

In Dubious Battle: The Human Cost of Wildland Firefighting

I.	A New Kind of Courage.....	88
II.	Contested Lands and Competing Policy Narratives (I): Regulating Private Land Use for Communal Wildfire Mitigation	91
	A. Contested Lands.....	91
	B. Competing Land Use Policy Narratives.....	92
	1. The Commons	92
	2. Primacy of Property.....	95
	C. Applying the Narratives to Private Land Use Regulation in the WUI	96
	1. Models of Wildfire Mitigation Regulation on Private Lands.....	97
	2. Applying the Model (I): Common Standard States....	99
	a. California	99
	b. Oregon	102
	3. Applying the Model (II): Local Option States.....	103
	a. Arizona.....	103
	b. Colorado.....	104
	c. New Mexico.....	105
	4. Applying the Model (III): Hybrid States	106
	a. Nevada	106
	b. Utah.....	109
III.	Contested Lands and Competing Policy Narratives (II): Wildfire Management.....	111

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	A. Narrative I: Wars and Rumors of Wars.....	111
	B. Narrative II: Reconciliation.....	113
IV.	In the Crossfire: The Perilous Standing of Wildland Firefighters	116
	A. The Combat Zone.....	116
	B. Hidden Casualties in the War on Fire	119
V.	In Dubious Battle.....	121
	A. The Casualties of Our Narratives	121
	B. Moral Accounting for the War Narrative	121
VI.	The Way Forward: Making Peace with Nature	124
	A. Rewriting Narratives and Re-thinking Priorities.....	124
	B. A Narrative of Care.....	126

I

A NEW KIND OF COURAGE

The event was a conference in the Colorado high country on the true costs of fighting wildfires in the wildlands/urban interface (WUI).¹ Rural fire district chiefs, fire marshals, and emergency responders in western Colorado attended the conference. Among other things, the attendees expressed concern that little to no attention was being paid to the hidden human costs—to both the public and their firefighters—being incurred by the growing WUI wildfire menace.

After a workshop I offered on the human costs of wildland fire fighting, one of the fire marshals (who shall remain anonymous) summarized a view I had heard from several others. What's needed now, he said, is a new kind of courage—a form of courage different from that which empowers us to frontally attack walls of fire ten to twenty times our height in some of the West's most flammable forests.² For too long, he charged, fire marshals and fire chiefs have stood by while county commissioners and city councils approved rural subdivisions firefighting professionals knew were basically indefensible.³

He continued by observing that it might end his career to stand up before these leaders and tell them what they and their developer

¹ Colorado Wildland Fire Conference, NW. FIRE SCI. CONSORTIUM, <http://www.nwfire.science.org/events/colorado-wildland-fire-conference-2015> (last visited Apr. 24, 2018).

² Fire Marshal, Colorado Wildland Fire Conference 2015 (Sept. 24–26, 2015).

³ *Id.*

friends don't want to hear.⁴ He added that they weren't paying him enough to bury their mistakes and his firefighters along with them.⁵ There are some fires that shouldn't be fought, he asserted, because there are some developments in the WUI that shouldn't have been built in the first place.⁶

He was referring to what his colleagues call "suicide subdivisions": housing developments in forested areas with only one narrow winding road providing ingress and egress, and inadequate water supplies.⁷ Residents stand a greater risk of losing their lives trapped in their homes in such circumstances, and the risk to firefighters trying to save them is much higher as well.⁸ In this view, sending crews and equipment into such settings, without multiple escape routes and little room to maneuver vehicles, is sending them on a suicide mission.

Anecdotal evidence indicates that, increasingly, rural wildfire incident commanders are declining to submit their crews to such unacceptable threats.⁹ The reason is that it is not a "natural disaster" that has exposed their crews to such imminent endangerment. It is development-driven local government land use decision making—decisions that knowingly expose the residents of these subdivisions, and the first responders who rush to their rescue, to heightened risk of wildfire exposure.¹⁰

This Article had its genesis at that conference. The more I listened to the stories commanders told about risking their crews and equipment fighting such fires, often at public cost many times the value of the vulnerable homes they were trying to save, the more I realized that they were reaching the same conclusion I was—the political and market forces driving residential development and wildfire management in the WUI are tragically misconceived. They

⁴ *Id.*

⁵ *Id.*

⁶ *Id.*

⁷ Christi Turner, *A Wildfire Forum Takes Radical Approach to Protecting Wildland-Urban Interface*, HIGH COUNTRY NEWS (Feb. 6, 2014), <http://www.hcn.org/blogs/goat/behind-closed-doors-wildfire-solutions-forum-takes-radical-approach-to-protecting-wui-from-wildfire>.

⁸ See discussion *infra* Part IV.

⁹ See, e.g., Fernanda Santos, Opinion Editorial, *Some Wildfires Simply Can't be Fought*, L.A. TIMES (Aug. 6, 2017, 4:00 AM), <http://www.latimes.com/opinion/op-ed/la-oe-santos-some-wildfires-cant-be-fought-20170806-story.html>.

¹⁰ See discussion *infra* Part II.

are inflicting a deadly toll on both WUI residents and those who seek to protect them, and something needs to change.

Additionally, I was listening only to the stories of local government fire district commanders in rural communities fighting fires on private lands immediately abutting our public lands. Wildfires, like wildlife, are utterly disrespectful of property boundaries and political jurisdictions; they follow their sources of sustenance. Federally trained, equipped, and financed firefighting crews in the U.S. Forest Service (USFS), National Park Service, and Bureau of Land Management work alongside their local counterparts to first and foremost protect human lives, and then property.¹¹ They also manage wildfires deep in the back country of our national forests, national parks, and other public lands.

On public lands, wildfire is not regarded as an inherent threat, but as a naturally occurring phenomenon, like thunderstorms, floods, and earthquakes.¹² Fire is one of the means by which forested lands rid themselves of pests, diseases, and unhealthy undergrowth, thus rejuvenating the soil and opening conifer cones for the propagation of the next generation of the forest.¹³ But for the need to keep backcountry fires from becoming too large and threatening rural communities at the forests' edge, many federal land managers would prefer to simply let these fires play their traditional ecological role of destruction and rejuvenation.¹⁴

This Article is about the relationship between wildfire management policies at federal, state, and local levels of government in the Mountain West, and the health and well-being of wildland firefighters employed by those governments. Part II, Sections A and B below, address the narratives dictating the policies that form the increasingly dangerous conditions in which wildland firefighters (WLFFs) practice their craft. Following that is a closer examination of the harms—both physical and behavioral—that are being inflicted on these courageous people by way of these policies. Finally, the Article closes with

¹¹ See U.S. FOREST SERV., 2016 WILDLAND FIRE RISK MANAGEMENT PROTOCOLS: A VISION FOR RISK MANAGEMENT IN FIRE 1 (2016), <https://www.fs.fed.us/r1/fire/nrcg/wfdss/NR%20Support%20Docs/2016%20Fire%20Risk%20Management%20Protocols.pdf> (last visited Apr. 26, 2018) (stating that life comes first and the Forest Service cannot accept any loss of life in wildland firefighting).

¹² See HAROLD H. BISWELL, PRESCRIBED BURNING IN CALIFORNIA WILDLANDS VEGETATION MANAGEMENT 38–60 (1989).

¹³ See *id.* at 58–60.

¹⁴ *Id.*

recommendations on rewriting the narratives and policies that control wildland fire management and inflict unacceptable, unnecessary harms on our WLFFs. The last section will also offer alternative policy solutions that can measurably alleviate the suffering being endured by these public servants and those who care for them.

II

CONTESTED LANDS AND COMPETING POLICY NARRATIVES (I): REGULATING PRIVATE LAND USE FOR COMMUNAL WILDFIRE MITIGATION

A. *Contested Lands*

The interface between public open space wildlands and private landholdings ripe for residential development is a contested landscape. It is also a landscape of mutual consumption. In West Coast and Mountain West states, the WUI is almost universally the fastest growing zone of residential land development, at the expense of open space and wildlife habitat.¹⁵ These areas also happen to be the most fire-prone landscapes in the western United States, creating measurably heightened risks for both the people who choose to live there and the first responders who try to save them when natural disasters inevitably strike.¹⁶ As slice-and-dice residential land conversion steadily eats away at open space, habitat, and forested lands, those landscapes occasionally return the favor by consuming whole neighborhoods in raging megafires.¹⁷

What political scientists and planners call “growth machine politics” has resulted in the increasingly rapid consumption of open space¹⁸—the very quality that may draw some property purchasers to the WUI in the first place. But consumption is a two-way street. The

¹⁵ *New Analyses Reveal WUI Growth in the U.S.*, U.S. DEP’T OF AGRIC. FOREST. SERV., <https://www.nrs.fs.fed.us/data/wui/> (last modified Feb. 16, 2018). (This research showed that some of the most rapid WUI residential development was happening in some of the most fire-prone areas of the West.)

¹⁶ See S.M. STEIN ET. AL., U.S. DEP’T OF AGRIC. FOREST. SERV., WILDFIRE, WILDLANDS, AND PEOPLE: UNDERSTANDING AND PREPARING FOR WILDFIRE IN THE WILDLAND-URBAN INTERFACE 1 (2013), <https://www.fs.fed.us/openspace/fote/reports/GTR-299.pdf>.

¹⁷ See generally MICHAEL KODAS, MEGAFIRE THE RACE TO EXTINGUISH A DEADLY EPIDEMIC OF FLAME (2017).

¹⁸ See ANDREW E.G. JONAS & DAVID WILSON, THE URBAN GROWTH MACHINE CRITICAL PERSPECTIVES, TWO DECADES LATER 3–4 (1999).

deeper into the WUI private land development penetrates, the greater the threat of those developments' destruction by fire.¹⁹

Lands in the WUI are also a field of contest over two sets of competing policy narratives: those which inform land use regulation, and those which inform wildfire management practices.²⁰ Conflicts between these two forms of narrative have created ambiguous and conflicting policies and management regimes, sometimes with tragic consequences.²¹ In the last quarter century, the greatest single-event losses of life among WLFFs have been crews fighting wildfires in the WUI.²² A closer examination of these narratives and their resultant policies reveals why this is so.

B. Competing Land Use Policy Narratives

In 2012, graduate students at the University of Colorado's School of Public Affairs conducted a comparative assessment of state laws and local ordinances regarding wildfire mitigation in the WUI in seven states in the U.S. Mountain West.²³ The choice of states for the sample²⁴ represented considerable variation in regulatory approaches. Their wildfire mitigation regimes were based on two competing policy narratives—the commons and primacy of property. Both narratives are deeply rooted in the jurisprudence of American property law.

1. The Commons

The principle of the commons has early roots in the British common law tradition.²⁵ It refers to lands and resources collectively held by rural village folk: pasturage, cropland, and an assured water

¹⁹ See discussion *infra* Part V.

²⁰ See discussion *infra* Part II.C.

²¹ See discussion *infra* Part V.

²² See discussion *infra* Part II.C.4.

²³ See generally Lloyd Burton, *Wildfire Mitigation Law in the Mountain States of the American West: A Comparative Assessment* (Univ. of Colo. Denver, Sch. of Pub. Affairs White Paper, July 2013), <http://www.dora.state.co.us/taskforce/Documents/ArticlesStudies/WhtPprIntrstStdy15jul13.pdf> (Graduate students conducted this research in a seminar about disaster law taught by this author. Part II of this article has been adapted from a White Paper produced during that course, PUAD 5450, Law of All-Hazards Management. Students doing case study research and contributing to this research report were Laura Bravo, Vanessa Carter, Tony Gherardini, Rachel Gibbons, Barrett Howell, Fred Korb, Kimberly Pino, and Ray Sorensen.).

²⁴ *Id.* at 11 (Arizona, California, Colorado, Nevada, New Mexico, Oregon, and Utah).

²⁵ See Commons, BLACK'S LAW DICTIONARY (4th ed. 1968).

supply being chief among them.²⁶ In her Nobel Prize-winning 1990 book, *Governing the Commons*, 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 pastures, fisheries, and watersheds.²⁷ 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.²⁸ Thus, while *Tragedy of the Commons* essayist Garrett Hardin may have been a gifted biologist and compelling essayist, he was certainly no historian since he was not actually describing a communally managed commons, but one in which individuals could exploit it heedlessly for their own ends and with no structures for self-governance.²⁹

New England colonial villages as well as those throughout Pennsylvania operated on the principles of common pool resource management—the still existing town squares serving as a historical remnant of what were originally much larger commonly held and managed open spaces.³⁰ Although 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, such as rural conservancy districts and *acequias* in the western United States. Another is the public lands themselves. About twenty-five percent 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 the people’s behalf by agencies such as the Bureau of Land Management, the National Park Service, and the USFS.³¹ The public lands are our national commons.³²

²⁶ ELINOR OSTROM, *GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION* 2–3 (1990).

²⁷ *Id.* at xi.

²⁸ *Id.* at 30.

²⁹ See generally Garrett Hardin, *The Tragedy of the Commons*, 162 *SCI.* 1243 (1968) (proposing a theory of the commons in which the shared use of resources results in overconsumption).

³⁰ OSTROM, *supra* note 26, at 224 n.3.

³¹ *America’s Public Lands—These Lands Are Your Lands*, THE WILDERNESS SOC’Y, <https://wilderness.org/sites/default/files/Fact%20Sheet%20America%27s%20Public%20Lands%20.pdf> (last visited Apr. 26, 2018).

³² LLOYD BURTON, *WORSHIP AND WILDERNESS: CULTURE, RELIGION, AND LAW IN PUBLIC LANDS MANAGEMENT* 193 (2002).

This pattern of ownership has some significant implications for the management of wildfire in the forested areas of the West. For example, federal public land management goals (including fire management on those lands) are not always congruent with those of local government and private property owners bordering on public lands. The same can hold true for state and municipal parkland holdings in the WUI.

The ability of local governments to regulate private behavior in the public interest took constitutional form in the U.S. Supreme Court's 1824 decision in *Gibbons v. Ogden*.³³ In this landmark case, Chief Justice John Marshall was the first American jurist to detail the concept of police power—the plenary powers state governments have to govern on behalf of their residents³⁴—reserved to the states by the tenth Amendment to the U.S. Constitution.³⁵ 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 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—most importantly, in the realm of disaster prevention. 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.³⁶

In response, municipal governments created public health 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, along with public health officers and fire marshals to enforce them, and the courts regularly upheld their enforcement actions.

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

³³ See *Gibbons v. Ogden*, 22 U.S. 1 (1824).

³⁴ *Id.* at 17–18.

³⁵ U.S. CONST. amend. X.

³⁶ See generally PETER HOFFER, *SEVEN FIRES: THE URBAN INFERNOS THAT RESHAPED AMERICA* (2006).

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.³⁷ Then, in a landmark ruling in 1926, the U.S. Supreme Court held that these powers extended beyond simply preventing public endangerment to general land use planning and zoning.³⁸ State governments quickly followed this ruling with statutes empowering their cities to engage in comprehensive planning and zoning.³⁹

2. *Primacy of 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 Fifth 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.”⁴⁰

About a century later, the Due Process and Equal Protection clauses of the Fourteenth Amendment extended these limitations on governmental authority to local governments.⁴¹ Thus, from the early 1800s to the present day, but especially over the last century or so, we have seen hundreds of decisions handed down by state and federal courts adjudicating the relationship between the police powers of state and local government and the freedom to use one's property as one pleases.

This “primacy of property” narrative, as it might be called, basically holds that in the realm of land use regulation, that government which governs least governs best. On this view, it should be left to individual property owners to determine the degree to which they will or will not mitigate their own property from the threat of wildfire, regardless of the endangerment their inaction may impose on their neighbors.

³⁷ *Gibbons*, 22 U.S. at 53–54.

³⁸ *Village of Euclid v. Ambler Realty Co.*, 272 U.S. 365, 396–97 (1926).

³⁹ William A. Fischel, *An Economic History of Zoning and a Cure for its Exclusionary Effects*, 41 URB. STUDS. 317, 319 (2004).

⁴⁰ U.S. CONST. amend. V.

⁴¹ U.S. CONST. amends. V, XIV.

C. Applying the Narratives to Private Land Use Regulation in the WUI

Most states of the Mountain West are experiencing the fastest population growth in their wildland-urban interfaces, even as these are becoming increasingly dangerous places to live.⁴² 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.⁴³ *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 keep structures from spontaneously combusting. This usually includes measures such as removing all vegetation from the immediate vicinity of structures, then thinning it within a wider perimeter—usually about one hundred feet, depending on the nature of the vegetation.⁴⁴

While there may be substantial scientific consensus on the effectiveness of these measures, the graduate research project alluded to above found 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.⁴⁵ To analyze these variations, we categorized legal approaches to wildfire mitigation on non-public lands along two dimensions: *form* of authority and *locus* of authority.

Form of authority refers to the “hard law/soft law” dimension—that is, whether there are mandatory land use mitigation regulations in place, or if instead government only advise land owners on what measures they might take to reduce wildfire danger if they so choose. Locus of authority refers to the level of government from which either mandatory regulations or advisory assistance emanates (state, regional, or local).

⁴² S.M STEIN ET. AL., *supra* note 16, at 1.

⁴³ See RUSSELL GRAHAM ET AL., U.S. DEP'T OF AGRIC., FOREST SERV., FOURMILE CANYON FIRE FINDINGS 81 (2012), https://www.fs.fed.us/rm/pubs/rmrs_gtr289.pdf. (“Reducing wildfire home ignition potential is predicated on the home having ignition resistant materials and the homeowner removing flammable debris from on and around the house and maintaining this condition.”).

⁴⁴ *Id.* at 65, 80–81.

⁴⁵ See discussion *infra* Parts II.C.2, II.C.3.

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.⁴⁶ “Hard law” authority originated at the state government level, though it was also delegated to cooperating local governments and special purpose districts.⁴⁷ In contrast, in states like Arizona, Colorado, and New Mexico, we found just the opposite—“soft law” at the state level and advisory in nature insofar as private land use regulation was concerned.⁴⁸ However, local option states also empower local governments to implement mandatory wildfire mitigation property and land use regulations if they decide to use local police powers in this way.⁴⁹

1. Models of Wildfire Mitigation Regulation on Private Lands

In assessing state laws through the lenses of form of authority and locus of authority, two distinct forms of WUI wildfire mitigation law and policy began to emerge. The first form is the *common standard* model. The name, “common standard” refers to the model’s two features. First, regardless of where in the WUI one lives in a common standard state, the general requirements for structural mitigation and defensible space maintenance are basically uniform.⁵⁰ Second, 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 roam where they will, driven by heat, winds, and fuel. Residents inhabit a naturally-defined commons, and what one cohabitant of the common space or 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. Additionally, common standard states place both affirmative requirements and land use restrictions on WUI

⁴⁶ See discussion *infra* Part II.C.2.a.

⁴⁷ See discussion *infra* Part II.C.2.a.

⁴⁸ See discussion *infra* Part II.C.3.

⁴⁹ See discussion *infra* Part II.C.3.

⁵⁰ Though in California, the degree of mitigation required is to some degree calibrated to the severity of wildfire risk. See *infra* Part II.C.2.

homeowners,⁵¹ who may have moved there in the first place largely to escape civilization and its trappings.

The second form of authority is the *local option* model. In contrast to common standard states, 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 the obligation to make their properties fire-safe in their own communities.⁵² These are the states most deferential to private property rights and the freedom of home owners to manage their estates as they wish.⁵³

In these states, homeowners associations, fire districts, and municipal and county governments decide for themselves whether or not to constrain their freedom to manage their properties as they wish in the interests of mitigating commonly-faced wildfire hazards.⁵⁴ The freedom of those in the backcountry to live and manage their property as they choose appears to be 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 seems to be 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, for example, fell into a third category of what might be called “hybrid states”—that is, they contain elements of both policy approaches.⁵⁵

However, the common standard and local option models do broadly reflect the competing policy narratives that brought them into being. The common standard states have enacted statewide mitigation policies that align with the idea that, since everyone in the WUI shares a common wildfire threat, everyone also bears some degree of responsibility for mitigating that threat.⁵⁶ In the local option states, by contrast, local governments may impose a regulatory mitigation mandate on all property owners for common defense against

⁵¹ See discussion *infra* Part II.C.2.

⁵² See discussion *infra* Part II.C.3.

⁵³ See discussion *infra* Part II.C.3.

⁵⁴ See discussion *infra* Part II.C.3.

⁵⁵ See discussion *infra* Part II.C.4.

⁵⁶ See *infra* Part II.C.2.

wildfires.⁵⁷ Among multiple town, county, or fire districts in the same forested area, some may have mandatory wildfire mitigation ordinances, while others do not⁵⁸—a policy approach clearly more deferential to the private property rights of those living in jurisdictions without mandatory mitigation.

2. Applying the Model (I): Common Standard States

In our survey, the only two common standard states are California and Oregon. However, inasmuch as these statewide standards are also mandatory—and in California’s case, enforceable at multiple levels of government—they are perhaps the most impactful of all the state regimes because of the sheer number of WUI residents they cover.

a. California

By one estimate, about forty percent of the housing stock in California lies within its WUI—the highest percentage of any of the states in our survey.⁵⁹ The California Department of Forestry and Fire Protection (CAL FIRE) is California’s leading emergency management and response authority for wildfires.⁶⁰ Its mission is to serve and safeguard the people, property, and resources in the State of California.⁶¹ CAL FIRE is responsible for thirty-one million acres of California’s privately-owned wildlands (State Responsibility Areas (SRAs)).⁶² Additionally, CAL FIRE provides emergency services to thirty-six out of fifty-eight California counties.⁶³

The mission of the State Board of Forestry and Fire Protection is to develop policies and programs that serve the public interest.⁶⁴ Statutory responsibilities include establishing and administering forest and rangeland policy; protecting and representing California’s interests in forestry and rangeland issues; providing direction and

⁵⁷ See *infra* Part II.C.3.

⁵⁸ See *infra* Part II.C.3.

⁵⁹ Burton, *supra* note 23, at 17.

⁶⁰ CAL FIRE, *What is CAL FIRE?*, 1 (Dec. 2016), http://calfire.ca.gov/communications/downloads/fact_sheets/WhatisCALFIRE.pdf.

⁶¹ *Id.*

⁶² *Id.* For more information about State Responsibility Areas, see *Fire Hazard Severity Zone Re-Mapping Project*, CAL FIRE, <http://frap.fire.ca.gov/projects/hazard/fhz.html> (last visited Apr. 24, 2018).

⁶³ *About Us*, CAL FIRE, <http://calfire.ca.gov/about/about> (last visited Apr. 24, 2018).

⁶⁴ *Fire Plan—2010 Strategic Fire Plan for California*, CAL FIRE, <http://osfm.fire.ca.gov/fireplan/fireplanning.php> (last visited Apr. 24, 2018).

guidance to CAL FIRE regarding fire protection and resource management; accomplishing a regulatory program in fire protection; and conducting duties to inform and respond to the people of California.⁶⁵

California Public Resources Code sections 4114 and 4130 authorize CAL FIRE to establish a fire plan.⁶⁶ In order to facilitate the plan, the California Public Resources Code sections 4201 to 4204 and Government Code sections 51175 to 51189 mandate CAL FIRE to map areas (zones) of “significant fire hazard based on fuels, terrain, weather, and other relevant factors.”⁶⁷ CAL FIRE creates the maps by utilizing Geographic Information System (GIS) data in conjunction with modeling techniques designed to describe potential fire behavior and fire probability.⁶⁸ These zones are classified as Very High Fire Hazard Severity Zones (VHFHSZs).⁶⁹

The Office of the State Marshal (OSFM) coordinates with CAL FIRE to implement fire prevention programs and regulations.⁷⁰ These programs include engineering, education, enforcement, and support, which include regulation of buildings, mapping, and data assessment.⁷¹ The OSFM wildfire mitigation regulations are directly applicable to all lands within the State Responsibility Area and enforceable by OSFM or its designees.⁷²

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.⁷³ A community that

⁶⁵ *Id.*

⁶⁶ *Id.*

⁶⁷ *Fire Hazard Severity Zone Remapping Project*, CAL FIRE, <http://frap.fire.ca.gov/projects/hazard/fhz.html> (last visited Apr. 26, 2018); *see also* CAL. PUB. RES. CODE §§ 4201–4204 (West 2018); CAL. GOV’T CODE §§ 51175–51189 (West 2018).

⁶⁸ CAL. BD. OF FORESTRY & FIRE PROT. & CAL. DEP’T OF FORESTRY & FIRE PROT., 2010 STRATEGIC FIRE PLAN FOR CALIFORNIA 12 (June 2010), <http://cdfdata.fire.ca.gov/pub/fireplan/fpupload/fpppdf668.pdf>.

⁶⁹ CAL. GOV’T CODE § 51178 (West 2018).

⁷⁰ *About Us*, *supra* note 63.

⁷¹ *Fire Prevention*, CAL FIRE, http://calfire.ca.gov/fire_prevention/fire_prevention (last visited Apr. 24, 2018).

⁷² *Wildfire Protection*, CAL FIRE, <http://osfm.fire.ca.gov/codedevelopment/wildfireprotection> (last visited Apr. 24, 2018); *Wildfire Protection Building Construction*, CAL FIRE, <http://osfm.fire.ca.gov/codedevelopment/wildfireprotectionbuildingconstruction> (last visited Apr. 24, 2018).

⁷³ *See Wildfire Protection Building Construction*, CAL FIRE, <http://osfm.fire.ca.gov/codedevelopment/wildfireprotectionbuildingconstruction> (last visited Apr. 24, 2018).

wishes to develop its own mitigation regime carries the burden of proof that its approach is as effective as the OSFM's at preserving lives and property.⁷⁴

California Government Code section 51183.5 requires sellers to accompany real property within a VHFHSZ 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.⁷⁵ Such disclosures are required of VHFHSZs, local responsibility areas, and wildland areas.⁷⁶ Wildland areas with a higher severity of wildfire risk also require to disclosure that assistance will not be given in case of a fire unless CAL FIRE and the local authority have entered into a contract.⁷⁷

Several sections of the California Building Standards Code provide regulation for construction. Title 24 of the Building Code, which incorporates the California Fire Code, mandates requirements for new building construction, placing emphasis on defensible space, access, and water requirements.⁷⁸

Generally, CAL FIRE is responsible for overseeing wildfire prevention, education, and mitigation programs and proposals, while the OSFM is typically responsible for administration, regulation, and enforcement.⁷⁹ Local government acts accordingly. Local building officials and fire authorities are responsible for enforcing California Building Code Chapter 7A standards.⁸⁰

In summation, California's regulatory regime for mitigating against the loss of human life and property in the WUI is mandatory rather than advisory. Moreover, the locus of this mandatory authority is principally at the state level because local jurisdictions can mandate stricter mitigation standards if they wish to do so.

⁷⁴ *Id.* ("The Office of the State Fire Marshal (OSFM) is responsible for the development of minimum statewide building construction regulations that, when used in conjunction with hazardous vegetation management, will reduce statewide losses from disastrous wildfires. State and local government enforcement agencies are responsible for the application of these (*or more restrictive*) regulations when a building construction permit is issued." (emphasis added)).

⁷⁵ CAL. GOV'T CODE § 51183.5 (West 2018) (effective Jan. 1, 2000).

⁷⁶ CAL. PUB. RES. CODE § 4136 (West 2018) (effective Jan. 1, 2000).

⁷⁷ *Id.* § 4136(b).

⁷⁸ See CAL. CODE REGS. tit. 24, §§ 503, 504, 507, 509, 4907 (2017).

⁷⁹ *About Us*, *supra* note 63.

⁸⁰ CAL. PUB. RES. CODE § 4136(b).

b. Oregon

The Oregon State Department of Forestry is established in Oregon as the agency responsible for risk management and wildfire management in the WUI.⁸¹ The Department of Forestry relies on county-appointed forestland-urban interface classification committees to define the areas that make up the forestland-urban interface, or WUI.⁸² “Once lands have been determined to meet the definition of forestland, they are further classified as lands primarily suitable for timber production, grazing use, or a combination of the two.”⁸³ According to Oregon 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 by written agreement.⁸⁴

State law mandates that individuals living in high-risk areas mitigate fire danger on their property or face fines.⁸⁵ Administrative regulations implementing this law describe the specific measures that landowners must take.⁸⁶ While these measures are generally mandatory,⁸⁷ a non-conflict clause in the ORS allows certain WUI landowners to avoid compliance.⁸⁸ State law does not, however, empower or delegate enforcement power to local governments in the case of WUI wildfire mitigation.⁸⁹

Oregon state law specifically empowers the Department of Forestry to enforce mitigation land use regulations against non-compliant local governments.⁹⁰ State statute mandates that the State Forester classify county lands according to the administrative rules if a county fails to comply with state mapping requirements.⁹¹ However,

⁸¹ OR. REV. STAT. ANN. § 477.005 (West 2018).

⁸² *Id.* §§ 477.029, .031.

⁸³ *Forestland Classification*, OR. DEP'T OF FORESTRY, <http://oregon.gov/ODF/fire/pages/forestlandclassification.aspx> (2018).

⁸⁴ OR. REV. STAT. ANN. § 477.029(3) (West 2018).

⁸⁵ *Id.* § 477.059(1)(a), (6).

⁸⁶ OR. ADMIN. R. 629-044-1055 to -1075 (2002).

⁸⁷ OR. REV. STAT. ANN. § 477.059(1)(c) (West 2018).

⁸⁸ *Id.* § 477.023(2).

⁸⁹ *See id.* §§ 477.001–.993 (while local governments can make land designations, there is no statute that delegates enforcement power to local governments).

⁹⁰ *Id.* § 477.057(1).

⁹¹ *Id.*

because the state is ultimately responsible for mapping WUI areas of concern,⁹² there is no apparent need to duplicate enforcement efforts.

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 more authority to enforce WUI wildfire mitigation measures against non-compliant property owners, so long as they are acting under the color of state law.

3. Applying the Model (II): Local Option States

a. Arizona

Arizona law empowers cities and towns to adopt a wildland-urban interface code, but does not require one.⁹³ Such codes "may be adapted from a model code adopted by a national or international organization or association for mitigating the hazard to life and property."⁹⁴ There is no statewide WUI code that requires property owners to take mitigation actions.⁹⁵

The Arizona State Land Commissioner is directed to "[m]ake long-range plans for the future use of state lands in cooperation with other state agencies, local planning authorities and political subdivisions."⁹⁶ Arizona law authorizes the commissioner to designate land as "under consideration for classification as urban land[] suitable for urban planning, or suitable for conservation purposes if the lands are to be planned in conjunction with lands to be developed."⁹⁷ Neither of these statutes regarding land use planning specifically address the WUI.⁹⁸

In sum, state WUI wildfire mitigation law is advisory in form as it relates to property owner structural and defensible space mitigation, though it authorizes local communities to adopt mandatory regulations should they choose to do so.

⁹² *See id.* §§ 477.027–.057 (leaving mapping criteria to the State Board of Forestry, actual mapping of areas to local classification committees, and if the classification committees fails to map, the State Forester).

⁹³ ARIZ. REV. STAT. ANN. § 9-806(A) (West 2017).

⁹⁴ *Id.*

⁹⁵ *See id.* (Code does not require individuals to take action: "[a] city or town *may* adopt a current wildland-urban interface code." (emphasis added)).

⁹⁶ *Id.* § 37-132(A)(3).

⁹⁷ *Id.* § 37-332(A).

⁹⁸ *See id.* §§ 37-132, -332 (making no reference of a wildland urban interface).

b. Colorado

The Colorado statutory framework is more like Arizona's than 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.⁹⁹ Instead, like Arizona, Colorado state law authorizes city and county governments to engage in general land use planning and regulation.¹⁰⁰

Similar to Arizona, this has resulted in a complex patchwork of advisory and mandatory local land use regulations throughout the state's various “red zones” or WUIs.¹⁰¹ In the aftermath of the catastrophic wildfires beginning in the twenty-first century, some city and county governments in Colorado's WUI have imposed rigorous wildfire mitigation regulations, while others have done little or nothing.¹⁰² In fact, facing pressure from real estate dealers and property owners, one mountain town, Breckenridge, actually rescinded its mandatory defensible space ordinance in 2009.¹⁰³

Local governments and utilities can enact substantial public control measures (e.g., mechanical thinning or prescribed burns) to mitigate against catastrophic wildfires on their lands.¹⁰⁴ Additionally, 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 2003.¹⁰⁵

In 2012 and 2013, the wildfire season in Colorado was the one of the most deadly and destructive the state had ever seen.¹⁰⁶ In the midst of the fire season, the Colorado legislature enacted several reforms

⁹⁹ See COLO. REV. STAT. ANN. § 24-33.5-710 (West 2018) (making no reference of wildland urban interface requirements for mitigation).

¹⁰⁰ *Id.* § 24-33.5-710.

¹⁰¹ See Ryan Maye Handy, *Despite Two Catastrophic Wildfires, El Paso County Officials Refuse to Pass More Stringent Fire Codes for Building*, COLO. SPRINGS GAZETTE (July 24, 2015), <http://gazette.com/despite-two-catastrophic-wildfires-el-paso-county-officials-refuse-to-pass-more-stringent-fire-codes-for-building/article/1556233> (“Unlike the city of Colorado Springs, which heavily regulates building in wildfire zones, the county has no universal fire code standard. Instead, it has a patchwork of fire codes and land use regulations that vary between more than 26 fire districts.”).

¹⁰² *Id.*

¹⁰³ Bruce Finley, *Breckenridge's Wildfire-Safety Law Rescinded*, DENVER POST (July 31, 2009, 2:56 PM), http://www.denverpost.com/news/ci_12970233.

¹⁰⁴ COLO. REV. STAT. ANN. § 29-20-105.5(5)(a) (West 2018).

¹⁰⁵ *Id.* § 30-15-401.7.

¹⁰⁶ Kevin Hamm, *Colorado wildfires, major fires from 1971-2013: Interactive graphic*, THE DENVER POST (June 7, 2014, 3:41 PM), <https://www.denverpost.com/2014/06/07/colorado-wildfires-major-fires-from-1971-2013-interactive-graphic/>.

and reorganized the executive branch agencies responsible for mapping, planning, coordinating mitigation efforts, and responding to wildfires in the WUI.¹⁰⁷ Several of these functions formerly carried out by the State Forest Service are now performed by the newly created Division of Fire Prevention and Control.¹⁰⁸ However, mandatory WUI wildfire mitigation regulation continues to remain exclusively a matter of local government control.¹⁰⁹

c. New Mexico

The New Mexico State Forestry Division has lead agency authority for preventing wildfires and helping WUI residents develop wildfire preparedness plans.¹¹⁰ A Fire Planning Task Force works to develop fire prevention plans for use by local governments throughout the state.¹¹¹ This task force is also responsible 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.¹¹²

Though New Mexico law does not mandate individual property owner wildfire mitigation, New Mexico’s police power does extend to the control of private forests lands as needed for forest fire prevention and protection.¹¹³ The State Forester is authorized to enter private lands and investigate violations of the law, rules, and regulations related to forest fire prevention.¹¹⁴ The Forester has the appropriate police powers to apprehend and arrest on warrant any violators.

While these provisions apply to all private landowners, insofar as residents are residing on forestland, the New Mexico State Forestry advises homeowners to use wildfire mitigation practices, but does not

¹⁰⁷ See COLO. REV. STAT. ANN. § 24-33.5-1201(1) (West 2018); H.B. 12-1283, 68th Gen. Assemb. (Colo. 2012).

¹⁰⁸ COLO. REV. STAT. ANN. § 24-33.5-1201(4)(b)(I) (transferring all jobs related to wildfire treatment from the forest service to the division of fire prevention).

¹⁰⁹ See *id.* § 24-33.5 (within Article 33.5 there are no provisions mandating state enforcement or control).

¹¹⁰ See *Fire Prevention and Outreach*, N.M. STATE FORESTRY, <http://www.emnrd.state.nm.us/SFD/FireMgt/FirePreventionandOutreachProgram.html> (last visited Apr. 24, 2018).

¹¹¹ N.M. STAT. ANN. § 68-2-34 (West 2018).

¹¹² *Community Wildfire Protection Plans*, N.M. STATE FORESTRY, <http://www.emnrd.state.nm.us/SFD/FireMgt/cwpps.html> (last visited Apr. 24, 2018).

¹¹³ N.M. CONST. art. XV, § 2.

¹¹⁴ N.M. STAT. ANN. § 68-2-14 (West 2018).

mandate their adoption.¹¹⁵ Local governments may require the adoption of fire prevention plans under the Healthy Forest Restoration Act if they so choose.¹¹⁶

4. Applying the Model (III): Hybrid States

Both Nevada and Utah fall into the category of hybrid states, but for different reasons. In Utah, the models are combined due purely to legislative intent. In Nevada, the categorization is not only due to legislative intent, but also the fact that there are national or interstate recreation areas spanning Nevada's borders with Arizona and California. Arizona and Nevada share a border on the Lake Mead National Recreation Area, and California and Nevada share a border on Lake Tahoe and fall under the jurisdiction of the congressionally authorized Lake Tahoe Regional Planning Agency (TRPA).¹¹⁷

a. Nevada

The Nevada Division of Forestry, through the State Forester Firewarden,¹¹⁸ 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.¹¹⁹ These agencies recommend but do not mandate mitigation standards, leaving local jurisdictions to decide how assertively they

¹¹⁵ See *Fire Prevention and Outreach*, N.M. STATE FORESTRY, *supra* note 110. (Providing links to “fire safety planning for your home” and “fire prevention tips,” but mentioning no mandatory mitigation practices).

¹¹⁶ Alexander Evans et al., *Evaluating the Effectiveness of Wildfire Mitigation Activities in the Wildland-Urban Interface*, FOREST STEWARDS GUILD 10 (2015), http://www.forestguild.org/publications/research/2015/WUI_effectiveness.pdf (“a CWPP is defined as a plan . . . developed within the context of the collaborative agreements and the guidance established by the Wildland Fire Leadership Council and agreed to by the applicable local government . . . in the vicinity of the at-risk community.”).

¹¹⁷ See *About TRPA*, TAHOE REGIONAL PLAN. AGENCY, <http://www.trpa.org/about-trpa> (last visited Apr. 24, 2018); Act of Dec. 19, 1980, Pub. L. No. 96-551, 94 Stat. 3233 (1980) (TRPA is an interstate planning authority authorized by Congress for the preservation and sustainable management of the Lake Tahoe Basin).

¹¹⁸ NEV. REV. STAT. ANN. § 232.120(1) (West 2017).

¹¹⁹ *Fire Prevention*, DEPT. OF PUBLIC SAFETY STATE FIRE MARSHAL, http://fire.nv.gov/bureaus/FPL/Fire_Prevention (last visited Apr. 24, 2018); *Wildland Fire Protection Program*, NEV. DIV. OF FORESTRY, <http://forestry.nv.gov/fire-program> (last visited Apr. 24, 2018).

wish to focus on wildfire safety.¹²⁰ In this regard, Nevada has much in common with the local option states.

The Nevada State Forester Firewarden is authorized to designate fire hazardous forested areas.¹²¹ The Firewarden is required to regulate roofing materials and may also regulate vegetation surrounding structures.¹²² The State Fire Marshal, through incorporation of the International Wildland-Urban Interface Code (2009), also plays a role in land use planning.¹²³ Thus, together, the State Forester Firewarden and the State Fire Marshal are responsible for risk management and wildfire disaster management in the WUI.

Nevada residents can also form various types of fire protection districts subject to approval by the State Forester Firewarden.¹²⁴ In these fire protection districts, the State Forester Firewarden may regulate vegetation surrounding structures.¹²⁵ Additionally, each county in Nevada has a Community Wildfire Protection Plan that lays out hazards and conducts risk assessments for local communities.¹²⁶

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.¹²⁷ 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.¹²⁸ 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.¹²⁹

¹²⁰ See *Hazardous Fuels/Fuel Reduction*, NEV. DIVISION OF FORESTRY, <http://forestry.nv.gov/fire-program/hazardous-fuels-reduction> (last visited Apr. 24, 2018) (listing things homeowners can or should do, not must do).

¹²¹ NEV. REV. STAT. ANN. § 472.040(1)(d) (West 2017).

¹²² *Id.* §§ 472.040(1)(e), .041.

¹²³ NEV. ADMIN. CODE § 477.281(1)(c) (2015).

¹²⁴ See *generally* NEV. REV. STAT. ANN. § 474 (West 2017).

¹²⁵ *Id.* § 472.041.

¹²⁶ *Wildfire Risk Assessment & Community Protection*, NEV. DIV. OF FORESTRY, <http://forestry.nv.gov/fire-program/wildfire-risk-assessment-protection/> (last visited Mar. 19, 2018). Cf. *Wildland Fire Protection Program*, *supra* note 119 (“The Nevada Division of Forestry provides wildfire protection statewide through its Wildland Fire Protection Program, which was approved by the Nevada State Legislature in 2013.”).

¹²⁷ NEV. ADMIN. CODE 477.281(1)(c) (2015).

¹²⁸ NEV. REV. STAT. ANN. § 472.040(1)(e) (West 2017); NEV. ADMIN. CODE 472.020, .030 (2016).

¹²⁹ NEV. REV. STAT. ANN. § 472.100(2) (West 2017).

In areas with no building codes, enforcement lies with the State Forester Firewarden.¹³⁰ 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.¹³¹ 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 ensure consistency in fire safety codes.¹³²

However, land use in two large regions of Nevada—the Lake Meade National Recreation Area and lands subject to the jurisdiction of TRPA—is governed by multi-state regional compacts.¹³³ By interstate agreement (with Arizona and California in the Lake Mead case, and with California at Lake Tahoe) and congressional imprimatur, all properties within these regions are subject to mandatory WUI wildfire mitigation standards.¹³⁴ These regions adhere to the common standard approach of wildfire mitigation. In June of 2007, the Angora Fire swept through pine-shaded communities south of Lake Tahoe, destroying over 250 homes¹³⁵ to the tune of more than \$140 million in lost property value.¹³⁶ Now the mitigation standards and enforcement protocols promulgated by the California State Fire Marshal prevail over community covenants throughout the region.¹³⁷

In the Lake Tahoe and Lake Mead regions, the Nevada State Forester Firewarden and the Nevada State Fire Marshal work together to regulate fire retardant roofing and vegetation near structures, though the specifics of these regulations are not in state law.¹³⁸ The TRPA provides specific regulations for certain activities within the region, such as home construction and modifications, in its Code of

¹³⁰ *Id.* § 472.100(3).

¹³¹ *See id.* § 472.040(1)(i).

¹³² *Id.* § 472.040(1)(j).

¹³³ *See About TRPA, supra* note 117; *About Us*, LAS VEGAS INTERAGENCY COMMUNICATION CENTER, <http://lvinteragency.org/aboutus.shtml> (last visited Apr. 21, 2018).

¹³⁴ Burton, *supra* note 23, at 28.

¹³⁵ *Angora Fire Incident Information*, CAL FIRE, http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=184 (last updated Oct. 31, 2017).

¹³⁶ Kellene Stockwell, *Angora Fire Destroys \$141 Million in Real Estate*, KTVN (June 27, 2007), <http://www.ktvn.com/story/6717603/angora-fire-destroys-141-million-in-real-estate>.

¹³⁷ *See* NEV. REV. STAT. ANN. § 472.040(1)(i) (West 2017).

¹³⁸ *Id.* §§ 472.040(1)(i), 477.030(3).

Ordinances.¹³⁹ Plans are submitted to TRPA, which are approved at TRPA's discretion.¹⁴⁰

In areas not governed by regional compacts, the Nevada State Forester Firewarden may direct landowners to remove hazards, as well as eliminate hazards and recover costs of such elimination from the landowner.¹⁴¹ Fire protection districts have the same authority regarding hazards.¹⁴² By contrast, 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.¹⁴³ Thus, the Nevada regulatory regime represents something of a hybrid, relative to the case studies already covered. Similar to California, the State Forester Firewarden and State Fire Marshal both exercise a good deal more direct regulatory authority over local land use wildfire mitigation practices. Also like California, local jurisdictions may regulate under their own police powers so long as mitigation standards are no weaker than those set by the state. Additionally, in the areas of Nevada and California that are subject to interstate regional land use agreements, preemptive state authority is even more pronounced than it is in typical common standard states.

b. Utah

The Utah Division of Forestry, Fire, and State Lands maps out the “red zone” and the degree of risk in the WUI.¹⁴⁴ The Forestry, Fire, and State Land Advisory Council offers guidance on land use to the Division of Forestry, Fire, and State Lands. The Division also offers a website that advises communities on risks and mitigation techniques.¹⁴⁵

¹³⁹ See generally TAHOE REGIONAL PLANNING AGENCY, CODE OF ORDINANCES (effective Feb. 9, 2013), http://www.trpa.org/wp-content/uploads/TRPA-Code-of-Ordinances_December17.pdf; U.S. DEP'T OF AGRIC. FOREST SERV. ET. AL., *Lake Tahoe Basin Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy* 44–51 (2007), https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/17742/NV_510_LakeTahoeBasin_2007.pdf?sequence=1&isAllowed=y.

¹⁴⁰ See generally Act of Dec. 19, 1980, Pub. L. No. 96-551(II)(g), 94 Stat. 3233, at Art. VI (1980).

¹⁴¹ NEV. REV. STAT. ANN. § 472.500 (West 2017) (formerly cited as NEV. REV. STAT. ANN. § 472.120).

¹⁴² *Id.* § 474.580(1).

¹⁴³ *Id.* § 477.030(3).

¹⁴⁴ UTAH ADMIN. CODE § 652-122-400 (2017).

¹⁴⁵ *Wildfire Risk Assessment Portal*, UTAH DEP'T OF NAT. RESOURCES, <https://utahwildfirerisk.utah.gov/> (last visited Apr. 25, 2018).

To receive financial and supervisory cooperation and assistance from the Division, county legislative groups must enter into a cooperative agreement with the Division.¹⁴⁶ A county can only qualify to enter into a cooperative agreement if it agrees to: (1) adopt a wildland fire ordinance based upon minimum standards established by the Division; and (2) 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.¹⁴⁷ A county that chooses not to enter into a cooperative agreement with the Division will not be eligible to receive financial assistance from the division.¹⁴⁸ State law further encourages county sheriffs to submit reports on wildland fire control action, investigate and report fire causes, and enforce the provisions of section 65A, either independently or in coordination with the state forester.¹⁴⁹

Additionally, counties not directly participating in the state wildfire mitigation program “shall abate the public nuisance caused by wildfire on unincorporated, privately owned or county owned forest, range, watershed, and wildland urban interface lands within its boundaries.”¹⁵⁰ Therefore, state law does not mandate homeowner WUI wildfire mitigation; however, it does authorize counties to mitigate the land within their county as needed and compel individual homeowners to do so. Thus, the Division of Forestry is empowered to pursue a carrot and stick approach in working with local governments to adopt wildfire mitigation measures: “[t]he division shall bill a county that is not covered by a cooperative agreement with the division, as described in Section 65A-8-203, for the cost of wildfire suppression within the jurisdiction of that county accrued by the state.”¹⁵¹

Though the statute does not require local government compliance with state standards, it does place an affirmative duty on county governments to abate wildfire risk on both privately owned and local government-owned properties within county jurisdictions.¹⁵²

¹⁴⁶ UTAH CODE ANN. § 65A-8-203(3)(a) (West 2017).

¹⁴⁷ *Id.* § 65A-8-203(4).

¹⁴⁸ *Id.* § 65A-8-203(3)(a).

¹⁴⁹ *Id.* § 65A-8-209.

¹⁵⁰ *Id.* § 65A-8-202(1).

¹⁵¹ *Id.* § 65A-8-203.2.

¹⁵² *Id.* § 65A-8-202(1).

Ultimately, this places the onus on local governments to demonstrate why they have declined to adopt the WUI Code, creating potential legal liability for not having done so. Utah is a hybrid state precisely due to this combination of state and local regulation and enforcement.

III

CONTESTED LANDS AND COMPETING POLICY NARRATIVES (II): WILDFIRE MANAGEMENT

A. Narrative I: Wars and Rumors of Wars

In her 2011 article, *Disaster Mythology and the Law*, Lisa Grow Sun made compelling connections between disaster narratives—the stories we tell ourselves about why disasters happen and what we ought to do about them—and the policies we adopt that are reflective of those narratives.¹⁵³ She demonstrated how the most pervasive of these myths, the metaphor of war, results in disaster response policies and practices that prioritize law enforcement over humanitarian aid.¹⁵⁴ She cites the example of hysterical media accounts of uncontrolled rape and pillage in the streets of New Orleans, which were later proved to be unfounded and had to be retracted.¹⁵⁵

In the same vein, Justin Pidot provided a detailed accounting of how the ubiquitous metaphor of natural disaster response as military conflict has resulted in both the public and policy makers coming to understand ourselves as being in a perpetual war with nature.¹⁵⁶ We are under relentless attack from the sea (hurricanes), from the sky (torrential storms and tornadoes), and from the very Earth itself (wildfires and earthquakes).¹⁵⁷ He offers multiple well-documented examples of how political and disaster response leaders use the language of warfare to characterize the threats we face and the need to respond accordingly—aided, abetted, and sometimes egged on by news media coverage that relies exclusively on the trope of war.¹⁵⁸

¹⁵³ Lisa Grow Sun, *Disaster Mythology and the Law*, 96 CORNELL L. REV. 1131, 1135–36 (2011).

¹⁵⁴ *Id.*

¹⁵⁵ *Id.* at 1141–43.

¹⁵⁶ Justin Pidot, *Symbolic, Cognitive, and Structural Obstacles to Formulating Disaster Policy*, in 68 STUDIES IN LAW, POLITICS, & SOC'Y, SPECIAL ISSUE CASSANDRA'S CURSE: THE LAW AND FORESEEABLE FUTURE DISASTERS 33, 35–41 (Lloyd Burton & Lisa Grow Sun special issue eds., Austin Sarat series ed., 2015).

¹⁵⁷ *Id.*

¹⁵⁸ *Id.* at 36–41.

Over a century ago, the founding chief of the United States Forest Service, Gifford Pinchot, found it to be in his agency's best interest politically to characterize wildfire in our national forests as an implacable foe that must be eradicated at all costs.¹⁵⁹ Established in 1905 under the conservationist President Theodore Roosevelt, the young agency was in danger of being dismantled by hostile western senators and their extractive industry supporters, until the largest forest fire in recorded American history destroyed over three million acres of Idaho and Montana mountain forests, and the small towns within them, in the summer of 1910.¹⁶⁰

Pinchot promised that if Congress doubled his agency's budget, he could make such massive fires a thing of the past in the national forest, thus preserving timber for harvest and intact watersheds to serve thirsty communities.¹⁶¹ Thus, the USFS became western states' de facto backcountry national fire department.¹⁶² In the name of protecting the forests for timber production, the service successfully suppressed most big fires for over half a century.¹⁶³ In the post-World War II era, the use of military surplus vehicles, aircraft, logistical infrastructure, and personal gear further enhanced the image of the Forest Service as an army deployed to protect our forests and the communities within them from impending attack.¹⁶⁴

The war narrative is just as salient and persuasive today as it was at the Forest Service's inception. In his book *Megafire*, Michael Kodas devotes an entire chapter to what he calls the "fire-industrial complex."¹⁶⁵ It operates in much the same way as its namesake, the military-industrial complex. The public and policy makers are first frightened into believing that an imminent threat exists—one that can be effectively countered only by deploying the kinds of military-style hardware and response tactics that shield us from other forms of national security threats.¹⁶⁶ Then, the policies are set, the appropriations for assault technology are acquired, and the ongoing

¹⁵⁹ TIMOTHY EGAN, *THE BIG BURN* 50–52 (2009).

¹⁶⁰ *Id.* at 68–69, 89–100, 172–73, 246–48.

¹⁶¹ *Id.* at 239–48.

¹⁶² *Id.* at 269–72.

¹⁶³ *Id.*

¹⁶⁴ STEPHEN J. PYNE, *TENDING FIRE* 56–58 (2004).

¹⁶⁵ KODAS, *supra* note 17, at 136–44.

¹⁶⁶ *Id.* at 140–44.

assault against the relentless destructive forces of nature is escalated.¹⁶⁷

One telling example Kodas provides of the fire-industrial complex is how the Colorado Legislature was induced to invest \$20 million in the state's own fleet of firefighting aircraft, even as it refused to enact much lower cost legislation that would have done a better job of saving lives and property, (e.g., mapping red zones, predicting wildfire outbreaks, compelling sellers of real estate in the high country to inform buyers of wildfire risk, and imposing statewide wildfire mitigation standards), as is done in common standard states such as California.¹⁶⁸ Colorado State Senator Steve King, an advocate for the state wildfire air corps legislation, worked with a lobbyist who he instructed on how to work with legislators on this bill: "your job is to scare the hell out of them."¹⁶⁹ Evidently, he succeeded.

B. Narrative II: Reconciliation

The narrative described above is a grim and forbidding one. We are engaged in an ongoing and unending civil war with our own environment. Whether battling encroaching sea levels on our coasts or the fire menace in the Mountain West, both of which continue to grow in size, scope, and intensity as a result of climate change.¹⁷⁰ The parallels with the dubious battles our nation fought over the last half century on the Korean Peninsula, Indochina, and the Middle East are hard to ignore. However, at least since the 1970s, a counter-narrative to the fire industrial complex has been coming into focus. For the purposes of this Article, I refer to it as the narrative of Reconciliation. I argue that this narrative appears in ever more detail, scientific validity, practicality, and cost-effectiveness than the fire industrial complex. The term "reconciliation" has two connotations, both of which apply here.

The first is reconciliation after conflict. For example, when the apartheid regime in South Africa lost all moral legitimacy as well as political support, Archbishop Desmond Tutu realized that the most

¹⁶⁷ *Id.*

¹⁶⁸ See discussion of cost-effective mitigation options *supra* § II.C.2.a of this Article. As a local option state, Colorado has adopted none of these measures.

¹⁶⁹ KODAS, *supra* note 17, at 311–12.

¹⁷⁰ U.S. GLOB. CHANGE RESEARCH PROGRAM, CLIMATE CHANGE IMPACTS IN THE UNITED STATES: THE THIRD NATIONAL CLIMATE ASSESSMENT 31–45 (Jerry M. Melillo et al. eds., 2014).

effective step toward healing his divided nation was not punitive political trials, but a process by which all sides could find a way to live peaceably together going forward.¹⁷¹ It was a civil and conciliatory end to what had been rapidly degenerating into a civil war.¹⁷² In bridging the post-apartheid South African experience to the environment, the reconciliation after conflict connotation embodies a cry to stop making war on our environment. It calls for us to begin making peace with and taking actions that respect our environment impersonal and inexorable natural processes.

The second connotation is reconciling oneself to the facts of one's situation; it is facing some undeniable, if inconvenient, truths and learning to live with them. That certainly applies to the case of wildfires in the Mountain West. Scientists predict a 200% to 400% increase in the amount of western forest acreage lost to wildfire by the mid-twenty-first century, owing principally to the effects of climate change.¹⁷³ Every year, the fire season grows longer than the year before.¹⁷⁴ It is now to the point where some regions of the West may no longer have a fire season because there is no season of the year in which there is not wildfire.

Reconciliation calls upon us to stop living in denial of the fact that the WUI wildfire threat will only worsen over time. It calls upon us to realize that the more deeply we extend residential land conversion into our most flammable forests, the greater the resulting loss of life and property will be, and the greater the threat to WLFFs sent in to battle the inevitable conflagration. It calls upon us to finally recognize that, in the language of the fire-industrial complex narrative, we are fighting a war we will never win. The only true winners in such misconceived and mischaracterized situations are the war profiteers.

Another form of the reconciliation narrative that has developed over the past fifty years among silviculturists and forest ecologists is based on scientific research telling us that fire is, and always has

¹⁷¹ *Tutu and His Role in the Truth & Reconciliation Commission*, S. AFR. HISTORY ONLINE, <http://www.sahistory.org.za/article/tutu-and-his-role-truth-reconciliation-commission> (last updated Oct. 6, 2016).

¹⁷² *Id.*

¹⁷³ RACHEL CLEETUS & KRANTI MULIK, UNION OF CONCERNED SCIENTISTS, PLAYING WITH FIRE: HOW CLIMATE CHANGE AND DEVELOPMENT PATTERNS ARE CONTRIBUTING TO THE SOARING COSTS OF WESTERN WILDFIRES 6 (2014).

¹⁷⁴ A.L. Westerling et al., *Warming and Earlier Spring Increase Western U.S. Forest Wildfire Activity*, 313 SCI. 940, 943 (Aug. 18, 2006).

been, essential to the health of the forests of the Mountain West.¹⁷⁵ Those of us who grew up or recreated in the Mountain West have experienced it as relatively fire-free and smoke-free, and assumed that this was the natural order of things. Now we are learning that we were raised and relaxing in a highly artificial, epistemic bubble—a Disney-like fantasy world in which fire, at least for a while, was magically extirpated.

But there was nothing magical about it. In fact, it was the fire industrial complex narrative at work, keeping at bay the fires that, though they would smudge the sky and perhaps deprive us of our favorite recreation sites, would also ensure the health and sustainability of those forests for generations to come. Reconciliation means fully accepting fire's rightful role in maintaining the health and well-being of our forested lands. It means working in partnership with natural forces to let fire play its necessary role in sustaining the forests, while also bounding its power to threaten human communities' health and well-being. The WUI then becomes less a war zone than a demilitarized zone. Peace keeping in this demilitarized zone means intensive replication of natural forces, whether through mechanical thinning or prescribed burns, to create a wide swath of wildfire-mitigated landscapes around areas of concentrated human habitation.

Replicating natural forces in wildfire management on public lands gradually became more the norm rather than the exception in the latter years of the twentieth century and into the twenty-first,¹⁷⁶ but the battle between the competing narratives rages on.¹⁷⁷ Reconciliation and replication are found in legislative measures such as the Healthy Forests Restoration Act, and the partnerships it encouraged between federal land managers and communities abutting public lands. However, no policy is worth the paper it is written on unless accompanied by the funds to implement it. Sadly, because of budget constraints, with every passing year federal land managers are reluctantly diverting funds from efforts to reconcile with nature to

¹⁷⁵ See, e.g., Charles F. Cooper, *The Ecology of Fire*, 204 SCI. AM. 150 (Apr. 1961).

¹⁷⁶ See KODAS, *supra* note 17, at 136–44.

¹⁷⁷ See discussion *supra* Part II.B.–C.

making war on fire.¹⁷⁸ In essence, one narrative is being cannibalized to feed the other.

IV

IN THE CROSSFIRE: THE PERILOUS STANDING OF WILDLAND FIREFIGHTERS

A. *The Combat Zone*

WLFFs face two kinds of endangerment: the geographic setting in which they are working, and the competing narratives informing the policies and practices that govern how they fulfill their mission. Geographically, in the last twenty-five years, the two largest and most catastrophic fatal burnovers of WLFFs both happened in the WUI; and they both happened in states that had, and continue to have, no statewide mandatory wildfire mitigation regulations.

The first was the Storm King (also known as South Mountain) burnover of fourteen WLFFs, some from the Prineville, Oregon hotshot crew, in western Colorado in 1994.¹⁷⁹ They were working to contain a fire on steep slopes of scrub oak and chaparral near the town of Glenwood Springs, when a change in weather patterns blew up a smaller fire below them, drove it upslope, and immolated them.¹⁸⁰

The second was the infamous Yarnell Hill fire of the summer of 2013 in central Arizona near the town of Prescott.¹⁸¹ The Granite Mountain Hotshots, the only federally certified hotshot team hosted by a municipal fire department, lost their lives trying to defend the nearby towns of Peoples Valley and Yarnell.¹⁸² The towns had taken no meaningful steps to mitigate their individual properties or their communities against wildfire danger.¹⁸³

¹⁷⁸ See Press Release, U.S. Dep't. of Agric., USDA, DOI, and OMB Urge Congress to Fix the Fire Budget (Sept. 15, 2015), <https://www.usda.gov/media/press-releases/2015/09/15/usda-doi-and-omb-urge-congress-fix-fire-budget>.

¹⁷⁹ JOHN MACLEAN, *FIRE ON THE MOUNTAIN: THE TRUE STORY OF THE SOUTH CANYON FIRE 64* (1999).

¹⁸⁰ *Id.* at 154.

¹⁸¹ Kyle Dickman, *19: The True Story of the Yarnell Hill Fire*, *OUTSIDE MAG.* (Sept. 17, 2013), <https://www.outsideonline.com/1926426/19-true-story-yarnell-hill-fire>.

¹⁸² *Id.*

¹⁸³ Crystal A. Kolden, *Arizona fire deaths show no one should die for a house*, *WASH. POST* (July 5, 2013), https://www.washingtonpost.com/opinions/arizona-fire-deaths-show-no-one-should-die-for-a-house/2013/07/05/1c14eaf2-e343-11e2-aef3-339619eab080_story.html?utm_term=.fee92467710f.

The WLFFs who lost their lives at Storm King in Colorado were well away from Glenwood Springs, Colorado, but they were fighting that fire to keep it from moving towards Glenwood Springs.¹⁸⁴ In the Yarnell Hill fire, the hotshot crew stepped into a safety zone when the fire they were working on swelled to a size that required much more equipment and many more WLLFs to contain.¹⁸⁵ Regardless, they redeployed in an effort to make it to Yarnell to render some assistance in saving the town.¹⁸⁶ Before they reached Yarnell, the fire roared up into the canyon they were descending, and they all perished, save for the crew's lookout.¹⁸⁷

The other factor that makes the WUI a particularly deadly environment for WLFFs is organizational culture clash brought on by the fact that WLFFs from different agencies and different levels of government may be fighting the same fire for different reasons, and following different protocols. For instance, WLFFs deployed by federal land management agencies are not officially designated as firefighters but as forest resource technicians.¹⁸⁸ The reason is that they are trained to use fire as a management tool.¹⁸⁹ Fire suppression is one of the management techniques WLFFs use when lives or structures are threatened. Otherwise, they practice reconciliation: curbing and corralling a fire to do its work of forest scouring and rejuvenation.¹⁹⁰ Big fires in the back country are often not extinguished through human intervention; they either burn out of their own accord or are doused by autumn or winter precipitation.¹⁹¹ On the other hand, WLFFs in the WUI employed by municipal, county jurisdictions, or rural fire districts have only one mission: immediate and total fire suppression.¹⁹² Their sole mission is to save lives and

¹⁸⁴ MACLEAN, *supra* note 179, at 7.

¹⁸⁵ Dickman, *supra* note 181.

¹⁸⁶ *Id.*

¹⁸⁷ *Id.*

¹⁸⁸ *Becoming a Forestry Technician in Fire Suppression*, GAME WARDEN, <https://www.gamewarden.org/career/forestry-technician> (last visited Apr. 24, 2018).

¹⁸⁹ *Id.*

¹⁹⁰ *Id.*

¹⁹¹ Bobbi Nodell, *Wildfires—Nature Taking Its Course?*, NBC NEWS, <http://www.nbcnews.com/id/3080972/ns/weather/t/wildfires-nature-taking-its-course/#.WoDtbGbMzR0> (last visited Apr. 24, 2018).

¹⁹² *All Hazard Response*, ARIZ. DEP'T. OF FORESTRY AND FIRE MGMT., <https://dffm.az.gov/all-hazard-response> (last visited Apr. 24, 2018) (stating that Arizona's "All Hazard IMT's primary goals will always be the protection of the public, the emergency

protect property.¹⁹³ Fire as a resource management tool is not part of their job description.¹⁹⁴

What is happening in these situations is organizational mission divergence. In an urban fire department, the mission is always immediate and total suppression of any fire as soon as it is discovered, because the effects of not doing so are catastrophic. Urban areas are densely populated and uncontrolled fire could quickly take dozens of lives and cause millions of dollars in property damage. The firefighters who attack them are heavily armored with thick fireproof clothing, self-contained breathing apparatuses, and an array of firefighting technologies at hand and on their vehicles.¹⁹⁵ Urban firefighters are occasionally called upon to risk their lives to save lives, as well as minimize the loss of property. Aggressive and unrelenting attack on any fire anywhere is their reason for existence.

Urban firefighters are structural firefighters. The techniques they use to save structures and the technologies they use to do so are categorically different from the clothing, technologies, and techniques used by WLFFs, whether they are employed by federal, state, or local governments. Though fire-resistant, the clothing WLFFs wear is much lighter and much less protective, because they need to work hard and fast over expansive terrain to corral and redirect masses of flame rather than to extinguish them.¹⁹⁶ The tools WLFFs use are relatively primitive: chainsaws and Pulaskis (a combination hoe and pickaxe) to dig a fire line down through organic matter to the mineral layer of soils.¹⁹⁷

Further complicating matters is the dynamic created when different firefighting crews from different government jurisdictions, with different management mandates and organizational cultures are temporarily unified under the authority of whoever the designated incident commander at a fire scene is determined to be. The incident commander might be a local government fire chief or captain whose principal focus and experience is fighting structural fires. The commander might be a backcountry WLFF who takes something

responders, and the team's support staff. The team will also strive to minimize damage to public and private property as safety conditions allow.").

¹⁹³ *Id.*

¹⁹⁴ *See id.*

¹⁹⁵ *Firefighter protective equipment and clothing research*, U.S. FIRE ADMIN., https://www.usfa.fema.gov/operations/ops_ppe.html (last reviewed Jan. 26, 2017).

¹⁹⁶ *Id.*

¹⁹⁷ *Id.*

more of a “let it burn” attitude toward trying to save structures whose owners had obviously done no meaningful fire mitigation work on their property.

According to some accounts, it was this role confusion that killed the Granite Mountain Hotshots at Arizona’s Yarnell Hill fire. They had reached the limit of their ability to contain and redirect the wildfire sweeping over public lands.¹⁹⁸ Their resource management efforts were at an end for the day, but the fire was now threatening a mountain town just down the road from their own.¹⁹⁹ That backcountry crew lost their lives trying to protect urban structures.²⁰⁰

A subsequent investigation of the incident revealed that Arizona officials had requested deployment of the Granite Mountain Hotshots under the federal dispatching authority of the National Interagency Fire Center.²⁰¹ However, the Hotshots had recently come off an extended firefight elsewhere, and federal guidelines required a period of rest and recuperation before they could be deployed again.²⁰² Rather than follow these guidelines, the Prescott fire department deployed the Hotshots under its own authority, since the crew was officially a unit of that department.²⁰³ In their roles as federally recognized backcountry WLFFs, they would not have been sent to the fire, but in their role as wildland division members of a municipal fire department, they were sent to their deaths.

B. Hidden Casualties in the War on Fire

In addition to direct physical threats to their survival, WLFFs face an equally dangerous set of harms occasioned by the extreme psychological stress their work imposes on them. Since the Yarnell Hill disaster, as of the end of 2017, another thirty-eight WLFFs have lost their lives in the line of duty.²⁰⁴ This includes only those who died

¹⁹⁸ Dickman, *supra* note 181.

¹⁹⁹ *Id.*

²⁰⁰ *Id.*

²⁰¹ John Dougherty, *Yarnell Hill Fire: The Granite Mountain Hotshots Never Should’ve Been Deployed, Mounting Evidence Shows*, PHX. NEW TIMES (Aug. 21, 2013, 12:24 PM), <http://www.phoenixnewtimes.com/content/printView/6656696>.

²⁰² *Id.*

²⁰³ *Id.*

²⁰⁴ *Wildland Fire Fatalities by Year*, NAT. INTERAGENCY FIRE CTR, 31–36 (2017), https://www.nifc.gov/safety/safety_documents/year.pdf.

in field operations or in transit.²⁰⁵ Unrecorded and unacknowledged in these statistics are those who died by their own hand, either by suicide or suicidal behavior—usually after the fire season is over and they are on their own.²⁰⁶

Numbers alone cannot tell the full story, but they are indeed sobering. In 2013 alone, six WLFFs took their own lives.²⁰⁷ Compared to those who died in field operations or in transit, that's a suicide rate of about 17 per 100,000²⁰⁸—far higher than the civilian rate, and roughly the same as military combat veterans.²⁰⁹ In 2016, as many firefighters lost their lives to suicide as died in field operations and in transit (thirteen).²¹⁰ The highest rate appears to be among smokejumpers²¹¹—those who do what is arguably the most dangerous and life-threatening field work. Smokejumpers are deployed by aircraft into the back country to contain small fires before they become big ones.²¹²

As each year's wildfire season lasts longer than the one before, firefighters are deployed for extended periods of time, meaning that their nervous systems spend more time primed for potential danger, just like military combatants. They are often chronically short of sleep, do not eat regularly, and are moved around continuously as fires change in size and direction, just like military combatants. At the end of the fire season, now late into the fall, their tight-knit field unit made up of strong, courageous brothers and sisters who had their backs is disbanded, leaving them sometimes feeling abandoned, vulnerable, and incredibly lonely—just like military combat veterans.²¹³

²⁰⁵ *Id.* (causes listed in chart).

²⁰⁶ Paul Keller, *Sharing Her Story*, 7 WILDLAND FIRE LESSONS LEARNED CTR. 1, 4 (2017), <https://www.wildfirelessons.net/HigherLogic/System/DownloadDocumentFile.aspx?DocumentFileKey=a55c181e-fb3a-f374-8efa-e2d5cfe1fa12&forceDialog=0>.

²⁰⁷ Gregg Zoroya, *Wildfire Crews Battle PTSD, Much Like Soldiers of War*, USA TODAY (Sept. 6, 2014, 6:01 AM), <http://www.usatoday.com/story/news/nation/2014/09/06/climate-fires-firefighters-ptsd-strain/14061659/>.

²⁰⁸ *Id.*

²⁰⁹ *Id.*

²¹⁰ See Keller, *supra* note 206.

²¹¹ *Id.*

²¹² *Id.*

²¹³ See Zoroya, *supra* note 207.

V

IN DUBIOUS BATTLE

A. The Casualties of Our Narratives

When a nation goes to war, its leaders extol the courage and fortitude of combatants they are sending to fight and perhaps to die, but do not dwell long on what the true human costs of going to war are likely to be. We have plenty of historical evidence of this terrible toll, but it is usually either discounted or ignored altogether in the exciting run-up to the assault on the enemy.

Only later does the human cost of such an endeavor fully come to light. If history pronounces the war as just and necessary, the costs are deemed to be worth it. But, if in retrospect it seems that the cause was flawed or ill-conceived, then—to use John Milton’s phrase—combatants were sent into dubious battle,²¹⁴ and the human cost may be adjudged to have been too much. John Steinbeck used the term as the title of his 1936 novel which details the sometimes brutal realities of organizing labor during the Great Depression.²¹⁵ His tale is one of noble purpose sought by sometimes ignoble means—a moral quandary that it would take America decades to at least partially resolve through labor relations legislation.

I argue that we face a similar quandary now. The Granite Mountain Hotshots lost their lives trying to defend the communities of Yarnell and Peeples Valley, Arizona.²¹⁶ Neither of these communities were FireWise-rated, and their community wildfire protection plans existed on paper but not on the ground.²¹⁷ This is dubious battle indeed.

B. Moral Accounting for the War Narrative

What this and similar incidents raise is a policy question most political leaders, land developers, home builders, and realtors do not want to hear. Namely, whether the very best and bravest of our WLFFs should be risking their lives trying to save communities in the WUI that have taken few or no meaningful steps to save themselves. This is a problem particularly in the local option states, where

²¹⁴ JOHN MILTON, *PARADISE LOST* 18 (Stephen Orgel & Jonathan Goldberg eds., Oxford Univ. Press 2008) (1667).

²¹⁵ JOHN STEINBECK, *IN DUBIOUS BATTLE* (Warren French ed., Penguin Books 2006) (1936).

²¹⁶ Dickman, *supra* note 181.

²¹⁷ KODAS, *supra* note 17, at ch. 29.

communities are under no obligation to do their part in protecting themselves from harm. But the time is long overdue for this question to be asked loudly and clearly, and for an open and honest debate to address these issues.

In the Mountain West, largely unregulated development creates asymmetry between the benefits accruing to local development interests, both private and public, and the costs associated with fighting the monster fires that will inevitably threaten new communities in the WUI. Much of this new development abuts public lands, which forces federal inter-agency WLFFs to serve as a de facto national WUI fire department. Since residents in the WUI seldom tax themselves sufficiently to support a fire department able to defend their communities, federal WLFFs often have to step in.²¹⁸

By one estimate, “only about 16 percent of the WUI in the West is now developed,” though as that percentage increases the cost of fighting these fires could increase to anywhere between \$2.3 and \$4.3 billion.²¹⁹ We have already seen these increases: one study found the WUI increased by fifty-two percent from 1970 to 2000.²²⁰ As the WUI continues to increase, the burden on federal wildland firefighting services will grow that much heavier, right along with the growing perimeter WLFFs are called upon to defend.

Twenty years ago, firefighting consumed about 13% of the USFS budget.²²¹ By 2013, that figure had more than tripled.²²² Furthermore, since Congress has flatlined the overall budget for the Forest Service, it has had to cannibalize fuel mitigation programs to cover the growing costs of fighting the fires it had been trying to prevent.²²³ Over half the USFS budget is now devoted to firefighting,²²⁴ and most

²¹⁸ See Sophie Quinton, *Wildfires Put State Budgets Under Pressure*, THE PEW CHARITABLE TRUSTS (Oct. 5, 2017), <http://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2017/10/05/wildfires-put-state-budgets-under-pressure>.

²¹⁹ Ray Rasker, *Summary: Wildfire Costs, New Development, and Rising Temperatures*, HEADWATERS ECONOMICS (Apr. 2016), <https://headwaterseconomics.org/wildfire/fire-research-summary/>.

²²⁰ David M. Theobald & William H. Romme, *Expansion of the US Wildland-Urban Interface*, 83 LANDSCAPE & URB. PLAN. 340, 349 (2007).

²²¹ Jack Healy, *Cost of Battling Wildfires Cuts Into Prevention Efforts*, N.Y. TIMES (June 27, 2013), <http://www.nytimes.com/2013/06/28/us/cost-of-battling-wildfires-cuts-into-prevention-efforts.html>.

²²² *Id.*

²²³ *Id.*

²²⁴ Press Release, U.S. Dep’t of Agric., Forest Service Wildland Fire Suppression Costs Exceed \$2 Billion, (Sept. 14, 2017), <https://www.usda.gov/media/press-releases/2017/09/14/forest-service-wildland-fire-suppression-costs-exceed-2-billion>.

of that in the WUI. That percentage is likely to go up, should Congress and the current presidential administration follow through on plans to further cut the USFS budget.²²⁵

But how does one calculate the value of a fallen wildland firefighter? Or the burden of lifelong grief carried by his or her family, friends, and loved ones? Or the growing evidence of federal WLFFs who spend the ever-lengthening, months-long fire season fighting one giant catastrophic wildfire after another, while exhibiting the same symptoms of extreme psychological post-traumatic stress as military combat veterans?

As a matter of public policy, our nation has finally come to accept responsibility for the well-being of those who risk their lives in uniformed service to our country abroad, including those sustaining serious psychological trauma during that service. We do this regardless of whether these are veterans of popular or unpopular wars. Yet, as a nation, we fail to care for our WLFFs with anything even approximating the level of support services for combat veterans.²²⁶ At least combat units have doctors and chaplains in the field: federally trained and deployed WLFFs usually have neither.

There are two reasons for this. First, even with annual wildland firefighting budgets approaching a cumulative \$2 billion dollar benchmark,²²⁷ we are still trying to fight fires on the cheap, even at the expense of our WLFFs' wellbeing, and despite the growing severity of the wildfire threat. Second, acknowledgment of the human costs of fighting fires and the costs the public should bear to adequately care for WLFFs, it would bring forth much larger policy questions. Such questions may include whether our national interagency wildland firefighting services should continue to function as a national fire department. The time has come for that national conversation to begin.

The necessity of potentially deadly public service duties rendered by urban first responders such as peace officers and structural

²²⁵ TODAY: *Cantwell Questions Trump Administration on Forest Service Budget*, U.S. SENATE COMMITTEE ON ENERGY & NAT. RESOURCES (June 15, 2017), <https://www.energy.senate.gov/public/index.cfm/2017/6/today-cantwell-questions-trump-administration-on-forest-service-budget>.

²²⁶ See Zoroya, *supra* note 207.

²²⁷ Laura Zuckerman, *Cost of fighting U.S. wildfires topped \$2 billion in 2017*, REUTERS (Sept. 14, 2017, 5:27 PM), <https://www.reuters.com/article/us-usa-wildfires/cost-of-fighting-u-s-wildfires-topped-2-billion-in-2017-idUSKCN1BQ01F>.

firefighters goes largely unquestioned, and is appropriately honored and rewarded by a grateful public. The public and its political leaders expect the same selfless sacrifice from WLFFs in the WUI. The problem arises when, prompted by enthusiastic local political support, land developers and real estate agents locate new WUI residents in high-risk environments, and then expect WLFFs to lay their lives on the line, just like urban structural firefighters, to protect a home that does not belong there.

The plain truth is that the WLFFs trained, equipped, employed, and deployed by federal land management agencies are paid to manage and protect natural resources on public lands, not the private property next door. WLFFs work side by side with local WUI fire departments in Type I conflagrations when the latter are overwhelmed by the magnitude of the disaster before them.²²⁸ Local fire politics compel WLFFs to take on life-threatening missions in the WUI that, at least in the case of mixed forest and structural fires, they have not been trained, equipped, or adequately compensated to undertake.²²⁹

These are not criticisms you will hear from the firefighters and their supervisors who are the subject of this Article. These people do not complain or shirk their responsibilities. The very nature of their work compels them to accept and fully commit to whatever mission he or she has been assigned. It is just this spirit that calls upon others to speak on behalf of the WLFFs, for they are not generally inclined to do so for themselves.

VI

THE WAY FORWARD: MAKING PEACE WITH NATURE

A. Rewriting Narratives and Re-thinking Priorities

Both the funding model and the allocation of responsibilities for firefighting in the WUI, as currently practiced, are ultimately unsustainable. Congress has tacitly acknowledged this by refusing to give federal land managers the funds they need to meet the growing demands for both wildfire mitigation and wildfire suppression on the lands entrusted to their care—especially those bordering private property. If Congress wants agencies to stand down from fighting fires on private lands within the WUI, then it should say so in the form of a legislative directive, not through budget caps and cuts. The

²²⁸ See *supra* Section IV.A.

²²⁹ See *supra* Section IV.A.

Forest Service, the Bureau of Land Management, and the National Park Service should no longer take the political hit for being unable to do what Congress has decided it will no longer fund them to do. Ultimately, federal wildland firefighting agencies will be compelled to start doing on a national scale what some rural local fire marshals have already begun to do. They will stop deploying scarce firefighting resources to areas where local governments do not use their police powers to compel residents to take full responsibility for mitigating their properties against wildfire.

This is the policy crossroads at which we now stand. The reflexive and increasingly untenable pattern of response to the growing wildfire threat in the WUI is to simply scrounge up whatever personnel, equipment, and budget leftovers are available to stand against a threat that shows every sign of expanding and none of abating. The public keeps committing available resources to a struggle against climate-driven natural forces and market-driven human desires that can only end in greater losses and larger defeats.

This is, in fact, one of the most important reasons for abandoning the fire industrial complex narrative altogether. According to this framework, doing anything other than pouring more resources into relentless and unending conflict is an admission of defeat—a retreat from combat with the natural forces we have committed ourselves to conquer.

As Michael Kodas points out, one of the reasons the war metaphor remains so compelling is that it is profitable.²³⁰ The fire-industrial complex, just like the military-industrial complex, relies on the narrative of war and the continuous stoking of public fears for survival.²³¹ Sadly, some federal land managers have come to rely on this narrative for their survival as well.²³² This narrative and those who enforce it are driven by perverse political incentives. While Congress refuses to allocate anything approximating the resources necessary to reconcile forest management with the realities of western fire ecology (e.g., prescribed burning and forest thinning), it makes funds far more readily available for firefighting.²³³ We annually

²³⁰ See KODAS, *supra* note 17, at 141–42.

²³¹ *Id.* at 142.

²³² *Id.*

²³³ Darryl Fears, *U.S. Runs Out of Funds to Battle Wildfires*, WASH. POST (Oct. 7, 2012), <https://www.washingtonpost.com/national/us-runs-out-of-funds-to-battle-wildfire>

purchase billions of pounds of cure rather than just a few ounces of prevention. As is the case with the Pentagon, wars and rumors of wars are the means by which they receive their funding.

As the casualty figures cited above tell us, the war narrative has deadly consequences for our WLFFs as well as residents of the WUI. Rampant residential land development in the western WUI creates settlements on dangerous, ecologically contested lands. The more local governments encourage such development and the less they regulate wildfire mitigation on private lands, the more they endanger the lives, health, and well-being of both the citizenry and the WLFFs who will inevitably be dispatched to aid them.

From this view, taking better care of our WLFFs means changing the policy context within which they do their work. It means resigning ourselves to the perennial and ubiquitous presence of wildfire in the Mountain West. We need to recognize that the war on fire is ultimately unwinnable, because the war metaphor itself is a loser. We need to learn to live more knowledgeably with fire, to respect its often untamable power, and to no longer encourage people to live in its path. These are important ways we can lower the currently unacceptable human costs of wildland firefighting.

B. A Narrative of Care

In addition to creating a safer policy context within which WLFFs practice their craft, we, as a country, must also address their needs in the same way we do for others who have put themselves in harm's way on our behalf. Unlike returning combat veterans, when the fire season comes to an end, seasonal WLFFs are literally on their own, many paying for therapy out of pocket.²³⁴ Further, seasonal WLFFs do not qualify for health insurance through the federal government at all, unless hurt on the job, where workman's compensation will cover them.²³⁵ Any physical or mental afflictions they may have sustained on the fire line that do not manifest until after the season is over, they must see to themselves. At the very least, WLFFs are owed the same level of care—including off-season counseling—available to

/2012/10/07/d632df5c-0c0c-11e2-bd1a-b868e65d57eb_story.html?utm_term=.ada784f85baa.

²³⁴ See Zoroya, *supra* note 207.

²³⁵ Michael Booth & Erin Udell, *Wildland Firefighter Don't Get Health Insurance Despite Risks*, DENVER POST (June 22, 2012, 10:01 AM), <https://www.denverpost.com/2012/06/22/wildland-firefighters-dont-get-health-insurance-despite-risks/>.

returning veterans or full-time firefighters in other fire services. Such coverage should last at least until the next fire season starts.

A poignant and heart-wrenching example of the disparate treatment of seasonal and full-time professional WLFFs manifested in the wake of the Yarnell Hill disaster. Over half of those who died on the Granite Mountain Hotshot crew were seasonal employees.²³⁶ This means that even though they worked just as hard, took the same risks, and ultimately lost their lives alongside permanent employees, their grieving widows (several of them young mothers) did not receive the same survivor benefits from the City of Prescott as the families of permanent employees.²³⁷ One such widow eventually went to court to shame the city into providing those benefits, and won.²³⁸ As a result, the nearby city of Tucson disbanded its wildland firefighting hotshot division.²³⁹ Prescott too no longer has a hotshot crew, and while some would argue it is now less protected from the wildfire menace than it was before the wildland division was created, the division has now begun active fire mitigation measures.²⁴⁰

As is the case with seaside residential developments along the Gulf Coast and Atlantic seaboard, perhaps the time has come to recognize that allowing market forces to settle more and more people in harm's way, committing more human and fiscal resources to a war against natural forces that is ultimately unwinnable, is both delusional and deadly.

People enticed to move into harm's way, and the first responders ordered to face those harms to save them, are both cannon fodder in an ongoing and unwinnable war waged against nature by real estate development interests and the local government officials who sustain and enable them. It is a deeply flawed and ultimately unsustainable

²³⁶ M. Alex Johnson, *Yarnell Hill firefighters' kin say they're being cheated out of benefits*, NBC NEWS (Aug. 8, 2013, 5:36 AM), <https://www.nbcnews.com/news/other/yarnell-hill-firefighters-kin-say-theyre-being-cheated-out-benefits-f6C10871363>.

²³⁷ *Id.*

²³⁸ Nigel Duara, *Families of Yarnell Hill firefighters settle legal claims with state*, L.A. TIMES (June 30, 2015, 3:00 AM), <http://www.latimes.com/nation/la-na-ff-yarnell-fire-settlement-20150629-story.html>.

²³⁹ *Fire officials to disband Tucson's Hotshot crew*, FIRE RESCUE (Mar. 4, 2014), <https://www.firerescue1.com/fire-department-management/articles/1753211-Fire-officials-to-disband-Tucson-Hotshot-crew/>.

²⁴⁰ Richard Ruelas, *Here's what became of the Granite Mountain Hotshots*, REPUBLIC (June 29, 2015, 9:50 PM), <https://www.azcentral.com/story/news/local/best-reads/2015/06/30/granite-mountain-hotshots-two-years-later-yarnell-hill-fire/29491709/>.

course of action. We owe it to those who willingly put themselves in harm's way to ensure that the sacrifices they make for the public are done for morally defensible reasons.

This is especially pertinent in the fire-threatened landscapes throughout the Mountain West and coastal United States. Approaching the winter solstice of 2017, climate change and its resultant shifts in weather patterns in the Pacific coastal United States are raining down a deluge of fire, when in seasons gone by, late fall rains would have quenched the early fall fires egged on by the Santa Ana winds.²⁴¹

This September, fires in northern California's wine country were followed by backcountry fires that burned down into the heart of communities in the San Fernando Valley, up the coast, and into the mountains north of San Diego.²⁴² Such fires remind us of the heavy price we pay to suppress fires that want to burn, and for inviting people to live in the path *where* those fires wanted to burn—where they have historically done their important cleansing, healing work.

The policy choice before us now could hardly be more stark. We either continue to cling to the metaphor of war and thus make war on natural forces as if we could someday overcome them, or we make peace with nature. We must withdraw our wildland firefighting forces from unceasing and unwinnable conflict with the forces of nature. We should deploy them instead to work in partnership with those forces to replicate the fire ecology dominant throughout the Mountain West. And we should locate humans in places that natural forces have taught us are more safe and defensible. This is not retreat. It is peaceful co-existence.

²⁴¹ See *The Latest: California Governor: Fires Are The "New Reality,"* ASSOCIATED PRESS (Dec. 9, 2017, 11:16 PM), <http://www.apnewsarchive.com/2017/California-Gov-Jerry-Brown-says-deadly-and-destructive-wildfires-in-winter-are-the-new-normal-/id-001c88fcd6ab4c098faa104630cbab0d>.

²⁴² See Priya Krishnakumar & Joe Fox, *Why the 2017 Fire Season has been One of California's Worst*, L.A. TIMES (Oct. 13, 2017), <http://www.latimes.com/projects/la-me-california-fire-seasons/>.