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Managing a Public Problem from the Bottom Down

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Symposium: Wildfire in the East

Foreword: Managing a Public Problem from the Bottom Down

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America does not have a fire problem. It has *many* fire problems. At least since 1988, when Americans watched (most of them in horror) as roughly two thirds of Yellowstone National Park burned, the restoration of fire to the fire-adapted landscapes of North America has been on our national agenda. And as more and more communities in California face serious fire risks year after year, the issue stays on the national agenda. Our scientists study fire restoration. Our conservationists champion fire's ecological good sense. Our land management bureaus and large landowners struggle to naturalize fire after a century of excluding it. Fire truly has "come in from the cold" of a long, dogged history of suppression. But fire restoration has turned out to be the environmental objective without a constituency—at least not

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one that supports it unequivocally and regardless of time and place.[1] Fire is welcome back into our forests everywhere that it does not jeopardize some *other* value we attach to those forests. In short, it is welcome in precious few places, at only certain times, and in only certain forms.

But if there is an even more paradoxical dimension of wildfire policy today, it is how many decision-makers still believe that wildfire is a *national* public problem which can be solved with tools, planning, or management that flow from the top down. For, in retrospect, it seems that as long as we have had federal management of fire, it has consisted mostly in a top-down distribution of learning and techniques garnered in particular places, according to particular circumstances. It has been the management of a public problem from what we might call the "bottom down." It is this paradox that our symposium participants were convened to tackle, this paradox that unites the papers in this volume in their exploratory and/or explanatory ambitions.

By the time American public lands law was reorganized into a body of law structuring the permanent administration of land by the United States, fire suppression was among the major land management priorities. In the 1890s and continuing to the fire season of 1910, the Forest Service—then still a young agency—struggled to control the fire on its lands.[2] In this centennial of the great fires of 1910, however, it bears observing that the Forest Service literally structured itself to control fire. As Professor Pyne explains in his keynote remarks, the whole history of the Forest Service (and much of the history of the agencies that struggled to emulate it) is one of seeking to control fire.[3] Whether an agency's mission was the cultivation of a continuous supply of timber or forage, the preservation of sublime wilderness, or the maintenance of preferred game populations for sportsmen, fire was viewed as a threat from the inception of public lands retention in the

1. This is precisely the dimension of fire restoration and the risks therein that have made fire so troubling as a public problem today. *See* Peter J. May, *Addressing Public Risks: Federal Earthquake Policy Design*, 10 J. POL'Y ANALYSIS 263, 264 (1991) ("Risks for which it is difficult to create and sustain broad public responses present a number of issues. [For example, t]here is the normative question of how paternalistic government should be in protecting citizens who do not seem to be all that concerned about the risks. . . .").

2. *See generally* STEPHEN J. PYNE, YEAR OF THE FIRES: THE STORY OF THE GREAT FIRES OF 1910 (2001); STEPHEN J. PYNE, FIRE IN AMERICA: A CULTURAL HISTORY OF WILDLAND AND RURAL FIRE (1982). In 1910, some five million acres of Forest Service lands burned and 78 firefighters perished. *See* Geoffrey H. Donovan & Thomas C. Brown, *Be Careful What You Wish For: The Legacy of Smokey Bear*, 5 FRONTIERS IN ECOL. 73, 74 (2007).

3. *See generally* Stephen J. Pyne, *Between Two Fires: The Past and Future of Fire in America*, 18 PENN ST. ENVTL. L. REV. (forthcoming Summer 2010).

United States.[4] Several agencies learned from the Forest Service how to structure themselves, their personnel, and their political postures, in order to best carry out broad scale missions like fire suppression.[5] But fire suppression became a priority for agencies like the Forest Service, Park Service, Biological Survey, and others well before the long-term consequences of fire suppression were fully appreciated. By the 1920s, fire was viewed as a management failure, something to diagnose and prevent.[6]

Yet, eradicating fire from a fire-adapted ecosystem is a rather paradoxical achievement. The greater one's "success" in the short run, the greater the *risk* created over the long run. For fire will likely return with a vengeance eventually. Occupied landscapes, of course, present risks that unoccupied landscapes do not. There is substantial loss of life and property in so-called "wildland urban interface" areas that burn. But there are many risks from fire even in unoccupied areas. For example, at present, all sources of fire combined cause carbon dioxide (CO_2) emissions equal to about 50% of those stemming from fossil-fuel combustion.[7] Fire is clearly an important variable in the "Earth system" we are creating and the altered climate we are forcing.[8] Fuels are always accumulating in our forest systems and either they burn periodically or they keep building—presumably to a breaking point.[9] Most western landscapes were altered profoundly in the effort to eradicate the ineradicable, creating a mosaic of fire regime conditions.[10] Some forest types like Southwest ponderosa pine which are adapted to frequent, low-intensity surface fires are amenable to a range of fire suppression tactics.

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4. Robert B. Keiter, *The Law of Fire: Reshaping Public Land Policy In an Era of Ecology and Litigation*, 36 ENVTL. L. 301, 304-08 (2006).

5. The Forest Service at times used fire and other challenges to enhance its own power and autonomy. *See* DANIEL P. CARPENTER, THE FORGING OF BUREAUCRATIC AUTONOMY: REPUTATIONS, NETWORKS, AND POLICY INNOVATION IN EXECUTIVE AGENCIES, 1862-1928 (2001).

6. *See* MICHAEL WILLIAMS, AMERICANS AND THEIR FORESTS: A HISTORICAL GEOGRAPHY 315-30, 344-52 (1989); DAVID A. CLARY, TIMBER AND THE FOREST SERVICE (1986); ROBERT B. KEITER, KEEPING FAITH WITH NATURE: ECOSYSTEMS, DEMOCRACY, AND AMERICA'S PUBLIC LANDS 136-41 (2003); JAMES G. LEWIS, THE FOREST SERVICE AND THE GREATEST GOOD 73-81 (2005).

7. *See* David M.J.S. Bowman et al., *Fire in the Earth System*, 324 SCIENCE 481, 483 (2009).

8. *Id.* at 483-85.

9. *See* U.S.D.A. FOREST SERVICE ET AL., PROTECTING PEOPLE AND NATURAL RESOURCES: A COHESIVE FUELS TREATMENT STRATEGY (February 2006) (hereafter "FUELS TREATMENT STRATEGY").

10. Severe, stand-replacing fires often result in profound habitat disturbance, uniquely disruptive changes to local human communities, watershed damage and surface water quality impacts, and other significant economic losses. *See* Michael P. Dombeck et al., *Wildfire Policy and Public Lands: Integrating Scientific Understanding With Social Concerns Across Landscapes*, 18 CONSERV. BIO. 883 (2004).

But such forests are also likely to shift irreversibly as a result of suppression.[11] One recent study of Mediterranean climates like California suggested that the very presence of humans correlated directly with significant increases in fire frequency.[12] Other forests types, like the cooler deciduous forests of the northeast do not feel fire's grip as often but, as U.S. Forest Service Historian Lincoln Bramwell reminds us, when they do, it can reach dangerous intensities just as quickly as fire in the West.[13]

Facing this universe of possibilities across vast territories, models that make use of the limited information available are now more attractive to agencies than ever.[14] For many, this is cause for alarm given the tendency of model-based predictions to fail so dramatically.[15] Yet it is the tool our land planners have been choosing under their circumstances. Models, of course, have a tendency to disguise uncertainties and to construct superficially coherent representations of exceedingly complex (choice) situations. Once the resources are sunk into building a model, not surprisingly, its founding assumptions and predictive aims too often become anchors in our deliberations—they drive behavior as much or more than the uncertainties which they were supposed to manage.[16] The Forest Service and Bureau of Land Management (BLM) have been developing wildfire and fuel models for years, most notably a model-compiling system known as LANDFIRE, to assess and compare fire risks.[17] Yet they are still not enabling risk-based decisionmaking and, indeed, seem to be departing further and further from that ideal under the organizational structure of our federal

11. In many areas, the reintroduction of fire through prescribed burns has not restarted the natural regime very well, either. *See* Jon E. Keeley, *Fire Management Impacts on Invasive Plants in the Western United States*, 20 CONSERV. BIO. 375, 376-77 (2006) (describing invasions of cheat grass associated with prescribed burning).

12. *See* Alexandra D. Syphard et al., *Conservation Threats Due to Human-Caused Increases in Fire Frequency in Meditarranean-Climate Ecosystems,* 23 CONSERV. BIO. 758 (2009).

13. *See generally* Lincoln Bramwell, *The Looming Fire Problem in the East*, 18 PENN ST. ENVTL. L. REV. (forthcoming Summer 2010).

14. *See* Robert L. Glicksman, *Bridging Data Gaps Through Modeling and Evaluation of Surrogates: Use of the Best Available Science to Protect Biological Diversity Under the National Forest Management Act*, 83 IND. L.J. 465 (2008); James D. Fine & Dave Owen, *Technocracy and Democracy: Conflicts Between Models and Participation in Environmental Law and Planning*, 56 HASTINGS L.J. 901 (2005).

15. *See* ORRIN H. PILKEY & LINDA PILKEY-JARVIS, USELESS ARITHMETIC: WHY ENVIRONMENTAL SCIENTISTS CAN'T PREDICT THE FUTURE (2007).

16. *Id.* at 186-92.

17. *See* GAO Report to Congressional Requesters: Wildland Fire Management at 5-6 (GAO-07-655); *see also* GAO Testimony Before the Subcommittee on National Parks, Forests and Public Lands, Committee on Natural Resources, Wildland Fire Management: A Cohesive Strategy and Clear Cost-Containment Goals are Needed for Federal Agencies to Manage Wildland Fire Activities Effectively at 6 (GAO-07-1017T).

government.[18] Indeed, freed of having to generate "programmatic" environmental impact statements in ever-more contexts,[19] the analyses our federal agencies have been conducting when confronting their choices on fire management are stunningly limited in scope. They analyze project-level decisions and then only to the degree that information on-hand enables them to do so.[20] Of course, these agencies operate at scales that necessitate a much broader view—scales that lead them to adopt model-based approaches to land planning. But should the decisions made at these scales necessitating this kind of "guestimation" be discounted in their authority?

In her contribution to the symposium, *Pyrogeography*, Professor Erica Smithwick argues that modeling may be inevitable, but it will remain extraordinarily hard to do well. By combining two case studies, the Greater Yellowstone Ecosystem and South Africa's Eastern Cape, Smithwick attempts to extend our insights from available models toward improving the resiliency of the forests of the northeastern United States.[21] While climate models suggest more precipitation will fall in many parts of the East in the coming century, this could actually mean enhanced fire risks depending on several other variables. Combined, these uncertainties will necessitate a highly granular approach to fire planning in the East—something that broad-scale generalizations often impede. Still, we must confront such generalities where we can find them, Professor Smithwick argues. For example, we can be sure that fire will be a major influence in the distribution of vegetation types as well as other key ecological functions such as nutrient cycling.[22] Beyond that, matters grow much more contextual and the best uses of science and scientifically derived inferences tend toward the modest and qualified.

In his contribution to the symposium focusing on one particularly devastating wildfire from Colorado's recent past, Professor Fred Cheever reminds us just how much harder our land management institutions have

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18. *See generally* Jamison Colburn, *The Fire Next Time: Land Use Planning in the Wildland/Urban Interface*, 28 J. LAND RESOURCES & ENVTL. L. 223, 227 (2008).

19. *See, e.g.*, Ohio Forestry Ass'n v. Sierra Club, 523 U.S. 726 (1998); Robertson v. Methow Valley Citizens Council, 490 U.S. 332 (1989). The Energy Policy Act of 2005 alone included five new categorical exclusions from NEPA. *See* Pub. L. No. 109-58, § 390, 119 Stat. 747 (2005), *codified at* 42 U.S.C. § 15942.

20. *See* Bradley C. Karkkainen, *Toward a Smarter NEPA: Monitoring and Managing Government's Environmental Performance*, 102 COLUM. L. REV. 903, 922 (2002); Bradley C. Karkkainen, *Wither NEPA?*, 12 N.Y.U. ENVTL. L.J. 333, 341 (2004); Kevin H. Moriarty, *Circumventing the National Environmental Policy Act: Agency Abuse of the Categorical Exclusion*, 79 N.Y.U.L. REV. 2312, 2321-35 (2004).

21. *See generally* Erica A.H. Smithwick, 18 PENN ST. ENVTL. L. REV. (forthcoming Summer 2010).

22. *Id.*

made that more place-based, contextual management.[23] Professor Cheever examines what he calls four "chains of causation" behind the colossal Hayman Fire of 2002 and questions the utility of persecuting particular culprits when so many different parties share blame for the circumstances in which fires erupt today. His argument is that our legal system as presently constituted is unduly predisposed to trace some chains of causation while at the same time ignoring others. Our massive "carbon suspension project," as Professor Cheever only half-jokingly describes our fossil fuel age, initiated a welter of causal chains that we are still trying to disentangle and sort appropriately. Like me, Professor Cheever views the "Community Wildfire Protection Plans" that the Healthy Forests Restoration Act began as a promising innovation but one that is still tragically under-developed.

Finally, Professor Marc Abrams tackles one of the oldest questions of fire anywhere in North America: its function and distribution prior to European settlement. Native American tribes' use of fire has been the subject of an immense cross-disciplinary dialogue in the United States for many years. Paleoecological evidence from Kentucky's Cumberland Plateau, for example, suggests widespread human augmentation of fire—allowing oak, chestnut, and hickory to dominate the canopy layer—going as far back as 3,000 years before the present.[24] How to interpret this evidence is the question. Did tribes use fire extensively or were they merely passive participants in a more "panarchic" process that unfolded across inhuman spatial and temporal scales?[25] Professor Abrams argues that Native American tribes must have been deliberate and influential in their uses of fire and that this fact has important ramifications for fire managers in the present.[26] If we continue to suppress fire in the East, Professor Abrams has argued, shade-tolerant species (especially those that are not preferred deer browse) may continue to grow more dominant in eastern forests.[27]

Perhaps the hardest question of all, though, is the relevant spatial and temporal frameworks in which to evaluate our land use choices.

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23. *See generally* Federico Cheever, *The Phantom Menace and the Real Cause: Lessons from Colorado's Hayman Fire 2002*, 18 PENN ST. ENVTL. L. REV. (forthcoming Summer 2010).

24. *See* P.A. Delcourt et al., *History, Evolution, and Organization of Vegetation and Human Culture, in* 1 BIODIVERSITY OF THE SOUTHEASTERN UNITED STATES 47 (W.H. Martin et al., eds., 1993)

25. *See generally* PAUL A. DELCOURT & HAZEL R. DELCOURT, PREHISTORIC NATIVE AMERICANS AND ECOLOGICAL CHANGE: HUMAN ECOSYSTEMS IN EASTERN NORTH AMERICA SINCE THE PLEISTOCENE (2008).

26. *See generally* Marc Abrams, *Native Americans, Smokey Bear and the Rise and Fall of Eastern Oak Forests*, 18 PENN ST. ENVTL. L. REV. (forthcoming Summer 2010).

27. *Id. See also* Marc D. Abrams, *Fire and the Development of Oak Forests*, 42 BIOSCIENCE 346 (1992).

Ecological systems, of course, have their own temporal rhythms and spatial distributions. Our culturally-formed identities, institutions, and jurisdictions have theirs. With a problem like fire, which invites us to describe it communally and with generalities, we face an obvious mismatch between these highly specific temporal rhythms and spatial patterns and our legal-institutional arrangements at the federal level. For those who would manage fire in the East and use lessons drawn from the West, for example, the burden is great. Relative aridity and a disproportionate federal presence in the West of the twentieth century combine to complicate virtually any connection or parallel the two regions might otherwise share. The uptake of learning (or speculation) from one place into a central government that then sets policy for all places must proceed with extreme caution in this planning environment. Selecting short time horizons and/or narrow spatial references out of a lack of good data will lead to one form of myopia or another. On the other hand, it only took about five or six generations for agriculture to dissipate substantially as the dominant land use in the eastern half of the United States and that transformation is perhaps one of the most significant on record.[28] Thus, in the information age where proximity to nearby population centers will almost certainly continue to decline as a factor in land use patterns,[29] we are perhaps justified in assuming that the "wilderburbs" of which Dr. Bramwell has written will continue to sprout.

All in all, fire is one of a very few ecological processes that drive us to think about whole landscapes—and whole species assemblages—as they interact and evolve over time. Vegetation literally structures cultural interpretations of forests and, in places like New England where relatively rapid and widespread "reforestation" has occurred in our history, "re-wilding" has been the moniker dominating the lexicon. Yet the forests that succeeded to that landscape bear little resemblance to their precedecessors. Indeed, "[n]ot only do the modern groupings of species show little resemblance to their antecedents, they also show little tendency to revert in that direction as time passes and forests mature."[30]

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28. *See generally* Kenneth M. Sylvester & Myron P. Gutmann, *Changing Agrarian Landscapes Across America, in* AGRARIAN LANDSCAPES IN TRANSITION: COMPARISONS OF LONG-TERM ECOLOGICAL AND CULTURAL CHANGE 16 (Charles L. Redman & David R. Foster eds., 2008).

29. Kenneth M. Sylvester & Myron P. Gutmann, *Changing Agrarian Landscapes Across America, in* AGRARIAN LANDSCAPES IN TRANSITION: COMPARISONS OF LONG-TERM ECOLOGICAL AND CULTURAL CHANGE 16, 16 (Charles L. Redman & David R. Foster eds., 2008).

30. David R. Foster et al., *Ecological Legacies and Conservation Patterns Shaped by Agrarian History, in* AGRARIAN LANDSCAPES IN TRANSITION: COMPARISONS OF LONG-TERM ECOLOGICAL AND CULTURAL CHANGE 44, 75 (Charles L. Redman & David R. Foster eds., 2008).

They are much more homogenous than their antecedents,[31] much less "wild" than the dominant perceptions admit. Still, they are *forests*—which is, after all, a term without biological or ecological parentage, a cultural synthetic itself. If the second half of the twentieth century gave us conservation's institutional landscape in the United States and a major part of that evolution was the politicization of scientific expertise,[32] the beauty, health, and resilience of our forests might be more a matter of perception than some of us care to admit. The papers in this symposium challenge us all to think about that possibility in juxtaposition with the best science and history we can muster on the questions presented by fire in the East.

31. *Id.*

32. *See* SAMUEL P. HAYS, BEAUTY, HEALTH, AND PERMANENCE: ENVIRONMENTAL POLITICS IN THE UNITED STATES, 1955-1985 at 329-62 (1987).