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Active Forest Mismanagement and the "New Normal":Advocating for an Integrative Wildfire Management Policy

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JEREMY MARTIN – FALL 2018*

I. INTRODUCTION

In the western United States, wildfires are becoming more intense and more common.[1] Notably, Northern California alone saw three of the most intense fires it has seen in modern times during the 2018 fire season.[2] The Ferguson Fire scorched nearly 97,000 acres of land near Yosemite, killing two firefighters, injuring nineteen more, and temporarily closing Yosemite National Park due to thick smoke choking the air.[3] At the same time, the Mendocino Complex Fire and the Carr Fire burned through more than 562,000 acres combined, claiming at least seven lives and over 1,000 homes.[4]

In response to these fires and many others like them, President Donald Trump laid the blame on "bad" environmental regulations with a tweet suggesting "laws which aren't allowing massive amount of readily available

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1. Christopher Ingraham, *Wildfires Have Gotten Bigger in Recent Years, and the Trend is Likely to Continue*, THE WASHINGTON POST (Aug. 18, 2018), https://www.washingtonpost.com/business/2018/08/14/wildfires-have-gotten-bigger-recent-years-trend-is-likely-continue/.

2. Tim Wallace *et al.*, *Three of California's Biggest Fires Ever are Burning Right Now*, THE NEW YORK TIMES (Aug. 10, 2018), https://www.nytimes.com/interactive/2018/08/10/us/california-fires.html?mtrref=www.google.com&gwh=D57027F84333BB5D87797BA13727BCE0&gwt=pay&assetType=REGIWALL.

3. *California Wildfires: Ferguson Fire Near Yosemite Contained*, BBC NEWS (Aug. 20, 2018), https://www.bbc.com/news/world-us-canada-45243518 [hereinafter *California Wildfires*].

4. *Id.*

water to be properly utilized" are to blame.[5] Furthermore, President Trump declared that trees must be cleared to stop fires from spreading.[6] Shortly after President Trump's tweet, Secretary of the Interior Ryan Zinke released an op-ed in USA Today advocating for the "active management of our forests" to prevent wildfires.[7] Zinke suggested that "fires are burning hotter . . . and more intense, due in part to hot and dry weather and in part to the fuels that overload our forests."[8] The buildup of fuels, like overgrown brush and dead trees, Zinke argues, can be eliminated through "prescribed burns, mechanical thinning and timber harvests."[9] Active forest management like this, he says, is good for the environment, the economy, and public safety.[10]

This comment argues that active forest management must consist of more than simply government-directed hazardous fuel reduction in our forests.[11] Instead, the mitigation and prevention of forest fires must be accomplished through an integrative land management policy which addresses the root causes of the wildfire issue plaguing the Western United States.[12] The federal government's historic approach of fire suppression has negatively impacted ecosystems in the West, so the federal government must move beyond the active forest management policies advocated by Zinke and recognize ecosystem characteristics in order to reduce the number of intense fires like the Ferguson, Mendocino Complex, or Carr Fires.[13] Fire suppression and fuels management have not adequately addressed the root causes of wildfire, instead offering only temporary fixes that have ultimately contributed to the overall problem.[14]

Furthermore, sustainable land management cannot be accomplished without including local communities in land-use planning and imposing limitations on the Wildland-Urban Interface ("WUI").[15] In this sense, land management for wildfire prevention must extend to areas of construction,

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5. Mark Moore, *Trump Blames California Wildfires on 'Bad' Environmental Laws*, NEW YORK POST (Aug. 5, 2018, 07:49 PM), https://nypost.com/2018/08/05/trump-blames-california-wildfires-on-bad-environmental-laws/ (quoting Donald Trump (@realDonaldTrump), TWITTER (Aug. 6, 2018, 4:53 PM), https://twitter.com/realDonaldTrump/status/1026587142989008897).

6. *Id.*

7. Ryan Zinke, *Wildfires Seem Unstoppable, but they Can Be Prevented. Here's How*., USA TODAY (Aug. 8, 2018, 6:00 AM), https://www.usatoday.com/story/opinion/2018/08/08/active-forest-management-prevent-wildfires-column/913801002/.

8. *Id.*

9. *Id.*

10. *Id.*

11. *See infra* text accompanying notes 72-77.

12. *See infra* Part III.b.

13. *See infra* text accompanying notes 66-77.

14. Robert B. Keiter, *The Law of Fire: Reshaping Public Land Policy in an Era of Ecology and Litigation*, 36 ENVTL. L. 301, 315-16 (2006) [hereinafter Keiter I].

15. *See infra* text accompanying notes 95-104.

insurance, and other regulations.[16] Average temperatures are rising, causing drier conditions, and fire seasons are lasting longer.[17] And as people develop closer to the WUI, these modern mega-fires are no longer out of the ordinary.[18] Therefore, the "active forest management" recommended by Zinke should be treated as one piece of a much larger puzzle.

II. LAW AND POLICY OF WILDFIRES

a. History of Wildfire Suppression Policy

When lightning strikes dry brush or pine needles on a forest floor, the probable result is a fire, which has naturally occurred for centuries.[19] Natural fires were generally left alone until the government took an interest in the West's natural resources.[20] The federal government became officially interested in the forest reserves in 1897 with the enactment of the Forest Service Organic Administration Action ("Organic Act").[21] In 1922, the Secretary of the Interior, with rule-making authority, was tasked with protecting forests to secure "favorable conditions of water flows, and to furnish a continuous supply of timber . . . ."[22] Wildfires were then considered a threat to the timber resources that the Forest Service was charged with protecting.[23] As a result, the Forest Service's "Use Book" imposed a duty on rangers to extinguish all fires, stating, "after every electric storm a special effort is needed to locate and extinguish any such fires before they are well under way."[24] Thus began a policy of total fire suppression that lasted until the 1960s.[25]

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16. Ray Rasker, *Resolving the Increasing Risk from Wildfire in the American West*, THE SOLUTIONS JOURNAL (March 2015), https://www.thesolutionsjournal.com/article/resolving-the-increasing-risk-from-wildfires-in-the-american-west/.

17. *See* Erica Evans, *Fire Seasons Are Becoming Hotter, Drier and Longer*, LOS ANGELES TIMES (July 26, 2016), https://phys.org/news/2016-07-seasons-hotter-drier-longer.html.

18. Daniel Swain, *The Era of Megafires: The Crisis Facing California and What Will Happen Next*, THE GUARDIAN (Aug. 8, 2018), https://www.theguardian.com/environment/2018/aug/07/california-wildfires-megafires-future-climate-change.

19. Nicola Twilley, *A Trailblazing Plan to Fight California Wildfires*, THE NEW YORKER (Aug. 19, 2019), https://www.newyorker.com/magazine/2019/08/26/a-trailblazing-plan-to-fight-california-wildfires.

20. *See* Keiter I, *supra* note 14, at 305.

21. *Id.* (citing Act of June 4, 1897, ch. 2, 0 Stat. 11, 34-36 (codified as amended at 16 U.S.C. §§ 473-82, 551 (2000)).

22. 16 U.S.C. § 475 (1897); Keiter I, *supra* note 14, at 324.

23. Keiter I, *supra* note 14, at 305.

24. *Id.* at 305-06 (quoting U.S. DEPT. OF AGRIC., FOREST SERV., THE USE OF THE NATIONAL FOREST RESERVES: REGULATIONS AND INSTRUCTIONS 63, 65, 68 (1905)).

25. *Id.* at 306-07 (noting that although there were advocates for fire as a beneficial role in forest health, the Forest Service suppressed several research studies endorsing prescribed fires).

Total suppression policy became much more effective once the Civilian Conservation Corps (CCC) was formed.[26] The CCC built fire towers and backcountry roads, enabling forest rangers to observe, report, and suppress fires that were previously unreachable.[27] This infrastructure allowed the Forest Service to institute a "10 a.m. policy," where the Forest Service's goal was to have a fire contained by 10:00 a.m. the morning after its report with rangers working throughout the night to combat a "young" fire.[28] This policy, along with expanded fire control methods, saw a significant reduction in annual acreage burned, with less than one million acres burned annually between 1946 and 1978 compared to the over two million acres that burned annually in previous years.[29]

b. Policy Shift

During the 1960s and 70s, public opinion on environmental issues was changing and public lands were at the forefront of the public's environmental concerns.[30] Beginning with the Multiple-Use Sustained-Yield Act of 1960, which directed the Forest Service to maintain national forests for purposes other than timber harvests and water flow, Congress began to enact environmental legislation concerning the management of public lands.[31] For instance, the National Forest Management Act of 1976 (NFMA) was enacted to address the Forest Service's management of resources by instituting "planning regulations," which consider various interests concerning the forest.[32] The Federal Land Policy and Management Act of 1976[33] similarly established such requirements for lands under the management of the Bureau of Land Management (BLM).[34] Under these laws, federal agencies managing public lands were charged with "prepar[ing] and adopt[ing] interdisciplinary land use plans establishing resource management priorities and standards. . . " for individual public lands.[35]

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26. *Id.* at 307.

27. *Id.*

28. Garrett Trego, *We Didn't Start the Fire. . .and We Won't Pay to Stop It: Financing Wildfire Management in America's Wildland-Urban Interface*, 36 WM. & MARY ENVTL. L. & POL'Y REV. 595, 599 (2012).

29. Keiter I, *supra* note 14, at 307.

30. *See* U.S. History, *Environmental Reform*, U.S. HISTORY (Sept. 2019), http://www.ushistory.org/us/57e.asp.

31. Multiple-Use Sustained-Yield Act, Pub. L. 86-517 §§ 528-531, 74 Stat. 215 (2018); Keiter I, *supra* note 14, at 323.

32. National Forest Management Act of 1976, Pub. L. No. 94-588 § 1600, 90 Stat. 2949 (2018) [hereinafter NFMA]; Keiter I, *supra* note 14, at 325.

33. Federal Land Policy and Management Act, Pub. L. No. 94-579§ 1701, 90 Stat. 2743 (2018) [hereinafter FLPMA].

34. FLPMA § 1712; Keiter, *supra* note 14, at 325.

35. Keiter I, *supra* note 14, at 328.

During the 1960s, as suppression costs grew and public opinion shifted, federal agencies began to reconsider their fire policy and in 1963, the National Parks Service adopted a new policy which allowed natural fires to burn in more remote areas of the parks.[36] The Forest Service also shifted its policy, permitting prescribed burns in wilderness areas and replacing its "10 a.m. policy" with a fire management policy.[37] The National Parks Service and Forest Service had begun to recognize that fire played an important role in ecosystems and, as such, implemented land use plans to work with it rather than against it.[38]

The agencies' fire policy was tested in 1988 when fires broke out in Yellowstone National Park that ultimately burned over 1.5 million acres of national park and forest land.[39] At that time, Yellowstone was in a severe drought and high winds carried the fire across the park and surrounding lands.[40] The fires, and the Forest Service's policies, received national attention, as the media suggested Yellowstone was destroyed and politicians advocated for a return to all-out suppression policies to protect local communities.[41] While the agencies continued to endorse their fire policies, they "ordered land managers to control all fires regardless of origin or location," likely to ease pressures from politicians and local communities.[42]

Agencies struggled to implement their fire management policies as fire seasons became more intense and unintended consequences occurred.[43] For example, the Cerro Grande, or "Los Alamos" Fire burned through 40,000 acres in New Mexico in 2000, destroyed 240 homes, and came close to burning down the Los Alamos National Laboratory.[44] That fire began as a prescribed burn started by the National Park Service.[45] Ultimately, between 2000 and 2002, wildfires scorched over 14 million acres and cost over four million dollars in federal suppression funds.[46]

In 2002, President George W. Bush announced a Healthy Forests Initiative (HFI), which revised administrative requirements under the

36. *Id.* at 308.

37. *Id.* (citing STEPHEN J. PYNE, FIRE IN AMERICA: A CULTURAL HISTORY OF WILDLAND AND RURAL FIRE 263, 303-04 (1982)).

38. *Id.*

39. *Id.* at 309.

40. Liane Hansen & Laura Krantz, *Remembering the 1988 Yellowstone Fires*, NATIONAL PUBLIC RADIO (August 29, 2008), https://www.npr.org/templates/story/story.php?storyId=94126845.

41. Keiter I, *supra* note 14, at 309.

42. *Id.*

43. *Id.* at 309-10.

44. *Id.* at 310.

45. *Id.*

46. National Interagency Fire Center, *Federal Firefighting Costs (Suppression Only),* https://www.nifc.gov/fireInfo/fireInfo_documents/SuppCosts.pdf [hereinafter *Federal Firefighting Costs*].

National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), and internal administrative review processes to solve the Forest Service's "process predicament."[47] One of the goals of the HFI was hazardous fuel reduction as a preventative measure for wildfires, so President Bush categorically exempted certain "forest health" projects from the NEPA review process and amended rules for project appeals.[48] Following President Bush's exercise of executive power, Congress passed the Healthy Forests Restoration Act of 2003 (HFRA).[49] The purpose of HFRA was to "reduce wildfire risk to communities, municipal water supplies, and other at-risk Federal lands through a collaborative process of planning, prioritizing, and implementing hazardous fuel reduction projects."[50] In relevant part, the HFRA authorized "hazardous fuel reduction projects" on federal lands and modified NEPA compliance requirements and other administrative reviews to expedite the projects.[51] For example, the HFRA provided some HFI exclusions and established categorical exemptions for certain timber harvests on public lands from NEPA review.[52] While some advocate that categorically excluding timber harvests from NEPA review was only meant to assist logging companies in timber harvesting by loosening restrictions on the industry, the HFRA is arguably the first legislative act to offer a federal fire policy.[53]

c. Post-HFRA Policy and Current Events

Since the HFRA, the federal government has addressed the issue of wildfire in a substantial way only a few times. Notably, the Federal Land Assistance, Management, and Enhancement Act of 2009 (FLAME Act)[54] appropriated funds for wildfire suppression as a means to prevent the need for "fire borrowing," or agencies transferring funds for fire suppression from

47. Office of the President, *Healthy Forests*: *An Initiative for Wildfire Prevention and Stronger Communities*, 13-14 (2002), https://www.fs.fed.us/projects/documents/ HealthyForests _Pres_ Policy %20A6_v2.pdf.

48. Toddi A. Steelman & Caitlin A. Burke, *Is Wildfire Policy in the United States Sustainable?*, RESEARCHGATE (Sept. 2017), https://www.researchgate.net/publication/228264900 _Is_ Wildfire_ Policy_in_the_United_States_Sustainable.

49. Healthy Forests Restoration Act, Pub. L. No. 108-148 § 6501, 117 Stat. 1887 (2018) [hereinafter HFRA]; Aurora Janke, *Beyond the Blaze: Strategies for Improving Forest Service Fire Suppression Polices*, 1 WASH. J. ENVTL. L & POL'Y 310, 326 (2011).

50. HFRA § 6501(1).

51. HFRA §§ 6514-16; Keiter I, *supra* note 14, at 313.

52. Keiter I, *supra* note 14, at 313, n. 62; Janke, *supra* note 49, at 327.

53. Keiter I, *supra* note 14, at 344.

54. Federal Land Assistance Management & Enhancement Act of 2009, Pub L. No. 111-88 § 503, 123 Stat. 2904 (2009) [hereinafter FLAME Act].

other programs.[55] The FLAME Act also required the Secretaries of the Interior and Agriculture to develop a Cohesive Wildfire Management Strategy (Cohesive Management Strategy) based on the Government Accountability Office's budgetary recommendations.[56] The FLAME Act required that the Cohesive Management Strategy incorporate risk assessments, climate factors, and cost-effective strategies.[57] In March 2011, the Secretaries of the two departments released a Cohesive Strategy focusing on "maintaining resilient landscapes, creating fire-adapted communities and responding to wildfires."[58] Although the loosened restrictions on NEPA and other administrative review were still in effect, this Cohesive Strategy marked a shift in fire management policies which consider ecosystem characteristics and their role in wildfire management.[59]

Then, on March 23, 2018, the $1.3 trillion Consolidated Appropriations Act of 2018 (Appropriations Act) was signed into law.[60] The Act, in relevant part, specifically addresses wildfire suppression and forest management.[61] Division O of the Act—the Wildfire Suppression Funding and Forest Management Activities Act (Wildfire Suppression Act)—appropriates adequate funding for wildfire suppression, securing $2.25 billion in fiscal year 2020 and increasing by $100 million annually until 2027.[62] This funding is the federal government's newest solution to fire-borrowing, as was previously seen in the FLAME Act, because wildfires have consumed the Forest Service's budget.[63] If agencies withdraw emergency funds for suppression in the prior fiscal year, there must be an annual economic analysis to further address the fire-borrowing issue.[64]

There is, however, no requirement for a Cohesive Management Strategy that follows the appropriated funds.[65] Instead, the Wildfire Suppression Act includes several important forest resilience measures.[66] For instance, the Act amends the HFRA to categorically exempt fuel reduction and "collaborative

55. FLAME Act § 502(c); *see also* Council of Western State Foresters, *Briefing Paper on the Federal Land Assistance Management and Enhancement (FLAME) Act* (Nov. 3, 2009), http://www.thewflc.org/news_pdf/344_pdf.pdf.

56. Janke, *supra* note 49, at 330.

57. *Id.*

58. *Id.*

59. *See id.* at 328.

60. Consolidated Appropriations Act 2018, Pub. L. No. 115-141, Div. O, § 102, 132 Stat. 348 (2018) [hereinafter Appropriations Act].

61. Appropriations Act, Pub. L. No. 115-141, Div. O.

62. Appropriations Act, Pub. L. No. 115-141, Div. O, § 102(a)(3).

63. Cecilia Clavet, *Wildfire Funding in the Omnibus Bill: What You Need to Know,* FIRE ADAPTED COMMUNITIES LEARNING NETWORK (April 26, 2018), https://fireadaptednetwork.org/wildfire-funding-omnibus-bill-need-know/.

64. Appropriations Act, Pub. L. No. 115-141, Div. O, § 102.

65. *See generally* Appropriations Act, Pub. L. No. 115-141, Div. O.

66. Appropriations Act, Pub. L. No. 115-141, Div. O, § 202.

restoration" projects less than 3,000 acres.[67] It also amends the HFRA by expanding those project areas to include fuel breaks and firebreaks and permits the award of 20-year stewardship contracts.[68] The Act further requires the Secretary of Agriculture and Forest Service to make wildfire hazard severity maps for the purpose of informing communities adjacent to national forests or areas that are affected by wildfire.[69] The Good Neighbor Authority, a provision from the Agricultural Act of 2014 allowing the Forest Service to enter into agreements with state foresters,[70] is also expanded.[71]

Thus, the federal government has departed from the Cohesive Strategy developed in 2011 in favor of the traditional approach of suppression and fuel removal.[72] The 2011 Cohesive Strategy was developed in response to Congressional recommendations and budgetary analyses, which pointed toward a more integrative wildfire policy.[73] The Wildfire Suppression Act of 2018, while hidden in an omnibus bill, arguably discards the 2011 Cohesive Strategy by allocating billions to fire suppression efforts and mistakenly equating wildfire resilience with hazardous fuels management.[74] Therefore, the Wildfire Suppression Act does not adequately address the systemic policy changes needed to appropriately address wildfires in the long-term.[75]

III. ANALYSIS

a. Issue 1: Purpose of Land and Forest Management

The original motive behind wildfire suppression was to protect timber resources and water flows, as declared in the Organic Act of 1897.[76] As all-out fire suppression became costly and publicly undesirable, the focus shifted toward preventing wildfires by recognizing the benefit of fire.[77] However, by 2003, prevention methods that originally recognized that fires were important to certain ecosystems were now shadowed by "hazardous fuel reduction," a main goal of the HFRA.[78] Since then, the "active forest management" policy, as offered by Secretary Zinke and enacted by the Wildfire Suppression Act, continues to direct federal agencies' attention

67. Appropriations Act, Pub. L. No. 115-141, Div. O, § 202.
68. Appropriations Act, Pub. L. No. 115-141, Div. O, §§ 203, 207.
69. Appropriations Act, Pub. L. No. 115-141, Div. O, § 210.
70. 16 U.S.C. § 2113 (2018).
71. § 2113; Appropriations Act, Pub. L. No. 115-141, Div. O, § 212.
72. *See* Janke, *supra* note 49, at 331.
73. *Id.* at 329-30.
74. Appropriations Act, Pub. L. No. 115-141, Div. O, §§ 102, 202.
75. Janke, *supra* note 49, at 331.
76. 16 U.S.C. 551; Keiter I, *supra* note 14, at 322.
77. Janke, *supra* note 49, at 345.
78. HFRA §§ 6514-16; Keiter I, *supra* note 14, at 312-13.

toward fuel removal rather than ecosystem restoration.[79] And even though the stated policy of those federal agencies is fuel reduction, fire suppression is still a primary focus as demonstrated by the funding appropriated to suppression efforts.[80] With suppression efforts receiving the majority of the funding and hazardous fuel reduction as the goal in preventing wildfires, there is little education and funding for ecosystem restoration and community assistance projects that could effectively mitigate major wildfire risk.[81]

The recent administration's view of active forest management has been effectuated by categorical exclusions under NEPA.[82] NEPA, in short, requires federal agencies to assess "major" actions for potential environmental issues and issue an environmental impact statement (EIS) or, in other instances, an environmental assessment/finding of no significant impact (EA/FONSI).[83] Those assessments must consult all interested agencies, as well as identify and address consequences and, more importantly, alternatives to the proposed actions.[84] An action, however, may be categorically excluded from NEPA assessment if the action does not "significantly affect the quality of the human environment." individually or cumulatively.[85]

Congress has authorized agencies to categorically exempt certain hazardous fuel reduction projects on public lands affecting up to 3,000 acres and prioritizes projects within the wildland-urban interface.[86] Although this provision was meant to reduce wildfires, it poses several issues to land and wildfire management. First, exempting fuel reduction projects on public lands to address wildfires is flawed because only an evaluation of alternative management programs can properly address the complex issue of wildfire.[87] The alternative analysis required for federal actions under NEPA is meant to "foster[] informed decision-making and informed public participation."[88] Categorically excluding fuel reduction projects, in this sense, limits federal agencies in how they can sustainably combat wildfires in the long-term because they are not required to consider alternatives, including restorative alternatives.[89]

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79. Zinke, *supra* note 7; Appropriations Act, Pub. L. No. 115-141, Div. O, § 102.
80. Appropriations Act, Pub. L. No. 115-141, Div. O, § 102.
81. Steelman & Burke, *supra* note 48, at 71.
82. Janke, *supra* note 49, at 327.
83. Jamison E. Colburn, *Retreat Alternatives in NEPA: A Tool for the Perplexed*, 33 J. ENVTL. L. & LITIG. 3, 20 (2018).
84. *Id.*
85. *Id.* at 5 (quoting 42 U.S.C. § 4332(2)(C) (2018)).
86. Appropriations Act, Pub L. No. 115-141, Div. O, § 605(c) (amending HFRA, 16 U.S.C. 6511(2)).
87. Colburn, *supra* note 83, at 20.
88. *Id.* at 21. (quoting Headwaters, Inc. v. BLM, 914 F.2d 1174, 1180 (9th Cir. 1990)).
89. *Id.* at 20-21.

Additionally, permitting agencies to initiate projects without administrative review sets a dangerous precedent.[90] NEPA has historically required all federal agencies undertaking a "major" federal action consult with agencies like the Fish and Wildlife Service (FWS) to determine whether the action would negatively impact environmental conditions.[91] Excluding fuel reduction projects from these consultations alters the dynamics of federal agency action by allowing the Forest Service or Bureau of Land Management to immediately undertake projects in the spirit of wildfire management.[92] However, because most planning decisions and actions by these agencies can be "logically" connected with wildfire management, it is likely that most projects are simply insulated from administrative review.[93]

Finally, those in opposition to the exclusions provided to timber harvesting suggest that the categorical exclusions from NEPA and other administrative review are not designed to improve wildfire management.[94] Many environmental groups have argued that hazardous fuel removal is a thinly disguised attempt to loosen restrictions on commercial timber harvesting.[95] For instance, some mechanical thinning operations designed to remove underbrush and excessive trees will include larger, old growth trees to make them economically viable.[96] Fuel removal operations are especially opposed in more remote areas because there is little risk to human life and property in those areas.[97] Thinning operations often require heavy equipment and new road construction, which leads to compacted soil, erosion problems, destruction of native species, and waterway pollution.[98]

Professor Robert Keiter points out that an "unconstrained" fire policy, as an alternative to fire suppression, does have its consequences.[99] Specifically, if wildfires were permitted to burn without interference, the chance for catastrophic fires is increased because ecosystem conditions are out of balance with their "historic fire regimes."[100] However, the alternative solution for wildfire management, suppression and fuel reduction, has

90. *See id.* at 20.

91. National Environmental Policy Act, 42 U.S.C. § 4321 *et seq.* (1969) [hereinafter NEPA]; *See* Colburn, *supra* note 83, at 20.

92. NEPA §4321 *et seq*.

93. Rachael E. Salcidot, *The Tension Between Transparency and Public Appeasement in the Formulation of Wildfire Management Strategies and the Use of Wildfire as a Restoration Tool*, 1 TEX. A&M J. PROP. L. 69, 79 (2012).

94. Keiter I, *supra* note 14, at 319.

95. *Id.*

96. *Id.* at 318.

97. *Id.* at 319.

98. *Id.*; Janke, *supra* note 49, at 334.

99. *See* Keiter I, *supra* note 14, at 316.

100. *Id.*

rendered forests more fire-prone and ecologically damaged.[101] Fire suppression only contributes to the build-up of combustible fuels and hazardous fuels management through timber harvests and thinning which results in severe alteration of the ecosystem.[102]

The ecological restoration of fire-adapted ecosystems, in addition to dynamic forest management, offers a viable solution to this issue.[103] "Ecological restoration refers to human actions that guide natural systems toward a healthier, more resilient state."[104] Such recovery would restore a forest to past conditions, re-establishing the natural role of fire on the land.[105] Depending on a forest's ecological composition and structure, wildfires will behave differently, so ecosystem restoration must be tailored to the specific fire-adapted ecosystem.[106] As an example, in areas that see "high frequency, low intensity" fires, agencies should not quell the fire, as these fires will rarely have negative impacts on surrounding vegetation and wildlife.[107] In such a case, the ecosystem's natural fire pattern will burn through the underbrush, reducing the hazardous fuels, and replenish vital soil nutrients.[108] Additionally, "high severity" fires can have ecological benefits in certain areas because those ecosystems' flora and fauna have historically adapted to high-severity fire by relying on blackened forests and re-establishing native species.[109]

The Federal Wildland Fire Policy recognizes that wildland fire is an "essential ecological process" and should be incorporated into planning processes.[110] However, as pointed out by two retired Forest Service directors, this is not necessarily practiced.[111] Bosworth and Williams argue that

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101. *Id.* at 315-16 (noting the "Catch-22 effect is inescapable: more suppression means more combustible fuels, which means larger and more intense fires and thus, even greater danger and destruction.").

102. *Id.*

103. Salcidot, *supra* note 93, at 75.

104. *Id.*

105. *Id.*; Steelman & Burke, *supra* note 48.

106. Keiter I, *supra* note 14, at 314 (highlighting several different ecosystems and how fire affects them).

107. *Id.*

108. *Id.*; Steelman & Burke, *supra* note 48, at 70.

109. Ray Rasker, Ph.D., *Wildfire Experts' Paper Informs Effective Policy*, HEADWATERS ECONOMICS (April 2017), https://headwaterseconomics.org/wildfire/insights/.

110. National Interagency Fire Center, GUIDANCE FOR IMPLEMENTATION OF FEDERAL WILDLAND FIRE MANAGEMENT POLICY 8 (2009), https://www.nifc.gov/policies/policies_documents/GIFWFMP.pdf [hereinafter GUIDANCE FOR IMPLEMENTATION OF FEDERAL WILDLAND FIRE MANAGEMENT POLICY]. Appropriated funding under the 2018 Appropriations Act and related wildfire resilience projects suggest otherwise. *Id.* In practice, the substantial funds secured for suppression and amendments made to the HFRA suggest suppression and fuel reduction, or business-as-usual. *Id.*

111. *See* Dale N. Bosworth & Jerry T. Williams, *We Need a Commission to Take Action on Wildfire in the West*, HIGH COUNTRY NEWS (Nov. 30, 2017), https://www.hcn.org/articles/opinion-we-need-a-commission-to-take-action-on-wildfire-in-the-west.

agencies fail to manage fire-dependent forests at appropriate intensities, intervals, and scales and because of this, fires are becoming increasingly more dangerous and suppression costs are steadily increasing.[112] This is due to "[a] century of fire suppression and take-the-best-and-leave-the-rest logging," as well as poor funding for wildfire mitigation efforts.[113]

Instead, the Forest Service veterans suggest a commission on wildfire that would consider the "full range of contributing factors," including managing fire-dependent forest ecosystems.[114] A commission on wildfire, then, would promote ecosystem restoration as a primary tool in mitigating wildfire risk across the Western U.S.[115] Although a wildfire commission would only have persuasive authority, such a condition would consist of scientists, community members, regulatory representatives, firefighters, and more.[116] As such, the commission's recommendations would be balanced and carry some authoritative weight.

While ecological restoration is offered as the primary solution, there is also a place for hazardous fuels reduction and categorical exclusions.[117] Ecosystem restoration can be more costly and personnel-intensive than current wildfire management practices, and NEPA assessments and impact statements can, in some cases, unduly delay much-needed work.[118] However, categorical exclusions should only be made in extraordinary circumstances. For instance, a federal agency should be categorically excluded from NEPA assessments when, considering all the surrounding circumstances, the threat to public safety is high. A commission on wildfire, as proposed by Bosworth and Williams, could act as a check on otherwise unfettered agency discretion.[119]

This commission would ultimately ensure that categorical exclusions mandated by the Council on Environmental Quality (CEQ) would act to further the goal of a more sustainable fire management policy.[120] Agencies could also address certain areas that may require thinning or prescribed burns to assist in ecological restoration efforts or protect communities within the wildland-urban interface. Ultimately, a wildfire commission would also work to overcome the suspicions surrounding NEPA timber harvest

112. *Id.*
113. *Id.*
114. *Id.*
115. *See id.*
116. *See* Bosworth & Williams, *supra* note 111.
117. Salcidot, *supra* note 93, at 77.
118. *See* Keiter I, *supra* note 14, at 367-68 (explaining that HFRA protects environmental values in certain ways but then makes it easier for other measures by "expediat[ing] hazardous fuel reduction efforts by reducing NEPA analysis requirements, establishing a new decision review process, and encouraging prompt judicial review.")
119. Bosworth & Williams, *supra* note 111.
120. *See* Keiter I, *supra* note 14, at 338.

exclusions for the logging industry by offering the opportunity to recommend alternatives and transparency in all recommendations made by the commission.[121]

Although current policies advocated by federal agencies suggest fire is important to an ecosystem,[122] current practice falls short of this recognition and instead, agencies, as well as Congress, continue to address wildfire with suppression and fuels reduction.[123] This is not sustainable.[124] Professor Keiter notes

> a century of aggressive federal fire suppression efforts have disturbed these fire-adapted ecosystems and altered fire behavior across the western landscape. The absence of fire has changed the composition and distribution of tree and plant species, promoted the build-up of woody debris (fuel loading), facilitated the spread of exotic species, and displaced some native species.[125]

Agencies must direct their attention toward the ecological restoration of fire-adapted ecosystems in order to mitigate the long-term threat of wildfire.[126] Therefore, "active forest management" must take on a new, more sustainable meaning and truly recognize that "only forest fires can really prevent forest fires."

b. Issue 2: Wildland-Urban Interface

An integrative approach to land use planning for wildfire management must also consider the complexity of the Wildland-Urban Interface (WUI).[127] Attention must be given to those living in the WUI, as well as the future interests which affect the defined areas of the WUI.[128] An integrative plan for the mitigation and prevention of wildfires in the western United States must include the incorporation of community interests within the WUI while taking steps to limit the WUI to allow for ecological restoration.[129]

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121. *See* Salcidot, *supra* note 93, at 79.

122. GUIDANCE FOR IMPLEMENTATION OF FEDERAL WILDLAND FIRE MANAGEMENT POLICY, *supra* note 110, at 8.

123. *See* Zinke, *supra* note 7.

124. Keiter I, *supra* note 14, at 314, n.70 (noting other "questionable" forest practices like clear-cutting and roadbuilding have worsened the problem).

125. *Id.* (noting other "questionable" forest practices like clear-cutting and roadbuilding have worsened the problem).

126. *See* Steelman & Burke, *supra* note 48.

127. GUIDANCE FOR IMPLEMENTATION OF FEDERAL WILDLAND FIRE MANAGEMENT POLICY, *supra* note 110, at 6.

128. *See* Salcidot, *supra* note 93, at 81 (noting that to date legislative and administrative efforts have not addressed increase in population in WUI and the risk this plays).

129. *See id.* at 86.

The WUI has been defined in several different ways.[130] For instance, agencies like the Forest Service designate the WUI as "the area where structures and other human development meet or intermingle with undeveloped wildland."[131] The WUI, by this definition, is any area with human development threatened by wildfire.[132] The WUI has also been statutorily defined in the HFRA, but under the statute, the WUI is dependent upon whether a Community Wildfire Protection Plan (CWPP) has been established by a local community.[133] The CWPP is a plan developed by applicable local and state government officials, consulting with federal land management agencies, that identifies, analyzes, and recommends solutions to wildfire threat in the "at-risk community."[134] Therefore, the HFRA's requirement for a WUI definition is tailored toward local, state, and federal agency cooperation.[135]

Most importantly, the WUI is, by definition, always changing as individuals continue to develop in areas that have previously been uninhabited by people.[136] "As development occurs, an area that was once the WUI may become a bona fide suburb or even a town center of its own."[137] As Professor Jamison Colburn notes, the WUI is "the fastest growing

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130. Stephen Miller, *Planning for Wildfire in the Wildland-Urban Interface: A Guide for Western Communities*, 49 URB. LAW. 207, 213 (2017) (citing U.S. Dep't of Agriculture, Office of Inspector Gen., *Audit Report: Forest Serv. Large Fire Suppression Costs* (2006), http://www.usda.gov/oig/webdocs/08601-44-SF.pdf). Agencies also use the 2010 Wildland-Urban Interface of the Conterminous United States, or "an equivalent tool." *Id.* The definitions do not differ in substance. *See id.*

131. *Id.*

132. *Id.*

133. Miller, *supra* note 130, at 213; (16) Wildland-urban interface

> The term "wildland-urban interface" means—
> (A) an area within or adjacent to an at-risk community that is identified in recommendations to the Secretary in a community wildfire protection plan; or
> (B) in the case of any area for which a community wildfire protection plan is not in effect—
> (i) an area extending 1/2 -mile from the boundary of an at-risk community;
> (ii) an area within 1 1/2 miles of the boundary of an at-risk community, including any land that—
> (I) has a sustained steep slope that creates the potential for wildfire behavior endangering the at-risk community;
> (II) has a geographic feature that aids in creating an effective fire break, such as a road or ridge top; or
> (III) is in condition class 3, as documented by the Secretary in the project-specific environmental analysis; and
> (iii) an area that is adjacent to an evacuation route for an at-risk community that the Secretary determines, in cooperation with the at-risk community, requires hazardous fuel reduction to provide safer evacuation from the at-risk community.

HFRA, 16. U.S.C. § 6511(16) (2016) [hereinafter HFRA].

134. HFRA § 6511(3).

135. *See* Miller, *supra* note 130, at 222.

136. *Id.* at 212.

137. *Id.* at 214.

category of real estate in America."[138] Thus, as development stretches into the WUI and begins to redefine it, local, state, and federal government agencies must consider how to address the risks associated with that re-definition.[139]

Because the WUI is defined by government actors and the WUI is constantly changing, there are two primary issues.[140] First, under the HFRA and in practice, the WUI is typically defined in a CWPP, which can fail to consider local community input and does not include long-term, more integrative measures to prevent wildfires.[141] Second, the WUI is constantly expanding into more fire-prone areas and, because of this, suppression costs are increasing.[142] Those suppression costs are currently covered by the federal government.[143] Therefore, integrative land management solutions to wildland-urban interface problems require more emphasis on fire-adapted communities.[144] There must also be restrictions and regulations on the expansion of the WUI wherever possible to mitigate long-term wildfire risks.[145]

The purpose of the CWPP is to define the WUI and identify the risks and measures to combat those risks.[146] All too often, the CWPP is drafted by government agencies and, while community involvement may be encouraged, the HFRA designates the CWPP as a state and local government plan.[147] Although agencies across the West are beginning to collaborate with local community members, those government agencies are likely promoting short-term mitigation measures for suppression and fuel reduction.[148] As more frequent wildfires continue to threaten homes within the WUI, local communities are far more likely to consider suppression as the best option.[149]

Instead, fire-adapted community principles should be promoted in local communities in the WUI.[150] A fire-adapted community is defined as "[a] human community consisting of informed and prepared citizens collaboratively planning and taking action to safely coexist with wildland fire."[151] As established in the National Cohesive Management Strategy under

138. Colburn, *supra* note 83, at 240.
139. Miller, *supra* note 130, at 214.
140. *See* HFRA § 6511(3); Miller, *supra* note 130, at 208.
141. Miller, *supra* note 130, at 209.
142. *Id.* at 211.
143. *Id.* at 215 & n.19.
144. *Id.* at 209, 242, 245.
145. *Id.* at 213.
146. Miller, *supra* note 130, at 209.
147. HFRA § 6511(3).
148. Miller, *supra* note 130, at 215, n.19.
149. *Id.*
150. *See id.* at 226
151. FIRE ADAPTED COMMUNITIES, https://fireadapted.org/ (last visited Nov. 6, 2018).

the FLAME Act, it is one that can "withstand a wildfire without loss of life or property."[152] Fire-adapted communities recognize that fire is beneficial and often necessary for ecosystem health, and as such, develop plans to make their community "wildfire-resilient."[153] Vegetation plans, firebreaks, and fire-resistant construction materials all present practical solutions within fire-adapted communities.[154] Thus, the community is actively involved in plans to live with fire rather than relying on the government for total suppression and fuel reduction measures.[155]

Professor Rachael Salcidot notes that fire-adapted communities could "mislead future homeowners about the risks involved" with living in the WUI.[156] However, homeowners in a fire-adapted community typically become part of a Firewise Community, a national program where residents work collaboratively on reducing the threat of wildfire, and receive education on the risks and benefits of fire and solutions for wildfire prevention.[157] Furthermore, homeowners are highly encouraged to participate in every step of the planning process for wildfire mitigation.[158] Therefore, future homeowners should reasonably be aware of a community's involvement in the Firewise program and should also recognize the risks of wildfire in the Western U.S.

More pressing is the issue of increased development in the WUI and the resulting allocation of resources and suppression costs associated with these developments.[159] According to one scientific report, the number of new houses in the WUI grew from 30.8 to 43.4 million from 1990 to 2010, a fourty-one percent growth.[160] Furthermore, the acreage total increased by thirty-three percent, "making it the fastest-growing land use type in the . . . United States."[161] The total number of insured losses relating to wildfire reported between 2002 and 2012 totaled $7.9 billion, up 364.7% from the

152. Forests and Rangelands, *The National Strategy: The Final Phase in the Development of the National Cohesive Wildland Fire Management Strategy* 3 (Apr. 2014), https://www.forestsandrangelands.gov/strategy/documents/strategy/CSPhaseIIINationalStrategyApr2014.pdf.

153. Fire Adapted Communities Learning Network, *Learn about Wildfire Resilience*, https://fireadaptednetwork.org/about/learn-about-wildfire-resilience/ (last visited Nov. 17, 2018).

154. *Id.*

155. *Id.*

156. Salcidot, *supra* note 93, at 79.

157. NATIONAL FIRE PROTECTION ASSOCIATION, https://www.nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire/Firewise-USA/Become-a-Firewise-USA-site (last visited Sept. 12, 2019).

158. Fire Adapted Communities Learning Network, *supra* note 153 (highlighting that homeowners are encouraged to create at least 100 feet of defensible (un-burnable) space around their property to prevent the spread of fire to their home).

159. Volker C. Radeloff, *et al.*, *Rapid Growth of the US Wildland-Urban Interface Raises Wildfire Risk*, 115 PROC. NAT'L ACAD. SCI. 3314, 3317 (2018).

160. *Id.* at 3314.

161. *Id.*

previous total.[162] Total fire suppression costs reported by the National Interagency Fire Center during those years amounts to more than $11.5 billion.[163] State agencies collectively spent $1.69 billion on wildfire programs in 2014 alone.[164] Some even rebuild after their homes have been destroyed by wildfires.[165] These numbers represent only some of the major costs associated with wildfire suppression in the WUI.[166] In the interest of such developments, hazardous fuel reduction projects are prioritized within the WUI, and if outside the WUI, limited to areas of "very high wildfire hazard potential."[167]

It has been suggested that federal wildfire suppression is a subsidy for people living in the WUI as billions of tax dollars are spent suppressing wildfires in areas where small populations live.[168] To solve this "subsidy" issue, Professor Reilly suggests a National Wildfire Insurance Program (NWIP), which would shift wildfire suppression costs to those living in the WUI.[169] Shifting the costs to the individual, the NWIP would discourage individuals from further development in the WUI.[170] The "insurance premiums," mandated by the federal government, would be based on the level of wildfire risk in the particular WUI area.[171] WUI residents, however, would be able to reduce their premiums by taking action to reduce the risk of wildfire much like Firewise homeowners do now.[172] Reilly proposes that the NWIP would effectively solve rapid WUI development and the increasing fire suppression costs that accompany it.[173]

A wildfire insurance program imposed on WUI residents has its issues.[174] Most importantly, the political ramifications of imposing what is essentially a tax on western homeowners would be significant.[175] However, this

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162. Lloyd's, *Wildfire: A Burning Issue for Insurers?* 20 (2013), https://www.lloyds.com/~/media/lloyds/reports/emerging-risk-reports/wildfire-final.pdf.

163. *Federal Firefighting Costs (Suppression Only)*, *supra* note 46.

164. State Foresters by the Numbers, NATIONAL ASSOCIATION OF STATE FORESTERS 10 (2015), http://stateforesters.org/sites/default/files/publication-documents/2014%20State%20 Foresters%20by%20the%20numbers%20FINAL.pdf.

165. Emily Badger, *Are Some Places Just Too Fire-Prone to Live?,* CITYLAB (July 16, 2013), https://www.citylab.com/environment/2013/07/are-some-places-just-too-fire-prone-live/6206/.

166. State Foresters by the Numbers, *supra* note 164, at 4.

167. Appropriations Act, Pub. L. No. 115-141, Div. O, § 605.

168. Benjamin Reilly, *Free Riders on the Firestorm: How Shifting the Costs of Wildfire Management to Residents of the Wildland-Urban Interface Will Benefit Our Public Forests*, 42 B.C. ENVTL. AFF. L. REV. 541, 554 (2015) (citing Headwaters Econs., SOLUTIONS TO THE RISING COSTS OF FIGHTING FIRES IN THE WILDLAND-URBAN Interface 5, 8 (2009)).

169. *Id.* at 560.

170. *Id.*

171. *Id.* at 562.

172. *Id.* at 560; NATIONAL FIRE PROTECTION ASSOCIATION, *supra* note 157.

173. Reilly, *supra* note 168, at 560.

174. *Id.* at 571.

175. *See id.* at 567, 571.

insurance program recognizes the root problem associated with current development in the WUI—increased development.[176] Requiring insurance would likely result in less development in the WUI and that is truly what is needed.[177]

Therefore, an integrative approach to wildfire management requires some incentivized measure (less than a government-mandated insurance) to prevent further development in fire-prone areas. One proposed incentive suggests that passing a percentage of the suppression costs to local governments would incentivize better local planning.[178] This stops short of Professor Reilly's suggested homeowner insurance program and instead promotes planning that would utilize regulatory tools, like zoning overlays, subdivision regulations, and development and design standards.[179] Additionally, proposed funding for community planning programs would encourage communities to implement short-term suppression measures as a transition while planning for more long-term solutions, working toward a fire-adapted community.[180] These incentives present a more realistic and less costly (both economic and political) solution when addressing concerns surrounding the WUI.

Others, even in the scientific community, advocate for avoiding all further development in low frequency, high-severity fire ecosystems.[181] In order to restore fire-adapted ecosystems, some wildfires must be allowed to burn.[182] Preventing new construction, or limiting and regulating construction outside the WUI is likely the only way those wildfires can burn. Therefore, revised zoning regulations should be developed by a "commission on wildfire," with consideration given to the importance of wildfire as an ecological process.[183] In response to political pressures against development moratoriums, the likely solution is educating the public on the present and future severity of wildfires and how steadily increasing fire suppression only creates worse conditions.[184] Truly effective wildfire management requires the public to recognize and understand the importance of fire as an ecological process rather than a total threat.[185]

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176. *See id.* at 560, 575.
177. *Id.* at 560.
178. Rasker, *supra* note 16.
179. *Id.*
180. *Id.*
181. Murphy *et al.*, *Beyond the 1984 Perspective: Narrow Focus on Modern Wildfire Trends Underestimates Future Risks to Water Security*, Departments of Watershed Science, Wildland Resources and the Ecology Center, UTAH STATE UNIVERSITY (Nov. 18, 2018).
182. Robert Keiter, *Wildfire Policy, Climate Change, and the Law*, 1 TEX. A&M J. PROP. L. 87, 103 (2012) [hereinafter Keiter II].
183. *Id.* at 102.
184. *Id.* at 103.
185. *See id.*

Ultimately, sustainable wildfire management cannot exist without reducing the funding oriented toward suppression efforts in the WUI and instead redirecting a portion to restorative programs.[186] This can be accomplished by incentivizing fire-adapted communities and limiting new development in the WUI through regulation and education.[187]

c. Issue 3: Climate Change

The severity and frequency of wildfires is generally determined by the weather and climate.[188] Scientific studies have shown that for centuries, larger fires directly correlate with warmer temperatures.[189] As a result of global climate change, temperatures are beginning to warm and conditions in the western U.S. are increasingly becoming drier.[190] And those dry conditions will undoubtedly lead to more intense and long-burning wildfires.[191] Several major issues result from these changing climate conditions and their impact on wildland fire.

First, drought conditions caused by warming temperatures make vegetation drier.[192] Over the last thirty years, climate change has played a role in making western forests drier and more likely to burn.[193] Additionally, climate change can extend the fire seasons, prolonging the dry conditions that lead to more frequent fires.[194] For instance, the Intergovernmental Panel on Climate Change stated in a 2007 report that "warmer temperatures are expected to extend the annual window of high fire ignition risk by 10-30%."[195] In the western United States, the spring season is now arriving earlier due to climate change as demonstrated by earlier snowmelts and vegetation regrowth.[196] This earlier season change not only extends the fire

186. *See* Salcidot, *supra* note 93, at 86.

187. *See* Rasker, *supra* note 16.

188. Tonia Schoennagel, *et al.*, *Insights from Wildfire Science: A Resource for Fire Policy Discussions*, HEADWATERS ECON. 4 (2016), https://headwaterseconomics.org/wphw/wp-content/uploads/wildfire-insights-authors.pdf.

189. *Id.* (citing Kitzberger et al., *Contingent Pacific-Atlantic Ocean Influence on Multi-Century Wildfire Synchrony Over Western North America*, 104 PROC. OF THE NAT'L ACAD. OF SCI. 543, 543-48 (Jan. 9, 2007)).

190. *Is Global Warming Fueling Increased Wildfire Risks*?, UNION OF CONCERNED SCIENTISTS (July 14, 2018), https://www.ucsusa.org/global-warming/science-and-impacts/impacts/global-warming-and-wildfire.html#.W-LiGZNKg2w.

191. *Id.*

192. Chelsea Harvey, *Here's What We Know about Wildfires and Climate Change*, E&ENEWS (Oct. 13, 2017), https://www.scientificamerican.com/article/heres-what-we-know-about-wildfires-and-climate-change/.

193. *Id.* (citing Abatzoglou and Williams, *Impact of Anthropogenic Climate Change on Wildfire Across Western US Forests*, PROC. OF THE NAT'L ACAD. OF SCI. OF THE UNITED STATES OF AMERICA (Oct. 18, 2016), http://www.pnas.org/content/113/42/11770).

194. Keiter II, *supra* note 182, at 94.

195. *Id.*

196. Harvey, *supra* note 192.

season, but also creates drier fuel due to the earlier snowmelts, which causes water to dry up much earlier.[197]

The shortened winter season also affects the forest ecosystem, creating new conditions that contribute to wildfire intensity.[198] One example of this is the pine bark beetle.[199] Pine beetles, or bark beetles, burrow inside trees to lay their eggs, and long winter seasons would keep the new beetles in the trees, stabilizing the population and their effect on the trees.[200] However, as the winter seasons shorten, the parent beetles survive longer and the offspring beetles emerge and develop earlier.[201] This results in the infestation of another entire round of pine trees within the same season, now by the parent and offspring beetles.[202] Because this infestation ultimately kills the tree, pine beetles can effectively increase the fuel for wildfires.[203]

Climate change creates other major problems for the West. Lightning strikes, one of the two ways wildfires are started, can become more frequent in hot weather.[204] Additionally, climate change can influence wind patterns and overall strength, which can cause more burning across greater areas.[205] Most importantly, as climate change creates more frequent and severe wildfires, the carbon emissions released by fire could likely create a "feedback loop," where "more warming leads to more fires, which release more carbon, which causes more warming, and so on."[206] Climate change, then, presents serious issues for fire management.

Climate change is irreversible and because of climate change, more intense wildfires are happening more often and have essentially become the "new normal."[207] Therefore, an integrative approach to wildfire management must consider adaptation to fire rather than suppression and fuel reduction.[208] Adaptive wildfire management must first consider ecological restoration and natural forest resilience to restore the balance of historic fire regimes.[209]

197. *Id.*

198. *See* Jessica Owley, *Climate Change Challenges for Land Conservation: Rethinking Conservation Easements, Strategies, and Tools*, 95 DENV. L. REV. 727, 736 (2018) (citing Barbara J. Bentz et al., *Climate Change and Bark Beetles of the Western United States and Canada: Direct and Indirect Effects*, 60 BIOSCIENCE 602, 609 (2010)).

199. *Id.*

200. *Bark Beetle Outbreaks in Western North America: Causes and Consequences*, USDA Forest Service Rapid Science Assessment Team 12 (2005), https://www.fs.fed.us/rm/pubs_ other/rmrs_ 2009_bentz_b001.pdf.

201. *Id.*

202. *Id.*

203. Owley, *supra* note 198, at 736 (citing A.L. Westerling et al., *Warming and Earlier Spring Increase Western U.S. Forest Wildfire Activity*, 313 SCIENCE 940 (2006)).

204. Harvey, *supra* note 192.

205. *Id.*

206. *Id.*

207. Keiter II, *supra* note 182, at 94-95.

208. Salcidot, *supra* note 93, at 77.

209. Keiter II, *supra* note 182, at 104.

Professor Salcidot, in advocating for wildfire as a restoration tool, recognized the challenge of restoration due to changing climate conditions.[210] Adaptation, however, requires an ecosystem adjusting to new conditions and if that adjustment is met with resistance, such as suppression, there may never be an end to the feedback loop.[211]

Adaptation also requires mitigation efforts. As discussed above, fire-adapted communities must adapt to and mitigate wildfire risk through integrative planning.[212] For sustainable fire management in the WUI, communities must integrate climate change into the planning process.[213] Further, to adequately address climate change threats, the WUI must have limitations, such as designated no-building zones, fire-proof construction standards, and landscaping requirements.[214] The increased temperatures associated with climate change require communities and government agencies in and associated with the WUI to recognize and plan for drier conditions and resulting wildfire frequency, even it means limiting new development completely.[215] Ultimately, communities must adapt their land management practices to climate change to mitigate wildfire risk and permit ecosystems to adjust to the changing climate uninhibited.[216]

IV. CONCLUSION

In conclusion, the federal government has historically focused its attention and budget on wildfire suppression and, more recently, hazardous fuels reduction.[217] And while many agencies' mission statements suggest that fire is recognized as an ecological necessity, their practices suggest otherwise.[218] Whether suppression and fuel reduction efforts are a result of poor planning, politics, or sheer necessity is uncertain, but the current administration offers only short-term solutions to the long-term wildfire problem.[219] The Forest Service and other agencies have not properly focused their attention on the "compounding effects of climate change, [the] deteriorating forest conditions, and [the] uncontrolled residential development at the wildland-urban interface."[220]

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210. Salcidot, *supra* note 93, at 77.
211. *Id.* at 75-76.
212. Keiter I, *supra* note 14, at 382-83.
213. Keiter II, *supra* note 182, at 102.
214. *Id.*
215. *See id.*
216. *Id.* at 104.
217. *See supra* Part II.a, b.
218. *See supra* text accompanying notes 78-81.
219. *See supra* Part III.a.
220. Bosworth & Williams, *supra* note 111.

Therefore, a commission on wildfire should be formed to address the federal government's continued mismanagement of wildland fire.[221] Made up of all interested parties with the purpose of offering sensible and sustainable wildfire policy, a commission offers the best chance to reorient wildfire management and the public's perceptions of wildfire.[222] An integrative and sustainable wildfire management policy is required to address the increased risks to forests and communities.[223] As such, ecological restoration should be the primary goal of wildfire management, and a wildfire commission promoting fire-adapted ecosystems, supported by scientific authority, would arguably encourage agencies to shift their attention toward sustainable wildfire management policies.[224]

Additionally, the public must be involved in the wildfire planning process, as fire-adapted communities contribute to long-term mitigation of wildfires in the WUI.[225] A commission on wildfire would include parties interested in wildfire management, and those communities living under the constant threat of wildfire cannot be excluded.[226] Fire-adapted communities regularly employ risk-reduction efforts at a local level to mitigate fire damage near their properties.[227] Including these communities in a commission on wildfire provides the unique and important perspective of everyday people living with wildfires.[228] Public involvement can also lead to public education on the risks and benefits of wildfire as more communities become involved and work to understand the importance of fire and how to live with it.

Also, there must be limitations set on new development in the WUI for ecological restoration and forest resilience to occur. For these things to occur, there must be some deterrents to new development in the WUI, such as a partial fire suppression insurance shifting to the homeowner or passing a percentage of suppression costs to local governments.[229] Transferring some suppression costs to homeowners would likely discourage new development in the WUI, while increasing costs to local governments would arguably encourage improved zoning and building ordinances that would limit or regulate construction.[230] A commission on wildfire would best address

221. *Id.*
222. *See supra* Part III.a.
223. *See* Keiter I, *supra* note 14, at 382-83.
224. *See supra* Part III.a.
225. *See* Miller, *supra* note 130, at 226.
226. *See supra* Part III.a.
227. *See* Miller, *supra* note 130, at 214.
228. *Id.* at 226.
229. Reilly, *supra* note 168, at 560.
230. *Id.*

whether these solutions, or any others, are feasible because the commission is composed of all relevant parties.[231]

Finally, the undertaking of these efforts must occur with the mutual understanding that climate change is impacting wildfire frequency and intensity, so wildfire management techniques, government agencies, and communities must adapt to the changing conditions. How wildland fires are affected by climate change is best addressed by a commission on wildfire that includes, among others, scientists that understand how the climate is changing fire activity, including frequency, severity, and comparisons to historic fire regimes[232]. Recommendations from a reasoned and experienced commission whose goal is sustainable wildfire management can provide communities in the WUI with guidance on how to best adapt to the threat created by a changing climate.[233]

Living with wildfire is the "new normal" in the Western U.S., and until serious action is taken to address the long-term wildfire issue, that "normal" will become increasingly dangerous and costly.[234] Integrative wildfire management polices promoted by a commission on wildfire will help to undo the "new normal" created by forest mismanagement.

231. *See supra* Part III.a.
232. *See supra* Part III.c.
233. *See supra* Part III.c.
234. Keiter II, *supra* note 182, at 94 (quoting Intergovernmental Panel on Climate Change Fourth Assessment Report, Climate Change 2007: Synthesis Report, Summary for Policymakers 2, 619 (2007)).