value of mutual obligation to assure each others' safety and environmental well-being. By contrast, common standard states place a higher premium on the mutual obligation value than they do on the values of personal autonomy, localized control and direct participation in WUI mitigation rule making.

Informed policy discourse in the fire prone states of the Mountain West can only be as good as the quantity and quality of information supporting that discourse, especially in the local option states. In addition to having the best possible characterization of the degree of risk in the WUI posed by increasingly serious environmental conditions (record-high temperatures and winds, prolonged drought, and disease-killed forests), it is just as necessary to know which mountain communities in the local option states are at greatest risk of loss to wildfire (as is done in Arizona).

Recent research indicates that the most dangerous places to live in the WUIs of the Mountain West are in those areas in which the natural hazard threats are high and local communities have done little or nothing to lessen risk through wildfire mitigation practices.

Thus, it is also important to do thorough after-action studies in the wake of catastrophic fires to assess the relationship between how well a given community was prepared to meet the challenge of a WUI wildfire, and how it fared in the aftermath. Among the states in our study, through the 2012 fire season and by mid-point in the 2013 season, nearly all the civilian and firefighter fatalities have occurred in local option states.

Context and Acknowledgments

At the University of Colorado Denver's School of Public Affairs, we place a premium on training students to do research that is unbiased, informative, and contributory to public discourse on public affairs of immediate concern to our state, our region, our nation, and our global physical and cultural environment.

Within our Program Concentrations in Environmental Policy, Management, and Law, and in Emergency Management and Homeland Security, we use the graduate seminar experience as a way for students to focus their information gathering and analytic skills on emergent problems that policy makers, stakeholders, and an interested public might wish to learn more about. PUAD 5450, *Law of All-Hazards Management*, is one of our core courses in this curriculum. The research presented here is represents the efforts of students in the autumn, 2012 offering of that course.

Our intent is to inform policy discourse rather than to steer it in any particular direction. We hope that you, the reader, will find the effort we have expended here to be useful in that regard. This was our common intent, but class members ultimately entrusted me with the responsibility for seeing to it that this objective was achieved.

Students doing case study research and contributing to this research report were Laura Bravo, Vanessa Carter, Tony Gherardini, Rachel Gibbons, Barett Howell, Fred Korb, Kimberly Pino, and Ray Sorensen. As usual, however, I as the course professor bear final responsibility for its contents. In some state descriptions, student writing was incorporated verbatim, while in others it was paraphrased for the sake of continuity and consistency.

And as is always the case with such projects, any views and opinions expressed herein should be construed as solely those of me as course professor and as author/editor of this White Paper project, and not as reflective of the views the School of Public Affairs, the University of Colorado, or the students participating in this project.

WILDFIRE MITIGATION LAW IN THE MOUNTAIN STATES OF THE AMERICAN WEST: A COMPARATIVE ASSESSMENT

INTRODUCTION.

Judging from recent news headlines, it seems that we must now be living in the age of natural catastrophe. Coastal storms of unprecedented scope and intensity, epic flooding, and massive wildfires throughout the forests of the Mountain West compete for the public's attention, as the lives lost and property destroyed from each of these cataclysmic events continues to grow. In the Southwest alone, since 2000 the states of Arizona, California, Colorado, and New Mexico have experienced several successive worst fires or fire seasons in their respective histories, as measured in lives lost and property destroyed.

A combination of factors accounts for these rising numbers. The first is that, compared to urban areas and the density of both population and dwellings in those areas, the wildlands-urban interface—the "WUI", where residential encroachment meets wild open space—is a relatively more dangerous place to live, in terms of possible losses to fire. Regular fires in the forested wildlands of the American West have been an elemental aspect of those lands since long, long before human beings first began to inhabit them.[1] Moving into the WUI means moving into harm's way, just as it always has.

Second, as climate scientists have been predicting for nearly a generation now, the Mountain West is steadily becoming hotter and drier. Throughout the western states, at least for the last three decades or so, the fire season has begun earlier in the spring and lasted later into to the fall. And as if this factor alone weren't enough to make the forests more flammable, climate change has also weakened the trees' ability to resist diseases and insect infestations. The most dramatic example is the explosive population growth of mountain bark beetles, whose attacks have killed tens of millions of trees on public and private lands, leaving them dead and standing as prime fuel for the conflagrations that sweep through the Mountain West every fire season.[2]

WILDFIRE MANAGEMENT, POLICY, AND LAW

Fire and the Disaster Management Cycle. In the 1970's in California, wildfire fighting agencies at every level of government realized that they desperately needed to achieve better interoperability, both technologically (communications, field equipment) and administratively (figuring out who's in charge and how to work together). From these early efforts, as further developed by the National Governors Association, emerged what is now referred to as the all-hazards, all-phases model of disaster management, also known as the disaster management cycle.[3]

'All-hazards' refers to causality: that is, whether a disaster is naturally, accidently, or deliberately brought about. 'All-phases' reflects

the understanding that wise disaster management includes (1) anticipating reasonably foreseeable disasters and *mitigating* against their likely effects; (2) *preparing* for an anticipated disaster event; (3) *responding* both during and immediately after a disaster; and (4) *recovering* from it. Disaster management professionals and scholars refer to it as a cycle based on the understanding that wise disaster recovery will ideally include measures to mitigate against losses (of both human life and property) occasioned by future such disasters.

Mitigation: Fire Science and the Law. Most states of the Mountain West are experiencing the fastest population growth in their wildlands/urban interfaces, even as these are becoming increasingly dangerous places to live. Thus, a good deal of fire science research is devoted to the study of how WUI residents can best mitigate against catastrophic losses to fire.

Researchers have achieved substantial consensus on the two most effective mitigation measures residents can take: structural mitigation and the creation of defensible space[4]. *Structural mitigation* refers to building or retrofitting structures in the WUI with fire-resistant materials. *Defensible space* means keeping the immediate vicinity of structures free of all potential fuel sources, and managing vegetation in the wider vicinity of structures to lessen burn intensity and thus keep structures from spontaneously combusting. This usually includes measures such as

removing all vegetation from the immediate vicinity of structures, and then thinning it within a wider perimeter (usually about 100 feet, depending on the nature of the vegetation).

But while there may be substantial scientific consensus on the effectiveness of these measures, the research described in this paper shows that there is very little agreement across state lines on the question of whether state government should use its police powers to compel property owners to adopt these life and property-saving wildfire mitigation practices.

From Aristotle's *Republic,* to the Roman Emperor Justinian's *Institutes,* to English common law, to modern American jurisprudence, a perennial theme is the use of government authority to regulate private behavior in the public interest. That is, under what circumstances is it appropriate for the *polis* (the people as a political entity) to impose limitations on their own individual liberty in the interests of protecting the 'public health, safety, morals, and welfare' (the classic formulation of state and local police powers in American constitutional law)? As this research illustrates, the states we studied have answered this question in different ways, and set this balance point between the public interest and private rights at different points along the continuum between the two.

RESEARCH GOALS AND METHODS

Goals. Our purpose in conducting the research described here was to comparatively assess how different state governments in the Mountain West have gone about answering this question with specific regard to property owner responsibility for wildfire mitigation in the wildlands-urban interface. We wanted first to discover what these variations might be, and second to reflect on what some of their causes might be.

As to why we undertook this research, we took to heart Mr. Justice Brandeis' observation that state governments can serve as "laboratories" for empirical experimentation with solutions to policy major policy problems.[5] Thus, state government leaders might have something to learn from each other via this research.

Our goal is to help policy makers, disaster management scholars and practitioners, and other interested parties learn how various state governments are—and are not—using the police powers to mitigate against the loss of lives and property occasioned by catastrophic wildfires in the WUI. From this learning might arise better informed and more effective means of minimizing these losses in the future. This research also establishes a baseline in time against which to measure in future changes in these state laws that might come about in response to future catastrophic fires.

Methods. The principal means by which we gathered information about state WUI wildfire mitigation laws and policies was online legal research. We did keyword searches at legislative and administrative government websites for each of the states studied, and also used both open-access and proprietary legal research databases (such as *Lexis-Nexis* and *Westlaw).* We obtained additional background obtained from print and broadcast news media, academic and professional journals, websites relevant federal agencies (eg., U.S. Forest Service, and various agencies of the U.S. Department of the Interior), and the websites of various stakeholder groups.

In designing this comparative assessment, we decided to focus on the laws and policies of Arizona, California, Colorado, New Mexico, Nevada, Oregon, and Utah. Criteria we used in choosing these sample states were (1) the incidence of past catastrophic wildfires in the WUI, (2) population growth rates in the WUI, (3) inter-regional variations in the sample (eg., the desert southwest, the interior mountain west, and the west coast); and (4) our prior knowledge of the divergent policy approaches being tried in these states.

To facilitate inter-state comparisons, we paid special attention to two aspects of each state's laws: The first was the *form* of government authority being exercised, and the second with the *locus* of that authority. Form concerns whether authority was primarily advisory or mandatory (sometimes referred to as the "soft law-hard law" continuum). Locus of

authority refers to what level of government was exercising either advisory or mandatory powers.

By way of example, in our research we discovered in California a common standard of WUI wildfire mitigation land use regulation, emanating from enactments by the state legislature; "hard law" authority was being exercised at the state government level. In contrast, in states like Arizona and Colorado we found just the opposite: "soft law" at the state level, advisory in nature insofar as private land use regulation was concerned. But local option states also empower local governments to implement mandatory wildfire mitigation property and land use regulations if they choose to do so.

In researching these state laws and regulatory processes, team members gathered information on each of the following topics:

WUI Wildfire Research And Planning:

- Is a state agency made responsible for mapping "red zones" and otherwise assessing the degree of risk posed by residence in the WUI? If so, which one?
- Does red zone mapping provide a (a) voluntary or (b) compulsory basis for land use planning by state government in the WUI? If so, by what agency or agencies?
- Does red zone mapping provide a (a) voluntary or (b) compulsory basis for land use planning by local/regional government in the WUI?
- Is the state agency responsible for mapping and risk assessment the same one responsible for risk management and wildfire disaster management in the WUI?

Public Notice And Public Education:

- Are sellers (or their agents) of residential property in red zones required to notify prospective buyers at the time the property is shown that it lies within an area of heightened wildfire risk, as determined by the state agency doing the red zone mapping?
- Are sellers (or their agents) of residential property in red zones required to notify prospective buyers at the time of sale that it lies within an area of heightened wildfire risk, as determined by the state agency doing the red zone mapping?
- Are state government agencies (and which ones) mandated to conduct public education programs for WUI residents regarding best wildfire mitigation practices?
- Are state government agencies mandated to work with local governments in the WUI to conduct mitigation workshops and trainings for residents?

Intergovernmental Relations And Mitigation Assistance Programs:

- Are state government agencies (which ones) mandated to coordinate with federal agencies (such as the US Forest Service, National Park Service, Bureau of Land Management, and Fish and Wildlife Service) in making and implementing WUI wildfire mitigation plans?
- Is a state government agency mandated to promulgate **recommended** land use planning and land regulation guidelines for use by local governments in the WUI?
- Is a state government agency mandated to promulgate **compulsory** land use planning and land regulation guidelines for use by local governments in the WUI?
- Is there a grant-in-aid program available (whether originating at the federal or state level) to local governments for assisting homeowners in creating defensible space on their properties?
- Is either state or local government mandated to provide direct assistance to homeowners in the WUI for wildfire mitigation?

***Land Use Regulation*:**

- Does state law **recommend** individual homeowner WUI wildfire mitigation (structural mitigation and defensible space)?
- Does state law **mandate** individual homeowner WUI wildfire mitigation (structural mitigation and defensible space)?
- Does state law empower **state** agencies (which ones) to directly enforce such a mandate if it exists?

- Does state law empower **local government** agencies (which ones) to directly enforce such a mandate if it exists?

Regulatory Enforcement:

- Does state law empower a state agency (which one) to enforce mitigation land use regulations against non-compliant local governments?
- Does state law empower local government agencies to enforce mitigation land use regulations against individual homeowners?
- Does state law provide funding to either state or local government agencies for the enforcement of mandatory mitigation measures?

FINDINGS

Models of Wildfire Mitigation Regulation. As class researchers gathered answers to each of these questions, what began to take form for each state was a profile of how its laws, policies, and implementing regulations fit into the framework of form of authority and locus of authority we had devised for the comparative evaluation of the legal materials gathered. From there, two distinct forms of WUI wildfire mitigation law and policy began to emerge.

The first form is the *Common Standard* model. This model is just what the name implies: common enforceable standards for structural mitigation and defensible space, applicable throughout the WUI in the state that has adopted this form of public safety protection.

The name for this policy model refers to its two features. Regardless of where in the WUI one lives in a Common Standards state, the requirements for structural mitigation and defensible space maintenance

will be the same. There is no variation from neighborhood to neighborhood, valley to valley, or community to community.

The second aspect of the name is based on the recognition that regardless of what mountain town, unincorporated community, or rural open space one happens to live in, all residents hold in common the forest reserve they share. Wildland fires, like wildlife, are notoriously disrespectful of political jurisdictions and property boundaries. They roam where they will, driven by heat, winds, and fuel. Wildfires will go to ground in neighborhoods and areas where mitigation is uniform, and will "spread like wildfire" in areas where it is not. Residents inhabit a naturally defined commons; and what one co-habitant of the common space/resources does or does not do by way of wildfire mitigation inevitably affects the well-being of all others who share the commons.

However, the common standard model can also impose significant costs on WUI residents—both financial and in terms of personal freedoms. It can cost several thousand dollars to adequately mitigate (and subsequently maintain) a property in fire-resistant condition, thus laying additional financial burdens on long-time WUI residents who may have moved there before the dangers increased. Additionally, common standard states place both affirmative requirements and land use restrictions on WUI homeowners, who may have moved there in the first place largely to escape civilization and its trappings.

In contrast, *Local Option* states are those in which legislators have decided to leave it up to neighborhoods, fire districts, towns, and counties in the WUI to decide for themselves whether they want to impose on their own communities the obligation to make their properties fire-safe. These are the states most deferential to private property rights and the freedom of home owners to manage their estates as they wish.

In these states, home owners associations, fire districts, and municipal and county governments decide for themselves whether or not to voluntarily constrain their freedoms to manage their properties as they wish in the interests of mitigating commonly faced wildfire hazards. The freedom of those in the backcountry to live and manage their property as they choose is a prime policy objective in the local option model; and the effects of their individual decisions on the rest of the forested area in which their property lies is more of a secondary consideration.

The Common Standard and Local Option models of WUI wildfire mitigation law making are archetypes—generic models. Some states in our sample fit easily within these categories, others not so much. Nevada and Utah fell into a third category of what might be called 'hybrid states'. That is, they contain elements of both policy approaches, although for different reasons, as is explained below.

Common Standard States.

California. By one estimate, nearly 40% of the housing stock in the state lies within its WUI—the highest percentage of any of the states in our survey. The California Department of Forestry and Fire Protection (CAL Fire) is California's leading emergency management and response authority for wildfires. Its mission is to serve and safeguard the people and to protect the property and resources in the State of California.[6] CAL Fire is responsible for 31 million acres of California's privately-owned wildlands (State Responsibility Areas/SRAs[7]), including performing emergency services to 36 out of 58 State counties (Local Responsibility Areas/LRAs[8]).[9] [10]

Public Resources Code §4114 and §4130 authorizes CAL Fire to establish a fire plan.[11] The mission of the Board (CAL Fire) is to develop policies and programs that serve the public interest. Statutory responsibilities include: establishing and administering forest and rangeland policy; protect and represent California's interests in forestry and rangeland issues; direction and guidance to CAL Fire in regards to fire protection and resource management; accomplish a regulatory program in fire protection; and conduct duties to inform and respond to the people of California.[12]

In order to facilitate the plan, the California Public Resource Code §§4201-4204 and Government Code §§ 51175-89 mandates CAL Fire to

map areas (zones) of significant fire hazard based on fuels, terrain, weather, and other relevant factors, by utilizing Geographic Information System (GIS) data in conjunction with modeling techniques designed to describe potential fire behavior and fire probability, every three years. [13] [14] [15] These zones are classified as Fire Hazard Severity Zones (FHSZs).

The Office of the State Marshal (OSFM) cooperates with CAL Fire by implementing fire prevention programs and regulations. These programs include engineering, education, enforcement, and support, which include regulation of buildings[16] and controlled substances, mapping, and data assessment.[17] The OSFM wildfire mitigation regulations are directly applicable to all lands within the State Responsibility Area, enforceable by OSFM or its designees.

Incorporated communities (cities and towns) in the WUI and adjoining SRAs are strongly encouraged to incorporate by reference the OSFM's wildfire mitigation regulations into their own land use regulation programs for wildfire mitigation. If a community wishes to develop its own mitigation regime, it carries the burden of proof of showing that its approach is as effective as the OSFM's at preserving lives and property. Understandably, communities within or adjoining SRA's have tended to follow the state's lead.

California Government Code §51183.5 requires real property within a VHFHSZ to be accompanied with a natural hazard disclosure and a map

informing the transferor and his or her agent that such property is located therein for a real property sale transaction. Such disclosures are required of VHFHSZs, LRAs, and wildlife areas.[18] Wildlife areas with a higher severity of wildfire risk are also required to disclose that assistance should not be given in case of a fire unless a contract has been entered into by CAL Fire and the local authority.[19]

The California Building Standards Code, Title 24, which incorporates the California Fire Code, adopts supplements to the Code every three years. It mandates requirements for new building construction placing emphasis on defensible space, access, and water requirements.

California Building Code Chapter 7A proposes fire protections building standards for all exterior walls, structure projections and walls, and roofs located in the WUI. California Building Code §701A.3.2.4 requires that prior to building-permit final approval, the property shall be in compliance with the vegetation clearance requirements prescribed in Public Resources Code §4291 and Government Code §51182. Provisions must be completed prior to or during the final approval of the building and/or certificate of occupancy by the local fire authority or other enforcement entity designated for enforcement of the vegetation clearance requirements.

Government Code §51179 outlines the amount of defensible space necessary to adhere to the law: 30 feet for clearing away flammable vegetation or combustible growth and 100 feet for all brush, flammable vegetation, or combustible growth within 100 feet of any occupied dwelling or structure or to the property line. Section 4291 of the California Public Resource Code further outlines disclosure requirements, as indicated in the previous section. Section 4291 also allows insurance carriers to require defensible space limitations of more than 100 feet.[20]

Generally, CAL Fire is responsible for overseeing wildfire prevention, education, and mitigation programs and proposals, while the OSFM is generally responsible for the administration and regulation set forth therein and how such measures should be enforced. Local government acts accordingly. For example, although CAL Fire is responsible for implementing the defensible space fee, the State Board of Equalization (BOE), through local counties, issues billing on behalf of CAL FIRE.[21] The California Board of Standards Commission implements CBC Chapter 7A building standards and materials codes, but local building officials or fire authorities are responsible for the enforcement of such building standards.[22]

In summation, California's regulatory regime for mitigating against the loss of human life and property in the WUI is one that can be fairly characterized as mandatory rather than advisory. Moreover, the locus of

this mandatory authority is principally at the state level. Local jurisdictions can mandate stricter mitigation standards if they wish to do so. In order to adopt weaker ones, however, they must carry the burden of proof of showing how their standards will be as effective as the state fire marshal's in WUI wildfire mitigation—an imposing task, to say the least.

Oregon. The Oregon State Department of Forestry has been designated as the state agency responsible for mapping "red zones" (that is, defining the WUI). However, the State Forestry Department achieves this via a county appointed forestland-urban interface classification committee. These committees are appointed voluntarily by each county; and are responsible for mapping forestland that falls within three levels of wildfire risk.[23] The State Forestry Department is established in Oregon as the agency responsible for risk management and wildfire management in the WUI. [24]

While recommended land use planning is outlined in the Department of Forestry administrative rules, the Oregon Department of Forestry is only mandated to promulgate compulsory land use planning and regulations guidelines via a non-conflict clause in the ORS. [25] Most of the onus for maintaining a safe and well tended WUI rests with individual land owners. The classification and related guidelines are laid out by the state via county councils.

State law mandates that individuals living in high-risk areas mitigate fire danger on their property or face fines. Administrative regulations implementing this law describe the specific measures that must be taken.[26] The department of Forestry is empowered to inspect, enforce and directly levy fines upon individuals who are deemed to have failed in their requirements to mitigate WUI wildfire danger. [27] State law does not however, empower or delegate enforcement power to local governments in the case of WUI wildfire mitigation.

Oregon state law does specifically empower the State Forestry Department to enforce mitigation land use regulations against non-compliant local governments. The State Forestry Department is mandated to classify county lands according to the administrative rules if a county fails to comply with state mapping requirements.[28] Local government agencies are not empowered by state law to enforce mitigation and land use regulations against individual homeowners, however because the State is ultimately responsible for the mapping of WUI areas of concern, there is no apparent need to duplicate enforcement efforts.

The State forestry department may provide funding to the county level WUI mapping committees. According to state law the home county of the council is responsible for initial funding of the committee, however, the State Forestry Department can be made responsible for a portion or all of the costs of the county level WUI mapping committee.[29]

As compared with other states, then, Oregon's regulatory regime looks a good deal more like California's than it does those of the southwestern states. The major exception is that local governments in California have much more authority to enforce WUI wildfire mitigation measures against non-compliant property owners, as long as they are acting under the color of state law.

Local Option States.

Arizona. Arizona law empowers cities and towns to adopt a current wildland-urban interface code.[30] The code may be adapted from a model code adopted by a national or international organization or association for mitigating the hazard to life and property. There is no statewide WUI code, at least insofar as mandating property owner mitigation actions is concerned.

Arizona statutes[31] direct the State Forester to take steps necessary to take advantage of the provisions of the *Cooperative Forestry Assistance Act.*[32] This is a federal program established in 1978 providing assistance to private landowners to protect forested lands. The law contains some land use language such as conservation and recreation. It does not specifically address the WUI. However, federal Healthy Forests Initiative Act of 2003

The Arizona State Land Commissioner is directed to make long range plans for the future use of state lands in cooperation with other

state agencies, local planning authorities and political subdivisions.[33] The law also gives the commissioner the authority to designate certain urban lands as being under consideration for classification as urban lands suitable for urban planning, or suitable for conservation purposes if the lands are to be planned in conjunction with lands to be developed.[34] Neither of these statutes regarding land use planning specifically address the WUI. Arizona statute[35] also directs the State Forester to conduct public education and outreach regarding the threat of wildfire and the hazards caused by a lack of timber thinning.

The state's *Community Protection Initiative Fund*[36] is a cost share program to assist local governments and private land owners in reducing hazardous fuels on forested non-federal lands as part of a Community Wildfire Protection Plan (CWPP). The statute directs the State Forester to maintain a map of at-risk communities.

Many communities in Arizona have developed a CWPP in accordance with Title I of *the Healthy Forests Restoration Act of 2003*.[37] This Act provides federal assistance to reduce hazardous fuels on public and private land to communities that have developed a CWPP. This is the impetus behind the *Community Protection Initiative Fund* which is a vehicle for distributing those funds.

Individual CWPPs are developed with the State Forestry Division, the US Forest Service, private consulting firms, and local fire districts and

officials. Plans provide mapping of red zones, risk assessment, guidance, and treatment options to land owners but leave the ultimate decisions and implementation to individual land owners. Many CWPPs use much of the same language recommended by the Forest Service, but they vary in focus and detail.

In sum, state WUI wildfire mitigation law is advisory in form as relates to property owner structural and defensible space mitigation, though it authorizes local communities to adopt mandatory regulations should they choose to do so. At the same time, however, Arizona is fairly proactive when it comes to making known the degree of risk posed by living in various communities in its WUI, based on both natural factors and the degree to which it has implemented a CWPP.[38]

Colorado. In all its particulars, the Colorado statutory framework is much more like Arizona's that it is California's; it rests solidly in the local option category. Specifically, there is no state law mandating that property owners in the WUI engage in proactive wildfire mitigation practices. Instead, as in Arizona, Colorado state law authorizes city and county governments to engage in general land use planning and regulation, which—at the local government's option—can be extended to include wildfire mitigation measures such as creation/maintenance of defensible space and the use of fire-resistant materials in all new construction or substantial remodeling.[39]

And as in Arizona, what this has resulted in is a complex patchwork of advisory or mandatory local land use regulations throughout the state's various "red zones" (WUIs). In the aftermath of catastrophic wildfires since the beginning of the 21st century, some city and county governments in Colorado's WUI have imposed fairly rigorous wildfire mitigation regulations, while others not affected by such tragedies have done little or nothing. In fact, bowing to real estate dealer and property owner pressures, one mountain town—Breckenridge—actually rescinded its mandatory defensible space ordinance in 2009.[40]

Local governments and utilities (such as water providers) with substantial public land holdings in the WUI are directed to use vegetation control measures (e.g., mechanical thinning or prescribed burns) to mitigate against catastrophic wildfires on their lands.[41] And like all other states in this survey, Colorado has enacted state laws to make possible the receipt of wildfire mitigation funding under the federal Healthy Forest Restoration Act of 2003.[42]

The 2012 WUI fire season was the deadliest and most destructive in the state's history as of that time. In the midst of it, the legislature enacted several reforms, reorganizing the executive branch agencies responsible for mapping, planning, coordinating mitigation efforts, and responding to wildfires in the WUI.[43] Several of these functions formerly carried out by the State Forest Service (allied with Colorado State

University, the state's land grant university) are now performed by the newly created Division of Fire Prevention and Control. However, mandatory WUI wildfire mitigation regulation continued to remain exclusively a matter of local government control.

New Mexico. The State Forestry department has lead agency authority for preventing wildfires and educating WUI residents in how they can make their homes and properties more fire-resistant[44]. A Fire Planning Task Force works to develop fire prevention plans for use by local governments throughout the state[45]. This task force also has responsibility for reviewing community and county Community Wildfire Protection Plans, which communities in the WUI may opt to develop with federal assistance under the 2003 Healthy Forests Initiative[46].

Though individual property owner wildfire mitigation is not mandated by state law, New Mexico's police power does extend to the control of private forests lands as is necessary for the prevention of and protection from forest fires[47]. The state forester is authorized to go onto private lands and investigate violations of laws, rules, and regulations related to forest fire prevention[48]. The forester is given the appropriate police powers to apprehend and arrest on warrant any violators[49], as well as to mandate compliance with mitigation orders.

Insofar as WUI residents (as distinguished from owners of private commercial forests) are concerned, the New Mexico State Forestry advises

homeowners to use best wildfire mitigation practices, but does not mandate their adoption. Local governments may do so if they so choose.

'Hybrid' States. Both Nevada and Utah fall into the category of 'hybrid states, but for different reasons.

Nevada. The Nevada Division of Forestry (which falls under thetate Department of Conservation & Natural Resources), through the State Forester Fire warden, and the Nevada Department of Public Safety, through the State Fire Marshal, are the state agencies empowered to handle most aspects of wildfire prevention, protection and suppression in Nevada. These agencies recommend but do not mandate mitigation standards, leaving it to local jurisdictions to determine how assertively they do or do not wish to focus on wildfire safety. So in this regard, Nevada has much in common with the Local Option states.

However, land use in two large regions of Nevada—the Lake Meade National Recreation Area and lands subject to the jurisdiction of the Lake Tahoe Regional Planning Authority—is governed by multi-state regional compacts. By interstate agreement (in the Lake Meade case, with Arizona and California; at Lake Tahoe, with California) and congressional imprimatur, these regions essentially adhere to the Common Standard approach of wildfire mitigation. All properties within these regions are subject to mandatory WUI wildfire mitigation standards.

In the Lake Tahoe region, exclusive gated community homeowner covenants once required that vegetative ground cover extend to within one foot of residences. But in June of 2007, the Angora Fire swept through such pine-shaded communities south of the lake, destroying over 250 homes to the tune of more than $140 million in property value lost. Now the California state fire marshal's mitigation standards and enforcement protocols prevail.

In areas not governed by interstate compact, the Nevada State Forester Firewarden is authorized to designate fire hazardous forested areas.[50] In these areas, the State Forester Firewarden is required to regulate roofing materials and may regulate vegetation surrounding structures.[51] The State Fire Marshal, through incorporation of the International Wildland-Urban Interface Code (2009), also plays a role in land use planning.[52] Together, the State Forester Firewarden and the State Fire Marshal are responsible for risk management and wildfire disaster management in the WUI.[53]

Nevada residents can also form various types of fire protection districts on their own accord (to be approved by the State Forester Fire Warden).[54] In these fire protection districts, the State Forester Firewarden may regulate vegetation surrounding structures.[55] Additionally, each county in Nevada has a Community Wildfire Protection Plan that lays out hazards and risk assessments for their communities.[56] These plans were

formed in 2004 and 2005, at the behest of the Nevada Division of Forestry, Bureau of Land Management, US Forest Service and the Nevada Fire Safe Council. [57] These plans appear to not only assess risks and hazards in each area, but also to provide recommendations as to wildfire mitigation.

The State Fire Marshal, through incorporation of the International Wildland-Urban Interface Code (2012), plays an important role in land use regulation in the WUI.[58] As in Utah, Nevada law incorporates by reference this WUI

Additionally, the Nevada State Forester Firewarden also plays a role in land use regulation in the WUI. The State Forester Firewarden is required to regulate roofing materials in fire hazardous areas.[59] Enforcement of roofing materials regulations is split between the state and local agencies. In areas where building codes exist, enforcement of roofing material regulations is under control of the local governments (the governing body of a city or county).[60]

In areas with no building codes, enforcement lies with the State Forester Firewarden.[61] The State Forester Firewarden also may regulate vegetation around structures in fire hazardous areas and in fire protection districts, and is authorized to enforce any such enacted regulations.[62]

In the Lake Tahoe and Lake Mead regions, the Nevada State Forester Firewarden and the Nevada State Fire Marshal are tasked to work together to regulate fire retardant roofing and vegetation near structures, though the specifics of these regulations are not in state law.[63] Additionally, when no other fire agency has authority, the State Forester Firewarden is responsible for assessing any codes adopted by other agencies in these regions to insure general fire safety consistency.[64]

Lake Tahoe has even more specific regulations. According to the Tahoe Regional Planning Agency (an interstate planning authority authorized by Congress for the preservation and sustainable management of the Lake Tahoe Basin[65]), certain activities within the region, such as home construction and modifications, require that plans are pre-approved by the local fire district for defensible space and wildfire safety measures. Once pre-approval has been granted, then the plans are submitted to TRPA for approval, which are defined at the discretion of TRPA.[66] Also, it should be noted that the TRPA Code of Ordinances, the governing rules for TRPA, has not yet codified requirements for mitigation or land use regulation in regards to wildfires beyond any requirements from the State of Nevada and local fire districts, though there is a placeholder for such requirements in the TRPA Code of Ordinances.[67]

The Nevada State Forester Firewarden is authorized to direct landowners to remove fire hazards. If landowners do not comply, the State Forester Firewarden may eliminate the hazard and recover costs of such elimination from the landowner.[68] Fire protection districts also have a similar power to direct elimination of general fire hazards and, in the case of non-compliance, the authority to eliminate the fire hazard and to recover the costs from the landowners. [69] In the Lake Tahoe and Lake Mead regions, the State Firewarden and the State Fire Marshal are together tasked with enforcement of all laws regarding management of vegetation.[70]

Thus, the Nevada regulatory regime represents something of a hybrid, relative to the case studies already covered. The State Forester Firewarden and State Fire Marshal both exercise a good deal more direct regulatory authority over local land use wild fire mitigation practices (as in California), excepting in those cases where local jurisdictions do so under their own police powers. However, even at the local level, mitigation standards must be no weaker than those set by the state. And preemptive state authority is even more pronounced in those areas of the state subject to interstate regional land use agreements.

Utah. The Utah Division of Forestry, Fire, and State Lands maps out the "red zone" and the degree of risk in the WUI[71]. The Forestry, Fire, and State Land Advisory Council offers guidance on land use to the

Division of Forestry, Fire, and State Lands. The "division is the executive authority for the management of sovereign lands, and the state's mineral estates on lands other than school and institutional trust lands, and shall provide for forestry and fire control activities as required in Section 65A-8-101.[72]". The Division also offers a website that advises communities on their risk and ways to mitigate their risk[73].

State law does not mandate homeowner WUI wildfire mitigation; however, it does authorize counties to mitigate the land within their county as needed, as well as to compel individual home owners to do so[74]. In those counties not directly participating in the state wildland fire protection organization by cooperative agreement, those "counties shall abate the public nuisance caused by uncontrolled fire on privately owned or county owned forest, range, and watershed lands.[75]"

The clause quoted above illustrates why Utah is a hybrid state. Though the statute does not require local government compliance with state standards (the International Code Council's *Wildland Interface Code* [latest edition]), it does place an affirmative duty on county governments to abate wildfire risk on both privately owned and local government-owned properties within their jurisdictions. Ultimately, this places the onus on local governments to demonstrate why they have declined to adopt the *WUI Code*, creating potential legal liability for their not having done so.

The Division of Forestry is thus empowered to pursue a “carrot and stick” approach in working with local governments to adopt wildfire mitigation measures. State regulations allow for the division to charge a county the cost of fire suppression on private land in the county unless the county participates in a "cooperative agreement[76]."

The cooperative agreement calls for a county legislative group to enter into a cooperative agreement with the division "to receive financial and supervisory cooperation and assistance from the division.[77]" A county can only qualify to enter into a cooperative agreement if it agrees to: “(a) adopt a wildland fire ordinance based upon minimum standards established by the division; (b) require that the county fire department or equivalent private provider under contract with the county meet minimum standards for wildland fire training, certification, and wildland fire suppression equipment based upon nationally accepted standards as specified by the division; and (c) file with the division a budget for fire suppression costs.[78]”

A county that chooses not to enter into a cooperative agreement with the division may not be eligible to receive financial assistance from the division.[79] State law further empowers local governments to encourage private land owners to participate in mitigation activities by mandating that the county sheriff’s submit reports on wildland fire control action, investigate and report fire causes, and enforce the

provisions of section 65A either independently or coordination with the state forester.[80]

ANALYSIS AND DISCUSSION

Comparative Analysis of Form and Locus of Authority.

In this research we paid particular attention two aspects of the exercise of government authority: *form* of authority (advisory vs. mandatory; "soft" vs. "hard" law); and *locus* of authority (at what level of government is the authority exercised). The discussion below first frames these issues from a constitutional law perspective, then closes with reflections on the potential for law and policy reform in the context of future catastrophic WUI wildfires.

Police Powers, the Commons, and Private Rights. Over the ages, multiple strands of principle and doctrine have been woven into the tapestry of American land use law. For our purposes three of the most important are the principle of the commons, the police powers of state and local government, and private property rights.

The Commons. The principle of the Commons dates back early in the British common law tradition. It refers to lands and resources collectively held by rural village folk: pasturage, cropland, and an assured water supply being chief among them. In her Nobel Prize-winning 1990 book, *Governing the Commons*,[81] Elinor Ostrom provided

case studies of many such “common-pool resource” commons that communities in cultures around the globe have been sustainably managing for hundreds of years—including pasturage, fisheries, and watersheds.

The success of these arrangements has relied on agreed upon management rules reciprocally enforced within the community, including the ability to exclude uninvited entrants into the commons. Thus, while “Tragedy of the Commons” essayist Garrett Hardin may have been a gifted biologist, he was certainly no historian, since he was not actually describing a communally managed commons; but rather one in which individuals could exploit it heedlessly for their own ends.

New England colonial villages as well as those throughout Pennsylvania operated on the principles of common pool resource management, the town square in the ones still in existence being a historical remnant of what were originally much larger commonly held and managed open spaces. And even as the tradition of the commons eventually yielded to the privatization of land ownership and management, it still retains some contemporary significance.

One such example is that of commonly managed water resources, as in rural conservancy districts and *acequias* in the western United States. And the other is the public lands themselves. About 30% of the land mass of the United States is collectively owned by the people of the United States (nearly all of it in the western states), and is managed on

our behalf by agencies such as the Bureau of Land Management, the National Park Service, and the U.S. Forest Service. The public lands are our national commons.

This pattern of ownership has some significant implications for the management of wildfire in the forested areas of the west. The reason is that the land management goals (including fire management on those lands) are not always necessarily congruent with those of local governments and private property owners bordering on public lands. And the same can hold true for state and municipal parkland holdings in the WUI as well.

Police Powers. In 1824 in *Gibbons v. Ogden*,[82] U.S. Supreme Court Chief Justice John Marshall was the first American jurist to use the term "police power" to describe the plenary powers state governments have to govern on behalf of their residents—powers reserved to the states by the 10th Amendment to the U.S. Constitution. As the classic formulation has since emerged, state and local government authority to protect the "public health, safety, morals, and welfare" has come to be understood at law to comprise the "inherent powers" governments of general jurisdiction should be understood to possess in order for them to be capable of performing the functions for which they were established.

It was in the late nineteenth and early twentieth centuries that the police powers first came into their own legally as effective instruments of governance—and most importantly in the realm of disaster prevention.

The coming of age of the Industrial Age precipitated rapid urbanization, with low-wage workers living in increasingly squalid tenement conditions. As a result, two kinds of disaster struck with increasing force and frequency: those associated with public health, and with fire.

In response, municipal governments created public health departments and fire departments, and granted them unprecedented authority to regulate private behavior in the public interest. Public health codes and fire codes came into being, with public health officers and fire marshals to enforce them; and the courts regularly upheld their enforcement actions.[83]

The rationale for both this exercise of government authority and the courts' defense of it was that no person or corporation should be allowed to use their property in a way that could foreseeably cause harm to one's neighbors or to the community at large, whether the harm was in the form of a public health nuisance or the threat of fire. Then in a landmark ruling in 1926,[84] the U.S. Supreme Court held that these powers extended beyond simply preventing public endangerment to general land use planning and zoning as well. State governments quickly followed this ruling with statutes empowering their cities to engage in comprehensive planning and zoning.

Private Rights in Property. Even as the early decisions of the U.S. Supreme Court were affirming the authority of government to regulate private behavior in the public interest, so too had the ratifiers of

the U.S. Constitution sought to limit the authority of the federal government over the ownership and use of their property. The last clause of the 5th Amendment states that no one shall be "deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation." About a century later, the Congress and the high court limitations on government authority over land use and ownership via the due process and equal protection clauses of the 14th Amendment.

Thus, from the early 1800's to the present day—but especially over the last century or so—we have had hundreds of decisions handed down by state and federal courts adjudicating the relationship between the police powers of state and local government on the one hand and the freedom to use one's property as one pleases on the other. And of course, it is not only the courts that speak to such matters. Nearly all these court cases first arose as a result of some state or local government legislating and enforcing policy on the nature of this relationship, which property owners then challenged.

Application of Doctrines and Principles to State Case Studies. All seven of the states whose laws we studied authorize use of the police powers to mandate wildfire mitigation measures on private property. The key difference among these states was therefore not *form* of authority but rather *locus* of authority. That is, some state legislatures (ie.

those of Arizona, Colorado, and New Mexico) have authorized local governments to undertake police power regulation of wildfire mitigation on private property if they so chose, but have refrained from establishing such a mandate at the state level.

By contrast, other states (California, Nevada, Oregon, and Utah) have to varying degrees mandated statewide wildfire mitigation through generally applicable standards. And among these states, we also found varying degrees of delegation of implementation and enforcement authority to local governments and special purpose districts.

What these latter states have done—and California in particular—is to grant to their state fire marshals and wildfire management agencies police powers that in some ways parallel those granted to municipal fire marshals over a century ago. That is, they have assigned these agencies authority to assess the degree of risk to homeowners living in the WUI in their states, and then to mandate mitigation measures commensurate with those risks.

The rationale for doing so now at the state level is the same as it was for doing so more than a century ago at the municipal level: the potential for harm to one's neighbors by reason of allowing hazardous conditions to exist on one's own property. So it is hardly surprising that two of the states having the highest percentages of residents living permanently in the WUI—California and Oregon—are also among those setting and enforcing statewide standards.[85]

By contrast, those states with higher percentages of vacation homes and lower percentages of full-time residents in the WUI, like Arizona, Colorado, and New Mexico,[86] are the ones that have by and large left it up to local governments to decide whether to undertake the contentious practice of mandating wildfire mitigation practices on private lands. And as we have seen, attempting to do so in mountain resort communities such as Breckenridge, Colorado, can entail political perils.

In July of 2013, an entire crew of nineteen hotshots—specially trained wildland fire fighters who do the highly dangerous work of attacking fires at their growth edges—lost their lives trying to defend the communities of Yarnell and Peeples Valley, Arizona. Neither of these communities was FireWise, and only about third of their members were in compliance with their wildfire protection plans.[87]What this raises is a policy question most political leaders do not want to hear, which is whether the very best and bravest of our wildland fire fighters should be risking their lives trying to save communities in the WUI that have taken no meaningful steps to save themselves.

Learning From Disasters. The year 2012 will go down in history as one of America's worst so far in terms of losses to catastrophic natural disasters. Major Storm Sandy along the northeastern Atlantic seaboard in the autumn of that year is estimated to have done about $75 billion in property damage, and claimed nearly 300 lives. Catastrophic fires in the mountain west in states such as Arizona, Colorado, and New Mexico,

charred hundreds of thousands of acres of timberland and destroyed hundreds of homes in the WUI, including some right down into the residential districts of cities such as Colorado Springs. In Colorado alone, six WUI residents lost their lives in these fires.

As disparate as these catastrophes may have been in form, one thing they do have in common is one contributing factor—climate change. To date, some of the most dire predictions of climate modelers in terms of extremes we are likely to face have already been exceeded: storms of increasing scope and intensity along the Gulf Coast and Atlantic seaboard; and severe and sustained drought triggering wildfires of unprecedented scope, intensity, and frequency in the Mountain West.

We are still debating whether such events represent only "natural" variations in otherwise normal distributions of weather events and climatic trends; or if instead the "new normal" in climate change is taking us into literally uncharted territory in terms of what the future may hold in store. But nearly every year, it now seems, evidence is mounting that it is the latter. If this is indeed true, we in the West need to be devoting ever more attention to the question of whether policies we now have in place for the protection of lives and property in the WUI are indeed equal to the task.

That very question is being debated as of this writing in relation to the rebuilding of the coastal communities along the eastern seaboard

devastated by Sandy. Were existing land use regulations at the time disaster struck equal to the task of protecting lives and property? Do they need to be rethought? How much public funding should be devoted to helping people move back into areas devastated by catastrophic natural disasters, and to rebuild the same kinds structures that had just been obliterated by natural forces of unprecedented strength?

The same issues face those of us in the *polis* (political community) of the states in the Mountain West. Should WUI residents be left to assume whatever risks they want, without being forced to undertake mandatory mitigation measures? Or do they owe some duty of care not only to themselves and their loved ones, but to their neighbors as well? If they do decide to live on the wild[fire] side, should they expect the strongest, bravest, best trained, and most heroic of our wildland firefighters to come to their aid if they have not done their part to make their properties and their communities fire-safe?

These questions go right to the heart of what we most value in our communities, and how we make policies to reflect what we most value. If we value personal autonomy and local control more highly than the restrictions on those virtues that come with effective WUI wildfire land use regulations, we need to be ready to acknowledge those values trade-offs publicly. If we value the need to protect ourselves, our neighbors,

and our communities over our individual freedoms, we need to be ready to do the same thing.

State wildfire management coordinators and wildfire incident commanders interviewed preparatory to this research report some WUI residents telling them they would prefer losing their homes to fire to cutting down any of their trees, since it was the trees that drew them to the property in the first place. If half the members of a community hold these views and the other half does do, the whole community may still go up in flames. Such is the nature of a Commons.

As it says in the 5th Amendment, we value life, liberty, and property simultaneously. In the context of use of the police powers to protect public health and safety, the perennial question this clause leaves unanswered is this: how do we balance the liberty interests of individual property owners against the health and safety interests of their neighbors?

As conditions continue to change—whether those conditions be climate, or the burgeoning residential populations in the WUI, or the death toll and property losses occasioned by catastrophic fires—we can likewise expect changes in the content and tone of public discourse in the western states on the subject of WUI wildfire mitigation. And this is as it should be.

Resilient societies and cultures adapt their value structures and the expenditure of their wealth in accordance with the perceived threats and opportunities they face. One size does not fit all in such circumstances, just as Justice Brandeis observed when he wrote of states as laboratories; this explains the variations we found in state law. Thus, the key point here is not so much variations in state law as freeze-framed in the fall of 2012. It is rather the story yet to be told, as the changes we note above continue to work their will on the policy process.

Finally, it is worth noting that we cast this narrative describing state laws entirely in the past tense. This white paper is essentially a snapshot of the state of state law on the subject of WUI wildfire mitigation in the autumn of 2012. Some significant changes in some of these state laws may well have taken place by the time this paper is publicly posted.

During the course of our research, we found some evidence of what disaster policy scholar Thomas Birkland referred to in his book of the same name as "lessons of disaster".[88] What he learned in his study of policy responses to catastrophic disasters was that under some circumstances, societies respond to them by law and policy reforms intended to mitigate against and minimize suffering from future such disasters; but that in other cases they do not.

There is no question that catastrophic wildfires of increasing scale and intensity will continue to afflict the forested areas of the Mountain

West, and those who choose to reside there. As a result, the laws in these states may continue to change and evolve with each new catastrophe as well. The ancient Greek philosopher Heraclitus once observed that one can never step into the same river twice, because different water will be flowing in it. No doubt he was legally trained.

NOTES

[1] Stephen Pyne, *Tending Fire: Coping With America's Wildfires.* NY: Island

[2] Garrett Trego, "Note: We Didn't Start the Fire, and We Won't Pay to Stop It . . ." 36 *William and Mary Environmental Policy Review* 595 (2012).

[3] William Waugh, *Living With Hazards, Dealing With Disasters: An Introductionto Emergency Management*. NY: M.E. Sharpe, 2000.

[4] U.S. Forest Service, Rocky Mountain Research Station, *Fourmile Canyon Fire Preliminary Findings*. Revised 12 Oct. 2011. Available from: http://www.conservationgateway.org/Documents/fourmile.pdf [Accessed 25 February 2013]. See also Gibbons , van Bommel , Gill, Cary, Driscoll , et al. 2012. Land management practices associated with house loss in wildfires. *PLoS ONE* 7(1): e29212. doi:10.1371/journal.pone.0029212, for verification of the efficacy of defensible space creation in the Australian bush.

[5] Brandeis, J., dissenting in *New State Ice v. Liebman*, 285 U.S. 262 (1932).

[6] "What is CAL Fire," found at http://www.fire.ca.gov/communications/communications_factsheets.php

[7] http://frap.fire.ca.gov/projects/hazard/fhz.html

[8] http://frap.fire.ca.gov/projects/hazard/fhz.html

[9] http://www.fire.ca.gov/about/about.php

[10] "CAL Fire At a Glance," found at http://www.fire.ca.gov/communications/communications_factsheets.php

[11] http://osfm.fire.ca.gov/fireplan/fireplanning.php

[12] http://osfm.fire.ca.gov/fireplan/fireplanning.php

[13] http://frap.fire.ca.gov/projects/hazard/fhz.html

[14] http://frap.fire.ca.gov/projects/hazard/fhz.html

[15] "Review Guidelines, FHSZ in SRA, January 2007," found at http://frap.fire.ca.gov/projects/hazard/fhz.html

[16] CBC Chapter 7A, 24 CCR, and CA Fire Code Ch. 47, found at http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_codes.php

[17] "Strategic Plan Background," found at http://www.fire.ca.gov/about/about_StrategicPlan.php

[18] Cal. Pub. Res. Code §4136

[19] Ca. Pub. Res. Code §4142

[20] Cal. Pub. Res. Code §4291

[21] www.boe.ca.gov/sptaxprog/pdf/l323.pdf

[22] Cal. Health and Safety Code §13108.5

[23] ORS 477.029; 477.031.

[24] ORS 477.005.

[25] ORS 477.023.

[26] ORS 477.059 – 477.062 and OAR 629-044-1055 – 629-044-1075.

[27] ORS 477.062; 477.066.

[28] ORS 477.057.

[29] ORS 477.029.

[30] A.R.S. § 9-806 Retrieved from: http://www.azleg.state.az.us/ArizonaRevisedStatutes.asp

[31] A.R.S. § 37-622 Retrieved from: http://www.azleg.state.az.us/ArizonaRevisedStatutes.asp.

[32] 16 USCS § 2101
[33] A.R.S. § 37-132. Retrieved from: http://www.azleg.state.az.us/ArizonaRevisedStatutes.asp

[34] A.R.S. § 37-332 Retrieved from: http://www.azleg.state.az.us/ArizonaRevisedStatutes.asp

[35] A.R.S. § 37-622 Retrieved from: http://www.azleg.state.az.us/ArizonaRevisedStatutes.asp

[36] A.R.S. § 37-641 and A.R.S. § 37-642 Retrieved from: http://www.azleg.state.az.us/ArizonaRevisedStatutes.asp

[37] 16 U.S.C.S. § 6501 et seq

[38] Brandon Loomis and Mary Pitzl, "Potential Yarnells: Dozens of Arizona Communities Perched Dangerously", *Arizona Republic*, July 8, 2013. http://www.azcentral.com/news/arizona/articles/20130705yarnell-fire-arizona-communities-dangerous.html (accessed 10 July 2013).

[39] C.R.S. 24-33.5-710 (2012).

[40] Finley, Breckenridge's Wildfire-safety Law Rescinded. *Denver Post*, Aug. 1, 2009. Online at: http://www.denverpost.com/news/ci_12970233.

[41] C.R.S. 29-20-105.5 (2011).

[42] C.R.S. 30-15-401.7 (2011).

[43] C.R.S. 24-33.5-1201 (2012).

[44] 1978 Comp., § 68-2-25, enacted by Laws 1979, ch. 395, § 10.

[45] N.M. Stat. Ann. ß 68-2-34.

[46] Title I of the Healthy Forests Restoration Act (HFRA).

[47] N.M. Const. Art XV Sec. 2. [Forest fire prevention.].

[48] N.M. Stat. Ann. 68-2-14.

[49] N.M. Stat. Ann. 68-2-14.

[50] Nev. Rev. Stat. § 472.040 (1)(d).

[51] Nev. Rev. Stat. § 472.040 (1)(e) & Nev. Rev. Stat. § 472.041.

[52] NAC 477.281(1)(c).

[53] Nev. Rev. Stat. § 472.040(1)(a-b) & NAC 477.281(1)(c).

[54] Nev. Rev. Stat § 473 & Nev. Rev. Stat. § 474.

[55] Nev. Rev. Stat. § 472.041.

[56] Nevada Community Wildfire Protection Plans. Nevada Fire Safe Council, 2012. <http://nvfsc.org/ index/community-wildfire-protection-plans>.

[57] Community Wildfire Protection. Nevada Division of Forestry, 2012. <http://forestry.nv.gov/fire-program/community-wildfire-protection-cwpp//>.

[58] NAC 477.281(1)(c).

[59] Nev. Rev. Stat. § 472.040 (1)(e), Nev. Rev. Stat. § 472.100, NAC 472.020 and NAC 472.030.

[60] Nev. Rev. Stat. § 472.100 (2).

[61] Nev. Rev. Stat. § 472.100 (2).

[62] Nev. Rev. Stat. § 472.041.

[63] Nev. Rev. Stat. § 477.030 (3) and Nev. Rev. Stat. § 472.040 (1)(i).

[64] Nev. Rev. Stat. § 472.040(1)(j).

[65] Pub. L. 96-551 (1980), 94 Stat. 3233.

[66] Wildfire Safety and Defensible Space. Tahoe Regional Planning Agency. < http://www.trpa.org/ default.aspx?tabindex=1&tabid=332>.

[67] TRPA Code of Ordinances § 35.5.

[68] Nev. Rev. Stat. § 472.120.

[69] Nev. Rev. Stat. § 473.100 & Nev. Rev. Stat. § 474.580.

[70] Nev. Rev. Stat. § 472.040.

[71] Section R652-122-200.

[72] Section 65A-1-2 (2012).

[73] *http://forestry.utah.gov/firemgt/wui/wui.php*.

[74] Section § 65A-1-2.

[75] Section 65A-8-202 (1).

[76] Section 65A-8-202.

[77] Section 65A-8-203.

[78] Section 65A-8-203 (3).

[79] Section 65A-8-203.

[80] Section 65A-8-209.

[81] Elinor Ostrom, *Governing the Commons*. NY: Cambridge Univ. Press, 1990.

[82] 22 U.S. 1 (1824).

[83] See generally Peter Hoffer, *Seven Fires: The Urban Infernos That Reshaped America*. Cambridge, MA: Perseus Group, 2006.

[84] *Euclid v. Ambler Reality*, 272 U.S. 365 (1926).

[85] See Headwaters Economics, *Home Development on Fire-Prone Lands: West-Wide Summary*, 2007. Site accessed 4/1/13: http://headwaterseconomics.org/pubs/wildfire/index.php

[86] Id.

[87] Loomis and Pitzl, *supra* note 38.

[88] Thomas Birkland, *Lessons of Disaster*. Washington, DC: Georgetown Univ. Press, 2006.