SYMPOSIUM ESSAY

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Retreat Alternatives in NEPA: A Tool for the Perplexed

If our political rhetoric made any sense, "retreat" would be a four-letter word. As an option, it often seems like it ought not to be mentioned in polite company. But the hurricanes and wildfires of

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2017 have again punctuated disturbing trends. At the intersection of lengthening and intensifying fire and hurricane seasons, depleted public budgets, exhausted response personnel, and continually growing human communities at risk lay a long, deep trail of mistakes and missed opportunities. This essay focuses on the fires and a federal statute that can help us correct some of our worst tendencies, the National Environmental Policy Act (NEPA). But several of the points are regrettably applicable to hurricane risks as well.[1] It is apparently our destiny today to confront an ailing political system at the same time that the full import of truly global problems like climate disruption are coming into focus. The suggestions offered here are painfully modest in comparison to what is needed. But that may be part of NEPA's inner logic. It is by nature passive and incremental.

Decades ago, United States Department of Agriculture (USDA), Department of Interior, and state and tribal officials began building massive budgets and interagency capacities to fight wildland fires. Coincident with that build-up was our seemingly inexorable colonization of the *wildland urban interface* (WUI)—much of it in fire-prone areas.[2] Part I of this essay explains how this confluence has worked to create more of the very risks both build-ups purportedly aim to minimize. Part II describes the push for *fire-adapted* communities through homeowner-taken precautions like *defensible space*, low-ignition building materials, and other means. The U.S. Forest Service has been actively engaged in this push to fire-adapt WUI housing, a pursuit Part II argues has reinforced the mistaken impressions leading even more people to build in harm's way.

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1 In 2005, Hurricanes Katrina, Rita, and Wilma made landfall along the Gulf Coast causing a record $180+ billion in damage. Private insurance markets, although distorted greatly by a national flood insurance subsidy program, are arguably adapting to the new norms of hurricane volume/intensity. *See* HOWARD C. KUNREUTHER & ERWANN O. MICHEL-KERJAN, AT WAR WITH THE WEATHER: MANAGING LARGE-SCALE RISKS IN A NEW ERA OF CATASTROPHES (2009). No similar response from insurance markets, with the possible exception of Southern California, has been forthcoming in the new normal of wildfire protection. *See infra* note 75 and accompanying text.

2 Mapping the WUI is complicated by the discretionary judgments entailed in the drawing of such boundaries/geographic regions. *Compare* Volker C. Radeloff et al., *The Wildland-Urban Interface in the United States*, 15(3) ECOLOGICAL APPLICATIONS 799 (2005) (concluding that WUI in 2000 consisted of approximately 719,000 km^2 and approximately 45 million homes), *with* David M. Theobald & William H. Romme, *Expansion of the US Wildland-Urban Interface*, 83 LANDSCAPE & URB. PLAN. 340 (2007) (concluding that WUI in 2000 consisted of approximately 466,000 km^2 and approximately 12.5 million homes).

Finally, in Part III the essay delves into the increasingly complicated law of alternatives formation, selection, and consideration in the National Environmental Policy Act. NEPA is our "national charter" on the environment.[3] In many ways, it leaves us to our mistakes, unencumbered by any prohibitive agenda to block the kind of hazards routinely raised in WUI fire policies. NEPA's role is to intervene in our political system, its aim to structure a deliberative process that can, on occasion, reveal our mistakes broadly before we repeat them. NEPA requires that we develop and consider alternatives to federal actions that may "significantly affect[] the quality of the human environment."[4] For as long as we have interpreted this duty though, only "reasonable" alternatives need be included.[5] The mix of considerations that go into defining "reason" in this context is critical and in flux. And given the trends in wildfire policy explained in Parts I and II, the proposal and development of NEPA alternatives may be fast becoming one of the most useful tools for those aiming to redirect that policy.

Which alternatives are "reasonable" and thus demand inclusion and development does not entirely lie with the beholder. Rather, it is a matter of timing and perspective. What I will call "retreat" alternatives can be both small and large-scale. They must be alternatives properly scaled and sensitized to the agency's statutory limits, budget constraint(s), and policy goals. Though usually pressed by a dissident few urging a departure from some otherwise not-to-be-questioned conventional wisdom (on wildland fire)—itself grounded in decades of (flawed) human practice—these retreat alternatives will typically proceed from the purpose and need for any given action or choice.[6]

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3 No matter how many times courts glibly remark that NEPA is "essentially procedural," *see, e.g.*, Vermont Yankee Nuclear Power Corp. v. Nat. Res. Def. Council, Inc., 435 U.S. 519, 558 (1978), it cannot change the fact that the elements of the Act establishing a "national policy" are decidedly more than mere procedure. Their judicial enforcement may be qualified for a variety of reasons, but that is something very different. *See* Jamison E. Colburn, *Administering the National Environmental Policy Act*, 45 ENVTL. L. REP. 10287 (2015).

4 42 U.S.C. § 4332(2)(C) (2018).

5 *See, e.g.*, Nat. Res. Def. Council, Inc. v. Morton, 458 F.2d 827, 837 (D.C. Cir. 1972).

6 This point of origin for alternatives is set out in the Council on Environmental Quality (CEQ) rules on environmental impact statements (EISs). *See* 40 C.F.R. § 1502.13 (2018).

I
THE NATIONAL STRATEGY: A "10 A.M." POLICY BY ANOTHER NAME?

For much of the twentieth century, the Forest Service and Department of Interior land managers implemented what was known as the "10 A.M." policy: attacking any discovered wildfire on the lands they administer with the goal of extinguishing it by mid-morning the next day.[7] This policy prompted decades of fire suppression which—combined with landscape-scale grazing, extensive road-building and other policies—amassed fuels and shifted fire-adapted ecosystems far off of their natural, self-regulating regimes.[8] The halting reversal of the 10 A.M. policy and the shift toward managing fire on the public lands was epitomized in 1988; a summer that saw more than a third of Yellowstone National Park burn as managers struggled to contain and, eventually, extinguish the fires.[9] After weeks of nightly news coverage, the political backlash that engulfed the land managers became a lasting cautionary tale.[10]

Another episode was the 1994 South Canyon Fire west of Glenwood Springs, Colorado. Fourteen firefighters, most of them from a Type 1 ("Hotshot") crew, perished in an eerily similar prequel to the fire that famously killed nineteen out of twenty Granite Mountain Hotshots on Yarnell Hill in 2013.[11] In both cases

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7 *See* STEPHEN J. PYNE, FIRE IN AMERICA: A CULTURAL HISTORY OF WILDLAND AND RURAL FIRE 275–87 (1982). This aggressive policy of extinguishing all wildland fire grew out of a "holocaust" of wildfires that burned across 3+ million acres from eastern Washington to western Montana in 1910. *Id*. at 247. "Chief Forester Henry Graves declared in 1913 that 'the necessity of preventing losses from forest fires requires no discussion. It is the fundamental obligation of the Forest Service and takes precedence over all other duties and activities." *Id.* at 260.

8 *See id.* at 295–326.

9 The National Park Service's (NPS) official accounts of the fires of 1988 state that the fires were attacked to be extinguished, at least as of July 21. Unprecedented conditions of fuel build-up in a wet spring and desiccation in a hot, dry summer had led to conflicting expert opinions up to that point. *See* John D. Varley & Paul Schullery, *Reality and Opportunity in the Yellowstone Fires of 1988*, *in* THE GREATER YELLOWSTONE ECOSYSTEM: REDEFINING AMERICA'S WILDERNESS HERITAGE 105, 112 (Robert B. Keiter & Mark S. Boyce eds., 1991).

10 *See* Varley & Schullery, *supra* note 9, at 115–19.

11 The Yarnell Hill blaze has been memorialized in film and pop culture. *See* ONLY THE BRAVE (Columbia Pictures 2017); Sean Flynn, *No Exit: The GQ Story that Inspired* Only the Brave, GQ MAG., Sept. 27 2013, https://www.gq.com/story/granite-mountain-hotshots

firefighters were lured into fighting a fast-spreading fire in shifting winds and tight terrain without enough exits because of the threat it represented to a WUI community. Section A traces out the institutional and legal relationships of wildfire in the twenty-first century while Section B examines its principal normative tool—the plan.

A. Fire's Institutional and Normative Landscape: Flexible, Dynamic, Extra-Legal

In the decades since Yellowstone and South Canyon, backcountry fires have increasingly become WUI fires, mixing contain/extinguish and evacuation policies with resource management choices in a long-term effort to achieve some kind of fire normalcy. The result has been a hodge-podge of national policy priorities distributed throughout federal, state, and tribal agencies, ad-hoc appropriations solutions (with annual budget shortfalls and stop-gap appropriations), and various interagency partnerships aimed at tidying up all of the above.[12] A 2009 statute supposedly transitioned all of that to a mandated "national cohesive strategy" from the USDA, Interior Department, and other cooperating agencies.[13] Since 2011, that mandated "strategy" has been comprised of three fundamental elements: (1) restoring and maintaining resilient landscapes; (2) creating fire-adapted communities; and (3) planning a united and safe wildfire response.[14] The managing agencies elaborated each element into a series of "management options" and "implementation planning guidance" for operational personnel in a document known as the

-firefighters-only-the-brave. But the South Canyon fire first drew popular attention in a novel by the son of Norman Maclean, *Fire on the Mountain*. *See* JOHN N. MACLEAN, FIRE ON THE MOUNTAIN: THE TRUE STORY OF THE SOUTH CANYON FIRE (1999). An assiduous post-mortem of the Yarnell Hill and South Canyon tragedies, others like it, and some of the many reasons why more such tragedies are likely is MICHAEL KODAS, MEGAFIRE: THE RACE TO EXTINGUISH A DEADLY EPIDEMIC OF FLAME (2017).

12 *See* W. Wallace Covington & Diane Vosick, *Restoring the Sustainability of Frequent-Fire Forests of the Rocky Mountain West*, 48 ARIZ. ST. L.J. 11, 25–26 (2016) (noting that since 2000, when fire suppression costs first exceeded budgeted accounts, a variety of funding mechanisms and emergency appropriations have become the norm).

13 The Federal Land Assistance, Management, and Enhancement (FLAME) Act of 2009, 43 U.S.C.A. § 1738b (West 2018), required that the departments adopt a national cohesive strategy for fighting and managing wildfire on public lands.

14 REPORT TO CONGRESS: THE FEDERAL LAND ASSISTANCE, MANAGEMENT AND ENHANCEMENT ACT OF 2009 1 (2011), https://www.forestsandrangelands.gov/strategy /documents/reports/2_ ReportToCongress03172011.pdf.

"National Action Plan."[15] A "vision" espoused in this national plan encapsulates the problem: "[t]o safely and effectively extinguish fire, when needed; use fire where allowable; manage our natural resources; and as a Nation, live with wildland fire."[16]

Until each of these priorities/elements, or the goals they commend, are resolved spatially and temporally, they remain at the discretion of operational personnel. This discretion is a principal problem of the National Action Plan approach. There remains some possibility that any operational choice—or its polar opposite—can be deemed a pursuit of the "national plan." The keeper of this National Action Plan is known as the Wildland Fire Leadership Council (WFLC). The departments of Interior and Agriculture are trying to adapt themselves to the realities of wildfire as a knowledge problem.[17] Notwithstanding the dearth of controlled, experimental evidence standing behind their claims, two researchers, Agee and Skinner, offered what has since become a kind of playbook of principles for fuels management.[18] This is a vital playbook to the many Forest Service, Department of Interior, and tribal and state bureaus aiming to restore "healthy" fires to their lands. For it dispenses with the immense, all-consuming uncertainties about the good and bad—the cost effectiveness—of fuels treatment. From a series of *ex post* accounts of large wildland fires, accounts purporting to decide how and whether different fuels treatment tools (e.g., mechanical thinning, prescribed burns, selective cutting, etc.), did much to reduce the severity of the fires,[19] Agee and Skinner's "principles" emerged wholly unencumbered by the doubt, precision, or conditionality most peer-reviewed scientific findings must suffer.

Some evidence suggests that areas which historically saw relatively frequent, low-severity surface fires can gain the most from restorative

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15 WILDLAND FIRE LEADERSHIP COUNCIL, NATIONAL ACTION PLAN: AN IMPLEMENTATION FRAMEWORK FOR THE NATIONAL COHESIVE WILDLAND FIRE MANAGEMENT STRATEGY (2014), https://www.forestsandrangelands.gov/strategy/documents/strategy/NationalActionPlan_20140423.pdf.

16 *Id*. at 3.

17 The efforts to model wildfire's spread have faltered on the vast number of variabilities in fuel conditions, the physics of convection, and pyrolysis. *See* Mark A. Finney et al., *On the Need for a Theory of Wildland Fire Spread*, 22 INT'L J. WILDLAND FIRE 25 (2013).

18 *See* James K. Agee & Carl N. Skinner, *Basic Principles of Forest Fuel Reduction Treatments*, 211 FOREST ECOLOGY & MGMT. 83 (2005).

19 *See id.* at 90–92.

work that returns that area to reference conditions.[20] Beyond that very general notion, though, management priorities tend to recede into a soup of fragmentary and cryptic physical science clues, each with its own unique spatial and temporal scales and frames of reference. And while seasonal fire forecasts are also improving, stand-level variations in conditions that change with the weather, foliar moisture, etc., can alter the probabilities quickly and significantly.[21] Knowledge synthesis and sharing, in other words, must precede priority definition, but priority definition is often the key to allocating scarce cognitive capacities needed for synthesis and distribution.

Evidence-based conservation now confronts this paradox constantly.[22] It can only be resolved by bending traditional institutional norms toward the "peer production" of the needed information and cognition.

> At its core, peer production is a model of social production, emerging alongside contract- and market-based, managerial-firm based and state-based production. These forms of production are typified by two core characteristics. The first is decentralization. Authority to act resides with individual agents faced with opportunities for action, rather than in the hands of a central organizer, like the manager of a firm or a bureaucrat. The second is that they use social cues and motivations, rather than prices or commands, to motivate and coordinate the action of participating agents.[23]

These core characteristics describe the evolving norms and institutions in fire planning and perhaps even in conservation itself. Without a distributed design ethos animating the enterprise, however, jurisdictional overlaps become barriers instead of bridges, the constant need to rescale seems like a curse instead of a perceptual

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20 Paul F. Hessburg et al., *Dry Forests and Wildland Fires of the Inland Northwest USA: Contrasting the Landscape Ecology of the Pre-Settlement and Modern Eras*, 211 FOREST ECOLOGY & MGMT. 117, 131 (2005). What about those reference conditions protected forests from catastrophic fires has been the subject of intense debate and shifting opinion since Agee and Skinner wrote, though. *See* Paul F. Hessburg et al., *Tamm Review: Management of Mixed-Severity Fire Regime Forests in Oregon, Washington, and Northern California*, 366 FOREST ECOLOGY & MGMT. 221 (2016).

21 *See* Mark A. Finney, *The Challenge of Quantitative Risk Analysis for Wildland Fire*, 211 FOREST ECOLOGY & MGMT. 97 (2005).

22 *See* Jamison E. Colburn, *Qualitative, Quantitative, and Integrative Conservation*, 32 WASH. U. J.L. & POL'Y 237 (2010).

23 Yochai Benkler & Helen Nissenbaum, *Commons-based Peer Production and Virtue*, 14 J. POL. PHIL. 394, 400 (2006).

necessity, and dynamic standards of performance seem deviant rather than *de rigueur*.[24]

Rules, plans, and informal organizational cues affect human behavior at the "micromotivational" level, though, advantaging or disadvantaging this new form of production.[25] And, unfortunately, the causal relationships are highly complex and poorly understood.[26] At the very least, though, this ought to liberate us from our orthodox models of accountability. With peer production should come peer-to-peer accountability: participants are just as apt to shirk responsibility in this new digitized and collaborative world as they were before.[27] Indeed, like the institution of peer review itself, peer-to-peer data sharing and peer production of fire planning syntheses will inevitably generate their share of strategic behaviors.[28]

Another of the umbrella organizations, the National Wildfire Coordinating Group (NWCG), has long taken the lead in credentialing, training, and managing (loosely) our now immense wildland fire-industrial complex: the thousands of fire crews, aviation teams, and other frontline response personnel, supporting contractors, and civil infrastructure behind them. NWCG does not sign the checks, so to speak, but it does indirectly control who gets paid. NWCG and its programs determine in part how large fires shall be attacked with protocols and team preparation to meet the National Interagency Fire Center's tiers of incident command and control.[29] One of the chief,

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24 On the general outlines of this new normal, see Michael C. Dorf & Charles F. Sabel, *A Constitution of Democratic Experimentalism*, 98 COLUM. L. REV. 267 (1998).

25 *See, e.g.*, YOCHAI BENKLER, THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM 386 (2006).

26 Much of what makes wildfires so deadly is the unpredictability of their spread dynamics. *See* Finney et al., *supra* note 17, at 25–26 (noting the divergence of standard spread theory equations from experimental and field results).

27 *See, e.g.*, JOSEPH MICHAEL REAGLE JR., GOOD FAITH COLLABORATION: THE CULTURE OF WIKIPEDIA (2010).

28 *See* Bryn Nelson, *Empty Archives*, 461 NATURE 160, 163 (2009) (arguing that many scientists who are either personally or structurally set-up to publish research slowly will resist sharing data with others for fear of being poached, scooped, or deprived of the professional standing that should come from having collected the data); KODAS, *supra* note 11, at 301–09 (describing Forest Service personnel refusals to discuss Yarnell Hill events in after-incident communications because of the 2002 Cantwell-Hasting law requiring federal investigations and potential liability in wildfire fatalities).

29 *See* BOOZ ALLEN HAMILTON, U.S. FOREST SERVICE & DEP'T OF INTERIOR, 2014 QUADRENNIAL FIRE REVIEW: FINAL REPORT 29–32 (May 2015), https://www.forestsandrangelands.gov/QFR/documents/2014QFRFinalReport.pdf [hereinafter QFR 2014]. The National Interagency Fire Center (NIFC) groups incidents into tiers 1, 2, and 3: nationally,

and certainly most controversial, elements in NWCG programming is the dispatch of the aviation fleet and, in particular, the use of large air tanker (LAT) delivery of retardant.[30] The age, value, and risks presented in the use of this fleet remains a polarizing subject.[31] It is said that firefighters' mortality risks double the minute they go airborne.[32] One study of the 2010 and 2011 fire seasons found that "success" in LAT deployment is exceedingly rare, whether on "initial" or "extended" attack operations.[33] Indeed, NWCG and others maintain that LAT usage for initial attacks in backcountry areas are the chief means of keeping fires from becoming Type 1 (national) incidents. But there is literally no evidence to support this conventional wisdom,[34] despite some fifty years of study.[35] And this failure has been brought to the USDA's and the Interior Department's attention repeatedly.[36] To make matters worse, the vendors that supply much of the aerial delivery capacity have very potent incentives to favor the status quo and their cooperation in collecting such data would be indispensable.[37]

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regionally, and locally commanded. Tier 1 incidents will receive a Type 1 incident management team and other national resources as needed. *Id*.

30 *See* Crystal S. Stonesifer et al., *Fighting Fire in the Heat of the Day: An Analysis of Operational and Environmental Conditions of Use for Large Airtankers in United States Fire Suppression*, 25 INT'L J. WILDLAND FIRE 520 (2016).

31 *See* KODAS, *supra* note 11, at 201–22. Many firefighters will report anecdotally that the "air show" or "CNN drop" of retardant from planes does no good and puts many personnel in very risky situations. *See id.* at 214–15. "If retardant weren't red, it wouldn't be used anymore . . . . There are no studies whatsoever that retardant use saves homes." *Id.* at 215.

32 *Id.* at 215.

33 David E. Calkin et al., *Large Airtanker Use and Outcomes in Suppressing Wildland Fires in the United States*, 23 INT'L J. WILDLAND FIRE 259, 269 (2014).

34 *Cf. id.* at 268 (finding a majority of deliveries are to "extended attack" operations, that initial attack deliveries are mostly ineffective, and that current resource ordering policies do not prioritize among requests for LAT involvement). The principal challenge Calkin and colleagues faced in attempting to assess the cost-effectiveness of LAT deployment is the lack of reliable data on retardant deliveries and containment results, *see id.* at 263–65, although what they were able to conclude from indirect connections suggested large majorities of deliveries in both years failed to contain fires, *id.* at 265.

35 *See* Stonesifer et al., *supra* note 30, at 521.

36 *See, e.g.*, U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-13-684, WILDLAND FIRE MANAGEMENT: IMPROVEMENTS NEEDED IN INFORMATION, COLLABORATION, AND PLANNING TO ENHANCE FEDERAL FIRE AVIATION PROGRAM SUCCESS 1 (2013) ("[T]he studies and strategy documents did not incorporate information on the performance and effectiveness of firefighting aircraft, primarily because neither agency collected such data.").

37 The GAO remorselessly reviewed the approach taken since 1995. *Id.* at 13 ("[A]gency efforts to identify their firefighting aircraft needs have not included

As many times as ecologists or historians insist that fire is a natural part of our landscape and will either burn at regular return intervals with the intensities that plant and animal communities have adapted to or will return violently, unpredictably, and with destructive force, land managers have continued to favor extinguishing wildland and rural fires. The arithmetic is simple. Especially in the West, where landscapes have shrunken one "wilderburb" at a time, backcountry fires that we once hoped could be allowed to burn become some level of threat to human communities or their watersheds almost inevitably. The intensity of today's fires has ruled "let burn" policies out across much of the landscape. According to a study by Headwaters Economics in 2013, the cost of fighting fires tripled from the 1990s to today[38] due in large part to the strategic involvement of so much WUI.[39] Much of the fuels management spending has shifted there, as well.[40] Even for the areas free of subdivision-driven development, land management decisions that jeopardize water supplies to drought-stricken Western communities, by risking the damage that high-intensity fires can inflict, have become a principal foil to fire regime restoration.

Thus, the process of reintegrating wildland and rural fire with the landscape has been a fitful effort. Every fire season brings fire crews by the score to seemingly unprecedented fires—whether because of suppression costs, evacuation costs, or fatalities.[41] In a recent book, our leading fire historian, Steve Pyne, described one such firefighter hero, Lynn Biddison, whose career in the Forest Service and time on

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information on the performance and effectiveness of using aircraft to suppress wildfires . . . . Specifically, the agencies have not established data collection mechanisms to track the specific tactical uses of firefighting aircraft—for example, where retardant or water is dropped in relation to a fire as well as the objective of a drop, such as protecting a structure or preventing a fire from moving in a specific direction—or measure their performance and effectiveness in those uses.").

38 ROSS GORTE, HEADWATERS ECONOMICS, THE RISING COST OF WILDFIRE PROTECTION 4–6 (2013), https://headwaterseconomics.org/wp-content/uploads/fire-costs-background-report.pdf.

39 *Id.* at 7–11.

40 *See id.* at 8–9. This tends to decrease the cost-effectiveness of fuels treatments. *See id.* at 9 (citation omitted) ("Treatments in the WUI are closer and more visible to humans and thus the public involvement process commonly takes longer and costs more. . . . Also, prescribed burning is, in many ways, the most effective means of reducing fuels, but the higher values and closer proximity of humans necessitate more personnel and more oversight to try to prevent the prescribed fires from becoming wildfires.").

41 *See* KODAS, *supra* note 11, at 310–16.

the line earned him a lot of peer respect.[42] Biddison was fond of observing that "[t]he safest and least costly fires are the ones that receive strong initial attack and are suppressed while still small."[43] And that is the strategic dynamic keeping us locked in an untenable status quo: fires are simply too costly when they really burn. So, our suppression teams race to put them out or to contain them—functionally excluding fire from a fire-prone landscape again, just as the 10 A.M. policy did in the twentieth century—because our politics demand that we suppress what Pyne has called this "ecological insurgency" of fire.

Finally, the roads of the National Forest System and other public lands allow tremendous access to backcountry areas. After the two largest fires in Arizona history,[44] stakeholders comprising the Four Forest Restoration Initiative (4FRI) settled some of their differences and agreed on a suite of strategic priorities for the four national forests of central Arizona.[45] They agreed that one of the priorities was decommissioning many of the forests' roads, especially in light of the threat human ignitions now pose.[46] An exhaustive study of records from 1992 to 2012 by Balch and her colleagues found that about 84% of all wildfires and almost half of the total area burned stemmed from human ignitions, adding an average of 40,000 more wildfires per year.[47] The seasonality of lightning strikes in many parts of the country means that human ignitions vastly expand the fire season.[48] Every mile of backcountry road decommissioned decreases access and shrinks the human ignition footprint. Part III considers this "retreat" alternative in context today.

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42 STEPHEN J. PYNE, BETWEEN TWO FIRES: A FIRE HISTORY OF CONTEMPORARY AMERICA 24–25 (2015).

43 *Id.* at 25 (citation omitted).

44 The massive Rodeo-Chediski fire of 2002 burned 468,000 acres in east-central Arizona, only to be surpassed by the Wallow Fire of 2011 burning another 538,000 acres. Where the former was the result of an arsonist (looking for seasonal firefighting work), the latter stemmed from an escaped campfire. *See* KODAS, *supra* note 11, at 131, 171.

45 *See* Annette Fredette, *4FRI and the NEPA Process*, 48 ARIZ. ST. L.J. 139 (2016).

46 ANNA M. LUCAS, U.S. FOREST SERVICE, FOUR FOREST RESTORATION INITIATIVE SOCIOECONOMIC MONITORING REPORT 14 (2013), http://www.4fri.org/pdfs/documents/collaboration/4FRI_SE_Monitoring_Report_7_26_13.pdf.

47 *See* Jennifer Balch et al., *Human-Started Wildfires Expand the Fire Niche Across the United States*, 114 PROC. NAT'L ACAD. SCI. 2946, 2946 (2017).

48 *See id.* at 2947 (Table 1).

B. The Normativity of Plans and Planning

A plan is, among other things, a mechanism for limiting discretion. It works to bind subsequent decisions. A plan adopted by a unitary agent is a kind of normative reason. It functions as a reason for action by serving as an intention-forming device and then guiding intentional actions over time.[49] Unitary agents behave in instrumentally rational ways by forming and following plans. Internally plural agents, however, typically face greater challenges and most land use plans like those pertinent to wildfire are adopted by governmental agents necessarily operating across a variety of social, spatial, and temporal scales. They therefore serve important communicative or *expressive* functions as often as they serve to bind the future to pre-set courses of action.[50] Local land use planners have often viewed their plans in this light[51] and the synthetic national agents of wildfire planning seem to do so as well. This dual functionality of plans gives them a rich complexity.

In their normative dimensions, however, land use plans in the United States have often fallen short of what they achieve as communication. Many states have long required their general purpose local governments to have a comprehensive plan guiding their development,[52] even though the requirement that plans guide zoning

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49 *See, e.g.*, MICHAEL E. BRATMAN, INTENTION, PLANS, AND PRACTICAL REASON 8 (1999).

50 *See, e.g.*, Cochran v. Planning Bd. of Summit, 210 A.2d 99, 104 (N.J. Super. Ct. Law Div. 1965) ("The master plan represents at a given time the best judgment of the planning agency as to the proper course of action to be followed. . . . A master plan is not a straitjacket delimiting the discretion of the legislative body, but only a guide for the city . . . which will show a commission from day to day the progress it has made.").

51 Charles Haar once argued that land use plans serve at least four main functions: (1) they serve notice on interested parties as to the probable outcomes for their development proposals; (2) they coordinate the variety of public actors within the jurisdiction adopting them; (3) as a regulatory framework through which permissions and prohibitions are oriented; (4) as a safeguard against official arbitrariness. Charles Haar, *The Master Plan: An Impermanent Constitution*, 20 L. & CONTEMP. PROBS. 353, 359–65 (1955).

52 *See* Daniel R. Mandelker, *The Role of the Comprehensive Plan in Land Use Regulation*, 74 MICH. L. REV. 899 (1976). And many of these have long required that local land use decisions be *consistent* with such comprehensive plans. *See* JOSEPH F. DIMENTO, THE CONSISTENCY DOCTRINE AND THE LIMITS OF PLANNING (1980); Fasano v. Bd. of Cty. Comm'rs, 507 P.2d 23, 30 (Or. 1973) (invalidating zoning change as inconsistent with county's comprehensive plan). The extent to which plans actually guide local land use decision making, however, remains a hotly contested question, even within such jurisdictions. *See id.* at 16 ("Even in those states where legislation has been passed to

and other land use decision-making is—more often than not—honored in the breach.[53] In theory, plans' expressive functions can make up for this shortcoming. They can announce a vision, signaling hopes and expectations for the future, if not necessarily hard commitments to act.

As both norm and expression of future intentions, plans can resemble legal rules. Legal rules are obviously normative by nature.[54] But they play important, often subtle expressive roles, too. When the Wilderness Act of 1964 defined "wilderness" as "undeveloped Federal land retaining its primeval character and influence, without permanent improvements of human habitation," it not only set out criteria by which federal lands should be judged for inclusion in its National Wilderness Preservation System;[55] it also expressed a collective vision of how to treat such landscapes. But it is increasingly vital that we consistently differentiate the normative from the expressive dimensions of our natural resource laws and plans. The plans made by agents like the WFLC or Wildland Fire Coordinating Group (WFCG) serve as *guiding*—if not necessarily as *governing*—norms, whereas proper legal rules, supposing they are established by an authoritative source, are the governing norms.[56] When one decision from agents like the WFLC or WFCG purports to guide and to govern without clearly specifying which is which, our orthodox mechanisms of governmental accountability can fail. Part II reviews the specific geography of the trail of mistakes and failure: what we call the WUI.

II
THE RISE OF "DEFENSIBLE SPACE": FIRE-ADAPTED COMMUNITIES AT RISK

Whether the incident report in question comes from the Southern California fires in 2017, the South Canyon fire in 1994, or the Yarnell Hill fire in 2013, a continuing theme running throughout operational command decisions is the presence of human communities at risk and

effect consistency, there is no generally accepted understanding of the term in affected local governments.").

53 *See* DIMENTO, *supra* note 52, at 1–9.

54 *Cf.* FREDERICK SCHAUER, PLAYING BY THE RULES: A PHILOSOPHICAL EXAMINATION OF RULE-BASED DECISION-MAKING IN LAW AND IN LIFE 2 (1991) (contrasting descriptive laws like gravity from prescriptive laws like speed limits).

55 16 U.S.C. § 1131(c) (2018).

56 The differences between these two are not as simple as they at first appear. *See* SCOTT J. SHAPIRO, LEGALITY (2011).

the imperative need to halt an impending tragedy. This Part reviews the role of home ignition in our fire predicament. Section A traces several Forest Service programs and Section B looks at the private market.

A. A New Smokey in the WUI

Rocky Mountain Research Station scientist Jack Cohen has rivaled Smokey Bear in his influence on the promotion of "defensible space" around homes and the use of ignition-resistant building materials as means of reducing WUI fire risks.[57] In paper after paper, Cohen has argued that proper engineering of the sub- and exurban homestead itself is the safest way to live with wildfire.[58] By keeping vegetation away from the home, using firebrand-resistant roofing, covering intakes, and keeping flammable goods at a distance, Cohen argues that homeowners can defend themselves against a structural ignition/loss. "We cannot assume a direct causal linkage between extreme wildfires and WUI fire disasters," Cohen wrote in 2008,[59] insisting that the disaster comes in leaving a home vulnerable to ignition. Imagine a local land use planning agent confronting a building permit application for a new subdivision up some hypothetical slot canyon drive. The applicant promises to implement Cohen's fire wisdom (and to supply more taxpaying homes to a growing community). Will that planning agent budget the costs of protecting the subdivision from fire into the calculus? Will that planning agent even be able to *calculate* those costs?

The federal agencies' spending curves on wildfire suppression in recent decades are notoriously steep. Some of this is likely attributable to fuel conditions, i.e., pest infestations, shifts in

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57 Smokey Bear first appeared in 1944 urging Americans that it was their duty to prevent forest fires. *See* STEPHEN J. PYNE, AMERICA'S FIRES: A HISTORICAL CONTEXT FOR POLICY AND PRACTICE 42 (2010).

58 *See, e.g.*, David E. Calkin, Jack D. Cohen, Mark A. Finney & Matthew P. Thompson, *How Risk Management Can Prevent Future Wildfire Disasters in the Wildland-Urban Interface*, 111(2) PROC. NAT'L ACAD. SCI. 746 (2014); Jack D. Cohen, *The Wildland-Urban Interface Fire Problem*, FOREST HISTORY TODAY, Fall 2008, 20, 23–25 [hereinafter Cohen, *Wildland-Urban Interface Fire Problem*]; Jack D. Cohen, *Preventing Disaster: Home Ignitability in the Wildland-Urban Interface*, 98(3) J. FORESTRY 15 (2000); Jack D. Cohen & Jim Saveland, *Structure Ignition Assessment Can Help Reduce Fire Damages in the W-UI*, 57(4) FIRE MGMT. NOTES 19 (1997).

59 Cohen, *Wildland-Urban Interface Fire Problem*, *supra* note 58, at 22.

precipitation, drought, heat, etc.[60] Much of it stems from WUI development and the inherent complexity of "structural fires," though.[61] As more money is spent in the WUI, less is spent on wildland rehabilitation or management.

More recently, Cohen and his colleagues argued that although wildfires may be inevitable, structural losses are not.

> How can land management agencies, first responders, and affected communities who face the inevitability of wildfires reduce the potential for loss? By doing what other institutions, both private and public, across sectors, have done in the face of complexity and uncertainty: turn to the principles of decision science and risk management.[62]

Homeowner "engagement," the risk managers argued, is the key—the owner's careful engineering of the "home ignition zone" is what determines their vulnerability to catastrophic loss.[63] Admittedly, "[a]n appropriate application of wildfire risk management would incorporate the functional relationships between extreme-weather wildfires, landscape conditions, and home ignition/destruction,"[64] but "WUI fire disasters cannot be prevented without homeowners actively creating and maintaining . . . low ignition potential."[65] The planning logic is clear: collectively, we must assume *more* WUI development and optimize from there.[66]

While it is certainly true that a "home ignition zone" can sever *any* but-for causal chain last-ditch at the flame front, one of Cohen's own collaborators is the foremost expert on the *unpredictability* of fire's spread.[67] Breaking down ignitions by probability or susceptibility one property at a time politely obscures the cumulative risk that results

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60 *See* GORTE, *supra* note 38, at 2–4.

61 *See id.* at 7–9. One survey of Forest Service managers turned up estimates of between 50% and 95% of the agency's firefighting costs going to protect private property. *Id.* at 7.

62 Calkin et al., *supra* note 58, at 746.

63 *See id.* at 748–49 (citations omitted) ("The likelihood of home ignition during extreme wildfire conditions is principally determined by . . . the home's materials, design and maintenance in relation to its immediate (within 30 m[eters]) surroundings.").

64 *Id.* at 750.

65 *Id.*

66 *Cf.* SHAPIRO, *supra* note 56, at 274–75 ("By settling matters in favor of the directed action, laws cut down on deliberation and bargaining costs and compensate for cognitive incapacities and informational asymmetries, thereby enabling community members to achieve goals and realize values that would otherwise be beyond their grasp.").

67 *See* Finney, *supra* note 21. Cohen himself was a co-author on one of Finney's more recent papers. *See* Finney et al., *supra* note 17.

from some aggregate of choosers, each one of which weighs their own risks in isolation from the decisions of the others.[68] Such work presumes that people can capably judge these probabilities/susceptibilities and reliably, diligently minimize them. Finally, it (impolitely) ignores the fact that first responders—who must put their lives in jeopardy in exigent circumstances—may be unable to judge enough of these home ignition zones (how to familiarize oneself with a property in ten seconds?) or what to do with such composited information for any of this to reduce their risks, either individually or collectively. Section B reviews the principal private initiative to these same ends.

B. Firewise as Fire Wisdom?

WUI fire planning has found its place in our fire-industrial complex. The Community Wildfire Protection Plan (CWPP) is now a federally-backed big business.[69] Moreover, the National Fire Protection Association (NFPA) is deep into its "Firewise" initiative, billed as "neighbors helping neighbors reduce risk collectively in a voluntary grassroots program."[70] This initiative, which sounds impressive anecdotally,[71] is still in its relative infancy.[72] NFPA offers a companion code, Standard 1141, on fire protection infrastructure in the WUI.[73] Both are the work of a voluntary standards organization rooted in consensus approaches.

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68 It also underwrites the externalization of the risks borne collectively from individualized risk minimization. Once begun, policies of this kind can be very resistant to change. *See* KUNREUTHER & MICHEL-KERJAN, *supra* note 1, at 262–65.

69 Community Wildfire Protection Planning got its federal start in the Healthy Forests Restoration Act of 2003, 16 U.S.C. §§ 6501–6591 (2018). I described some of the progress in CWPPs in 2012. *See* Jamison E. Colburn, *Declaring Disaster*, 1 TEX. WES. J. REAL PROP. L. 1, 20–25 (2012). As of 2009, the National Association of State Foresters estimated that about 6,000 communities had prepared community wildfire protection plans. *See* ROCKY MTN. RESEARCH STATION, USDA FOREST SERV., RMRS-GTR-299, WILDFIRE, WILDLANDS, AND PEOPLE: UNDERSTANDING AND PREPARING FOR WILDFIRE IN THE WILDLAND-URBAN INTERFACE 24 (2013) [hereinafter WILDFIRE, WILDLANDS].

70 Faith Berry et al., *FIREWISE: The Value of Voluntary Action and Standard Approaches to Reducing Wildfire Risk*, 48 ARIZ. ST. L.J. 181, 196 (2016).

71 *Id.* at 196–99.

72 It remains to be seen whether NFPA can influence states to partner with the insurance industry, or to Firewise to increase fire insurance premiums significantly in step with the risk gradient(s). *See* GORTE, *supra* note 38, at 12.

73 *See* Berry et al., *supra* note 70, at 200–02. Berry and colleagues rightly observe that codes like NFPA 1141 can "serve to level the playing field for developers and builders and provide a measure of equity and fairness with regard to requirements for new

Yet, we still have precious little reason to think that markets will (eventually) correct the tendency to build more WUI that worsens our collective position.[74] Adding up the number of potential ignition hazards to be identified and diligently managed throughout an acre or more of "ignition zone," multiplied by the number of WUI tracts—many of which are secondary residences—instills little confidence that Cohen's or the NFPA's risk assessments are at all objective. And whatever the causal relationships at issue, that is what risk managers strive to achieve: objective probability distributions.[75] Cohen and NFPA are surely to be commended for raising awareness of shared responsibilities.[76] But the deeper, darker political waters of land development in America are no place to learn how to swim.

Consumers' optimism bias runs deep when they buy or build homes, and insurers have bigger profit sinks to fix.[77] Further, federal subsidies to WUI disaster mitigation blunt market signals. The tools for addressing failures in the very political system to have entrenched these patterns reflect their value only in fully sobered assessments of the status quo. Part III considers the legal and political systems that have entrenched this new normal in fire planning and introduces three corrective uses of NEPA aimed at its gradual rehabilitation.

III
PRESSING AND DEVELOPING "RETREAT" ALTERNATIVES: THREE EXAMPLES

Students of natural resources law in the United States are familiar with NEPA's basic outlines. The original "impact assessment" mandate, NEPA aimed to improve federal administrative agencies'

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construction." *Id.* at 202. But distributive justice for developers is better left out of catastrophic risk management—where expert susceptibility assessments rooted in worst-case assumptions are utterly indispensable. *See* KUNREUTHER & MICHEL-KERJAN, *supra* note 1, at 355–56.

74 *See* Karen M. Bradshaw, *A Modern Overview of Wildfire Law*, 21 FORDHAM ENVTL. L. REV. 445, 463–66 (2010).

75 *See* Anthony Giddens, *Risk and Responsibility*, 62 MOD. L. REV. 1 (1999).

76 *Cf. id.* at 8 ("Risks only exist when there are decisions to be taken . . . . The idea of responsibility also presumes decisions. What brings into play the notion of responsibility is that someone takes a decision having discernable consequences.").

77 *See* KUNREUTHER & MICHEL-KERJAN, *supra* note 1, at 121, 258–59; *cf.* PYNE, *supra* note 57, at 67 ("While spectacular, damage from fire is less than that from water (one Category 4 hurricane is worth a century of wildfire). In terms of real economic losses, perhaps 85 percent of the wildfire damage is localized in California.").

work by mandating processes of mutual criticism and analysis.[78] It has grown rather complex in its implementation-by-litigation, and for having no single, authoritative administrator.[79] In a nutshell, federal agencies must assess their "major" actions for potential environmental consequences and check them against the consequences of alternatives in consultation with cooperating agencies, interested states, and the public.[80] The range of alternatives that agencies *must* consider, whether in a full environmental impact statement (EIS) or the more summary environmental assessment/finding of no significant impact (EA/FONSI), is always at issue. If NEPA's role is to facilitate criticism by informed outsiders, alternatives should be sensitive to what participants have added.[81] On the other hand, it often takes a court order to force an unwilling agency to respond to the counsel of outsiders.[82] This, then, becomes a matter of the judiciary's proper institutional role, especially in the case of alternatives that challenge an agency's conventional wisdom or would change its priorities.[83] The courts' "rule of reason" has tended to proxy for a variety of considerations, some legitimate and some less so.[84]

With a multifaceted, inter-generational problem like wildfire, however, leaving potentially transformative alternatives out of the "reasonable" alternatives to be studied in the reviews, plans, programs, and strategy documents that the USDA and the Interior Department now adopt routinely is a mistake. Sensitivity to the separation of powers has never necessarily blinded courts to agencies' systemic biases, certainly not where advocates have brought forward

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78 *See* SERGE TAYLOR, MAKING BUREAUCRACIES THINK: THE ENVIRONMENTAL IMPACT STATEMENT STRATEGY OF ADMINISTRATIVE REFORM (1984).

79 *See* Colburn, *supra* note 3, at 10288.

80 *See* Nicholas C. Yost, *The Background and History of NEPA*, *in* THE NEPA LITIGATION GUIDE 1 (Albert M. Ferlo et al. eds., 2012).

81 *See, e.g.*, TAYLOR, *supra* note 78, at 80–90.

82 *See* Vermont Yankee Nuclear Power Corp. v. Nat. Res. Def. Council, Inc., 435 U.S. 519, 553 (1978); Strycker's Bay Neighborhood Council, Inc. v. Karlen, 444 U.S. 223, 227–28 (1980).

83 This relationship is, of course, framed by the applicable statutes and other authority binding the court and agency. *See, e.g.*, Westlands Water Dist. v. U.S. Dep't of Interior, 376 F.3d 853, 870–72 (9th Cir. 2004); Kootenai Tribe of Idaho v. Veneman, 313 F.3d 1094, 1122 (9th Cir. 2002).

84 *See, e.g.*, J. Matthew Hawes, *Analysis Paralysis: Rethinking the Court's Role in Evaluating EIS Reasonable Alternatives*, 2012 U. ILL. L. REV. 537.

ample evidence to that effect through NEPA participation.[85] Retreat alternatives will be identifiable more in how they intersect the federal agency and the choices afoot than anything else. They will be controversial by nature. Nonetheless, if, as the Ninth Circuit maintains, the "touchstone" of the inquiry into which alternatives must be raised and considered in any NEPA process is whether the "selection and discussion of alternatives fosters informed decision-making and informed public participation,"[86] retreat alternatives like those explored below may be uniquely valuable aspects of the NEPA documents attending our wildland fire decisions this century.

Because of how the land managing agencies structure their NEPA compliance routines, forcing these kinds of alternatives into a decisional process can be a challenge for interested participants in agency administration.[87] For example, in any EIS, the agency must "[r]igorously explore and objectively evaluate all reasonable alternatives," "[i]nclude reasonable alternatives not within the jurisdiction of the lead agency," and "[i]dentify the agency's preferred alternative."[88] Within the Ninth Circuit, these requirements are enhanced by the notion of "viable" alternatives and their mandatory inclusion.[89] That court has repeatedly held that "[t]he 'existence of a viable but unexamined alternative renders an environmental impact statement inadequate.'"[90] But agencies, in the Ninth Circuit and most others, are "entitled to identify some parameters and criteria . . . for generating alternatives to which [they will] devote serious

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85 *See, e.g.*, Robert E. Jordan, III, *Alternatives Under NEPA: Toward an Accommodation*, 3 ECOLOGY L.Q. 705, 745 (1973).

86 *See* Headwaters, Inc. v. BLM, 914 F.2d 1174, 1180 (9th Cir. 1990) (*quoting* California v. Block, 690 F.2d 753, 767 (9th Cir. 1982)).

87 The Forest Service, for example, announced in 2013 that it was revoking decades-old agency policy directing Forest Service offices and units to comply with the standards for rulemaking in the Administrative Procedure Act (which exempts rulemakings involving "public property"). Revocation of Statement of Policy on Public Participation in Rulemaking, 78 Fed. Reg. 64,194 (Oct. 28, 2013).

88 40 C.F.R. §§ 1502.14(a), (c), (e) (2017). The agency's preferred alternative should be identified in the draft EIS in order to solicit public comment thereon. *Id.* § 1502.14(e).

89 Alaska Wilderness Recreation & Tourism Ass'n v. Morrison, 67 F.3d 723, 729 (9th Cir. 1995).

90 Morongo Band of Mission Indians v. FAA, 161 F.3d 569, 575 (9th Cir. 1998) (citing Resources, Ltd. v. Robertson, 35 F.3d 1300, 1307 (9th Cir. 1993) (quoting Idaho Conserv. League v. Mumma, 956 F.2d 1508, 1519 (9th Cir. 1992))). The D.C. Circuit recently took a step in this direction as well. *See* Union Neighbors United, Inc. v. Jewell, 831 F.3d 564, 575–77 (D.C. Cir. 2016). The First Circuit did so in *Dubois v. U.S. Dep't Agric.*, 102 F.3d 1273, 1286–87 (1st Cir. 1996).

consideration. Without such criteria, an agency could generate countless alternatives."[91] And this is the key for EIS alternatives: the "purpose and need" behind the action for which the EIS is being prepared[92] dictates the legitimate scope of what must be considered an "alternative" within the meaning of § 102(2)(C)(iii).[93] This "feasibility" of an alternative and the necessity of its inclusion in the agency's deliberations will turn on the statutes governing that agency/action, the agency's stated objectives, and the balance of advantages and disadvantages of that alternative revealed in the record.[94]

Finally, the case law and the Council on Environmental Quality (CEQ) rules require that every EIS raise and consider a meaningful "no-action" alternative.[95] Valid no-action alternatives must be constructed and analyzed from a true, i.e., realistic, baseline; and not some fictional baseline the agency might prefer.[96] But the statute only reaches effects that can be linked to an agency's discretionary choices through a "reasonably close causal relationship," which the Supreme Court has likened to the "familiar doctrine of proximate cause from

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91 *Morongo Band*, 161 F.3d at 575 (quoting *Idaho Conserv. League*, 956 F.2d at 1522).

92 40 C.F.R. § 1502.13 (2018) (EIS "shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action"). It is not uncommon for an entire case to turn on the reasonableness of a purpose and need statement. *See, e.g.*, Friends of the Se.'s Future v. Morrison, 153 F.3d 1059, 1066–67 (9th Cir. 1998).

93 Because the agency's duty to develop alternatives pursuant to NEPA § 102(2)(E) is predicated not upon the proposal of some discrete "action" but rather on some "unresolved conflict" over alternative uses of "available resources," alternatives developed pursuant to this provision need not necessarily follow from some stated purpose/need. *See* Jamison E. Colburn, *A Climate Constrained NEPA*, 2017 U. ILL. L. REV. 1091, 1110–21. The "purpose and need" cases are legion. Leading precedents holding that the required purpose and need statement cannot be "unreasonably narrow" include: Native Ecosystems Council v. U.S. Forest Serv., 428 F.3d 1233, 1246–47 (9th Cir. 2005); Davis v. Mineta, 302 F.3d 1104, 1118–20 (10th Cir. 2002); Simmons v. U.S. Army Corps of Engineers, 120 F.3d 664, 668–69 (7th Cir. 1997); Seattle Audubon Soc'y v. Moseley, 80 F.3d 1401, 1404 (9th Cir. 1996); City of Grapevine, Texas v. U.S. Dep't of Transp., 17 F.3d 1502, 1506 (D.C. Cir. 1994); *Idaho Conserv. League*, 956 F.2d at 1520.

94 *See Union Neighbors*, 831 F.3d at 574–77; Nat'l Parks & Conserv. Ass'n v. BLM, 606 F.3d 1058, 1070–71 (9th Cir. 2010); *Davis*, 302 F.3d at 1120–22 (10th Cir. 2002); *Dubois*, 102 F.3d at 1286–89.

95 *See* 40 C.F.R. § 1502.14(d); *see also Native Ecosystems Council*, 428 F.3d at 1245–49.

96 *See* Friends of Yosemite Valley v. Kempthorne, 520 F.3d 1024, 1037–38 (9th Cir. 2008).

tort law."[97] That keeps the evaluation of all alternatives to a fairly tight cause-to-effect circumference, at least until the agency *chooses* to broaden the inquiry. Section A considers retreat alternatives in aviation, Section B outlines the alternative of road decommissioning, and Section C explores a much larger, longer "retreat": a retreat from the multi-facet optimization paradigm itself.

A. Large Air Tankers: Deadly, Costly, and Ineffective?

A familiar canard from the Supreme Court's *Vermont Yankee* opinion is that "[c]ommon sense teaches us that [a] 'detailed statement of alternatives' cannot be found wanting simply because the agency failed to include every alternative and thought conceivable by the mind of man."[98] But common sense teaches virtually nothing about NEPA's alternatives. Although it is fairly uncontroversial that agencies need not weigh *every* alternative raised in public comments,[99] even the *Vermont Yankee* Court signaled that an alternative raised and developed by a NEPA-process participant can shift the burdens to the agency.[100] Since *Vermont Yankee*, agencies that refuse to explore gift-wrapped alternatives—an alternative that some interested party has investigated and presented for their deliberations, which at least appear to accomplish the agency's stated objectives without collateral costs or disadvantages—are often tripped up for having conducted their NEPA process arbitrarily.[101]

The deployment of LATs in actual fire incidents will not elicit a NEPA document. It is in the planning for LAT deployment that a "retreat" alternative could, and perhaps should, be urged.[102] Several indicators suggest that LATs are overused and ineffective. The

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97 U.S. Dep't of Transp. v. Public Citizen, 541 U.S. 752, 767 (2004).

98 Vermont Yankee Nuclear Power Corp. v. Nat. Res. Def. Council, Inc., 435 U.S. 519, 551 (1978).

99 *See, e.g.*, WildEarth Guardians v. BLM, 8 F. Supp. 3d 17 (D.D.C. 2014).

100 *See Vermont Yankee*, 541 U.S. at 553–54; *see also* Park Cty. Res. Council, Inc. v. U.S. Dep't of Agric., 817 F.2d 609, 621 (10th Cir. 1987); Druid Hills Civic Ass'n v. Fed. Highway Admin., 772 F.2d 700, 713 (11th Cir. 1985).

101 *See, e.g.*, Union Neighbors United, Inc. v. Jewell, 831 F.3d 831, 576–77 (D.C. Cir. 2016); New Mexico *ex rel.* Richardson v. BLM, 565 F.3d 683, 707 (10th Cir. 2009); Save Our Cumberland Mountains v. Kempthorne, 453 F.3d 334, 343–49 (6th Cir. 2006); California v. Block, 690 F.2d 753, 758, 770–71 (9th Cir. 1982).

102 The Forest Service's refusal to prepare an environmental assessment of the use of the retardant in LAT deployments was challenged and the decision remanded by Judge Molloy in *Forest Serv. Emps. for Envtl. Ethics v. U.S. Forest Serv.*, 397 F. Supp. 2d 1241 (D. Mont. 2005).

feasibility or "viability" of a no-use or reduced-use policy or plan for LATs could look to a recent U.S. Government Accountability Office (GAO) audit of the Forest Service and Interior Department and the costly exclusive-use contracts their vendors have enjoyed.[103] An appalling lack of accountability in the funding of this capacity led GAO to conclude that, despite nine major studies since 1995, the agencies have failed to find *any* data supporting the effectiveness of LAT or other aircraft involvement in fighting fires.[104] The National Interagency Aviation Committee seems to bear much of the blame for a general lack of collaboration, information gathering or sharing, and overall transparency.[105] As these agencies cycle out of their legacy contracts in 2018 and beyond, changing their asset portfolios, they should have to justify the heavy reliance on aviation in firefighting wherever the opportunity arises. This may or may not involve a discrete "action;" if it attends a "plan" or strategic announcement, a more "programmatic" assessment of alternatives under NEPA § 102(2)(E) may be the better venue in which to press this claim.[106] But because doctrines in the Ninth, Tenth, and D.C. Circuits generally allow agencies to eliminate alternatives from consideration if they lack any basis in fact,[107] developing the factual record is a necessity.

Successfully urging and developing a "retreat" alternative like scaling back or even eliminating LAT usage will also turn on that alternative's being part of a "reasoned choice" the agency cannot rightly avoid.[108] Courts will only be likely to intervene where the exclusion of the alternative from detailed consideration is in some sense arbitrary or contrary to law. Yet this can be demonstrated more often than it presently seems to be: cases in the lower federal courts

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103 *See* U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 36, at 9–10.

104 *Id.* at 11–17.

105 *Id.* at 19–20.

106 *See* Colburn, *Climate Constrained NEPA*, *supra* note 93, at 1112–21. Courts have routinely held that this provision constitutes a separate, independent duty under NEPA. *See, e.g.*, Bob Marshall Alliance v. Hodel, 852 F.2d 1223, 1228–30 (9th Cir. 1988); Nat'l Wildlife Fed'n v. Appalachian Reg'l Comm'n, 677 F.2d 883 (D.C. Cir. 1981); Aertsen v. Landrieu, 637 F.2d 12, 20 (1st Cir. 1980).

107 *See* Nat. Res. Def. Council, Inc. v. Hodel, 865 F.2d 288, 295–300 (D.C. Cir. 1988); City of Angoon v. Hodel, 803 F.2d 1016, 1020–22 (9th Cir. 1986).

108 *See* Union Neighbors United, Inc. v. Jewell, 831 F.3d 564, 575–76 (D.C. Cir. 2016); Davis v. Mineta, 302 F.3d 1104, 1120–22 (10th Cir. 2002); Morongo Band of Mission Indians v. FAA, 161 F.3d 569, 576 (9th Cir. 1998).

have made that clear.[109] That, in turn, supplies countervailing power over a reluctant agency. Of course, some deference to the agency's statement of purposes and need—which often confines the range of feasible alternatives quite tightly—will be unavoidable.[110] But for a policy choice with such enormous collateral risk and expense, LAT attacks on fire seem well-suited to the proposal and elaboration of a planned retreat.[111]

B. Road Decommissioning as an Ignition Management Policy

The land management agencies all face statutory duties to plan their land uses. And for the multiple use agencies (Forest Service and Bureau of Land Management), the "travel management" elements therein can be the most challenging.[112] As human ignitions (intentional and accidental alike) become a core focus of wildland and rural fire policies,[113] the backcountry road networks sustaining so much access have become a fire policy focus. A "retreat" alternative in land and resource management planning is road decommissioning and, specifically, the elimination of access as a means of balancing agency budgets.

In the 4FRI initiative, road decommissioning became a part of the four national forests' land and resource management planning. Many of these roads were unauthorized and/or unneeded. The EIS for 4FRI phase I's restoration agenda described a range of conditions—noxious invasive species, overcrowding, lack of age class diversity, etc.—for rehabilitation as well as a target of 700+ miles of unauthorized and/or

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109 *See, e.g.*, *Union Neighbors*, 831 F.3d at 576; New Mex. *ex rel.* Richardson v. BLM, 565 F.3d 683, 711 (10th Cir. 2009); Dubois v. U.S. Dep't of Agric., 102 F.3d 1273, 1287–89 (1st Cir. 1996); California v. Block, 690 F.2d 753, 767 (9th Cir. 1982). It has even proven possible to make out such a case in challenges to the range of alternatives considered in an EA/FONSI. *See, e.g.*, Soda Mountain Wilderness Council v. Norton, 424 F. Supp. 2d 1241, 1263–65 (E.D. Cal. 2006).

110 *See, e.g.*, Muckleshoot Indian Tribe v. U.S. Forest Serv., 177 F.3d 800, 812–13 (9th Cir. 1999); Colorado Envtl. Coal. v. Dombeck, 185 F.3d 1162, 1174–76 (10th Cir. 1999); Citizens Against Burlington, Inc. v. Busey, 938 F.2d 190, 199 (D.C. Cir. 1991).

111 This will be doubly so if, in procuring aviation assets, the vendor's purposes or preferences are weighed too heavily. *See, e.g.*, National Parks & Conserv. Ass'n v. BLM, 606 F.3d 1058, 1071–72 (9th Cir. 2010); *Dombeck*, 185 F.3d at 1174–77; Simmons v. U.S. Army Corps. of Eng'rs, 120 F.3d 664, 669 (7th Cir. 1997).

112 *See* DAVID G. HAVLICK, NO PLACE DISTANT: ROADS AND MOTORIZED RECREATION ON AMERICA'S PUBLIC LANDS (2002).

113 *See* QFR 2014, *supra* note 29, at 6. Human ignitions outnumbered lightning strikes (usually by a wide margin) in all regions but one—the Great Basin—in a Forest Service study of ignitions from 2001–11. *See* WILDFIRE, WILDLANDS, *supra* note 69, at 15.

unwanted backcountry roads to be eliminated.[114] The 4FRI initiative collects a massive, landscape-scale collaborative spanning the Mogollon plateau from the south rim of the Grand Canyon to the White Mountains in southeast Arizona.[115] It involves a wealth of stakeholders and a long list of compromises being implemented over a decade or more.[116] Other regions would be well-served to consider this example of collaborative governance in pursuit of multiple ends—rooted in retreat.

C. Growth-Oriented Governance: Burning Money to Save It?

Roads are a carnival of unintended consequences. The indirect consequences of road-building are legion and familiar. By contrast, the cumulative effect of fire suppression, fuels treatment, silviculture and other extractive uses, and our late, litigation-given management stasis rarely feature in public land governance: rather, they remain the stuff of historians' quiet ruminations.[117] The latest "Quadrennial Fire Review," like its predecessors in 2009 and 2005, obliquely linked total forest control to firefighting and fuels management[118] in its "enterprise-level review."[119] But as long-range risk assessments, the quadrennial fire reviews have been strikingly indifferent to the broadest trends. Today's deficits of what foresters call "active management" grow out of the diversity of ways in which we value our forests: watershed protection, biodiversity and habitat, clean air, recreation, fuels and fiber, carbon storage, etc. By expecting so much and that "scientific management" should deliver it all from lands

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114 U.S. FOREST SERV., 4FRI FINAL ENV'T IMPACT STATEMENT, (2015), https://www.fs.usda.gov/detail/4fri/planning/?cid=stelprdb5361003 (last visited Apr. 8, 2018).

115 *Id.*

116 *Id.*

117 *Cf.* PYNE, *supra* note 57, at 88–89 (comparing the last century of fire policy to a failed experiment and suggesting that the actual "big burn" of today is fossil fuel combustion).

> The real error ha[s] been to imagine fire as a one-time task and a precondition to true management, instead of the dominant force on the scene. The potential error today is again to define fire apart from everything else, to suggest that it can be isolated, managed, harnessed to budgets and fire-year plans, when all the evidence of a century's intense encounter says otherwise—says that it is consuming the agency's budget precisely because it cannot be segregated from land management.

Id. at 89.

118 *See* QFR 2014, *supra* note 29, at iii.

119 *Id.* at 1.

scored by intermixed ownerships, surprisingly durable private claims,[120] and entrenched institutional boundaries; we have pursued optimizations that may be practically impossible.[121] The one alternative ruled out for certain is what might be called the "stand-aside" or *prescribed natural fire* option.[122]

The agencies boast their consistent achievements of 95% (Department of Interior) and 98% (Forest Service) initial attack success rates, even as the rolling ten-year averages burned now approach 10 million acres per year and may double or triple that by mid-century.[123] As fatalities mount and annual structures lost steadily increase,[124] calls for a return to "tribal forestry" are being heard.[125] Landscape-scale, intergenerational assessments of forest "health" or functionality are beginning to attract attention, if not yet the needed information or perspective.[126] This could, of course, be characterized as a retreat from the "multiple use, sustained yield" paradigm given policy preeminence by the Multiple Use, Sustained Yield Act of 1960.[127] NEPA has surely revealed that paradigm's diminished

120 *See* Bruce R. Huber, *The Durability of Private Claims to Public Property*, 102 GEO. L.J. 991 (2014).

121 *See generally* Robert H. Nelson, *Our Languishing Public Lands*, 171 POL'Y REV. 45 (2012). To wit, the statutes and system-wide regulations requiring public participation in governance empower each affinity-, user- and watchdog group to create multiple veto-gates, fostering "an adversarial process by more or less promising that all parties can get what they want, instead of creating the conditions necessary to bring everyone to the table to share the responsibility of solving problems by working together." Matthew McKinney, *Whither Public Participation in Federal Land Management? Replicating the Homegrown Innovations in Share Problem Solving*, 48 ENVTL. L. REP. 10015, 10017 (2018) (discussing PAUL W. HIRT, A CONSPIRACY OF OPTIMISM: MANAGEMENT OF NATIONAL FORESTS SINCE WORLD WAR II (1996)).

122 *See* PYNE, *supra* note 57, at 59–60.

123 *See* QFR 2014, *supra* note 29, at 21–26.

124 *See id.* at 26.

125 *See* Julia Petersen & Nate Walters, *Anchor Forests Video Series, Part 1: Land and Place*, EVERGREEN MAG. (Mar. 2, 2016), https://www.evergreenmagazine.com/anchor-forests-video-series-part-1-land-and-place/.

126 *See, e.g.*, Kimberly Wells, Note, *Can't See the Trees for the Forest? The Ongoing Controversy Over Assessing the Site Specific Impacts of Comprehensive Forest Management Plans*, 41 ECOLOGY L.Q. 553, 562–71 (2014).

127 16 U.S.C. §§ 529–31 (2018); *cf.* Nelson, *supra* note 121, at 54 ("In 2010, forest fire related spending by the Forest Service was more than $2.1 billion, the great majority in the American West. The Forest Service had discovered a new purpose to sustain its personnel numbers and budget—protecting the West from the newly threatening consequences of its own historic forest fire and timber program mismanagement."). Besides budget concerns, strong initial attack is often justified by aesthetic, watershed, habitat, and fuel/fiber concerns. *See* Geoffrey H. Donovan & Thomas C. Brown, *Be Careful What You Wish For: The Legacy of Smokey Bear*, 5 FRONTIERS ECOLOGY & ENV'T. 73 (2007).

practical worth in light of restrictive zoning like that of the Wilderness Act,[128] the Endangered Species Act,[129] and the Forest Service's Roadless Rule.[130]

Integrated management can only proceed from integrative thinking, though. And if the core idea of "feasible" alternatives is that they address the underlying *problem* motivating an agency while doing so (perhaps) without the environmental costs projected to attend its initial proposal,[131] then NEPA alternatives rooted in a let burn/restoration goal would stem from a "cumulative impacts" analysis of a regional landscape.[132] If land use planning in the WUI has become a "wicked problem,"[133] then some of the thinking from that planning field may be usefully applied to wildfire and total (federal) forest control. To brutally over-simplify, it starts from the key premises that (1) there is no definitive formulation of a "wicked" problem; (2) that any such problem can be viewed as the symptom of another problem; and (3) that any "solution" will be no solution at all to some of the public.[134] Most professional foresters will insist there is no such thing as total forest control. But this may have more to do with the *scaling* than with the depth of their perspectives.

The statutes set for our federal public land systems say virtually nothing about the *scale* in which their goals are to be pursued. That

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128 *See* Michael C. Blumm & Lorena M. Wisehart, *The Underappreciated Role of the National Environmental Policy Act in Wilderness Designation and Management*, 44 ENVTL. L. 323 (2014).

129 *See* Jamison E. Colburn, *The Indignity of Federal Wildlife Habitat Law*, 57 ALA. L. REV. 417, 436–52 (2005).

130 *See* Monica Voicu, *At a Dead End: The Need for Congressional Direction in the Roadless Area Management Debate*, 37 ECOLOGY L.Q. 487 (2010).

131 *See* Laura Lindley & Kathleen C. Schroder, *The Alternatives Analysis*, *in* THE NEPA LITIGATION GUIDE 101, 104–06 (Albert M. Ferlo et al. eds., 2012) (discussing the life of the Land v. Brinegar, 485 F.2d 460, 472 (9th Cir. 1972) *and the* Dubois v. U.S. Dep't of Agric., 102 F.3d 1273, 1289–90 (1st Cir. 1996) cases).

132 *See* Jamison E. Colburn, *Addition by Subtraction: NEPA Routines as Means to More Systemic Ends*, *in* THE LAWS OF NATURE: REFLECTIONS ON THE EVOLUTION OF ECOSYSTEM MANAGEMENT LAW & POLICY 145, 151–52 (Kalyani Robbins ed., 2013). Courts have occasionally remanded EISs for their failure properly to assess cumulative impacts. *See, e.g.*, Oregon Nat. Res. Council Fund v. Brong, 492 F.3d 1120, 1133 (9th Cir. 2007); Lands Council v. Powell, 395 F.3d 1019, 1028 (9th Cir. 2005).

133 *See* Stephen R. Miller, *Planning for Wildfire in the Wildland-Urban Interface: A Guide for Western Communities*, 49 URB. LAW. 207, 215–21 (2017) (discussing the concept of "wicked problems" from Horst W.J. Rittel & Melvin M. Webber, *Dilemmas in a General Theory of Planning*, 4 POL'Y SCI. 155 (1973)).

134 *See* Rittel & Webber, *supra* note 133, at 160–68.

statutory ambiguity is the key. If not necessarily unit-by-unit, system-by-system annual governance, should a truly restorative fire agenda be scaled bio-regionally? Continentally? Over the course of a century (with realistic milestones)? A "retreat" alternative here would arise from system-wide planning—not unlike how the change of approaches to maintaining plant and animal diversity arose in the Forest Service's 2012 planning rule.[135] If complex interdependencies across multiple scales evade unit-by-unit, system-by-system governance when long-run, landscape-scale forces like wildfire, climate change, sprawl, species invasions, drought, etc. are afoot, the only "viable" alternative is to re-scale.[136] Achieving goals like plant and animal diversity or the restoration of fire regimes requires a total situational awareness, sometimes over a very long run. Increasingly, it requires aggregating capacities, perceptions, powers, and strategies and, from there, knowing how to parcel out scarce resources like cognition.[137] This is the normative power of planning at broad, societal scales and by resort to datasets and other tools that enable comparable perspectives.

As industrial forestry faltered economically in the United States, the profession began looking for new "patrons," even as the skills and tactics remained rooted in "active management."[138] Today, it is the "sustainable growth" philosophy itself that is faltering as it reinforces the monocentric, bounded unit's constitutive relationships instead of fostering the development of new, more adaptive relationships able to

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135 *See* National Forest System Land Management Planning, 68 Fed. Reg. 21,162, 21,169 (Apr. 9, 2012) (codified at 36 C.F.R. § 219 (2018)) (explaining that the Forest Service was repealing a regulatory requirement that each system unit provide for plant and animal diversity by maintaining viable populations because, in decades of experience with that requirement it became clear that it was a practical impossibility).

136 *Cf.* Donovan & Brown, *supra* note 127, at 77 ("Flood and wildfire risks can be controlled in two basic ways: modify the event itself or reduce the values at risk. . . . Homeowners surrounded by federal forests receive not only the forest amenities but also publicly-subsidized fire protection."); BENKLER, *supra* note 25, at 137–39 (challenging the dominant portrayal of consumers and workers as passive and arguing that a peer production economy involves individuals that are sometime consumers and sometime producers "creating an environment built less around control and more around facilitating action").

137 *See* Catrien Termeer & Art Dewulf, *Scale-Sensitivity as a Governance Capability: Observing, Acting and Enabling, in* SCALE-SENSITIVE GOVERNANCE OF THE ENVIRONMENT 38, 47–51 (Frans Padt et al. eds., 2014).

138 *See* R. Bruce Hull, *Forestry's Conundrum: High Value, Low Relevance*, 109 J. FORESTRY 50, 52–54 (2011).

bridge the divides that have ossified forest governance in our era.[139] Before it was the WUI locking the federal and state governments into an assault on fire, timber and taxes did so,[140] but the results have stayed the same.

In *City of Davis v. Coleman*,[141] the Ninth Circuit took a momentous step in the history of NEPA doctrine. Here, the court held that an agency must weigh the reasonably foreseeable growth-inducing consequences of its actions when preparing its NEPA assessments.[142] *Davis* can surely be reconciled with *Public Citizen*'s doctrine of proximate cause.[143] A litany of contributing causes brought us to our present moment, surely, but none loom larger than the unit-scaled optimizations for forces as disparate as climate change, wildfire, species invasions, commodity markets, recreation trends, and aesthetics—all while the stewards aim to accommodate and, in some cases, facilitate *growth* in their unit and system. With divergent directives from local congressional delegations and the whole Congress, integrative perspectives have grown more challenging still. While not quite the pork barrel mess the Corps of Engineers found its way into by the early 1970s,[144] the Forest Service and Interior Department bureaus have unwittingly backed themselves into promises they cannot keep if they continue governing as they have. A programmatic, cabinet-level NEPA assessment should entail a variety of re-scaling efforts, though, beginning with top-level management's compartmentalization of fire into daily, seasonal, and annual manifestations. Restoring successionally diverse, resilient landscapes demands that we scale our understanding of fire not as some event or episodic force—but as a continuum of relationships shaped constantly

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139 *Cf.* Termeer & Dewulf, *supra* note 137, at 45–46 (noting that enabling scale-sensitivity is less about maintaining clear divisions of responsibility than it is fostering some redundancies of capabilities in a polycentric system).

140 *See* HAROLD K. STEEN, THE U.S. FOREST SERVICE: A HISTORY 173–95 (2d ed. 2004).

141 City of Davis v. Coleman, 521 F.2d 661 (9th Cir. 1975); *see also* 40 C.F.R. § 1508.8(b) (2017) (including within the definition of "effects" "growth inducing effects and other effects related to induced changes in the pattern of land use").

142 *City of Davis*, 521 F.2d at 675–77; *see* Daniel Mandelker, *Growth Induced Land Development Caused by Highway and Other Projects as an Indirect Effect Under NEPA*, 43 ENVTL. L. REP. 11068 (2013).

143 *See* Mandelker, *supra* note 142, at 11070; *see also* 40 C.F.R. § 1508.8(b) (defining "effects" to include "indirect effects" which may include "growth-inducing effects").

144 *See* JOHN A. FEREJOHN, PORK BARREL POLITICS: RIVERS AND HARBORS LEGISLATION, 1947–1968 (1974).

by spatially and temporally heterogeneous influences.[145] A proper range of alternatives in that NEPA analysis, "essential to making a 'reasoned choice,'"[146] would include public scrutiny and criticism of having *any* system-wide, top-down directives to optimize for all the policy priorities the public land statutes command as opposed, for example, to the fostering of regional experimentation by collaborators empowered to select priorities and tactics in place and from experience.

Whether any outside party or group could force such an alternative into cabinet-level deliberations is a separate question. In *California v. Block*, likely the high water mark for judicial interventions broadening the scope of "reasonableness" in alternative selection, the agency accused of shirking—the Forest Service then weighing its roadless and wilderness policies system-wide—refused to develop an alternative in its programmatic EIS that would have diminished the need to make once-and-for-all choices about areas being or not being "wilderness."[147] The court said that if an alternative were available that helped the agency avoid such a high-stakes, irreversible choice born of incomplete information, then it was incumbent upon the agency to develop that alternative.[148] And that may be precedent enough to bind reluctant agencies into considering a "retreat" alternative like those suggested above.

CONCLUSIONS

An unspoken premise to this point has been that an ailing political system cannot be fixed from within by direct, uncomplicated means. NEPA's tools are indirect by design. Whoever the NEPA participant—be it a tribe, environmental nonprofit, local community, first responders, or anyone else—if they are aiming to act on any of what has been explained here, they will be facing a great deal of momentum that has gathered against them. Federal land managers and wildfire governance officials have partnered with state foresters, state emergency responders, and local governments in their attack on a

145 *See* Hessburg et al., *supra* note 20, 132–34.

146 California v. Block, 690 F.2d 753, 767 (9th Cir. 1982).

147 *Id.* at 766–67.

148 *See id.* at 767–68 (holding that premises framing the range of alternatives cannot be held "uncritically" and that an agency apprised of the possibility that its premises are incorrect and may therefore be unduly restricting the options weighed is obliged to reconsider and not just "[enshroud] the issue from public scrutiny behind the claim of administrative expertise").

"deadly epidemic."[149] It is a testament to how serious our predicament has become that serious work on shared responsibilities to minimize risks cannot even be taken at face value anymore.

The most successful reform pressures in ailing political systems across time—external threats—are missing here. And it is surely wrong to deny that this is a homegrown epidemic. Retreat by re-scaling the natural resource problem is firmly rooted in experience, both here and abroad.[150] What remains to be seen is whether the planning and collaboration currently in progress can adapt to address the knowledge and accountability deficits we face.[151] Data-driven approaches to fighting fires, protecting lives and property, and restoring fire regimes will require continued investment in information-sharing, sorting and synthesis. "Social production," as Benkler and others took to calling it, is liberating precisely because it constitutes a reasonably thick connection with remote others, jumpstarting the "collaborative filtering and accreditation[] which allows individuals engaged in public discourse to be their own source of deciding whom to trust and whose words to question."[152] But just as the mass media and politics of our internet age have not (yet) turned out the way the optimists perhaps hoped, our wildfire dilemmas cannot be resolved by localized collaboration or filtration of falsehoods about wildfire alone. It will take bold leadership, independent courts, and tactically shrewd advocacy. NEPA's past successes have grown from the strengths of our system. Synthesizing new successes from the disparate starts we have reviewed here is urgent work. NEPA can help us get down to business.

149 *See* KODAS, *supra* note 11.

150 *See, e.g.*, Termeer & Dewulf, *supra* note 137, at 43–44 (describing a collection of Dutch "water boards" through a "room for the river" campaign designed to move development back from the water's edge).

151 *See supra* notes 55–75 and accompanying text.

152 BENKLER, *supra* note 25, at 465.