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How the West Was Spun: The De-politicization of Fire in the American West

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Introduction

In late Spring 2015, after yet another wildfire threatened yet another suburban Southern California settlement, a gaggle of media outlets were quick to report that the already vexing problem of costly wildfires in the American West was only getting worse. A report in *Scientific American*, for example, described how the weather and landscapes of the American West were expected to "usher in regular wildfires" around the region; "drought and heat wrought by stubborn ocean conditions have left great stretches of it dryer and more combustible than usual this year", the report told us. According to this article (and many others like it), the western United States is becoming more and more 'combustible' with each passing—and increasingly hot and arid—season. Provocatively, the article suggested that "vulnerable residents" now find themselves "staring down the barrel of a torturous fire season…" (Upton 2016). While the report also noted that keys for adapting to increased combustibility "lie in how fires and the lands that fuel them are managed", there is no mistaking the primary culprit for these stubborn and "rattling" wildfire threats: our changing and increasingly inhospitable climate. Another widely circulated news article describing a deadly fire in the Sierra Nevada foothills a few days later conveyed a similar story: "scorching heat and tinder-dry conditions across the West" are contributing to "massive wildfires in the past week

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that have destroyed properties and sent residents to seek shelter…" (Associated Press 2016).

In each case, the causes of increased combustibility are portrayed as a by-product of warming weather, stubborn high-pressure zones, and increasingly desiccated western landscapes. But what about the institutions, policies, and billions of (US) dollars worth of financial incentives that help produce human settlements and immense social risks on these landscapes? In our list of common explanatory variables, where are these powerful social forces that turn historically active fire regimes into a string of deadly and costly firestorm events? (Fig. 8.1) I argue here that, unfortunately, these important expressions of material accumulation and risk are all too frequently (and conveniently) ignored within mainstream scientific and media reporting. Indeed the aforementioned "down the barrel of a gun" metaphor seems more apt if we are willing to admit that residential communities—and the planning and construction industry that creates them—are also holding the weapon (Upton 2016).

In a similar fashion, "the flammable West" is a phrase that gets used often by media and public policy outlets. It depicts a region that seems, almost like clockwork, to 'catch fire' and go 'up in smoke' each year. A 2013 northern California public television news article titled *The Flammable West: Mega Fires in the Age of Climate Change* is one example of such journalism. The article provides a useful, if startling, description of fire trends in the western United States. It tells us that compared to annual averages during the 1970s, the
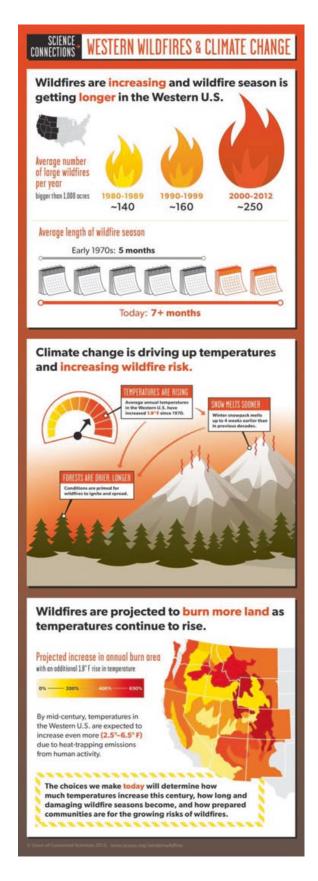

Fig. 8.1 An all too familiar scene. Are wildfires threatening homes in wildland-urban interface areas of the US West? Or are homes impinging on natural fire regime events?

period 2002–2011 contained twice as many fires larger than 1000 acres, seven times more fires exceeding 10,000 acres, nearly five times more fires greater than 25,000 acres, and an average fire season lasting two-and-a-half months longer (Green 2013). Like many other similar reports, *The Flammable West* provides an important public service announcement on the importance of fire mitigation and adaptation policies. But like the *Scientific American* report above, it also reproduces and fortifies a troubling trend within the suburban and exurban fire discourse: the persistent focus on the region's tendency to burn, as if this were the natural order of things. As if flammability *was* the *problem* rather than the *symptom* of a larger, engrained, and more pernicious underlying set of social-economic processes (Fig. 8.2).

The de-politicization of these human and financial drivers was on full display in early 2016 when California Governor Jerry Brown introduced a US$719 million one-time funding package and an extra $215 million to the state's emergency fund to assist efforts to fight the state's next round of large wildfires. A spokesperson for the governor explained how "conditions have changed in California" while noting an increase in devastating wildfires in recent years due to persistent drought conditions linked to climate change and its effects across the state (Mai-Duc 2016). Given the governor's office's climate-centric description of destructive fires and their causes, the state's budget earmark is, quite fittingly, called the 'drought package'. But this type of policy framing and budget justification further obfuscates the other important 'condition' that has dramatically changed around the region: the steady encroachment of human settlements into formerly undeveloped areas at the urban fringe. This undeniably massive modification to the California landscape is conspicuously left out of the public conversation. Although the bill could more accurately be called the 'drought and urban encroachment package', government officials and other special interest groups seem quite content with the current, non-controversial title.

A Critical Physical Geography of Fire

The time has come to illuminate flammability. In mainstream reporting, scientific research, and ongoing policy debates, the term 'flammable' (or 'combustible', 'tinderbox', etc.) is often deployed in a manner that naturalizes costly fires while obfuscating influential, shortsighted, and sometimes-reckless development histories and regional growth policies. This chapter marks a Critical Physical Geography (CPG) intervention in two crucial ways. First, it explains how suburban landscapes and associated fire risks and costs are produced dialectally

through a powerful and self-sustaining positive feedback loop; physical landscapes stand as both an artifact of diverse profitable development incentives and also a lucrative arena within which future opportunities to extract profits and immense wealth are activated—in both pre- and post-fire conditions (Simon 2014). Contemporary fire-prone suburban landscapes of the American West are decidedly neoliberal landscapes—profits in production, profits in protection. Second, this chapter interrogates various ways the simultaneous production of risk and profits is obscured within mainstream fire science, environmental management, and urban development policy-making. I illustrate here the limited (and thus limiting) ways civil society and policy-makers come to know and debate hazardous environments in the West (which in turn influences how we modify and manage the physical landscape).

The following 'Illuminating Flammability' section introduces the concept of 'the Incendiary' as a way of describing how landscapes of the American West (and other fire-prone areas) are produced over time through capitalist growth imperatives—a recursive process that generates both immense wealth and risks for diverse parties (Simon and Dooling 2013). The affluence-vulnerability interface is then presented as an alternative to the wildland-urban interface as an analytic framework that better elucidates the underlying socio-economic drivers of rapidly changing suburban landscapes. The 'Lucrative Landscapes' and 'A Character Profile' sections further illustrate how areas at the urban periphery are lucrative landscapes and briefly outline how development pressures are altering large portions of the region while generating unprecedented fire activity, risks, and costs.

While these two sections explain fire and its production as a dynamic set of socio-physical *conditions*, the subsequent two sections explore fire and its production as a set of contested and continually evolving *ideas*. The 'Smoke Screen' section introduces the concept of de-politicization—a process through which issues (i.e., high-risk, costly fires) are systematically stripped of one or more of their important and politically provocative foundations—in this case the economic incentives and avarice that produce expensive, injurious wildfires.

Fig. 8.2 An informational panel developed by the Union of Concerned Scientists depicting the relationship between fire and climate change in the US West. The panel offers many important and revealing statistics. But this image also reveals something else: the minimization of profitable land use planning decisions and the privileging of climatic forces when explaining the "growing risks of wildfires" in the West. The only reference to residential developments is in the context of adaptation strategies, thus portraying homes as passive victims and not as part of a larger structure of "risk"-producing suburbanization. (Photo Credit: Union of Concerned Scientists 2013)

This section demonstrates how mainstream and scientific reporting on wild-fires de-politicizes fire in the American West, most notably by naturalizing costly wildfires and privileging climate change as an explanatory variable. The 'Debates of Distraction' section discusses the related process of re-politicization. This process arises when banal narratives, contentious debates, and the pursuit of 'relevant' science become mired in various alternative disagreements (frequently in the form of contested, place-specific issues) or proxy debates (often manifest in larger ideological disagreements such as the appropriate role of government in regulating individual and community uses of natural resources on public and private lands).

This chapter suggests that critical physical geographers will need to play an important role in reshaping how we study, know, and manage wildfire risks around the region. Through their research and outreach, CPGers can help infuse the public's understanding of fire activity around the West with a clear sense that many wildfire risks, costs, and vulnerabilities at the urban periphery are profoundly social in nature. Infusing Physical Geography's already strong understanding of physical fire-climate dynamics (e.g., Westerling and Bryant 2008, Peterson 2010, Smithwick et al. 2009, Hessl 2011, Westerling et al. 2014) with a robust appreciation for important social processes and land use policy dynamics will set CPGers apart from many other physical scientists. In so doing, researchers will be able to present policy-makers and the media with a diverse suite of ecological *and* social factors to help explain the rise and implications of dangerous wildfires. This should help temper the inclination for popular and scientific media outlets to understate (or simply ignore) these important social drivers of risk (i.e., the financial incentives spurring increased suburbanization and land use/cover changes at the urban fringe) in favor of more narrowly focused, climate change-centric explanations. A Critical Physical Geography approach to fire will thus challenge normative accounts of social-environmental change in the West that de-politicize society's unflagging pursuit of suburban development, and instead inform a new set of land use management practices and perspectives about how we want to coexist with fire in the future.

Illuminating Flammability: Introducing 'The Incendiary'

In its common usage, 'flammability' connotes the physical symptom of a land-scape but not the root causes behind its making. The term 'flammable' implies that an entity, such as a landscape, holds qualities that make it susceptible to

fire. It is an adjective used to describe an object that just *happens to have* the capacity to easily go up in flames. Consider instead the term 'Incendiary', which in noun form implies that an object (or person, place) is an agent that actively produces and incites fire. It *makes things* flammable, much like an arsonist.

Imagine a network of elusive, brazen, and dangerous arsonists afflicting a series of towns and cities around the American West. Every few weeks, these individuals randomly ignite one or two fires. Some of the fires are controlled with only minor damage while others quickly spread and endanger nearby communities, resulting in lost lives, considerable private property damage, and millions of (US) dollars in firefighting and rebuilding costs. This problem could be confronted through a series of adaptive measures, which might include rapid emergency response efforts or direct mitigation of flammable land features through vegetation clearing and building code modifications. One could argue however that a more effective and long-lasting approach would be to also directly confront the source of the problem itself, that is, investigate the incendiaries and undercut the arsonist cell. Why are they lighting the landscape on fire? How are they getting the necessary money and resources? And what is it about their environment, funding, background, character, and psychology that lead them to perpetrate such acts? To address these questions is to grapple with the root causes of the problem. This approach accepts that while it is important to treat the source of fire—flammability—it is also important to treat the source of flammability, the Incendiary. Confronting the Incendiary means closely examining its history, engrained foundations, essential nature, and core qualities.

As a society, we would never accept the first option of simply reacting and adapting to an arsonist. It is thus puzzling that we accept it with wildfires. If we understand the landscape as a troublesome individual, as 'the Incendiary', then the best way to substantively reduce the symptom of flammability is to engage in appropriate fire reaction and mitigation activities *while also* confronting their root causes: the political economic structures, planning policies, socio-cultural behaviors, and environmental systems that continue to produce, support, and enrich the Incendiary. If fire can be understood as a symptom of a flammable landscape, then flammability exists as one symptom of a landscape that is an Incendiary. Like the arsonist, it is the landscape as Incendiary that should receive our direct and critical inquiry.

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The Affluence-Vulnerability Interface

In order to excavate and treat 'the Incendiary', managers, planners, and scientists will need to move beyond analysis that conforms to—and is bound spatially by—the wildland-urban interface (WUI). The WUI is one the most ubiquitous phrases circulating through the suburban and exurban wildfire management discourse. It is *the* land designation used to connote the uneasy overlap of human settlements with traditionally undeveloped or wild (and oftentimes already fire-prone) environments. The WUI is a rather recent concept and geographic construct and is described by the National Wildfire Coordinating Group as "…the zone of transition between unoccupied land and human development" (National Wildfire Coordinating Group 2014). The establishment of a WUI land designation—despite its somewhat malleable definition—has substantial policy consequence. This designation is easy to map and has thus made legible the geographical area supporting the structured implementation of a number of land use and forest management practices. These include early efforts to extend the US Forest Service's 'fire exclusion paradigm' into developed areas through dedicated fire suppression-based home protection (Coehn 2008) and more recent 'Fire Adapted Communities' approaches premised on providing services that increase community education, preparedness, and resilience to periodic fire events (FAC 2014). Over the past 30 years, the WUI has emerged as a useful land classification—a conceptual container within which we can study, interpret, and manage the messy and complex transition from non-urban to urban, and public to private.

A shift in perspective is in order. This chapter argues for a move away from the wildland-urban interface as the central organizing framework guiding the management of wildfires (and the *symptoms* of flammability) at the urban periphery. Instead, it suggests the adoption of an affluence-vulnerability interface (AVI) approach. This approach encourages decision-makers to pay greater attention to the systemic causes of change, risk, and vulnerability, factors that are quite often implicated in policies that generate profit opportunities for stakeholders in urban and exurban settings (including landowners, the construction industry, individual homeowners, private fire services, and cities in search of new tax revenues—see below for more details). Critically examining the AVI therefore signals a conceptual shift from the management of particular *areas*, to the management of social-ecological *processes*. Analyzing the AVI also means closely assessing various ways the simultaneous production of risk and profits is concealed within mainstream fire and urban development discourse. This conceptual tack will entail analyzing policies, social norms, economic

incentives, and environmental changes that produce both increased profits and risks in areas currently recognized as the WUI (Simon 2016).

Of course, it would be unwise and irresponsible to just do away with the WUI all together. The wildland-urban interface can certainly function as one useful organizing principle since it does hold a level utility in day-to-day land management activities. The WUI characterizes a land designation and set of material conditions that are grounded in a particular time and space. The inadequacy of the WUI as a concept however lies in its inability, by itself, to reveal the forces behind its own creation, the same forces driving an increase in wildfire disasters. The AVI, on the other hand, is valuable for illustrating complex economic, social, and environmental drivers (i.e., the Incendiary)—across multiple spatial and temporal scales—that inform the development of the WUI.

Lucrative Landscapes at the Urban Periphery: Taking Profits, Adding Risk

Suburban landscapes of the US West are lucrative landscapes. They are areas—converted into various forms of capital and surplus value—that generate high levels of profit and revenue for interested parties near and far (see Table 8.1 for examples of these profit-seeking opportunities.) From early land use extraction activities to contemporary private fire mitigation services, diverse groups extract wealth from these regions, thus leveraging the suburban landscape as a source of prosperity and increased affluence.

In many areas of the West, the formation of lucrative fire-prone landscapes begins when previously undeveloped areas fall under the speculative eye of resource extraction industries. Profitable mining, timber, agriculture, and other extractive activities allow parties to take profits from the land while introducing basic infrastructure (water, electricity, graded roads, etc.) that are later used to justify and enable cost-efficient entry points for eventual suburban developments. Private and public landowners benefit financially from the eventual subdivision and sale of these landscapes as land values increase with the arrival of new amenities. Meanwhile, various development interests in the home and municipal infrastructure construction industries procure large contracts in fast growing urban peripheries around the West. (See the following section for figures illustrating the size and scope of this immense suburban transformation.) These suburban developments present opportunities for lucrative *post-fire* construction contracts as well. According to one wildfire

Table 8.1 Fire-prone areas of the US West are highly lucrative landscapes. For well over a century, many groups and individuals have benefited financially from these landscapes. In a dialectical fashion, profitable activities produce communities with high exposure to wildfires, which in turn spur opportunities for wealth accumulation in response to fire risks and events. Several examples of these profitable activities and associated risks are listed in this table (Simon 2014)

Lucrative landscapes: Profitable activity	Extracting profits: Specific example	Risky real estate: New exposures and risks
Pursuit of profits leading to increased social risks		
Resource extraction	Historical logging and mining activities, including large-scale removal of valuable timber	Introduced municipal infrastructure such as graded roads enabling further growth
Land subdivisions and real estate syndicates	Conversion of open space into developable neighborhoods and profitable housing tracks	further paved the way for new residential developments in the area
Home construction industry	New lucrative home and municipal infrastructure construction opportunities	Introduced thousands of new homes and residents to the landscape
Re- and afforestation activities	New vegetation cover (e.g., eucalyptus) increases property values in new neighborhoods	New and arguably more dense and flammable vegetation
City and county property tax revenues	High fire risk area houses produce millions in tax revenue annually for many cities and counties	Pursuit of new tax base introduce high-density housing developments
Pursuit of profits in response to increased social risks		
Insurance company profit potential	Company fails to meet claim payouts despite customer payments and substantial government support	Financial vulnerabilities add to composite household-level risks
Private firefighting services	Private sector fire companies charge for concierge-level fire services and product sales	Responders unfamiliar with the area, adding confusion to scene
Home protection entrepreneurship	Creation of market opportunities for new products like buffer mulch, fire foams, fireproof features	Generates a sense of security and sustained home demand in fire-prone landscapes
Post-disaster home reconstruction	Homes in fire areas are often much bigger, closer, and more valuable after the reconstruction process	Adds to overall landscape fuel load and assists fire spread

analysis, "there are 897,102 residential properties in the western U.S. that are currently located in High or Very High wildfire-risk categories, with a reconstruction value of more than US$237 billion" (Botts et al. 2015).

Landowners and the construction industry are hardly the only ones to profit from the development of sub- and exurban landscapes that are historically

prone to wildfires. Cities and their oftentimes-overburdened budgets can be some of the largest beneficiaries. If developed and financed efficiently, the development of land at the urban periphery can generate an extraordinary boost in property tax revenues for cities. Consider the case of Oakland, California, where property tax revenues generated in very high fire risk areas are 57 percent higher per unit compared to the rest of the city (US$6650/unit and $4798/unit, respectively). Despite only containing 23 percent of the total taxable units in the city, very high fire risk areas account for 33 percent of the property tax revenue (Simon 2014, 2016). For the City of Oakland, the decision to permit massive development projects in this area—like other similar landscapes around the region—was indeed a financially lucrative decision.

While the occupants of these residential developments at the urban fringe may be exposed to periodic fire activity and potentially catastrophic losses, there are also distinct financial benefits associated with homeownership for those willing to remain and rebuild. Analysis from Colorado Springs, Colorado, and Oakland, California, shows that after major firestorm events, home rebuilds were 14 percent and 11 percent larger than original home structures, respectively. In Oakland, the construction of new, bigger, and better homes translated into an increase in home values (in the ten years after the fire) that was nearly double the rate of home value increases in non-impacted parts of the city (Simon 2016).

The development of homes in fire-prone areas also presents new profitable opportunities for a fast emerging private firefighting industry. While firefighting activities have historically been operated by public agencies, today, the United States is witnessing the rapid privatization of the residential fire response sector. In 2012 there were already 256 private firefighting companies in the United States—a number industry forecasters expect will grow to more than 320 by 2017. Over the same period the number of private firefighters is expected to increase from 16,880 to 27,200. As the website of a leading community fire information portal put it, although private firefighters "make up just 4.3% of the nation's total firefighters … this is an industry on the verge of catching fire because of growing trend towards privatization" (WildfireX 2015, in Simon 2016). Along with a vast array of new consumer products such as fire mulch and home spray kits, more homes at risk means more homes to protect and still more opportunities for private sector profits.

Revenue-generating activities at the city's edge are certainly not benign. Over time, the generation of financial benefits has coincided with the production and maintenance of social risks, vulnerabilities, and costs. This is the nature of urban growth under capitalism—it produces both beneficiary and disadvantaged groups, simultaneously. And as the examples above illustrate,

in many instances, we see that one outcome co-constitutes the other—in a dialectical fashion, efforts to increase affluence oftentimes necessitate elevating levels of fire risk, and higher levels of social risk and vulnerability frequently spur opportunities to generate further financial gains.

Factors influencing increased social vulnerability and higher-risk mitigation costs are inextricably tied to ever-changing profit-seeking practices and diverse forms of economic opportunism. Understanding the AVI and the root causes of fire risk is an important first step toward substantively reducing future costs associated with patterns of material accumulation and seemingly unfettered urban expansion into this risky real estate—as the old adage goes, 'you have to understand the problem before you can find the solution'.

A Character Profile of the Incendiary: The Changing American West

Processes supporting the Incendiary have led to unmistakable population growth—and increased fire risks and costs—around the American West over the past several decades. Suburbanization has increased the number of houses in urban areas by as much as 27 percent from 1970 to 2000, with approximately 38 percent of this new development occurring near or within the WUI (FEMA 2002). Between 1990 and 2000 alone, more than one million homes in total were introduced to the WUI in the states of California, Oregon, and Washington (Hammer et al. 2007). Across the western United States, WUI areas have seen a 300 percent population growth rate in the past 50 years, which outpaces overall regional population growth rates for the same time period (IAWF 2013). Spatially, these areas of the western United States have experienced 60 percent expansion since 1970 (Theobold and Romme 2007), with traditional wildlands converted to wildland-urban interface designated areas at a rate of 400 acres per day, an equivalent of close to two million acres per year (IAWF 2013). The most alarming suburbanization statistic, however, concerns what *hasn't* been developed. As of 2008, only 14 percent of private land in WUI areas of the western United States had actually undergone land conversion. By 2013, this number increased to 16 percent (Gorte 2013) (Fig. 8.3). These numbers reveal something quite startling: over 80 percent of the WUI environment remains eligible for further growth, increased social vulnerability, and higher firefighting costs. As of 2012, 46 million homes were located in the WUI. Based on current trends, that number is expected to increase to 54 million by 2022 (United States Forest Service 2015).
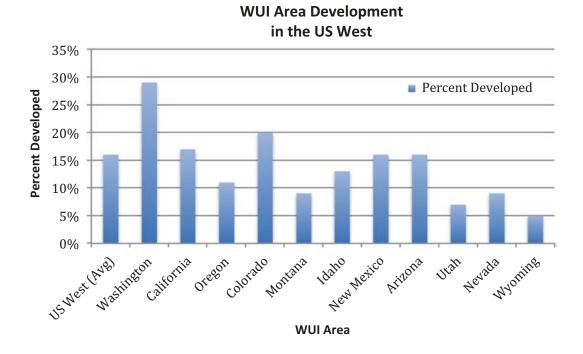
**WUI Area Development
in the US West**

Fig. 8.3 Percentage of WUI area developed in the US West as of 2013. (Source: Headwaters Economics)

The growing number of structures destroyed by wildfires illustrates the damaging impact of wildfires on human populations. In total, from 2000 to 2012, the United States lost 38,701 structures to wildfires, an average of 2977 structures per year (IAWF 2013). In California, for example, since 1923, 15 of the most damaging 20 fires (in number of structures destroyed) have occurred within the past 25 years; nine of these fires have occurred over the last ten years (CalFire 2013). This means that in California's modern history, about 75 percent of the largest and most destructive wildfires have occurred in the past 25 years, and nearly 50 percent have taken place in the last decade alone. Death, injury, and long-lasting health problems are other well-documented negative outcomes resulting from wildfires. From elderly community members unable to flee fast moving flames to emergency first responders (such as the 19 Prescott City firefighters who lost their lives in the tragic 2013 Arizona Yarnell Hill Fire), bodily harm and trauma as a result of destructive fires are constant concerns in the region.

The implications of wildfires go beyond structural damage and bodily harm and include immense financial commitments by city, state, and federal agencies to fight fires at the WUI—cost burdens that displace other, arguably more essential needs such as health care, education, and environmental conservation. Over the past 50 years, the cost of fire mitigation activities has grown dramati-

cally in the United States. In the 1970s, the federal budget allocated to firefighting wildfires averaged US$420 million. This figure jumped to $1.4 billion by 2000 (Ingalsbee 2010) and increased again to $2.5 billion by 2012. Estimates place the total fire mitigation budget in 2012 at a lofty US$4.7 billion when inclusive of federal, state ($1.2 billion), and local ($1 billion) governments in the United States (IAWF 2013). These costs have risen primarily as a result of increased fire mitigation requirements due to several factors. First is a buildup of fuels resulting in part from past fire suppression policies. For several decades ending in the 1970s, forest policy mandated a strict commitment to fire prevention. Prescribed and controlled burns were banned due to their perceived threat to the surrounding environment. This policy, we now know, led to a steady accumulation of forest materials and an increased likelihood of larger, more intense, and more dangerous wildfires. Other influential factors increasing mitigation costs include a warming climate, persistent drought conditions in the West, and, I would argue most importantly, the development of residential communities adjacent to already fire-prone public lands.

To be sure, wildfires are common occurrences in the US West even in the absence of human activity due to normal climate variability and frequent and sometimes-prolonged droughts. Wildfires have occurred for millennia and provide crucial ecological services required to recycle nutrients, improve soil condition, and initiate plant succession. Despite this active fire history, wildfire trends are changing because of a dramatically altered western climate, a climate now characterized by higher regional average temperatures, increased rates of evapotranspiration, and more pronounced levels of aridity (at least as compared to recent history). These emerging conditions are, in turn, resulting in longer and more active fire seasons. But make no mistake, while climate change itself is certainly generating environmental conditions favorable to higher-frequency and intensity fires, it is the region's long history of fire suppression and, most notably, the widespread encroachment of human populations into already high fire risk areas that are most responsible for increased fire exposure, risk, and mitigation costs across the region (Moritz et al. 2014). The effects of climate change on the US West are a lot like adding fuel to an already burning fire.

Smoke Screen: When Explaining Wildfires Obscures the Incendiary

Contemporary management and scientific discourses on wildfires *de-politicize* 'The Incendiary' and the political economic root causes of fire disasters. De-politicization refers to the process of stripping an issue or event of one or

more of its important and politically provocative foundations. This allows particular foundational explanations of social-environmental change—in this context, processes related to the AVI and its associated controversies—to go unnoticed and unchallenged. Because popular media and policy-makers tend to overlook the AVI when reporting on increased fire risk around the region, critical physical geographers (and physical scientists more generally) will need to more directly reference the role of urban sprawl, and the financial incentives that support it, when informing these public outlets. Moreover, this 'critical' engagement by physical geographers should also closely evaluate the use and development of scientific fire categories that tend to treat human-caused fires as if they were natural, inevitable, and unavoidable, and thus outside the influence of urban planning and development decisions. The following sections outline these concerns in greater detail.

Naturalizing Wildfire Hazards: 'Firestorm' as a Scientific Category

A 'firestorm' is one of the many frequently used fire classifications. The largest urban wildfire in modern history, for example—the Oakland Hills Firestorm—was labeled in this manner because of its immense size, heat intensity, and high winds (FEMA 1992). But this label raises an interesting question about the meaning and legitimacy of environmental categories such as 'firestorms'. What exactly are they? And what differentiates a devastating firestorm from a seasonal wildfire or a run-of-the-mill fire? Upon investigating the term's origins, one important issue becomes immediately clear: there is no such thing as a *natural* firestorm. Quite the contrary, 'fires' are only 'firestorms' when society says they are. Firestorms are social constructs that we have, for many decades now, defined, classified, suppressed, created, feared, and managed.

A firestorm is defined by the American National Fire Protection Association as "a fire which creates its own weather" (Ewell 1995). This occurs "when the heat, gases, and motion of a fire build up", pulling "air into the base of the fire", leading to towering convection columns that "result in long-distance spotting and tornado-like vortices" (NFPA 1992). For a firestorm to be generated, sufficient fuel load is required that will ignite several adjacent fires in a large area (Fig. 8.4). When these multiple sites of ignition coalesce, they become a single firestorm, generating sufficient updraft to create swirling winds and large pyrocumulus cloud formations overhead.

This firestorm definition and its widespread use as a conceptual construct, scientific category, and distinct and observable 'thing' have occurred because
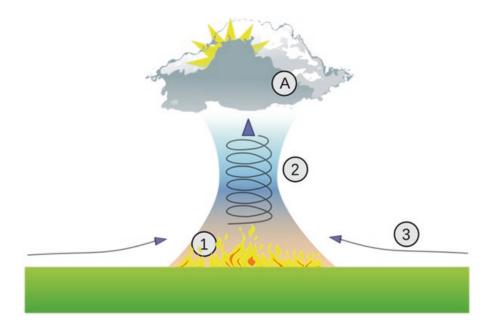
Fig. 8.4 The scientific classification of a firestorm. Decidedly unnatural firestorms appear to be part of the scientifically legitimized and inexorable natural order of things. (1) Large fire area. (2) Updraft and thermal column. (3) Strong winds generated by updraft. (A) Pyrocumulus cloud

social risk thresholds are constantly exceeded in various socio-natural landscapes. The rhetorical fine-tuning from fire to firestorm thus emerged within a particular social context where fires were (and continue to be) deemed 'out of control' and a threat to nearby social assets. And although an 'out-of-control' fire could be viewed as perfectly normal in other historical contexts, fire scientists and management officials continue to elevate the significance of the condition formerly known as fire in response to society's growing anxiety with it. Firestorms threaten our viewsheds and the aesthetic appeal of our natural surroundings. They get too close to us. They burn our property. And they threaten our lives and livelihoods. Thus they are not simply fires. They are menacing firestorms. We define them. We fear them. We often create them. And we certainly make them more costly. They are human-made disasters.

For a fire to be a firestorm it must be sufficiently large and intense. We map onto our firestorm designations' particular measurable attributes such as fire size, wind speed and direction, pace of spread, and vertical development. However, this classification process does something else, something rather more powerful than produce a neat delineation and classification of fire. Presenting the term 'firestorm' as a scientifically objective category has the surreptitious effect of cloaking it with a sense of authenticity, as if it were something natural and inexorable. In truth, such efforts to classify 'fires' simply
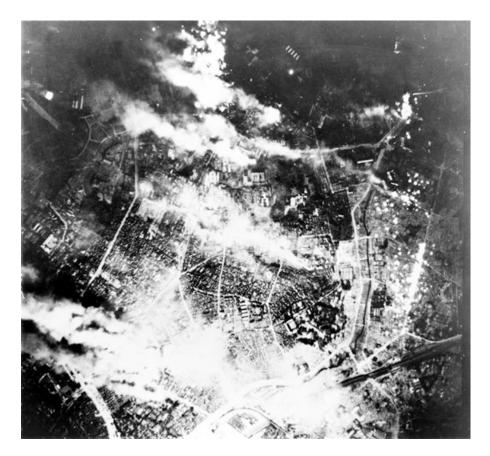
Fig. 8.5 By their very etymological origins, firestorms are social constructs. With their early usage describing the conflagrant outcomes of WWII air raids, the catalyzing source of firestorms has always been exogenous, intractable, and 'out of local control'—whether from bombing campaigns or the threat of global climate change

reflect society's increased proximity to them, a sense of threat from them, and need to order and retain control over them.

The Tyranny of Climate Change When Explaining Wildfire Hazards

The vernacular shift toward 'firestorm' has emerged over time. Although the precise origins of the term remain difficult to pin down, many historical records show that the term was used frequently during WWII to describe the conflagrant outcomes of massive firebombing campaigns across Europe and Japan (Fig. 8.5). This military origin has consequences, which can be traced through to contemporary fire terminology that connotes the catalyzing source of fire as menacing and exogenous. Today, the threat of falling bombs onto target landscapes and the resulting 'firestorms' they create is replaced, discursively, by the

imposed, out-of-our-control threat of climate change, increasing aridity, and lack of falling rain throughout large portions of the US West. The *causes* of WUI fires that are internal to impacted environments, such as the presence of extensive home developments, are instead rendered as *victims* of these external threats (Davis 1998). This framing results in the *de-politicization* of pernicious urban sprawl and the profitable industry standing behind it, and the *naturalization* of wildfires (and firestorms) as simply an unfortunate by-product of global climate change.

But I cannot emphasize this point enough: *there is nothing disastrous about fire in and of itself*. For areas of the US West, firestorms and wildfires are disasters because of human actions. We insert private properties and construct flammable assets. We impose market values. We increase exposure. We up the cost of fire. We create fire victims. We cultivate loss. In short, we produce the disaster.

Worse yet, most residential structures placed in areas already susceptible to fire could hardly be more inappropriate for their environment. Like Duraflame logs, they are composed primarily of wood and petroleum products (although in the case of homes the petroleum is in furniture, carpets, paints, staining materials, water sealants, etc. rather than in paraffin wax). They are both highly combustible once ignited, and they both assist the growth, spread, and duration of a fire (Fig. 8.6).

Fires are only disasters when human populations and all our trappings are placed within the eventual (and oftentimes historical) spatial extent of fires. We exacerbate fires and oftentimes increase their geographic extent and intensity by introducing more combustible material on the landscape. We then naturalize these events, obscuring our role in causing them, by developing labels and empirically supported (i.e., scientifically credible) categories such as 'firestorm'. This scientific and mainstream labeling diminishes the very political role humans play in creating these events and crises. The decidedly *unnatural* condition of damaging and costly fire events appears to simply be a part of the *natural* order of things when, in fact, there exist many financial incentives and social demands (see Table 8.1 and accompanying text) that facilitate their formation. The systematic production of economic benefits from attempts to mitigate these risky landscapes—through, for example, the recent proliferation of private firefighting agencies and do-it-yourself fire safety kits—is thus able to proceed as simply a logical response to these 'flammable' landscapes and seemingly inevitable disasters.

The tyranny of climate change as a dominant explanatory variable in media and policy-making circles suppresses public awareness of the ever-changing profit-seeking practices and diverse forms of economic opportunism that help

Fig. 8.6 In many ways, homes are a lot like compressed/extruded fire logs. They are both heavily composed of petroleum and wood products, highly combustible once ignited, and assist fire growth and spread. Wildfire disasters are manufactured through the construction and placement of these flammable, Duraflame-like objects on the landscape

produce increased social vulnerability and higher fire risk mitigation costs. Consider the 2016 Fort McMurray fire, which burned hundreds of thousands of acres in Alberta, Canada. While the massive fire still burned, a chorus of articles covered the fire using titles such as *We Need to Talk About Climate Change: Tragedies Like the Fort McMurray Fires Make it More Important, Not Less*. This article, like many others, ties the massive blaze to the impacts of climate change and points to the clear and present dangers of our now drier, longer, and more disastrous fire seasons. The author notes that the cause of the fire is indeed a "messy mix of factors" including forest management practices,

urban encroachment, and the effects of El Niño. But the article also singles out climate change as the topic (and causal factor) that we have failed to adequately grapple with at the policy level (Holthaus 2016). That we need to address the elephant in the room—climate change—is true, to an extent. Climate change is extremely important and not adequately accounted for in many policy circles. But a quick read of fire reporting, including another article titled, *Fort McMurray and The Fires of Climate Change*, leads one to wonder just how marginalized the issue of climate change really is within the media (Kolbet 2016).

Much more importantly, the leap to illuminate (and implicate) climate change has the simultaneous effect of concealing the important role urban expansion and lucrative developments have in creating this tragedy. The McMurray fire would surely have received much less coverage if it seared through only the surrounding boreal forest. What gets overlooked in this climate-frenzied coverage is Fort McMurray's development history: rapid growth in population and size over the past several decades supporting large-scale oil extraction from an enormous subterranean tar sands deposit. When only focusing on the fire's impacts or the influential role of climate change, the actions of corporations and governments seeking to exploit this lucrative landscape fade into the explanatory background. City inhabitants are rightfully portrayed as the victims; but quite erroneously, so too are the city officials and oil industry players that continue to fuel this regional growth. Moreover, the fact that the Fort McMurray area was developed *in pursuit of fossil fuels that in turn drive anthropogenic climate change* is also rendered marginal to the story. Not only are patterns of regional oil development crucial to explaining this wildfire, they are also central to explaining the additional burden of climate change. If we were to drill down in search of the structural root causes of fire disasters like Fort McMurray, what we would find would be patterns of rapacious urban and regional development. When the American West is spun as a 'flammable' landscape it tells a very different and far less controversial story.

Debates of Distraction: Our Inability to See the Incendiary for the Spark

Our difficulty addressing the underlying social causes of increased wildfire risk and costs can be explained in part by a myriad of distracting alternative and proxy debates. Despite their diversity these corollary disputes hold a similar

quality: each functions as a spark that ignites disputes at neighborhood, city, and regional levels. Once communities, managers, scientists, and politicians become mired in these debates, the Incendiary becomes less visible, less acknowledged, and seemingly less important. As we labor to put out small fires, we fail to see the whole wildfire complex. We may understand this as a process of *re-politicization*, where public conversations on the social causes and implications of fire risk (as well as strategies to destabilize such trends) are replaced by other, seemingly more contentious debates of distraction.

In this process of re-politicization, arguments over landscapes and land features oftentimes serve as convenient and tractable sites for engaging with, and ostensibly "settling", broader disagreements and social tensions such as the proper role of the government or the importance of private property rights in land management (Alagona 2013). This chapter contributes to this discussion by suggesting that not only are broad debates fought in small arenas, but, in fact, the acrimony found in these small arenas can distract us from addressing larger disagreements, tensions, and contradictions. These alter-debates may actually *prevent* us, for example, from directly confronting the social drivers of fire risk. We are left tinkering around the edge of the problem, constantly putting out little fires, instead of grappling with the root cause of the major blaze itself.

The Confounding Debate over How to Measure Vegetation Flammability

One such example concerns eucalyptus management around the West, particularly in coastal areas that support large stands of eucalypt species. Eucalypts, according to a University of California professor of forestry and conservation, have been described as "the worst tree anywhere as far as fire hazard is concerned". The Oakland/Berkeley Hills area provides a microcosm of the debate over the flammability and relative danger of these prevalent yet contested trees. Here, two factions have fought for many decades over the suitability of eucalypts in this densely populated, hilly area containing a historically active fire regime. For one side of the debate, eucalyptus trees represent a highly flammable and thus dangerous tree cover. For others, eucalypts represent a highly aesthetic and ecologically valuable species that is conveniently and unfairly blamed for the spread of recent wildfires. Over time, the debate over eucalyptus (and landscape flammability) has, in large measure, been contested around how best to enumerate and thus 'prove' its contribution to the overall landscape fuel load. This is a scientific process that is fraught with inaccuracies

and subjectivities. How much should the leaf litter, branches, and trunk, respectively, contribute to overall combustibility calculations? Should replacement vegetation cover be subtracted from the total? If measuring correlations between eucalyptus groves and historical burn area, how many trees constitute a grove? How contiguous must trees and groves be to assist fire spread? As the community continues to chase scientific clarity on these and other fundamental yet elusive questions of flammability, all parties involved have descended into a 'debate of distraction' vortex.

The tone and content of this particular debate obfuscates the fact that eucalyptus trees actually accompanied home construction in these residential neighborhoods. Thus if one is to talk honestly about eucalyptus, one must speak directly to its residential landscape counterpart, the home. Rather than contemplate eucalyptus and fire in relation to homes, it would seem more productive to consider eucalypts and homes in relation to fire. Instead, within these controversies over how to protect residents, the homes themselves are rarely controversial. Disagreements over the flammability of eucalyptus divert attention away from broader mechanisms of real estate development that have produced increased fire risk in the first place. Flare-ups such as those associated with the relative flammability of local vegetation surreptitiously naturalize residential fire (and our concerns over fire *risk*) as inexorable and simply 'the way things are'.

Wood Shingles as Distracting Political Objects

Another debate of distraction concerns the deeply political and protracted process of challenging the powerful wood shingle and cedar shake industry. As early as 1959 a report by the National Fire Protection Association encouraged officials in California and Texas to limit the use of wood products on home exteriors (FEMA 1992). Not only are wood shingles and shake roofs prone to easy ignition (compared to fire-resistant alternatives), they also have a tendency to produce flaming brands that start new spot fires well ahead of the main fire front. For many decades beginning in the 1960s, politicians around the West lobbied to enact strict state and city legislation mandating the use of fire-resistant roofing materials. Despite isolated pockets of success, this form of fire-safe home construction remained an elusive goal, in large part because of a powerful triumvirate comprised by the home construction building industry, the Cedar Shake and Shingle Bureau and the Forest Products Association.

By the early 1990s, many cities including Los Angeles finally passed ordinances preventing the use of wood shingle materials on new building

construction. The Cedar Shake and Shingle Bureau quickly labeled such legislation as "unwarranted and discriminatory" and "unconstitutional". Amidst these still ongoing flare-ups in many parts of the West, wood shingles have become political objects that seemingly come to represent a choice between the destruction of cedar shingle homes or the destruction of the cedar shingle industry. This important yet distracting public dispute has led discussions over residential fire risk to begin not by asking *whether* to build more homes but rather by debating *how* to build them. By placing the focus of the debate on home materials and not the homes themselves, the inevitability of home construction—and the seemingly unfettered path to increased fire risks and costs—goes largely unquestioned.

Conclusion

Suburban landscapes of the American West are lucrative landscapes. For well over a century, diverse stakeholders have extracted profits and surplus value from already fire-prone areas at the urban periphery while simultaneously inserting considerable social risks and mitigation costs back on the landscape. This persistent process of wealth accumulation drives environmental transformations and rampant suburbanization around the West. It occurs both in the production of residential developments and again in their protection. I have argued that we should understand this process as 'the Incendiary' because much like an arsonist, these economic incentives and patterns of development do not just reflect the region as a flammable landscape but rather reveal the oftentimes reckless forces producing that very flammability. I have suggested that critical physical geographers are well suited to excavate and address these powerful drivers of social-ecological change and lead a shift from the study of wildland-urban interface (WUI) *areas* to the study of affluence-vulnerability interface (AVI) *processes*.

This shift is needed because hazardous resource management and planning histories are concealed behind a series of scientific framings, policy debates, and community disagreements that de-politicize the Incendiary and divert our attention away from the affluence-vulnerability interface. Suburban and exurban areas of the American West—and their injurious and costly wildfires—are 'spun' as strangely natural and inviolable. They are nearly always portrayed as the inevitable by-product of climatic changes and are rarely characterized as the catastrophic outcomes of profit-seeking urban and regional developments. Moreover, when decidedly unnatural urban firestorms are classified neatly as a scientific category, they are also legitimized as simply part of

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the 'natural order of things'. This process of de-politicization is supported by a secondary process of re-politicization, which occurs as the arena for debate is filled with other ideological disputes (such as the appropriate role of government in regulating land use) or micro debates (such as what is the most appropriate roofing material or residential landscaping vegetation). The debate over wildfires in the West thus all too frequently ignores the structural root causes of fire disasters.

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