NOTE

Burning Down the House: Wildfires, Cultural Burning, and the Perverse Incentive Structure of the Clean Air Act

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Abstract

Rising global temperatures are contributing to an alarming trend of increasingly damaging wildland fires. Controlled burns (or prescribed fires) can mitigate wildfire smoke and break the cycle of increasingly destructive wildfires. However, United States forest policy has long focused on fire suppression. This Note discusses how federal regulations, particularly under the Clean Air Act, discourage controlled burns.

The Clean Air Act establishes a complex regulatory framework for managing air quality. The "exceptional events" provision allows regulatory flexibility for wildfire emissions but does not give the same to prescribed burns. Although some scholarship has discussed the exceptional events rule, there is no current scholarship that examines the particular hardships this rule places on Native American populations. A case study of the Klamath region of California highlights how the displacement of Yurok and Karuk Tribes disrupted controlled burns, and how current efforts to restore Tribal burning practices face practical regulatory barriers.

This Note underscores the need to clarify federal positions and adjust the exceptional events rule to align better with public health goals. It recommends that Congress redefine "exceptional events" to account for prescribed burns and urges the Environmental Protection Agency to publish clearer guidance documents for both prescribed burns and wildfires, considering the latest science on emissions from both sources.

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"Fire is the last wild element of the West that hasn't been controlled."— Timothy Egan¹

"Only you can stop forest fires"-Smokey Bear

"If we as Karuk people obey the 'laws of nature' and the mandates of our Creator, we are necessarily in violation of the white man's laws. It is a criminal act to be a Karuk Indian in the twenty-first century."—Leaf Hillman, Karuk Ceremonial Leader and Tribal Vice Chairman.²

INTRODUCTION

Prescribed burning offers a promising solution to break the cycle of increasingly devastating wildfires in the United States. However, deeply rooted fire suppression policies pose a formidable challenge to the widespread adoption of prescribed burning. Federal regulations under the Clean Air Act continue to deter the adoption of any form of prescribed burning. Specifically, the Act's "exceptional events" rule creates a regulatory escape hatch that allows regulators to systematically discount smoke from wildfires. However, this leniency is not extended to prescribed burns, creating an imbalance in the regulatory treatment of fire.

This Note examines how fire suppression policies and the displacement of the Karuk and Yurok Tribes have disrupted cultural burning practices that could help to mitigate devastation in particularly wildfire-prone lands. Despite efforts to restore Tribal burning practices to the area, regulatory and bureaucratic obstacles have prevented the effective adoption of cultural burning. This case study of the Klamath region in Northern California underscores the urgent need for reevaluation of existing federal policies.

I. RISING GLOBAL TEMPERATURES AND FIRE SUPPRESSION POLICIES HAVE CONTRIBUTED TO A TREND OF INCREASINGLY DAMAGING WILDFIRES

Wildfires endanger public health, national air quality, and the economy. One Utah air quality regulator noted that "[s]moke from wildfires causes the highest monitored values of fine particulate matter ... that impact public health. Monitored levels of air pollution during wildfire smoke events are *tens to hundreds* of times higher than are typically attributable to local regulated sources of air pollution."³

Wildfire smoke produces a litany of harmful pollutants, including PM_{2.5}, carbon monoxide (CO), and volatile organic compounds (VOCs).⁴ Wildfire smoke

^{1.} American Experience: The Big Burn (PBS television broadcast Sept. 7, 2022).

^{2.} KARI MARIE NORGAARD, THE EFFECTS OF ALTERED DIET ON THE HEALTH OF THE KARUK PEOPLE 31 (2005), https://perma.cc/7TF6-BLSK.

^{3.} Stuart Parker, *Wildfire Emissions Drive Bipartisan Concerns on EPA's PM NAAQS Plan*, INSIDEEPA (Sept. 19, 2023) (emphasis added), https://perma.cc/J23G-RG88.

^{4.} Why Wildfire Smoke Is a Health Concern, U.S. ENV'T PROT. AGENCY (Oct. 4, 2024), https://perma. cc/78PW-SFG6; Kanako Sekimoto et al., High- and Low-Temperature Pyrolysis Profiles Describe

is a direct and harmful contributor to tropospheric ozone.⁵ Wildfire smoke can drive tropospheric ozone especially when mixed with existing NO_x pollution from other sources.⁶ Forty-four percent of the nation's primary emissions of fine particulate matter are generated by wildland fires.⁷ Though less readily quantifiable, tropospheric ozone pollution is also considerably worsened by wildland fires.⁸

A recent study found that the wildfire smoke generated since 2016 has eroded "about 25% of previous multi-decadal progress in reducing $PM_{2.5}$ concentrations on average" in three-quarters of the contiguous United States.⁹ In western states, where fires are typically more severe, this trend is even more alarming: more than fifty percent of previous air quality progress has been eroded by wildfire smoke.¹⁰

Beyond the detrimental effects of wildfire smoke on national air quality,¹¹ exposure to the smoke pollution from wildfires causes several severe human health problems including increased respiratory morbidity,¹² cardiovascular disease,¹³ adverse birth outcomes,¹⁴ and premature death.¹⁵ Wildfires can also ignite and destroy homes and businesses, resulting in burned materials that release additional hazardous pollutants.¹⁶

Wildfire burns cause billions of dollars in damage.¹⁷ Democrats on the Joint Economic Committee recently found that wildfire damages cost the United States

6. See Singh et al., supra note 5, at 50.

7. EPA, Fact Sheet: Wildland Fire, Air Quality and Public Health Considerations, Notice of Proposed Rulemaking for the EPA Reconsideration of the National Ambient Air Quality Standards for Particulate Matter (Feb. 3, 2023), https://perma.cc/MS9Q-3VP4.

8. NOAA Rsch., *Smoke from Wildfires Influences Ozone Pollution on a Global Scale*, NAT'L OCEANIC & ATMOSPHERIC ADMIN. (Jan. 10, 2022), https://perma.cc/J6TC-CAQG.

10. *Id*.

11. See, e.g., Christine Hauser & Claire Moses, Smoke Pollution from Canadian Wildfires Blankets U.S. Cities, Again, N.Y. TIMES (July 18, 2023), https://www.nytimes.com/2023/07/17/us/wildfiresmoke-canada-ny-air-quality.html.

12. Wayne E. Cascio, Wildland Fire Smoke and Human Health, 624 SCI. TOTAL ENV'T 586, 586 (2018).

13. See Hao Chen et al., Cardiovascular Health Impacts of Wildfire Smoke Exposure, 18 PARTICLE & FIBRE TOXICOLOGY 1, 16 (2021).

14. See, e.g., Sana Amjad et al., *Wildfire Exposure During Pregnancy and the Risk of Adverse Birth Outcomes: A Systematic Review*, 156 ENV'T INT'L 106644, 1 (2021) ("Current evidence suggests that maternal exposure to wildfire during late pregnancy is linked to reduced birth weight and preterm birth.").

15. See Shuai Pan et al., Quantifying the Premature Mortality and Economic Loss from Wildfire-Induced PM_{2.5} in the Contiguous U.S., 875 SCI. TOTAL ENV'T 162614, 1 (2023).

16. See Lee Ann L. Hill et al., Can Prescribed Fires Mitigate Health Harm? A Review of Air Quality and Public Health Implications of Wildfire and Prescribed Fire 9 (2022).

17. Nat'l Ctrs. for Env't Info., NAT'L OCEANIC & ATMOSPHERIC ADMIN., U.S. Billion-Dollar Weather and Climate Disasters (2024), https://perma.cc/3DBU-GVWD.

Volatile Organic Compound Emissions from Western US Wildfire Fuels, 18 ATMOSPHERIC CHEMISTRY & PHYSICS 9263, 9263 (2018).

^{5.} See Why Wildfire Smoke Is a Health Concern, supra note 4; see also Hanwant B. Singh et al., Interactions of Fire Emissions and Urban Pollution over California: Ozone Formation and Air Quality Simulations, 56 ATMOSPHERIC ENV'T 45, 48–50 (2012).

^{9.} Marshall Burke et al., *The Contribution of Wildfire to PM_{2.5} Trends in the USA*, 622 NATURE 761, 761 (2023).

between \$394 and \$848 billion annually, equivalent to two to four percent of the national gross domestic product.¹⁸ The report notes that these costs are necessarily unrepresentative of the true costs that wildfires impose on the national economy due to the unquantifiable nature of certain harms, such as the displacement of peoples.¹⁹

The intensity, severity, and frequency of wildfires are increasing because of both climate change²⁰ and the nation's history of fire suppression.²¹ Wildfire season is growing longer due to warmer and drier temperatures in the spring and summer.²² Climate-change-induced dry conditions draw moisture from vegetation, making it more readily ignitable.²³ Studies have shown that forest fires in 2022 resulted in six million more hectares of tree cover loss than the average tree cover loss in 2001.²⁴ In the Western United States, projections indicate that a global temperature increase of 1°C would result in a six hundred percent increase in annual median area burned by wildfire.²⁵ These concerning figures necessitate action from law and policymakers to mitigate both wildfires and the smoke they produce.

II. PRESCRIBED FIRE OFFERS A PATH TOWARDS MITIGATING WILDFIRE SMOKE AND BREAKING THE CYCLE OF INCREASINGLY DAMAGING WILDFIRES

More than half of the United States is covered by forests, shrubland, or grassland, which serve as the primary fuel of wildfires.²⁶ Prescribed fire can function as a caretaking tool and prevent extreme wildfires by systematically reducing the

^{18.} JOINT ECON. COMM. DEMOCRATS, 118TH CONG., CLIMATE-EXACERBATED WILDFIRES COST THE U.S. BETWEEN \$394 TO \$838 BILLION EACH YEAR IN ECONOMIC COSTS AND DAMAGES 2 (2023), https://perma.cc/Z2Z7-3YX8.

^{19.} Id.

^{20.} Anthony LeRoy Westerling, Increasing Western U.S. Forest Wildfire Activity: Sensitivity to Changes in the Timing of Spring, 371 PHIL. TRANSACTIONS ROYAL SOC'Y B 20150178, 1 (2016); see also Philip E. Dennison et al., Large Wildfire Trends in the Western United States, 1984–2011, 41 GEOPHYSICAL RSCH. LETTERS 2928, 2928 (2014) ("Continuing changes in climate, invasive species, and consequences of past fire management, added to the impacts of larger, more frequent fires, will drive further disruptions to fire regimes of the western U.S. and other fire-prone regions of the world.").

^{21.} Zachary L. Steel et al., *The Fire Frequency-Severity Relationship and the Legacy of Fire Suppression in California Forests*, 6 ECOSPHERE 8, 1 (2015); *see also infra* Part II.

^{22.} U.S. GLOB. CHANGE RSCH. PROGRAM, FOURTH NATIONAL CLIMATE ASSESSMENT, VOLUME II: IMPACTS, RISKS, AND ADAPTATION IN THE UNITED STATES 514 (David Reidmiller et al. eds., 2018).

^{23.} Marco Turco et al., *Anthropogenic Climate Change Impacts Exacerbate Summer Forest Fires*, 120 PROC. NAT'L ACAD. SCIS. e2213815120, 3 (2023) ("[W]arming is a key driver of the speed at which both live and dead fuels dry out, and thus of fuel aridity and flammability.").

^{24.} James MacCarthy et al., *The Latest Data Confirms: Forest Fires Are Getting Worse*, WORLD RES. INST. (Aug. 13, 2024), https://perma.cc/JK6J-6DGC.

^{25.} Wildfires and Climate Change, CTR. FOR CLIMATE & ENERGY SOLS., https://perma.cc/6XXP-G668 ("For much of the U.S. West, projections show that an average annual 1 degree C temperature increase would increase the median burned area per year as much as 600 percent in some types of forests."). It is presently about 1.1°C warmer than 1800s temperatures, and we are on a path towards a temperature increase of up to 4.4°C by 2100. See U.N. Climate Action Fast Facts, https://perma.cc/3BCD-7VVR.

^{26.} National Land Cover Database 2019 (NLCD2019) Statistics for 2016, MULTI-RESOLUTION LAND CHARACTERISTICS CONSORTIUM, https://perma.cc/69VT-AQ59.

amount of accumulated fuel on these lands. In doing so, prescribed fires can reduce both the scope and intensity of wildfires.²⁷ This is partly because prescribed burning can be planned for before "fire season" when meteorological conditions such as dry weather and strong winds are not as severe.²⁸

One study found that prescribed burning interventions had the potential to cut the population smoke exposure of the entire Western United States by nearly half, from forty-four μ g/m³ in September 2020 to twenty-three μ g/m³.²⁹ Prescribed fires consume less fuel³⁰ and produce less smoke³¹ than wildfires. Multiple studies show that prescribed fires have lower emissions factors than wildfires.³² The detrimental health impacts emanating from PM_{2.5} and ozone pollution from prescribed fires are substantially less than those from wildfires.³³ In 2021, the U.S. Environmental Protection Agency (EPA) released a statement about recent prescribed fire research, stating:

In contrast to wildfire, prescribed fire is a planned event and therefore with coordination and advance notification communities and individuals can take health protective actions to reduce exposure. Though a prescribed fire has the potential to reduce the likelihood of a future wildfire, both events produce smoke and may result in public health impacts.³⁴

Yet despite increased recognition of the problems created by suppressionfocused policy, federal funding for fire suppression efforts has increased in recent years.³⁵

^{27.} See MARSHALL BURKE ET AL., STANFORD INST. FOR ECON. POL'Y RSCH., MANAGING THE GROWING COST OF WILDFIRE 6 (2020) (describing prescribed fire as effective tool to reduce wildfire-induced public health risks).

^{28.} Makoto M. Kelp et al., *Prescribed Burns as a Tool to Mitigate Future Wildfire Exposure: Lessons for States and Rural Environmental Justice Communities*, 11 EARTH'S FUTURE e2022EF003468, 10 (2023).

^{29.} Id. at 1, 10.

^{30.} Id. at 2 (citing K. Baker et al., Illustrating Wildland Fire Air Quality Impacts Using an EPA Emission Inventory, 24 EM, 2020, at 26).

^{31.} See id. (first citing Daniel A. Jaffe et al., Wildfire and Prescribed Burning Impacts on Air Quality in the United States, 70 J. AIR & WASTE MGMT. ASS'N 583 (2020); and then citing Andrey Marsavin et al., Optical Properties of Biomass Burning Aerosol During the 2021 Oregon Fire Season: Comparison Between Wild and Prescribed Fires, 3 ENV'T SCI.: ATMOSPHERES 608 (2023)).

^{32.} See, e.g., Xiaoxi Liu et al., Airborne Measurements of Western U.S. Wildfire Emissions: Comparison with Prescribed Burning and Air Quality Implications, 122 J. GEOPHYSICAL RSCH.: ATMOSPHERES 6108, 6109 (2017).

^{33.} CTR. FOR PUB. HEALTH & ENV'T ASSESSMENT, EPA, COMPARATIVE ASSESSMENT OF THE IMPACTS OF PRESCRIBED FIRE VERSUS WILDFIRE (CAIF): A CASE STUDY IN THE WESTERN U.S., 7–25, 8–16 (2021).

^{34.} Press Release, EPA, EPA Releases Report Comparing Air Quality and Public Health Impacts from Prescribed Fire and Wildland Smoke (Sept. 30, 2021), https://perma.cc/3LY3-HPEX.

^{35.} CONG. BUDGET OFF., PUB. No. 57970, WILDFIRES 8 (2022) ("Over the five fiscal years ending in 1989, average annual spending on fire suppression by federal agencies totaled \$728 million (in 2020 dollars), an amount that more than tripled—to about \$2.5 billion—for the five years ending in 2020."); see also Eric Edwards & Sara Sutherland, Does Environmental Review Worsen the Wildfire Crisis?, PROP. & ENV'T RSCH. CTR. (June 14, 2022), https://perma.cc/MZ8Q-4G7T ("Wildland fire

III. THE LONG NATIONAL TRADITION OF FIRE SUPPRESSION POLICY IS LIKELY TO CONTINUE ABSENT INTERVENTION

Status quo bias³⁶ favors fire suppression. Forest policy in the United States has long focused on shielding the forest from harm caused by wildfires at the expense of any type of prescribed burning practices. Historically, Indigenous populations practiced controlled burns throughout the United States, but many of these practices were halted by colonization and the subsequent imposition of Western practices.³⁷ Many of the colonies almost immediately outlawed forest fires of any kind soon after their establishment.³⁸ Soon after the colonies became the United States, Justice John Marshall opined in Johnson v. McIntosh that "the conqueror prescribes its limits" and Tribes are merely possessors of land, not owners.³⁹ Since Tribes only possess the lands, the Court held that the United States can extinguish their title through conquest or purchase.⁴⁰ In redefining Tribal land rights, Justice Marshall effectively "traded a vested property right for a recognized political right of quasi sovereignty for the tribes."41 On the theory of Tribal quasi sovereignty, the U.S. government entered into numerous treaties that leveraged disparate bargaining power to systematically transfer land to the federal government.⁴² Native Americans were later subjected to horrific displacement programs under the 1830 Indian Removal Act.43 As Native Americans were

37. Michael Boero, *Traditional Ecological Knowledge and Collaborative Forest Restoration in the Sierra Nevada* 20 (Dec. 2017) (M.A. thesis, San José State University), https://perma.cc/MTU9-R3UK ("Native American fire regimes were effectively discontinued in response to colonial regulations and because of genocidal population loss. This loss of Native American ignitions, coupled with policies of total fire suppression by large public land managers in the western U.S., caused a dramatic decrease in natural, low-severity fires since the late 1800s and an increase in destructive mega-fires.").

management is the top budget item for the Forest Service, with suppression costs reaching \$1.76 billion in 2020.").

^{36.} See William Samuelson & Richard Zeckhauser, Status Quo Bias in Decision Making, 1 J. RISK & UNCERTAINTY 7, 10 (1988) ("The status quo bias is best viewed as a deeply rooted decision-making practice stemming partly from a mental illusion and partly from psychological inclination."); see also Daniel Kahneman et al., Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias, 5 J. ECON. PERSPS. 193, 197–98 (1991) ("[I]ndividuals have a strong tendency to remain at the status quo, because the disadvantages of leaving it loom larger than advantages.").

^{38.} JOHN ISE, THE UNITED STATES FOREST POLICY 21 (1920).

^{39. 21} U.S. (8 Wheat.) 543, 583-89 (1823).

^{40.} Id. at 587-88.

^{41.} VINE DELORIA, JR. & CLIFFORD M. LYTLE, AMERICAN INDIANS, AMERICAN JUSTICE 4 (1983).

^{42.} MARIEL J. MURRAY, CONG. RSCH. SERV., R46647, TRIBAL LAND AND OWNERSHIP STATUTES: OVERVIEW AND SELECTED ISSUES FOR CONGRESS, at summary (2021) ("In the 1800s, policymaking focused on renegotiating treaties with tribes, leading to the formation of reservations and often resulting in tribes ceding to the United States larger tracts of land for smaller parcels.").

^{43.} Indian Removal Act, ch. 148, 4 Stat. 411 (1830); see Forced Removal of Native Americans, EQUAL JUST. INITIATIVE (July 1, 2016), https://perma.cc/ZPB7-8UH9 ("In 1830, President Andrew Jackson signed the Indian Removal Act, which empowered the federal government to take Native-held land east of Mississippi and forcibly relocate Native people from their homes in Georgia, Alabama, North Carolina, Florida, and Tennessee to 'Indian territory' in what is now Oklahoma. In a mass atrocity

forcibly removed from their ancestral homes, the controlled burning practices of some Tribes in their native lands came to a stop.⁴⁴

Since the inception of national forest policy, controlled burns of any kind have been discouraged and sometimes outright prohibited. In 1897, Congress enacted laws making it a misdemeanor to set fires on the public domain.⁴⁵ Later that same year, Congress passed the Organic Act, creating the National Forest System and requiring the Secretary of the Interior to "make provisions against destruction by fire and degradations upon the public forest."⁴⁶ By 1910, Congress had expanded the 1897 Act's misdemeanor crimes to include fires set on Tribal lands or allotments.⁴⁷

The U.S. Forest Service (formerly the Bureau of Forestry) was established in 1905 and given control over national forest reservations.⁴⁸ In its early years, the agency grappled with two competing fire-control strategies: complete prevention of fires versus treating fire as part of the natural ecology of the landscape.⁴⁹ Chief Forester Henry S. Graves staunchly advocated for fire suppression, claiming that "the first measure necessary for the successful practice of forestry is protection from forest fires."⁵⁰ Answering Graves's call in 1908, Congress authorized the Forest Service to spend unlimited funds on fire suppression efforts.⁵¹

In 1910, the fledgling Forest Service was forced to contend with an enormous wildfire that burned over three million acres in Montana, Idaho, and Washington in only a few days.⁵² This harrowing fire claimed eighty-five lives, seventy-eight of whom were firefighters killed fighting the blaze.⁵³ "The Big Blowup," as the fire was dubbed, scared forest policymakers into a decisive fire suppression mentality that persisted for decades.⁵⁴ Upholding its spending promise, Congress footed the \$1.1 million bill spent on fire-fighting efforts for the Big Blowup, opening the door to guaranteed retroactive funding for suppression efforts; since

remembered as the Trail of Tears, tens of thousands of Native Americans died or were killed after fleeing their homes in terror.").

^{44.} See, e.g., Kristina Malsberger, Banned for 100 Years, Cultural Burns Could Save Sequoias, SAVE THE REDWOODS LEAGUE (2024), https://perma.cc/CG4S-H9EG ("California banned cultural burning back in 1850 as part of legislation designed to forcibly remove Indigenous people from their ancestral lands.")

^{45.} Act of Feb. 24, 1897, ch. 313, 29 Stat. 594 (codified as amended at 18 U.S.C. § 1855).

^{46.} Organic Act of 1897, ch. 2, 30 Stat. 34, 35 (codified as amended at 16 U.S.C. § 551).

^{47.} Act of June 25, 1910, ch. 431, 35 Stat. 855, 857 (codified as amended at 18 U.S.C. § 1855).

^{48.} U.S. Forest Service Fire Suppression, FOREST HIST. SOC'Y, https://perma.cc/5Z87-2UR6.

^{49.} Heather Campbell, *Big Blowup of 1910*, BRITANNICA (Dec. 15, 2008), https://perma.cc/7D89-PVQK.

^{50.} Henry S. Graves, U.S. Dep't of Agric., Forest Serv. Bull. 82, Protection of Forests from Fire 7 (1910).

^{51.} Forest Fires Emergency Act, ch. 192, 35 Stat. 259 (1908) (codified as amended at 16 U.S.C. § 556d).

^{52.} Campbell, *supra* note 49; Dave Roos, *How the Great Fire of 1910 Changed How the US Fought Wildfires*, HISTORY (Jan. 10, 2025), https://perma.cc/3VGG-R34C.

^{53.} Campbell, *supra* note 49.

^{54.} Roos, supra note 52.

then, Congress has never rejected a request for retroactive suppression funding.⁵⁵ The following year, Congress passed the Weeks Act, greatly expanding the reach of the Forest Service and establishing \$200,000 of funding for state forest protection programs.⁵⁶ The Weeks Act also provided that states could apply for \$10,000 in funding for fire protection professionals.⁵⁷

By 1920, controlled burns (or "light burning" as it was then called) were disparagingly referred to as "Piute forestry," referencing the Paiute Native American Tribes in Nevada and California.⁵⁸ William B. Greeley, the third chief of the Forest Service, called "Piute forestry" an "insidious doctrine ... [that] strikes unmistakably at the effort to keep timber lands productive rather than permit them to become waste."⁵⁹ Greeley argued that "[t]he light burners ignore certain basic facts about fire conditions,"⁶⁰ and cautioned that, "[i]f surface burning is not stopped, the end is total destruction, a destruction which, though less spectacular, is just as complete and disastrous as when a forest is consumed in a crown blaze that kills everything at once."⁶¹ Advocates for controlled burns were effectively silenced.⁶²

By 1922, Congress passed an act authorizing the Secretary of the Interior to protect timber from fire on Native American reservations.⁶³ In the wake of the Great Depression, the government capitalized on unemployment to bolster its fire suppression policy. By offering thirty dollars a month, meals, and lodging to single men aged eighteen to twenty-five, the federal government was able to completely staff a 250,000-man Civilian Conservation Corps (CCC) in 1933.⁶⁴

^{55.} MARK HUDSON, FIRE MANAGEMENT IN THE AMERICAN WEST 58 (2011) ("This had enormous implications for the Forest Service's approach to fire, providing an incentive to spend less on prevention and more on suppression after-the-fact. . . . Congress has never failed to make an additional appropriation to pay the money back.").

^{56.} Weeks Act, ch. 186, 36 Stat. 961 (1911) (codified as amended at 16 U.S.C. §§ 515–517, 517a, 518, 519, 521, 552, 563); Lincoln Bramwell, *1911 Weeks Act: The Legislation That Nationalized the US Forest Service*, 30 J. ENERGY & NAT. RESOURCES L. 325, 335 (2012).

^{57.} Id.

^{58.} William B. Greeley, "*Piute Forestry*" or the Fallacy of Light Burning, THE TIMBERMAN, Mar. 1920, at 38, reprinted in FOREST HISTORY TODAY, Spring 1999, at 33, 33–34, https://perma.cc/CJX2-TZYB; Dave Roos, Native Americans Used Fire to Protect and Cultivate Land, HISTORY (Aug. 11, 2023), https://perma.cc/YK9S-UT9D.

^{59.} Greeley, supra note 58, at 36.

^{60.} Id. at 34.

^{61.} Id. at 35.

^{62.} HUDSON, *supra* note 55, at 62 (citing DAVID CARLE, BURNING QUESTIONS: AMERICA'S FIGHT WITH NATURE'S FIRE 57–79 (2002)) ("Herman H. Chapman, an assistant professor at Yale; Harold Biswell, former Forest Service scientist and then a forestry professor at Berkeley; and Harold Weaver, a Bureau of Indian Affairs forester, have been singled out for their role in pursuing research on the benefits of fire in forests, and they all faced difficult institutional barriers in publishing their research. They were all attacked by the Forest Service for their advocacy of an ecosystem-specific approach to fire.").

^{63.} Act of Sept. 20, 1922, ch. 349, 42 Stat. 857 (codified at 16 U.S.C. § 594).

^{64.} The Civilian Conservation Corps, U.S. NAT'L PARK SERV. (Feb. 18, 2018), https://perma.cc/XYC7-2WS4.

The CCC was pivotal in establishing and enforcing the national fire suppression policy, spearheaded by Chief Forester Ferdinand Silcox.⁶⁵ By 1936, more than 1.5 million were employed by the CCC to support forest conservation work—including by suppressing fires across the country.⁶⁶

In the 1940s, the Forest Service launched the Cooperative Forest Fire Prevention Campaign, encouraging American laypeople to prevent forest fires. Ultimately, this campaign created the familiar, enduring image of Smokey Bear.⁶⁷ Smokey Bear's catchphrase, "Only YOU can prevent forest fires," further cemented fire suppression in national forest policy.⁶⁸ The Smokey Bear ad campaign effectively spread the message of the need to prevent human-caused wild-fires, but it also cultivated our fears of all fires.⁶⁹ This decades-long focus on fire suppression led to the accumulation of wildland fuel that has paradoxically contributed to larger and more severe wildfires.⁷⁰ Although burns initially decreased significantly, the recent increase in wildfires of immense destruction can be attributed in part to this history of fire suppression.⁷¹

Fire suppression reigned supreme until the 1960s when researchers began to question fire suppression as an effective strategy. After the National Park Service observed a decline in Giant Sequoia growth in California,⁷² the Secretary of the Interior formed a committee to investigate wildfire management problems in national parks.⁷³ The committee, headed by Dr. A. Starker Leopold, penned a report advocating for a "broader ecological view that parks should be managed as ecosystems."⁷⁴ This report catalyzed experimentation with prescribed fire by the Park Service.⁷⁵ By the late seventies, agencies were using prescribed fire as a land management tool despite internal scrutiny.⁷⁶ However, a series of "escaped"

69. Klamath-Salmon Media Collaborative, *Catching Fire: Prescribed Burning in Northern CA*, YOUTUBE, at 14:46 (Nov. 30, 2012), https://perma.cc/EXH5-ERFG.

73. Jan W. van Wagtendonk, *The History and Evolution of Wildland Fire Use*, 3 Fire Ecology 3, 5 (2007) (citing A. STARKER LEOPOLD, WILDLIFE MANAGEMENT IN THE NATIONAL PARKS (1963), *reprinted in* 28 TRANSACTIONS N. AM. WILDLIFE & NAT. RES. CONF. 1 (1963)).

75. Id.

^{65.} HUDSON, supra note 55, at 15, 26.

^{66.} FOREST SERV., U.S. DEP'T OF AGRIC., REPORT OF THE CHIEF OF THE FOREST SERVICE, 1936, at 35 (1936).

^{67.} FOREST SERV., U.S. DEP'T OF AGRIC., SMOKEY BEAR GUIDELINES 3–4 (2009), https://perma.cc/ VN9M-7CKR.

^{68.} Id. at 4; The 1910 Fires, FOREST HIST. SOC'Y, https://perma.cc/DLP6-3JMQ.

^{70.} Kimiko Barrett, *Federal Wildfire Policy and the Legacy of Suppression*, HEADWATERS ECON. (Apr. 27, 2020), https://perma.cc/K8EL-RA8K; Steel et al., *supra* note 21, at 1.

^{71.} Forest Serv., U.S. Dep't of Agric., FS-979, National Report on Sustainable Forests—2010, at II–6 to -7 (2011).

^{72.} RONALD E. STEWART ET AL., FOREST SERV., U.S. DEP'T OF AGRIC., GEN. TECH. REP. PSW-151, GIANT SEQUOIA MANAGEMENT IN THE NATIONAL FORESTS OF CALIFORNIA 153 (1994), https://perma.cc/6W74-CFS9.

^{74.} Id.

^{76.} WILDLAND FIRE LEADERSHIP COUNCIL, INTERAGENCY STRATEGY FOR THE IMPLEMENTATION OF FEDERAL WILDLAND FIRE MANAGEMENT POLICY 39 (2003), https://perma.cc/5CGC-3MTP.

prescribed fires—the 1978 Ouzel fire in Rocky Mountain National Park, the 1988 Yellowstone National Park fires, and the 1988 Canyon Creek fire in the Lewis and Clark National Forest—spurred national outcry and led agencies to retreat from prescribed fire until the early 2000s.⁷⁷

A 2003 interagency report by the U.S. Department of Agriculture (USDA), Bureau of Indian Affairs (BIA), Bureau of Land Management, Fish and Wildlife Service (FWS), and National Park Service acknowledged that "[w]ithout fire, wildlands become overgrown, stressed and vulnerable to drought, insects and disease. This overgrowth of vegetation also means there is more fuel to burn in any fire that may occur."⁷⁸ However, the report also noted that "[p]ublic intolerance for smoke has constrained the use of prescribed fire."⁷⁹ Over the last twenty years, agencies have worked to grapple with a complex reality: balancing the need to deal with the accumulated fuel from years of suppression policy while navigating complex regulations and public intolerance for more smoke.

IV. FEDERAL REGULATIONS UNDER THE CLEAN AIR ACT DISCOURAGE CONTROLLED BURNS

Though policymakers have started to come around to prescribed fire as a management tool, practical regulatory barriers posed by the Clean Air Act prevent prescribed fire from being used effectively.

A. THE CLEAN AIR ACT SETS OUT A COMPLEX REGULATORY FRAMEWORK FOR MANAGING AIR QUALITY

Because prescribed fires emit PM_{2.5}, carbon monoxide (CO), and volatile organic compounds (VOCs),⁸⁰ the Clean Air Act imposes real constraints on the potential for controlled burns. Under the mandate of the Clean Air Act, the EPA Administrator has a nondiscretionary duty to establish national ambient air quality standards (NAAQS) for certain criteria pollutants.⁸¹ Criteria pollutants are those that "cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare."⁸² Carbon monoxide, lead (Pb), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM), and sulfur dioxide (SO₂) are criteria pollutants subject to regulation under the NAAQS standard.⁸³ Except

^{77.} Van Wagtendonk, supra note 73, at 8-9.

^{78.} WILDLAND FIRE LEADERSHIP COUNCIL, *supra* note 76, at 37.

^{79.} Id. at 39.

^{80.} Why Wildfire Smoke Is a Health Concern, supra note 4.

^{81. 42} U.S.C. § 7408(a) (requiring EPA to publish list of criteria air pollutants); 42 U.S.C. § 7409(a) (requiring EPA promulgate NAAQS for any listed criteria air pollutant).

^{82. 42} U.S.C. § 7408(a)(1)(A).

^{83. 40} C.F.R. pt. 50 (2024).

for lead, which was added to the list in 1975 after litigation, 84 this list has remained stable since 1971. 85

In setting these NAAQS, the Administrator must specify "a level of air quality the attainment and maintenance of which in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, *are requisite to protect the public health*."⁸⁶ The Administrator may not consider costs or technological feasibility in setting these standards.⁸⁷ The criteria upon which the standards are based must also "reflect the latest scientific knowledge useful in indicating the kind and extent of all identifiable effects on public health or welfare."⁸⁸ To the "extent practicable,"⁸⁹ this standard must account for "those variable factors (*includ-ing* atmospheric conditions) which of themselves or in combination with other factors may alter the effects on public health or welfare of such air pollutant."⁹⁰ Since the NAAQS were promulgated, the United States has enjoyed huge improvements in air quality and associated gains in public health.⁹¹

The Administrator is required to revise these NAAQS every five years.⁹² The process for revising the NAAQS is lengthy, resource intensive, and, at multiple steps, requires a formal report on the agency's findings.⁹³ Responsibility for enforcement of the NAAQS is shared between the federal and state governments. States are charged with creating a State Implementation Plan (SIP) detailing the measures that the state will take to achieve the NAAQS.⁹⁴ Each SIP must be submitted to the EPA for approval,⁹⁵ but the relevant state and local agencies are charged with day-to-day monitoring of air quality.⁹⁶ The Governor of each state

^{84.} Nat. Res. Def. Council v. Train, 545 F.2d 320, 328 (2d Cir. 1976) (holding that EPA had a nondiscretionary duty to declare lead a criteria pollutant and regulate it under the provisions of the Act governing those pollutants).

^{85.} *Compare* National Primary and Secondary Ambient Air Quality Standards, 36 Fed. Reg. 1502, 1502 (proposed Jan. 30, 1971), *and* National Primary and Secondary Ambient Air Quality Standards, 36 Fed. Reg. 8186, 8186 (Apr. 30, 1971) (to be codified at 42 C.F.R. pt. 410), *with* 40 C.F.R. pt. 50 (2025).

^{86. 42} U.S.C. § 7409(b)(1) (emphasis added).

^{87.} See Whitman v. Am. Trucking Ass'n, 531 U.S. 457, 486 (2001).

^{88. 42} U.S.C. § 7408(a)(2).

^{89.} Id.

^{90. 42} U.S.C. § 7408(a)(2)(A) (emphasis added).

^{91.} Energy Pol'y Inst., Univ. of Chi., United States: Clean Air Act (1970), Policy Impacts, AIR QUALITY LIFE INDEX (Aug. 28, 2023), https://perma.cc/PD2X-ZX5A ("With 64.9 percent less pollution, Americans are living healthier, longer lives. Reductions in particulate air pollution alone, thanks in large part to the Clean Air Act, have added 1.4 years to the life expectancy of the average American since 1970.").

^{92.} See Memorandum from E. Scott Pruitt, Administrator, EPA, to Assistant Administrators, EPA 2 (May 9, 2018), https://perma.cc/FLX8-W5MK.

^{93.} Process of Reviewing the National Ambient Air Quality Standards, Criteria Air Pollutants, U.S. ENV'T PROT. AGENCY (Dec. 20, 2024), https://perma.cc/2R2U-KQGB.

^{94. 42} U.S.C. § 7410(a).

^{95. 42} U.S.C. § 7410(a)(1).

^{96. 42} U.S.C. § 7407(a); see also Ambient Monitoring Tech. Info. Ctr., EPA, State Monitory Agency Annual Air Monitoring Plans and Network Assessments, U.S. ENV'T PROT. AGENCY (Dec. 17, 2024),

reports to EPA the air quality data and initial recommendations for designations of areas in "attainment" or "nonattainment."⁹⁷ The EPA considers the information, then promulgates official attainment or nonattainment designations.⁹⁸ Nonattainment of the NAAQS can trigger severe penalties for states, such as withholding of federal highway funds.⁹⁹

B. "exceptional events" provide a regulatory escape hatch for wildfires but not prescribed burns

The disparate treatment of wildfire and prescribed fire is contradictory to the public health focus of the Clean Air Act.¹⁰⁰ Despite the Act's goals of protecting public health and welfare, it contains a broad exemption for "exceptional events."¹⁰¹ Under the Clean Air Act, "exceptional events" are "unusual or naturally occurring events that can affect air quality but are *not reasonably controllable* using techniques that Tribal, state or local air agencies may implement."¹⁰² To receive an exemption for an exceptional event, the state must demonstrate a "clear causal relationship between the measured exceedances of [the NAAQS] and the exceptional event."¹⁰³ If the EPA approves the exceptional event, the data attributed to the event is excluded from calculations determining attainment.¹⁰⁴ A state may ask EPA for an exemption for the air quality data attributed to wildfires, prescribed fires, fireworks displays, high wind dust events, and other stratospheric intrusions, but the requirements for each category of event vary widely.¹⁰⁵

Exceptional events were first defined by the EPA in 1986 as events that "are not expected to recur routinely at a given location, or ... are possibly uncontrollable or

101. See 40 C.F.R. § 50.14(b) (2024).

https://perma.cc/9EJD-TQKL; OFF. OF AIR QUALITY PLAN. & STANDARDS, EPA, AMBIENT AIR MONITORING STRATEGY FOR STATE, LOCAL, AND TRIBAL AIR AGENCIES 1–2 (2008) ("Since the 1970s, State and Local Ambient Monitoring Stations (SLAMS) have represented the backbone of all criteria pollutant . . . monitoring across the nation.").

^{97.} See 42 U.S.C. § 7407(d).

^{98.} Id.

^{99.} See, e.g., Status of Active Sanctions Clocks under the Clean Air Act, U.S. ENV'T PROT. AGENCY, https://perma.cc/UG6F-SMZ4.

^{100.} Emily Williams, *Reimagining Exceptional Events: Regulating Wildfires Through the Clean Air Act*, 96 WASH. L. REV. 765, 799–800 (2021) ("The exceptional event regulations fail to provide a workable exemption for prescribed burns and yet they broadly exempt wildfires. This disconnect in the regulation of prescribed burns and wildfires exemplifies the problems with the CAA's regulation of wildfire smoke: the exceptional event rule statute and regulations do not account for the connection between land management and air quality.").

^{102.} Treatment of Air Quality Monitoring Data Influenced by Exceptional Events, U.S. ENV'T PROT. AGENCY (Dec. 19, 2024) (emphasis added), https://perma.cc/3BSZ-6VTV; see also 42 U.S.C. § 7619(b) (1)(A) (defining an exceptional event as "an event that (i) affects air quality; (ii) is not reasonably controllable or preventable; (iii) is an event caused by human activity that is unlikely to recur at a particular location or a natural event; and (iv) is determined by the Administrator ... to be an exceptional event.").

^{103. 42} U.S.C. § 7619(b)(3)(B)(ii).

^{104. 42} U.S.C. § 7619(b)(3)(B)(iv).

^{105.} See 40 C.F.R. § 50.14.

unrealistic to control through the [SIP] process."¹⁰⁶ In 2007, EPA promulgated a final rule for "Treatment of Data Influenced by Exceptional Events,"¹⁰⁷ creating a codified regulatory process for excluding certain air quality data from ambient air quality standard calculations.¹⁰⁸

The Exceptional Events Rule provides a broad and nearly unilateral exemption for wildfires,¹⁰⁹ but highly specific circumstances must be demonstrated to exempt prescribed burns.¹¹⁰ Those seeking exemptions for controlled burn emissions must show that (1) the burn is unlikely to recur at a particular location and (2) emissions from the burn were "not reasonably controllable or preventable."¹¹¹ Smoke Management Plans and permitting requirements for controlled burns are stringent; in many states, permits will not granted if there is any nonattainment or degradation risk.¹¹²

Though the Exceptional Events Rule was codified in 2007, prescribed burns were only added to exceptional events regulations in 2016.¹¹³ This regulation has proved to be an "unworkable" process.¹¹⁴ EPA stated in its 2019 Guidance on the Exceptional Events Rule that it would "not treat a prescribed fire as a natural event ... unless the prescribed fire develops into a wildfire."¹¹⁵ To prove that an event qualifies under the Exceptional Events Rule, a state, local, or tribal air quality agency must provide a case-specific demonstration for EPA evaluation.¹¹⁶ Since the Exceptional Events Rule was updated to include prescribed fires, there has never been a successful demonstration of a prescribed fire that qualifies as an "exceptional event."¹¹⁷ There is presently a demonstration submitted for EPA review, which will be the *first ever* submitted to EPA for consideration of a prescribed fire as a potential exceptional event.¹¹⁸ The prescribed fire in question

115. U.S. ENV'T PROT. AGENCY, supra note 111, at 14.

116. U.S. ENV'T PROT. AGENCY, *Exceptional Events Rule: Update to Frequently Asked Questions* 1 (Nov. 6, 2024), https://perma.cc/WZX3-GD2S.

117. Telephone Interview with Gobeail McKinley, U.S. Env't Prot. Agency, Off. of Air Quality Planning and Standards (Nov. 29, 2023).

118. N. SIERRA AIR QUALITY MGMT. DIST., *Re: Submission of Exceptional Events Demonstration Due to Prescribed Fire* (Jan. 2, 2024), https://perma.cc/RLJ3-RW8H.

^{106.} See U.S. ENV'T PROT. AGENCY, Guideline on the Identification and Use of Air Quality Data Affected by Exceptional Events 1 (1986).

^{107. 72} Fed. Reg. 13560 (2007).

^{108.} See 42 U.S.C. § 7619(b).

^{109. 40} C.F.R. § 50.14(b)(4)

^{110.} Id. at § 50.14(b)(3)

^{111.} U.S. ENV'T PROT. AGENCY, Exceptional Events Guidance: Prescribed Fire on Wildland that May Influence Ozone and Particulate Matter Concentrations 2 (Aug. 8, 2019), https://perma.cc/WU4Y-3L39.

^{112.} See, e.g., WASH. STATE DEP'T NAT. RES., 2019 Silvicultural Smoke Management Plan 12 (July 2019), https://perma.cc/F3JC-R9AY ("Approval to ignite will be denied if ... [t]here is a likelihood of an exceedance of state air quality standards in the ambient air.").

^{113.} Treatment of Data Influenced by Exceptional Events, 81 Fed. Reg. 68216, 68247 (Oct. 3, 2016).

^{114.} Letter from Alex Padilla, U.S. Sen., to Michael Regan, Adm'r, U.S. Env't Prot. Agency (June 13, 2023), https://perma.cc/9VKM-HMXL.

was a 783-acre burn conducted on April 19, 2021, by the Tahoe National Forest unit of the U.S. Forest Service.¹¹⁹ The report itself was prepared via extensive collaboration over two years with ten separate EPA officials.¹²⁰ It is notable that even when a federal agency conducts a prescribed burn, a full team of EPA employees is required to produce a demonstration that satisfies the arduous exceptional events demonstration requirements.

C. THE MOST RECENT NAAQS REVIEWS FAIL TO APPROPRIATELY ACKNOWLEDGE THE LOOPHOLE CREATED BY THE EXCEPTIONAL EVENTS RULE

The NAAQS revision process is again underway for both ozone¹²¹ and $PM_{2.5}$.¹²² In its notice of proposed rulemaking, the EPA noted that rising $PM_{2.5}$ emissions from wildfires and prescribed burns create challenges for implementing PM NAAQS, especially if standards are made stricter.¹²³ A substantial portion of the proposed rulemaking details quantifiable public health harms of PM pollution from "wildland fire," grouping prescribed fire and wildfires into a singular entity.¹²⁴ Yet, the EPA qualifies that "[s]ources that contribute to *natural* background PM include ... wildland fires."¹²⁵ The rulemaking displays a cognitive dissonance: it acknowledges both the harms of PM_{2.5} from smoke generated by wildland fires and the loophole that allows the agency to overlook the smoke in determining states' attainment of the NAAQS.¹²⁶ The 162-page rulemaking only mentions the Exceptional Events Rule fourteen times, mostly directing agencies where to find guidance to submit a demonstration.¹²⁷

Despite this loophole, there has been significant pushback from industry and Republican Members of Congress claiming that wildfires will preclude attainment of the new lower level.¹²⁸ The Chamber of Commerce has even issued a report arguing that "[p]ermitting gridlock would be exacerbated by the larger role

^{119.} Id. at 47.

^{120.} *Id.* at 3 ("This demonstration was prepared by a collaborative team of staff at the U.S. Environmental Protection Agency (EPA). We thank the members of the Exceptional Events Prescribed Fire Demonstration Development Team \dots .").

^{121.} Call for Information on the Integrated Science Assessment for Ozone and Related Photochemical Oxidants, 88 Fed. Reg. 58264, 58264 (Aug. 25, 2023).

^{122.} Reconsideration of the National Ambient Air Quality Standards for Particulate Matter, 88 Fed. Reg. 5558, 5558 (Jan. 27, 2023).

^{123.} See id. at 5570.

^{124.} See *id.* at 5569; *see, e.g., id.* at 5641 ("The controlled human exposure studies provide biological plausibility for increases in respiratory-related health care events during the wildfires documented in epidemiologic studies.").

^{125.} Id. at 5574 n.44 (emphasis added).

^{126.} See infra section IV.B.

^{127.} Reconsideration of the National Ambient Air Quality Standards for Particulate Matter, 88 Fed. Reg. 5558, 5574, 5581–82 (Jan. 27, 2023).

^{128.} Lobbying Over Tougher PM2.5 Limits Peaks Ahead of Final Rule Release, InsideEPA (Nov. 14, 2023), https://insideepa.com/insider/lobbying-over-tougher-pm25-limits-peaks-ahead-final-rule-release ("[O]pponents of tougher regulation say that tougher limits cannot reduce short-term surges in PM2.5 caused by wildfire, rendering tougher limits difficult or impossible to meet[.]").

that non-point PM2.5 emissions from *fires* would play as the standards approach background levels."¹²⁹ The report claims that tightening the standards would reduce the margin between background $PM_{2.5}$ levels and NAAQS, limiting economic growth opportunities.¹³⁰ The report does not mention the Exceptional Events Rule.¹³¹ It would seem that these advocates for looser standards want to have their cake and eat it too: in acknowledging the PM spikes from wildfires, they argue that these spikes are systematically discounted from calculations.

V. CASE STUDY: THE KLAMATH REGION OF CALIFORNIA

Wildfires in the Klamath Region, which spans parts of northern California and southern Oregon, are a significant environmental concern.¹³² The Klamath Region is characterized by its diverse ecosystems, including dense forests, grass-lands, and wetlands.¹³³ The region's unique geography, accumulating fuel, and the warming climate contribute to its susceptibility to wildfire.¹³⁴

Native Americans are among the most likely populations to live in areas vulnerable to wildfire.¹³⁵ Historically, Indigenous practices included controlled burns to manage land and reduce fire risk, but modern fire management strategies have often focused on suppression, leading to an accumulation of fuel that can exacerbate wildfires. These fire suppression policies have significantly affected Indigenous communities in Klamath, who have historically practiced controlled burning not only for managing fire resiliency but also for culture and resource development. However, as Tribes were displaced, ancestral lands were wrenched from Tribal control, and traditional ecological practices like controlled burning waned. In 1933, California outright banned all Tribal burning practices.¹³⁶ A study of the Klamath Region found that the biomass density of the forests in the area before the year 1800 was approximately half of what it is today due to Indigenous cultural burning practices.¹³⁷ By contrast, today's "Douglas fir

^{129.} U.S. CHAMBER OF COM., EPA'S PROPOSED AIR QUALITY STANDARDS WILL CAUSE PERMITTING GRIDLOCK ACROSS OUR ECONOMY 4 (Nov. 2023) (emphasis added).

^{130.} *Id.*

^{131.} See generally id.

^{132.} KLAMATH-SISKIYOU WILDLANDS CTR., *Wildfire Updates*, https://perma.cc/A3VG-NTWD (providing updates on a number of destructive fires in the Klamath region).

^{133.} See CARL SKINNER ET AL., Klamath Mountains Bioregion, in FIRE IN CALIFORNIA'S ECOSYSTEMS (N. G. Sugihara et al. eds., Univ. of Cal. Press 2006), https://perma.cc/V7FS-E9DU.

^{134.} U.S. DEP'T AGRIC. FOREST SERV., *Klamath River Basin*, https://www.fs.usda.gov/detailfull/klamath/landmanagement/resourcemanagement/?cid=FSEPRD1172154 (last visited Jan. 8, 2025).

^{135.} Davies et al., *The Unequal Vulnerability of Communities of Color to Wildfire*, PLOS ONE 6–10 (Nov. 2, 2018), https://perma.cc/C979-S5G4.

^{136.} KATHLEEN SLOAN, YUROK AND THE KLAMATH RIVER 21 (Feb. 2011), https://perma.cc/KN5H-6JMJ.

^{137.} Clarke A. Knight et al., Land Management Explains Major Trends in Forest Structure and Composition Over the Last Millennium in California's Klamath Mountains, 119 PNAS No. 12, 1 (2022) ("A fire regime consisting of tribal burning practices and lightning were associated with long-term

dominant forest[s]^{"138} are rife with fuel for the mega-fires that have characterized the last ten years in California. Tribes have been victims of these fires: in 2020, the Slater Fire destroyed 200 homes in Happy Camp, the proclaimed reservation of the Karuk Tribe.¹³⁹

A. THE KARUK AND YUROK TRIBES HISTORICALLY PRACTICED CULTURAL BURNING IN THE KLAMATH REGION

The Klamath Region of California is home to the two largest Native American Tribes in the State: the Yurok¹⁴⁰ and the Karuk.¹⁴¹ For both the Karuk and the Yurok, fire is an important tool for managing the forest and cultivating ancestral land.¹⁴² The Yurok historically used cyclical burns to manage underbrush, increase fire resiliency, and promote the growth of healthy, edible acorns¹⁴³ and hazelnut stems for basketweaving.¹⁴⁴ Prescribed burns clear invasive conifer species to give way to tanoaks, which produce the acorns historically relied on by the Tribes for ceremonial purposes and subsistence.¹⁴⁵ Three-to-five-year burn cycles promote dense hazelnut shrubs in the Klamath Region, which supports basketry production for both Tribes by "improv[ing] gathering efficiency and lower[ing] travel costs to support the revitalization of a vital cultural practice."¹⁴⁶

The Karuk world renewal ceremony, the "*pikia'vish*," is performed annually.¹⁴⁷ The ceremony is intended to "work with the spirit beings of [the region] to help renew the world and to remind [the Karuk] of who [they] need to be in order to fix it."¹⁴⁸ The Karuk view fire as a means to restore ecological balance,

138. Id.

stability of forest biomass. Before Euro-American colonization, the long-term median forest biomass was between 104 and 128 Mg/ha, compared to values over 250 Mg/ha today. Indigenous depopulation after AD 1800, coupled with 20th-century fire suppression, likely allowed biomass to increase, culminating in the current landscape: a closed Douglas fir–dominant forest unlike any seen in the preceding 3,000 y[ears].").

^{139.} Danielle Venton, *The Karuk Used Fire to Manage the Forest for Centuries. Now They Want to Do That Again*, KQED (May 28, 2021), https://perma.cc/4A4X-4SBK.

^{140.} Yurok Tribe History, THE YUROK TRIBE, https://perma.cc/8SKF-PGW2.

^{141.} KARUK TRIBE, TRIBAL GOVERNMENT PROFILE AND SUMMARY (2020), https://www.karuk.us/images/docs/hr-files/Karuk-Tribal_Government_Fact_Sheet_2020.final.pdf.

^{142.} See Lynn Huntsinger et al., A Yurok Forest History 57 (1994).

^{143.} Arielle Anita Halpern, Prescribed Fire and Tanoak (Notholithocarpus Densiflorus) Associated Cultural Plant Resources of the Karuk and Yurok Peoples of California (2016) (Ph.D. dissertation, University of California, Berkeley), https://perma.cc/3Z65-QTWZ.

^{144.} Tony Marks-Block et al., *Revitalized Karuk and Yurok Cultural Burning to Enhance California Hazelnut for Basketweaving in Northwestern California, USA*, 17 FIRE ECOLOGY 1, 4 (2021).

^{145.} Halpern, supra note 143.

^{146.} Marks-Block et al., supra note 144.

^{147.} Philip Drucker, *A Karuk World-Renewal Ceremony at Panaminik, in* 35 AM. ARCHAEOLOGY & ETHNOLOGY 23 (A.L Kroeber ed., 1936).

^{148.} Arty Mangan, Good Fire: Indigenous Cultural Burns Renew Life, BIONEERS (Aug. 5, 2021), https://perma.cc/AQ86-TAJP.

part of their stewardship responsibility to their land.¹⁴⁹ The Yurok view fire in a similar manner: a ceremony is never complete without a fire, and fire helps to "fulfill [the] sacred obligation to take care of the living beings . . . [and] keep things in balance."¹⁵⁰

B. THE KARUK AND YUROK TRIBES OF THE KLAMATH REGION WERE SYSTEMATICALLY DISPLACED FROM THEIR LAND, WHICH EFFECTIVELY HALTED THE PRACTICE OF CONTROLLED BURNS IN THE KLAMATH REGION

California became a territory of the United States following the Mexican-American War and the Treaty of Guadalupe Hidalgo.¹⁵¹ Though the treaty explicitly provided for the protection of Native Americans and their lands within California,¹⁵² the United States quickly lost sight of this promise. The Gold Rush of 1849 brought settlers to Northern California in droves.¹⁵³ California entered the Union only a year later as the thirty-first state.¹⁵⁴

The Klamath Region of Northern California became the second most productive gold region,¹⁵⁵ and, for the Yurok and Karuk Tribes of the Klamath, the influx of white settlers brought disease and devastation. By 1851, nearly "all of the Yurok villages along the Klamath had been burned by miners."¹⁵⁶ Redick McKee, a BIA Agent, negotiated a treaty in 1851 with the Yurok, Hupa, and Karuk with a promise that the violence and disease would cease.¹⁵⁷ Nonetheless, *half* of the Native American population died from a measles outbreak in 1852,¹⁵⁸ and Congress declined to ratify the treaty altogether and withheld the treaty from public view until 1905.¹⁵⁹ By 1910, only 688 Klamath River Native Americans

153. Cal. Dep't of Parks & Recreation, Gold Rush Overview, https://perma.cc/3D99-94L2.

156. HUNTSINGER ET AL., *supra* note 142, at 19 (citing Gary Morris, *A Land Divided: Yurok Land Allotment*, NEWS FROM NATIVE CAL., Spring 1992, at 24).

^{149.} Frank K. Lake, Bill Tripp, & R. Reed, *The Karuk Tribe, Planetary Stewardship, and World Renewal on the Middle Klamath River, California*, 91 BULL. ECOLOGICAL SOC'Y AM. 147 (2010) ("The way the Tribe uses fire fosters the quality and abundance of resources the Tribe and other species depend on, from ridges to rivers.").

^{150.} USFA Podcast, *Understanding the Importance of Cultural Burning*, U.S. FIRE ADMIN. (Nov. 16, 2023), https://perma.cc/4ZNC-Y2AF.

^{151.} Treaty of Peace, Friendship, Limits, and Settlement with the Republic of Mexico, U.S.-Mex., Feb. 2, 1848, 9 Stat. 922 [hereinafter Treaty of Guadalupe Hidalgo].

^{152.} Treaty of Guadalupe Hidalgo, at art. XI ("[S]pecial care shall then be taken not to place its Indian occupants under the necessity of seeking new homes, by committing those invasions which the United States have solemnly obliged themselves to restrain.").

^{154.} Cal. Dep't of Parks & Recreation, *California Admission Day September 9, 1850*, https://perma. cc/6P77-6C45.

^{155.} See Ryan D. Taylor et al., Late Jurassic-Early Cretaceous Orogenic Gold Mineralization in the Klamath Mountains, California: Constraints from ⁴⁰Ar/³⁹Ar Dating of Hydrothermal Muscovite, 141 ORE GEOLOGY REV. 104661 (2022).

^{157.} Id. at 22.

^{158.} *Id.* at 15 (citing Mary Ellicott Arnold & Mabel Reed, In the Land of the Grasshopper Song (1957)).

^{159.} Karuk Tribe of Cal. v. Ammon, 209 F.3d 1366, 1371 (Fed. Cir. 2000) (citing Bruce S. Flushman & Joe Barbieri, Aboriginal Title: The Special Case of California, 17 PAC. L. J. 409 (1986)).

remained, representing a seventy-three percent decrease from the population existing before the Gold Rush.¹⁶⁰

In 1853, Congress created "five military reservations [with no more than twentyfive thousand acres in each] ... for Indian purposes" and appropriated funds for Native American relocation programs.¹⁶¹ Under this authority, President Pierce penned an Executive Order in 1855 establishing the Klamath River Reservation as a "strip of territory commencing at the Pacific Ocean and extending 1 mile in width on each side of the Klamath River."¹⁶² More than twenty years later, another Executive Order was penned by President Grant to establish the Hoopa Valley Reservation.¹⁶³ The Hoopa Valley Reservation was ultimately extended by Executive Order to include the Klamath River Reservation, thereby creating a single reservation.¹⁶⁴ Though nominally this land is still a "reservation," Congress allowed for "surplus" land to be sold to the general public in 1892 and public notice of sale was posted in 1894.¹⁶⁵ By 1905, the federal government declared all Karuk territory public land under the authority of the Forest Reserve Act of 1891.¹⁶⁶ Effectively, all Tribes in the Klamath region were relegated to a single reservation representing a mere fraction of the total land under Tribal control pre-colonization.

It was not until 1988 that the Hoopa-Yurok Settlement Act divided the reservation into distinct reservations for the Hupa and the Yurok.¹⁶⁷ Whereas the Yurok Reservation spans 56,000 acres, only a fraction of that land is owned and managed by the Yurok.¹⁶⁸ The Karuk have never been granted a reservation, but instead purchased property beginning in the late 1970s.¹⁶⁹ In stark contrast to the Karuk traditional lands that spanned more than a million acres, the Karuk have been able to purchase 1,661 acres for their "Proclaimed Reservation."¹⁷⁰

167. The Hoopa-Yurok Settlement Act, Pub. L. No. 100-580, 102 Stat. 2924 (1988).

^{160.} SLOAN, *supra* note 136, at 20.

^{161.} Act of March 3, 1853, ch. 104, 10 Stat. 226, 238.

^{162.} U.S. OFF. OF INDIAN AFFS., EXECUTIVE ORDERS RELATING TO INDIAN RESERVES, FROM MAY 14, 1855 TO JULY 1, 1902 59–60 (1902), https://perma.cc/4AQG-M8LG.

^{163.} U.S. OFF. OF INDIAN AFFS., EXECUTIVE ORDERS RELATING TO INDIAN RESERVES: EXECUTIVE ORDERS ESTABLISHING, ENLARGING, OR REDUCING INDIAN RESERVATIONS, ALSO RESTORING CERTAIN INDIAN RESERVATIONS TO THE PUBLIC DOMAIN, FROM MAY 14, 1855, TO JULY 1, 1912 38 (1902), https://archive.org/details/cu31924097621753/.

^{164.} See Donnelly v. United States, 228 U.S. 243, 243 (1913) ("The extension of the Hoopa Valley Reservation made by Executive Order of October 16, 1891, including a tract of country in California one mile in width on each side of the Klamath River, was lawfully established pursuant to the Act of 1864.").

^{165.} FRANCES TURNER MCBETH, LOWER KLAMATH COUNTRY 48 (1950). The notice read: "TO WHOM IT MAY CONCERN The Klamath Indian Reservation opened May 21, 1894, at 9 a.m. Now prepared to receive application for homesteads." *Id.*

^{166.} THEODORE ROOSEVELT, PRESIDENT OF THE U.S. OF AMERICA, PROCLAMATION 544 – ESTABLISHMENT OF THE KLAMATH FOREST RESERVE (1905), https://perma.cc/A793-5E4W.

^{168.} Press Release, Congressman Jared Huffman, Congressman Huffman Introduces Yurok Lands Act (Apr. 28, 2022), https://perma.cc/V2NH-7V6G.

^{169.} KARUK TRIBE, TRIBAL GOVERNMENT PROFILE AND SUMMARY (2020), https://www.karuk.us/ images/docs/hr-files/Karuk-Tribal_Government_Fact_Sheet_2020.final.pdf.

^{170.} Id.; Karuk Dep't of Tribal Lands Mgmt., Land Management, KARUK.US, https://www.karuk.us/ index.php/departments/land-management (last visited Feb. 22, 2025).



Figure 1: Comparison of Ancestral Land to Present Reservation Land.¹⁷¹

As stated in the Yurok Constitution, adopted in 1993, the "social and ecological balance, thousands and thousands of years old, was *shattered* by the invasion of the non-Indians."¹⁷²

^{171.} Page Buono, *Quiet Fire: Indigenous Tribes in California and Other Parts of the U.S. have been Rekindling the Ancient Art of Controlled Burning*, THE NATURE CONSERVANCY (Nov. 2, 2020), https://perma.cc/6EVY-X6XN.

^{172.} YUROK TRIBE CONSTITUTION, Nov. 19, 1993, pmbl. (emphasis added).

C. RECENT WILDFIRE DEVASTATION HAS SPURRED EFFORTS TO RESTORE TRIBAL BURNING PRACTICES

There have been recent efforts to clear the massive amount of accumulated fuels to mitigate mega-fires in Northern California.¹⁷³ In 2013, the California Department of Forestry and Fire Protection (CAL FIRE) conducted a small, seven-acre burn on Yurok ancestral lands.¹⁷⁴ The Yurok people noted that, after the burn, hazel for weaving grew for the first time in years.¹⁷⁵

In 2014, the Western Klamath Restoration Project, a nonprofit established by the Karuk, created the Klamath Prescribed Fire Training Exchange (KTREX), a controlled burn training program that leverages traditional knowledge of the Karuk Tribe in partnership with CAL FIRE.¹⁷⁶ At the same time, the Yurok Tribe also established the Cultural Fire Management Council (CFMC).¹⁷⁷ California's recent legislative changes¹⁷⁸ and financial investments have also elevated the discourse surrounding prescribed burning as a wildfire mitigation practice.¹⁷⁹ Burning projects have been moderately successful, but each burn is the product of years of negotiations with federal and state agencies and often multiple applications for funding.¹⁸⁰

D. REGULATORY AND JURISDICTIONAL BARRIERS PREVENT TRIBES FROM PRACTICING CULTURAL BURNING EFFECTIVELY OR EFFICIENTLY

Despite renewed interest in the potential of cultural burning to address wildfires, regulation continues to constrain Tribal practices. Although the constitutions of the Karuk¹⁸¹ and Yurok¹⁸² both speak to the Tribes' domain over lands, waters,

^{173.} Sara A. Clark et al., *Good Fire: Current Barriers to the Expansion of Cultural Burning and Prescribed Fire in California and Recommended Solutions* 1 (2021), https://perma.cc/49VN-6AAY ("Current estimates indicate that between 10 to 30 million acres in California would benefit from both initial and ongoing fuel reduction treatment, including prescribed fire.").

^{174.} Buono, supra note 171.

^{175.} Id.

^{176.} Western Klamath Restoration Partnership, *Klamath Prescribed Fire Training Exchange (KTREX)*, https://perma.cc/K5WR-U29R.

^{177.} Cultural Fire Management Council, *About Us*, CULTURALFIRE.ORG, https://perma.cc/7Z3K-TPG9; Erin Vivid Riley, *Reviving Roots*, NAT'L FOREST FOUND.: LIGHT & SEED (Summer/Fall 2024), https://perma.cc/7CP4-TH3C.

^{178.} S.B. 332, 2021–2022 Leg., Reg. Sess. (Cal. 2021) (providing that "no person shall be liable for any fire suppression or other costs otherwise recoverable for a prescribed burn if specified conditions are met").

^{179.} CAL. WILDFIRE & FOREST RESILIENCE TASK FORCE, CALIFORNIA'S STRATEGIC PLAN FOR EXPANDING THE USE OF BENEFICIAL FIRE 3 (2022), https://perma.cc/9GMC-ZNEV.

^{180.} Laurence Du Sault, *The Karuk Tribe Fights a Growing Wildfire Threat and a Lack of Funding*, HIGH COUNTRY NEWS (Mar. 12, 2019), https://perma.cc/D55K-PDKG.

^{181.} KARUK TRIBAL CONST. art. II, § 5 ("The laws of the Karuk Tribe shall extend to ... [a]ll lands, waters, natural resources, cultural resources, air space, minerals, fish, forests and other flora, wildlife, and other resources, and any interest therein, now or in the future, throughout and within the Tribes' territory.").

^{182.} YUROK TRIBAL CONST. art. I, § 3 (exercising jurisdiction over "all lands, waters, river beds, submerged lands, properties, air space, minerals, fish, forests, wildlife, and other resources" within the Tribe's territory).

and resources, Tribal authority is practically non-existent when it comes to the use of prescribed fires. The Karuk ancestral lands are located in two states, four counties, and two national forests—subject to the authority of multiple state and federal authorities including the Forest Service, FWS, EPA, BIA, and CAL FIRE, among others.¹⁸³ To further complicate this jurisdictional puzzle, the Karuk have no federally recognized reservation, only the Proclaimed Reservation that has been acquired by Tribal investments. Even though Tribes generally are permitted to autonomously manage resources on Tribal land,¹⁸⁴ the Karuk do not because most Karuk ancestral territory is controlled by the Forest Service or privately owned by non-Natives.¹⁸⁵ Even on the Yurok Reservation, private timber companies own 46.8% of the territory.¹⁸⁶ Fire Training Exchange (TREX) prescribed burns are more beneficial to those Tribal members who own property or have access to Tribal allotments than to those who do not.¹⁸⁷

California's restrictive permitting procedures further impede prescribed burning.¹⁸⁸ For prescribed burns conducted by Tribes like the Karuk, there are a litany of permits that must be obtained.¹⁸⁹ A Tribe must first obtain a "broadcast burn permit" from CAL FIRE.¹⁹⁰ CAL FIRE does not grant permits for cultural burns without prescriptive burn plans developed by specialists.¹⁹¹ Once the Tribe applies for the prescribed burn permit, CAL FIRE inspects the land with the applicant and is afforded significant discretion to deny permits.¹⁹² CAL FIRE permits are essential for conducting legal burns and protecting against liability—if a burner obtains a CAL FIRE permit and complies with every term, the burner has established that they were not negligent under California regulations.¹⁹³

186. Yurok Tribe, GIS Program, Yurok Land Statistics (2015), https://perma.cc/X4SJ-LJ62.

191. Marks-Block, supra note 185, at 120.

193. CAL. PUB. RES. CODE § 4494(b) (West 2022).

^{183.} Du Sault, supra note 180.

^{184.} Wash. Dep't of Ecology v. Env't Prot. Agency, 752 F.2d 1465, 1469–71 (9th Cir. 1985) ("Respect for the long tradition of tribal sovereignty and self-government also underlies the rule that state jurisdiction over Indians in Indian country will not be easily implied.").

^{185.} Tony Marks-Block, Karuk and Yurok Prescribed Cultural Fire Revitalization in California's Klamath Basin: Socio-Ecological Dynamics and Political Ecology of Indigenous Burning and Resource Management 25, 31 (June 2020) (Ph.D. dissertation, Stanford University), https://perma.cc/8BT5-67SL.

^{187.} Marks-Block, supra note 185, at 25.

^{188.} Alastair Bland, Learn to Burn, BAY NATURE (Mar. 28, 2022), https://perma.cc/V9BZ-CFSV.

^{189.} This Note focuses on Air Quality permits specifically, but extensive permitting is potentially required under the National Environmental Policy Act (NEPA) or the California Environmental Quality Act (CEQA). See California Environmental Quality Act, CAL. PUB. RES. CODE §§ 21000 – 02 (West 2024); National Environmental Policy Act, 42 U.S.C. § 4321. These permitting procedures are not the focus of this paper and are not discussed at length.

^{190.} CAL FIRE Burn Permits, CAL FIRE, https://perma.cc/DBL9-YRSL; CAL. PUB. RES. CODE §§ 4491–94 (West 2018).

^{192.} CAL. PUB. RES. CODE § 4493 (West 2022) ("[W]hether a permit shall be granted, shall prescribe the manner in which the site for the prescribed burning shall be prepared, and shall require any precautions to be taken by the applicant as may be considered reasonable to prevent damage to the property of others by reason of the burning.").

However, many CAL FIRE permits "contain language indicating that the permit is void if the fire escapes for any reason," essentially negating the liability protections.¹⁹⁴ This system fails to recognize that cultural burning is adaptable and does not conform to the strict and narrow guidelines typical of agency fire burn plans, such as requiring fire lines and specific climate metrics, which are created in part to evaluate potential liability.¹⁹⁵

The North Coast Unified Air Quality Management District (AQMD) also requires a "non-standard burn permit" with a graduated fee structure of up to \$1,250 per burn.¹⁹⁶ An applicant must also pay for a \$65 Smoke Management Plan for each burn.¹⁹⁷ Even if a permit is secured, the California Air Resources Board can declare a "no burn" day, making it illegal to burn and invalidating permits for the day.¹⁹⁸ Still, applicants with a smoke management plan may apply for a "no burn" permit, which allows permit holders to burn on no-burn days for an additional cost of \$65.¹⁹⁹ These permits are driven by California's desire for compliance with the NAAQS, specifically ozone and PM_{2.5}. Due to the onerous nature of establishing a prescribed fire as an "exceptional event," AQMDs instead seek to contain emissions from prescribed burns by restricting burning on days where the District risks non-attainment.

Though it is possible to obtain a fee subsidy or waiver for a "prescribed burn [that] will directly or indirectly benefit the public interest and be beneficial to the State,"²⁰⁰ the Tribe still must foot the bill for the costs associated with implementing the burn. In the Klamath area, burn managers reported that the average prescribed fire between 2017 and 2019 required twenty-three personnel and, for each hectare burned, forty-one to sixty-five hours of individual labor.²⁰¹ One study estimates that the regional cost for *preparing* prescribed fire in the Klamath region is \$3800/acre and the cost of actual burning is approximately \$615/acre

^{194.} Clark et al., supra note 173, at 20.

^{195.} Tony Marks-Block & William Tripp, Facilitating Prescribed Fire in Northern California through Indigenous Governance and Interagency Partnerships, 4 FIRE 37, 51 (2021).

^{196.} CAL. CODE REGS. tit. 17 § 80120(a) ("No person shall knowingly set or allow agricultural or prescribed burning unless he or she has a valid permit from a district or designated agency."); North Coast Unified Air Quality Mgmt. Dist., Cal. Air Res. Bd., Reg. IV, Rule 408, Burn Permit Fees (Sept. 9, 2019), https://perma.cc/E2Q9-RUJP.

^{197.} Id.

^{198.} CAL. CODE REGS. tit. 17 § 80120(c) ("This permit is valid only on those days during which agricultural burning, including prescribed burning, is not prohibited by the State Air Resources Board or by an air district pursuant to section 41855 of the Health and Safety Code, and when burning on the lands identified herein has been approved by the air district.").

^{199.} Lenya Quinn-Davidson & Jeffrey Stackhouse, Burning by the Day: Why Cost/Acre is Not a Good Metric for Prescribed Fire, 29 No. 3 GRASSLANDS 16, 17 (2019), https://perma.cc/2FMJ-N5AS.

^{200.} North Coast Unified Air Quality Mgmt. Dist., supra note 196.

^{201.} Marks-Block & Tripp, supra note 195, at 51.

(based on 2018 wages).²⁰² Presently, the Karuk Tribe funds all their prescribed burn efforts through grants.²⁰³ In 2021, with funding from the PG&E Resilient Communities Foundation, the Karuk Tribe hired a professional grant writer, in part to obtain funding for prescribed burns.²⁰⁴

The Karuk and Yurok Tribes thus face a multitude of limitations on their use of prescribed fires. Complex jurisdictional issues arise from the extensive boundaries of Tribal ancestral lands, which cross state borders and are subject to the regulatory authority of various local, state, and federal entities. California's stringent permitting procedures add to this multi-layered framework, requiring multiple permits and expert assistance for any legal burning. These permits often involve substantial fees and are subject to invalidation. There is a fundamental disconnect between this bureaucracy and cultural burning practices.

VI. THERE IS AMPLE OPPORTUNITY TO CLARIFY FEDERAL POSITIONS AND RECONFIGURE THE EXCEPTIONAL EVENTS RULE TO BETTER ALIGN WITH THE PUBLIC HEALTH GOALS OF THE CLEAN AIR ACT

A 2023 Interagency Memorandum recognizes the importance of prescribed fire and expresses the "good faith intention" of federal agencies to "collaborate with Tribes" and "engage in discussions about current and forthcoming Clean Air Act (CAA) rules, guidance documents, and/or tools and outreach materials, including how, as appropriate, they relate to the intersection between plans to substantially increase prescribed fire on the landscape."²⁰⁵ The Memorandum continues, stating that the agencies will "[w]ork together to ensure that EPA's Exceptional Events Rule, and other relevant rules, and accompanying guidance *provide an efficient pathway for exclusion of air monitoring data influenced by wildfire and prescribed fire emissions* from certain regulatory decisions."²⁰⁶ The Memorandum makes clear that EPA hoped to create a clearer pathway for prescribed fires to be excluded from air quality data. Although this will make it easier for states to technically meet NAAQS, categorical exemptions for all fire do not align with the public health mandate of the Clean Air Act.

206. Id. (emphasis added).

^{202.} Id.

^{203.} Du Sault, supra note 180.

^{204.} Mike Meyer, *Karuk Have a Plan to Lower Risk of Fires*, SISKIYOU DAILY NEWS (Feb. 1, 2021), https://perma.cc/L2DZ-SDLS.

^{205.} USDA FOREST SERV., U.S. DEP'T OF THE INTERIOR, U.S. EPA & U.S. CTRS. FOR DISEASE CONTROL AND PREVENTION, MEMORANDUM OF UNDERSTANDING: WILDLAND FIRE AND AIR QUALITY COORDINATION (2023).

A. CONGRESS SHOULD AMEND THE CLEAN AIR ACT EITHER BY REFORMING THE EXCEPTIONAL EVENTS RULE TO ACCOUNT FOR PRESCRIBED BURNING OR BY ELIMINATING THE EXEMPTION ALTOGETHER

The Clean Air Act mandates that, in creating regulations, the EPA be guided by principles that ensure the "protection of public health is the highest priority"²⁰⁷ and that "each State must take necessary measures to safeguard public health *regardless* of the source of the air pollution."²⁰⁸ In practice, the Exceptional Events Rule creates a unilateral exception for wildfires and fireworks while creating insurmountable hurdles for prescribed fires.²⁰⁹ This scheme neither prioritizes nor safeguards public health.

It is unlikely that Congress will completely do away with the Exceptional Events Rule, but such an amendment would be the most faithful to the public health mandate of the Clean Air Act. "Exceptional events" are a misnomer; wild-fires are *routinely* exempted from NAAQS calculations, undermining national air quality goals and harming public health. As Kirsten H. Engel succinctly argues, "smoke is smoke," and all smoke should be accounted for in air quality measurements.²¹⁰ As it stands, the Exceptional Events Rule allows regulators to "erase pollution—not from the sky, but from records used to make regulatory decisions."²¹¹ As long as the Exceptional Events Rule is in effect, attainment of the NAAQS standards does not adequately protect public health.

Congress should amend the Clean Air Act to either (1) create a similar categorical exemption for "cultural burns" as it does for wildfires or (2) eliminate exemptions for "exceptional events" altogether. A categorical exemption for "cultural burns" would align with the public health mandate of the Act by helping to mitigate larger, more harmful wildfires. Moreover, it would acknowledge and redress a small portion of the systemic displacement of Tribes by the federal government. Centuries of colonization have stripped Tribes of their lands and their cultural practices. By extending the exemptions in the Clean Air Act to cultural burning, Congress would not give Tribes a "free pass to burn," but rather would acknowledge both the sanctity of the practice and the reality that Tribes did not create the atmospheric pollution the regulations seek to control. Tribes would still have to submit documentation to the EPA about each burn, just as is necessary for

211. What is the Exceptional Events Rule? The Loophole Letting U.S. Regulators Wipe Air Pollution from the Record, CAPRADIO, (Oct. 16, 2023), https://perma.cc/PCE6-S4HT.

^{207. 42} U.S.C. § 7619(b)(3)(A)(i).

^{208. 42} U.S.C. § 7619(b)(3)(A)(iv) (emphasis added).

^{209.} See supra section IV.B.

^{210.} Kirsten H. Engel, *Perverse Incentives: The Case of Wildfire Smoke Regulation*, 40 ECOLOGY L. Q. 623, 664 (2013) ("Rather than excluding data from unplanned wildfires from air quality compliance determinations, state and federal officials should adopt a default rule that all wildfire smoke-related data (i.e., data from unplanned wildfire, prescribed fire, and wildfire managed for resource benefits)'counts' purposes of air quality compliance.").

wildfires, but Tribes would benefit from the application of wildfires' more permissive standards.

B. EPA SHOULD PUBLISH CLEARER GUIDANCE DOCUMENTS FOR PRESCRIBED BURNS AND WILDFIRES THAT ACCOUNT FOR THE LATEST EMISSIONS SCIENCE

In the absence of an act of Congress, EPA should align its exceptional events guidance with its public health mandate. EPA can do so by publishing clear guidance for how to submit an exceptional event demonstration and by working with Tribes to create a submission pathway that does not unduly burden cultural burning practices. The EPA and other agencies should work to clarify the Exceptional Events Rule through the issuance of updated guidance documents. Guidance documents are a non-binding tool commonly used by agencies to clarify how the agency will interpret regulations. In crafting these guidance documents, EPA should account for scientific evidence that prescribed burns emit fewer pollutants than wildfires and can also reduce the scope and intensity of wildfires.²¹²

The EPA could increase the stringency of wildfire exceptional events demonstrations by enhancing requirements for showing that the wildfire was not reasonably controllable or preventable.²¹³ The broad, categorical exemption for wildfires is presently triggered just by showing that the event was a wildfire.²¹⁴ Requiring states to demonstrate that the wildfire was not "reasonably controllable or preventable" may encourage them to remove obstacles to prescribed burns and adopt better land management practices to lower wildfire risk.²¹⁵

Alternatively, if wildfires continue to enjoy a broad unilateral exemption, so should prescribed fire—especially because prescribed fires mitigate mega-fires that produce much more air pollution. There is already bicameral support for such an exemption from California Democrats, who have expressed concerns that "[g]iven the sanctions risk of a potential finding of non-attainment, ... California's Air Districts will, without clear and efficient ex-ante guidance from EPA, reduce prescribed fire usage rather than risk the consequences of a change in attainment status."²¹⁶ Although this exemption would still be contrary to the public health mandate of the Clean Air Act, it would at least be more consistent and equitable.

^{212.} See supra Part II.

^{213.} Williams, *supra* note 100, at 809 ("[U]pdated regulations should require states to show that either, before the fire occurred the state took reasonable land management and fire mitigation actions in the areas where the fire occurred, or the state did not have reasonable control over the burned land. These two measures would encourage states to take more action to reduce the risk of megafires through prescribed burns").

^{214. 40} C.F.R. § 50.14(a)(4) (2016) ("[T]he Administrator will determine every wildfire occurring predominantly on wildland to have met the requirements identified in paragraph(c)(3)(iv)(D) of this section regarding the not reasonably controllable or preventable criterion.")

^{215.} Williams, supra note 100, at 809.

^{216.} Letter from Alex Padilla, U.S. Sen., to Michael Regan, Adm'r, U.S. Env't Prot. Agency (June 13, 2023), https://perma.cc/9VKM-HMXL.

CONCLUSION

Many Native American Tribes possess unique knowledge of how to wield prescribed fire to manage ancestral lands. This type of prescribed fire may help to break the cycle of increasingly devastating wildfires. Yet, as illustrated by the situation of the Karuk and Yurok Tribes, present regulations make it nearly impossible for these Tribes to effectively deploy prescribed fire even within their ancestral lands despite recent endeavors to reintegrate Tribal burning in the Klamath Region. This case study underscores the pressing need for reassessment of existing policies.

Recent federal efforts have promoted prescribed fire as a fire management tool. In November 2023, the USDA, Department of the Interior, EPA, and the Centers for Disease Control and Prevention signed a Memorandum of Understanding recognizing that "[m]anaging vegetation, fuel types, arrangement, and loading, including through the use of prescribed fire, helps to mitigate these wildfire risks."²¹⁷ These agencies have committed to "[w]ork together under existing laws to clarify and align regulations . . . to promote the mutual objectives of protecting public health from the impacts of smoke and enabling land management practices, including prescribed fire, that may reduce the risk of future large, high severity fire events."²¹⁸ The Inflation Reduction Act also earmarked \$2 billion in funding towards "fuels reduction projects,"²¹⁹ which may include prescribed fire.²²⁰

Congress should begin by amending the Clean Air Act, either by formally including "cultural burns" or by eliminating exceptional event exemptions altogether. In the absence of congressional action, EPA should publish clear guidance documents that consider the most recent scientific evidence illustrating the efficacy of prescribed burns in breaking the cycle of devastating mega-fires.

^{217.} USDA FOREST SERV., U.S. DEP'T OF THE INTERIOR, U.S. EPA & U.S. CTRS. FOR DISEASE CONTROL AND PREVENTION, MEMORANDUM OF UNDERSTANDING: WILDLAND FIRE AND AIR QUALITY COORDINATION (2023).

^{218.} Id.

^{219.} Inflation Reduction Act, Pub. L. 117-169, § 23001 (2022).

^{220.} Makoto M. Kelp et al., *Prescribed Burns as a Tool to Mitigate Future Wildfire Smoke Exposure:* Lessons for States and Rural Environmental Justice Communities, 11 EARTH'S FUTURE 1, 2 (2023).