THE INDIGNITY OF FEDERAL WILDLIFE HABITAT LAW

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ABSTRACT

This Article argues that the agencies charged under federal law with the protection and restoration of wildlife populations are, to a fault, too rational, too deliberative, too sequential in operation, and too focused on putting various tracts of federal realty on highly protective pedestals. To an even greater degree than modern legislation, legal change through regulation is a process weighted down and incapacitated by its own importance, its own dignity. Thus, the overall critique is that our administrative system's commitments to rationality and public participation per se render it incompatible with the societal objective of wildlife habitat protection. In this connection, the federal law of wildlife habitat exemplifies a larger condition of the administrative system, perhaps better than any other field of regulation today. The modern science of conservation biology has shown how important continuous adaptation is to success and how necessary provisional judgments are throughout implementation. Federal lands managers, Fish and Wildlife Service (FWS), and the Council on Environmental Quality all have known as much for years. Yet these institutions have done little to adapt their administrative architectures accordingly. As conservation biologists envision this practice, it is reflexive and pragmatic, i.e., continuously self-critical and open to fundamental revisions in light of what is learned in execution. Yet, as the agencies have actually implemented their habitat conservation mandates, they have been neither reflexive nor pragmatic—largely, I argue, as a result of the legal structure of this field. In this Article, I highlight the lack of fit between that structure and this public policy objective, and question whether any changes at the federal level can make it much better.

INTRODUCTION

Biodiversity and conservation advocates agree that the legal structures created a generation ago to halt species loss and to preserve what is left of the "wild" are congenitally limited as mechanisms of ecosystem governance. The scientific, political, and economic realities driving the implementation of laws such as the Endangered Species Act, the National Environmental Policy Act (NEPA), the National Forest Management Act (NFMA), and other, similar statutes have wedged the federal government into predictable cycles of conflict and gridlock. That, in turn, has made these laws and the bureaucracies administering them the subjects of well-rehearsed cri-

tiques. Obviously, the goal of "ecosystem management"[1] remains far beyond reach so long as gridlock sets the horizon.

Some have responded to this predicament by questioning whether "biodiversity preservation" is still an intelligible goal.[2] While that may or may not be appropriate, it is past time for serious work to begin on an alternative vision for protecting habitat. In this Article, I argue that the limits of centralized, bureaucratic habitat protection programs consist chiefly in their lack of fit to the imperatives of conservation biology and the incorrigibility of the problems it is attacking. Clarifying this lack of fit is the primary burden of the Article.[3]

Wildlife habitat protection as a legitimate end of the liberal state is a relatively new concept. This hardly undermines its legitimacy,[4] but real

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1. The coalescing of governmental objectives from various pollution control and species conservation programs into a unitary, coordinated program generally has "ecosystem management" as its articulated objective. *See* Mark T. Imperial, *Institutional Analysis and Ecosystem-Based Management: The Institutional Analysis and Development Framework*, 24 ENVTL. MGMT. 449, 451-52 (1999). But the explicit governmental end of "ecosystem management" itself has driven a kind of revolution in means within the public agencies attempting to achieve it. The emphasis has settled upon "adaptive management" as a "way of managing in order to ensure that the organizations responsible for ecosystems are responsive to the variations, rhythms, and cycles of change natural in that system and are able to react quickly with appropriate management techniques." Frances Westley, *Governing Design: The Management of Social Systems and Ecosystems Management*, *in* BARRIERS AND BRIDGES TO THE RENEWAL OF ECOSYSTEMS AND INSTITUTIONS 391, 394 (Lance H. Gunderson et al. eds., 1995) [hereinafter BARRIERS AND BRIDGES]. "The shift of focus from control to responsiveness has meant a reevaluation of the function of planning and a search for alternate processes better at generating learning and meaning (all considered key criteria of responsive action)." *Id.* at 395. *See also infra* notes 32-39 and accompanying text.

2. *See, e.g.*, Stephen M. Meyer, *End of the Wild*, 29 BOSTON REV. 20, 21 (2004), *available at* http://bostonreview.net/BR29.2/meyer.html. Meyer notes that:

> Perhaps if we dedicated a few billion dollars more, increased cooperative efforts among governments, expanded the system of bioreserves walling off biodiversity hot spots, cultivated sustainable economics among local communities, and reduced human consumption habits we could save the earth's biota.
>
> Unfortunately, such efforts are far too little and far, far too late.

Id.

3. The negative claim that the institutions of the federal government are ill-suited to habitat conservation and restoration is distinct from the positive claim that other institutions are better suited. *See* Jamison E. Colburn, Localism's Ecology: Protecting and Restoring Habitat in the Suburban Nation (2005) (unpublished manuscript, on file with the author).

4. At a low level of generality, the "legitimacy" of this end or purpose of government may be established by resorting to narrow legal justifications. Here, of course, the federal constitutional warrant for legally sanctioned wildlife protection would be the "limited and enumerated powers" with which Congress and the President are vested under Articles I and II of the Constitution. Thus, for wildlife law applicable to private conduct on privately owned land, the Congress's power to regulate interstate and foreign commerce and the President's power to make treaties with other nations are, for most purposes, legitimate justifications of the federal sanctions imposed on citizens and states whose conduct harms or kills protected wildlife. *See, e.g.*, Omar N. White, *The Endangered Species Act's Precarious Perch: A Constitutional Analysis Under the Commerce Clause and the Treaty Power*, 27 ECOLOGY L.Q. 215 (2000); MICHAEL J. BEAN & MELANIE J. ROWLAND, THE EVOLUTION OF NATIONAL WILDLIFE LAW 3-38 (3d ed. 1997); George Cameron Coggins & William H. Hensley, *Constitutional Limits on Federal Power to Protect and Manage Wildlife: Is the Endangered Species Act Endangered?*, 61 IOWA L. REV. 1099 (1976).

At a higher level of generality, though, that facially adequate legal warrant is not necessarily a complete justification for pursuing one governmental objective instead of others. This is routinely the justificatory situation on federally owned land: realty governed by the United States pursuant to the Property Clause, U.S. CONST. art. IV, § 3, cl. 2 ("The Congress shall have Power to dispose of and make all needful Rules and Regulations respecting the Territory or other Property belonging to the United

questions remain regarding the institutional architecture best adapted to actually achieve it. Whether as a question of scale (territorial or temporal) or one of complexity, we are still struggling to synthesize the best jurisdictional and institutional forms for this important societal goal. In this Article, I argue that it is the very *dignity* of our federal wildlife habitat law, its nature as national "action-in-concert,"[5] that is causing the disappointing performances we are seeing. Paradoxically, the institutions charged with the administration of these laws are at once too immense, expensive, and indecisive and yet not large, well-funded, or pragmatic enough. I call this the *in*dignity of federal wildlife habitat protection law: a series of internally self-contradicting institutions incapable of sustaining the dynamism, improvisation, and experimentation necessary for protecting wildlife habitat in the legal culture we actually have. In short, the more serious we become about wildlife habitat in the administrative state, the less success we are having in actually protecting extant wildlife populations.

States . . . ."), where the government's regulatory authority is supposedly "plenary." In this situation, the chosen end itself rests more directly on its own legitimacy and on whether it is, all things considered, a *just* end for governmental pursuit. For that, Congress must look beyond the Constitution (at least where its objectives are "consistent" with constitutional parameters for protecting private property). Congress might, after all, erroneously choose to pursue an end that is unjust and outside the realm of legitimate ends pursued by government. *Cf.* RONALD DWORKIN, LAW'S EMPIRE 164 (1986) ("The great classics of political philosophy are utopian. They study social justice from the point of view of people committed in advance to no government or constitution, who are free to create the ideal state from first principles."). It is important, then, to distinguish between the fallible judgment that a chosen end is just or unjust and the correct conclusion that it is. The former was the result in *Dred Scott v. Sandford*, 60 U.S. 393 (1856), where the Supreme Court concluded that the Missouri Compromise, prohibiting slavery in the western territories "north of thirty-six degrees thirty minutes north latitude," *id.* at 432, was beyond the legitimate authority of Congress under the Property Clause. *See id.* at 432-52.

Lastly, issues may arise either in the priority of the avowed end itself, *see, e.g.*, Missouri v. Holland, 252 U.S. 416, 435 (1920) (calling federal statute's protection of migratory birds "a national interest of very nearly the first magnitude"), or in the practicability of that end given the surrounding circumstances. Joseph L. Sax, *Helpless Giants: The National Parks and the Regulation of Private Lands*, 75 MICH. L. REV. 239, 239-45 (1976); *see also infra* Part IV.B; Colburn, *supra* note 3.

5. In an incisive jurisprudential account of modern legislation, Jeremy Waldron, seeking to shore up the "dignity" of legislation in academic jurisprudence, argued that "[l]egislation is not just deliberate, administrative, or political: it is, above all, in the modern world, the product of an *assembly*—the many, the multitude, the rabble (or their representatives)." JEREMY WALDRON, THE DIGNITY OF LEGISLATION 31 (1999). Regarding legislation, Waldron notes:

> Action-in-concert is not easy, particularly once people have a sense of themselves as individuals and of the ways in which acting with others might conflict with smaller scale projects of their own. In fact, when it actually takes place, action-in-concert is something of an achievement in human life.

Id. at 156-57. And yet he argued that the legislature's chaotic and procedurally hampered lawmaking abilities commended legislation's superior rationality and authority, while also bringing legislation its *dignity*—contrary to the "clear consensus in the canon of legal and political thought." *Id.* at 31. What I shall argue throughout this Article is that the analogous "dignity" of the federal laws and organizational structures detailed here—and the administrative work they embody—are, paradoxically, responsible for the failures of federal wildlife habitat protection programs.

I. ECOSYSTEM GOVERNANCE AND THE RISE OF CONSERVATION BIOLOGY

It seems in retrospect that in 1973, when the Endangered Species Act[6] (ESA) took shape, the politicians and public were both mistaken in believing that extinctions were relatively rare, discrete, and fixable.[7] The paradigmatic case for ESA was the bald eagle, the discrete victim of a particular practice unrelated to the harming of individual eagles (the use of pesticides) whose loss would represent a national tragedy.[8] Indeed, it was not until almost six years of experience with this statute, in 1979, that the law even treated the possibilities of multiple, interrelated causes of extinction and the potential of many thousands of imperiled species.[9] Today, the sweep of human society and the causes of extinctions it encompasses are truly stunning.

A. The Species Loss Pandemic

The full scope of the pandemic has come into focus for us: the species of the earth incapable of adapting to changed or fast-changing ecosystems are increasingly disappearing.[10] The earth's most "weedy" species[11] literally

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6. Endangered Species Act of 1973, Pub. L. No. 93-205, 87 Stat. 884 (codified in scattered sections of 16 U.S.C. §§ 1531-1544 (2000)). A statute named the Endangered Species Act of 1966, Pub. L. No. 89-669, 80 Stat. 926 (1966) (repealed 1973), predated the 1973 legislation, and several important amendments to the Act came later. But its basic form as a set of strict prohibitions on the "taking" of listed species has been in place for over three decades. *See infra* notes 84-145 and accompanying text.

7. *See* Federico Cheever, *The Road to Recovery: A New Way of Thinking About the Endangered Species Act*, 23 ECOLOGY L.Q. 1, 11-22 (1996) (describing the concepts of threat and extinction within the Act).

8. The Bald Eagle Protection Act made it a criminal offense to take or possess "any bald eagle . . . or any part, nest, or egg thereof," in 1940. Pub. L. No. 76-567, 54 Stat. 250 (1940) (codified at 16 U.S.C. §§ 668-668d (2000)); *see* BEAN & ROWLAND, *supra* note 4, at 93. Carson and others later popularized theories explaining the eagle's continued decline, including the use of pesticides and eradication of its habitat. *See, e.g.*, RACHEL CARSON, SILENT SPRING (1962). Other totemic examples of extinction widely known to Americans include the passenger pigeon and the Carolina Parakeet. *Id.* The passenger pigeon was "[o]nce the most abundant bird on earth, with flocks so vast they literally darkened the midday sky." DAVID S. WILCOVE, THE CONDOR'S SHADOW 27 (1999). The species was thought indestructible until the onset of tactics used by market hunters aiming to supply pigeon meat to the cities en masse; the tactics lessened the pigeons' numbers to a point where habitat destruction became a real factor in their demise. *Id.* at 28-30. The last passenger pigeon died in captivity in 1914. *Id.* at 30. These and other widely known examples of extinction played a major role in the making of ESA. And yet, as Professor Cheever concluded five years ago, the actual integration of the concept of "recovery" into current ESA practice would represent a truly transformative attitudinal shift in ESA jurisprudence. *See* Cheever, *supra* note 7; *see infra* notes 111-16 and accompanying text.

9. Cheever, *supra* note 7, at 14-40. *Cf.* Endangered and Threatened Species Listing and Recovery Priority Guidelines, 48 Fed. Reg. 43,098 (Sept. 21, 1983).

10. Just in the United States (not counting the "distinct population segments" of some subspecies which are separately listed), about 1,800 species of plants and animals have been listed as "endangered," while some 300 have been listed as "threatened." Fish and Wildlife Service, Summary of Listed Species (Dec. 10, 2005), http://ecos.fws.gov/tess_public/TESSBoxscore. *See infra* notes 84-101 and accompanying text.

11. David Quammen's 1998 essay on mass extinctions across paleontological history focused upon the "durability" of a species—its capacity to endure alterations in its environment and to thrive in diverse or rapidly changing conditions or both—as the single greatest determinant of its future on the human-dominated earth. *See* David Quammen, *Planet of Weeds*, HARPER'S MAG., Oct. 1998, at 57. In other words, given the predominance and behavior of humans—the earth's most successful "weed"—the evolutionary capacity to adapt to the changed environments humans make is becoming determinative of

are remaking the planet into a tapestry of never-before-seen environments.[12] These new ecosystems are hosting wholly new assemblages of species on earth,[13] a fact that to some suggests human *enhancement* of overall diversity. Unfortunately, though, such altered systems are scheduling many more thousands of species for eventual elimination.[14]

Out of this pandemic has arisen a newer form of conservation practice. It is predicated upon the finding that human-dominated ecosystems are the norm and that the assemblages of species occupying them exist *because* their members have adapted to the massive reorientation of the community "selected" by human intervention.[15] It is the resilience of these systems to

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a species' survival. *Cf. id.* Some species of wildlife thrive amid changes like dammed rivers, subdivisions, parking lots, and planted forest patches. Many of these species thrive because they *prefer* what biologists call "edge environments," but their success might well mean the doom of others. *See infra* note 183 and accompanying text. Alternatively, highly *adaptive* species capable of dispersing widely and thriving in multiple and changing environments—the "habitat generalists," like the common grackle—are often uniquely positioned to take what human society leaves. *See infra* notes 59-77 and accompanying text. Nevertheless, whether human society counts these species as valuable members of the community is another matter. *Cf.* Meyer, *supra* note 2, at 20 ("Many of these species have become so comfortable living with us that they have been labeled pests, requiring stringent control measures: the common (Norway) rat . . . and white-tailed deer . . . come immediately to mind.").

12. *See* Peter M. Vitousek et al., *Human Domination of Earth's Ecosystems*, 277 SCIENCE 494 (1997). In their otherwise rich treatment of the subject, John Nagle and J.B. Ruhl append a comparatively tiny section to the end of their course book on "[h]uman-[d]ominated [e]cosystems"—as if these were the exception. *See* JOHN COPELAND NAGLE & J.B. RUHL, THE LAW OF BIODIVERSITY AND ECOSYSTEM MANAGEMENT 765-96 (2002). There the biologist Stephen Palumbi is quoted for the proposition that "[h]uman impact on the global biosphere now controls many major facets of ecosystem function." *Id.* at 765 (quoting Stephen R. Palumbi, *Humans as the World's Greatest Evolutionary Force*, 293 SCIENCE 1786, 1786 (2001)). Yet the book treats only "urban America" and "agricultural lands" as the two human-dominated ecosystems in what seems an unnecessarily narrow interpretation of Palumbi's (and many other conservation biologists') point. *See id.*

13. Stuart L. Pimm, *Community Stability and Structure*, *in* CONSERVATION BIOLOGY: THE SCIENCE OF SCARCITY AND DIVERSITY 309, 309 (Michael E. Soulé ed., 1986) [hereinafter SCARCITY AND DIVERSITY] ("Most of our planet is dominated neither by pristine ecological communities, nor by species on the brink of extinction. Rather, most ecological communities we observe are fragmented, harvested and polluted—stressed in a variety of ways—by humans and their technology."). The existence of a particular member or a particular assemblage of species (or "community"), of course, can have a defining effect on the overall system. *Id.*

> The devastating effect of introducing pigs, goats, cats, and rats to oceanic islands has been observed so often that the inescapable recommendation must be to prevent future introductions to what few places these species have not yet reached. But the list of plant and animal introductions is enormous; for example, about 5 percent of all bird species have been introduced elsewhere.

Id. at 317.

14. *See* Meyer, *supra* note 2, at 23. Meyer explains that:

> [T]he great irony is that the [ESA] is the very institutionalization of human-driven evolution. We decide which species get on the list for protection and which are kept off. We decide which habitats of listed species will be labeled critical. We decide the recovery goals: how many of a given plant or animal should be allowed to persist, in how many "populations," and where they should (and should not) be distributed across the landscape.

See also JOHN TERBORGH, REQUIEM FOR NATURE (1999).

15. For a discussion of the shift within the science of ecology over the last two decades to a paradigm that emphasizes dynamism and ever-evolving equilibriums, see DANIEL B. BOTKIN, DISCORDANT HARMONIES: A NEW ECOLOGY FOR THE TWENTY-FIRST CENTURY (1990); DONALD WORSTER, NATURE'S ECONOMY: A HISTORY OF ECOLOGICAL IDEAS (2d ed. 1994). New England is as good an example as any of an ecosystem that has been thoroughly transformed by human manipulation—"ransacked" in various ways in its not-too-distant past, while maintaining many relatively "wild" places. As William Cronon argued two decades ago, New England's landscape underwent profound changes as

further, perhaps even more transformative changes that this practice is investigating and seeking to bolster.[16] While many species of wildlife thrive around humans—species like cowbirds, raccoons, and pigeons—demanding little attention for their habitat needs,[17] the needs of the grizzly bear, moose, lynx, gray wolf, wolverine, and migratory songbirds and waterfowl are quite different.

Thus, conservation practice today is deliberately adapting to the environment humanity is making. It is premised on assumptions of dynamism, both in society and in nature. This new conception is, in its study of human-dominated ecosystems and of the slim prospects for preserving "biodiversity," both *reflexive* in the sense that it strives to be self-examining and self-critical, and *pragmatic* in the sense that it is constantly reconstructing its own ends as actual practice sheds light on the possibilities.[18] A familiar name for this approach is "conservation biology," and the best one-word description of its method is *adaptive*.[19]

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a result of its human inhabitants (Indian and European) and their patterns of use. *See* WILLIAM CRONON, CHANGES IN THE LAND: INDIANS, COLONISTS, AND THE ECOLOGY OF NEW ENGLAND 19-33 (20th Anniversary ed. 2003). Yet a community of wildlife species persists. Much of what its human inhabitants did might be deemed "ecologically self-destructive," in the sense that the resources they depended on were exhausted or ruined by their own actions. *See id.* But this has simply resulted in the evolution of new niches and new assemblages of species. *See id.* Everything about the ecosystems of New England has changed in tandem with the human practices of hunting, fishing, agriculture, silviculture, mining, and polluting (to say nothing of land-tenure and political organization). *Cf.* David R. Foster & John D. Aber, *Background and Framework for Long-term Ecological Research*, *in* FORESTS IN TIME: THE ENVIRONMENTAL CONSEQUENCES OF 1,000 YEARS OF CHANGE IN NEW ENGLAND 3, 5 (David R. Foster & John D. Aber eds., 2004) [hereinafter FORESTS IN TIME]. In fact:

> Subtle changes in the composition of New England forests throughout this time and increasingly in the few hundred years before European settlement suggest that significant shifts occurred in the amount and seasonal distribution of precipitation and temperature. As a consequence, the abundance of important trees, including beech, hemlock, spruce, and chestnut, has shifted in pronounced though poorly understood ways.

Id.

16. Answering such questions is notoriously hard as a matter of experimental and field-study biology. *See* Pimm, *supra* note 13, at 318-19.

17. *See* WILCOVE, *supra* note 8.

18. *Cf.* Reed F. Noss, *Some Principles of Conservation Biology, As They Apply to Environmental Law*, 69 CHI.-KENT L. REV. 893, 895 (1994) ("A distinguishing feature of conservation biology is that it is mission oriented. Underlying any mission is a set of values. . . . Maintaining biodiversity is an unquestioned goal of conservation biologists.") (footnote omitted). On the concept of "reflexivity" in environmental law, see Eric W. Orts, *Reflexive Environmental Law*, 89 NW. U. L. REV. 1227, 1252-68 (1995). Orts describes reflexive law as "a self-critical legal theory . . . . recogniz[ing] the importance of cognitive and administrative limits of direct legal regulation of environmental problems." *Id.* at 1253. The property of reflexivity, in short, is an internal commitment to the continuous critique of law's actual performance in the achievement of the ends it sets for itself. *See id.* at 1252-68. Professor Lee situates a similar notion of law, critiquing not just the substantive standards of the law, but also our concept of its authoritativeness and the organizations we regard as authoritative. *See* KAI N. LEE, COMPASS AND GYROSCOPE: INTEGRATING SCIENCE AND POLITICS FOR THE ENVIRONMENT 53 (1993) ("A strategy for using bounded rationality to learn rapidly is deliberate experimentation, which isolates part of complex reality, makes simple changes in it, and watches for results. . . . Because human understanding of nature is imperfect, human interactions with nature should be experimental."). Lee is one of several modern ecologists who have sketched the method now known as "adaptive management," a philosophically pragmatic attitude predicated upon the teachings of conservation biology and political, legal, and organizational research discussed infra Part II.C.

19. A now familiar refrain sung by conservation advocates and scientists alike is the need for greater adaptivity in human organizations. *See* LEE, *supra* note 18, at 53 ("Adaptive management applies the

As both mission and method, the central intent of this new discipline is to resolve the species loss pandemic by whatever works.[20] Along the way, it treats policy initiatives themselves as experiments, as fragments of data to be collected and synthesized into something larger.[21] And, indeed, as humans expand their influence into more and more ecosystemic events and processes, just observing and comprehending the changes human society visits upon "nature" and "the wild" is proving to be more work than the world's conservation biologists can do, making this something of a crisis discipline.[22]

B. The Degradations of Wildlife Habitat

It may seem upon reflection that virtually all human activities and certainly all that are really profitable have deleterious "side-effects" for wildlife. Clearly, the outright conversion of forests and meadows into pavement

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concept of experimentation to the design and implementation of natural-resource and environmental policies. An adaptive policy is one that is designed from the outset to test clearly formulated hypotheses about the behavior of an ecosystem being changed by human use."). But truly adaptive management, as proponents like Lee envision it, entails more than just organizational flexibility. *See infra* notes 21-22 and accompanying text.

20. Michael E. Soulé, *Conservation Biology and the Real World*, *in* SCARCITY AND DIVERSITY, *supra* note 13, at 1, 5-9 (describing the rise of conservation biology as intertwined with both the acknowledgement of the extinction crisis and the conviction of biologists that something could be done to stem the tide of extinctions). What is probably the signature difference between a conservation biologist and other kinds of scientists, though, is an attitude of *provisionality* in hypotheses. *Cf. id.* at 7. Soulé argues:

> In general, the provisional nature of a hypothesis is no impediment to its operational validity, as long as there are no contradictory, equally supported, guidelines. To ignore such a hypothesis may endanger a species that is being managed, and it exposes the manager to the criticism of reviewers and peers. . . . In conservation, dithering and endangering are often linked.

Id.

21. *See* LEE, *supra* note 18, at 8-17. A set of "research priorities" for conservation biologists tracks rather precisely the practical questions surrounding the species loss pandemic. *See* Georgina M. Mace et al., *Assessment and Management of Species at Risk*, *in* CONSERVATION BIOLOGY: RESEARCH PRIORITIES FOR THE NEXT DECADE 11, 17-24 (Michael E. Soulé & Gordon H. Orians eds., 2001) [hereinafter RESEARCH PRIORITIES]. Even prior to Lee's stunning 1993 synthesis, the methodological precepts of adaptive management had been sketched out by scientists. *See generally* C.S. HOLLING, ADAPTIVE ENVIRONMENTAL ASSESSMENT AND MANAGEMENT (1978); W.C. Clark et al., *Lessons for Ecological Policy Design: A Case Study of Ecosystem Management*, 7 ECOLOGICAL MODELLING 1 (1979); CARL WALTERS, ADAPTIVE MANAGEMENT OF RENEWABLE RESOURCES (1986).

22. Years ago, one of adaptive management's progenitors lamented that convincing his natural sciences colleagues to think in terms of adaptive management was difficult, given the practicalities of funding and conducting research:

> [E]ffective resource analysis takes more than good biology or good economics or good mathematical modeling. Management is done by and for people; even the best ideas will be cast aside in favor of easy courses of action like pretending certainty . . . . It is just too easy for people to hide behind platitudes like the need for caution . . . . Adaptive policy design stresses the use of methods and concepts that are often not simple to explain, demand the explicit admission of ignorance, and place a premium on imagination rather than on precision of thinking. Anyone who is convinced that it is important to design and use adaptive policies should be prepared for an uphill battle: he implicitly places high importance on long-term objectives and will have to act as an active advocate of these objectives while trying to be dispassionate about the available scientific evidence.

WALTERS, *supra* note 21, at 350-51.

or ski slopes or golf courses represents the most direct, most perceptible threat to wildlife habitat in America today.[23] Yet what the "sprawl wars"[24] and related public debates lack is a real frame of reference.[25] Equally important are the "bungalow blights" of second homes striking places as diverse as Bozeman, Montana; Moab, Utah,[26] and the remote forests of northern New England and the Great Lakes.[27] Significant, too, are the forestry practices of an economy addicted to lumber and wood pulp, the mass grazing of livestock, and the dredging and filling of wetlands.[28] And then thousands of different activities add their minor contributions: the cutting of channels and installations for high tension wires or cell towers;[29] the massive alterations of topography for flood control and road-building;[30] or the release of countless invasive species,[31] to name but a few. So many are the forces remaking wildlife habitat throughout America (and the world) today that it might even

23. *See, e.g.*, Edward H. Ziegler, *Urban Sprawl, Growth Management and Sustainable Development in the United States: Thoughts on the Sentimental Quest for a New Middle Landscape*, 11 VA. J. SOC. POL'Y & L. 26, 27-36 (2003).

24. *See* Ziegler, *supra* note 23, at 26-32 (describing the state of the current debate about sprawl and smart growth); ROBERT B. KEITER, KEEPING FAITH WITH NATURE: ECOSYSTEMS, DEMOCRACY, AND AMERICA'S PUBLIC LANDS 221-39 (2003).

25. William Fischel once calculated that, even dividing the entire U.S. population into households of four and building at a density of one acre per household, only 3% of the 48 contiguous states would be developed. WILLIAM A. FISCHEL, THE ECONOMICS OF ZONING LAWS 1 (1985). Of course what this figure lacks is the further, complicating addition of what might be called the "total development" associated with the suburbanization of our landscape, which can be just as destructive of habitat as the actual building of subdivisions but is far less beneficial for cause-and-effect analyses. *See generally* REED F. NOSS ET AL., THE SCIENCE OF CONSERVATION PLANNING: HABITAT CONSERVATION UNDER THE ENDANGERED SPECIES ACT (1997) (arguing that scientists must play a critical role in conservation planning).

26. James Rasband has analyzed the Moabs of the "new" West as a series of "Urban Archipelagoes" where people are generally in favor of "removing" ranchers, loggers, and miners and giving priority to "preserving" the land for recreational purposes. *See* James R. Rasband, *The Rise of Urban Archipelagoes in the American West: A New Reservation Policy?*, 31 ENVTL. L. 1, 26 (2001) ("The rural West has become a playground, a colony the rest of us visit when we want to relax or indulge our fantasies. We camp, hike, swim, boat, bike, ski, hunt, fish and ATV throughout the rural West, making our lives in its increasingly stretched out and stunningly dense cities . . . ." (quoting Hal Rothman, *Do We Really Need the Rural West?*, HIGH COUNTRY NEWS, Apr. 24, 2000, at 17)); *infra* notes 231-42 and accompanying text.

27. Whether on Michigan's Upper Peninsula, New York's Adirondack Park, or Maine's "North Woods," the rural economy of previous generations has been gradually shifting over the last two decades, in fits and starts, towards "second home uses," tourism, and recreation. *See generally* DAVID DOBBS & RICHARD OBER, THE NORTHERN FOREST (1995) (discussing environmental threats in New York and New England).

28. Overall, the timber harvest from public lands in the United States has steadily declined under the National Forest Management Act. According to DeAnn Zwight, Assistant Director for Planning in the Forest Service's Ecosystem Management Coordination Office, the harvest has declined to about "one-tenth the level of 20 years ago." DeAnn Zwight, *Smokey and the EMS*, 21 ENVTL. F. 28, 28 (2004). On the other hand, catastrophic fire and off-road vehicle use have both greatly increased over the same period. On the effects of the cattle economy's effects on the health of rangelands, see Joseph M. Feller, *What is Wrong with the BLM's Management of Livestock Grazing on the Public Lands?*, 30 IDAHO L. REV. 555 (1994).

29. *See* David S. Wilcove et al., *Quantifying Threats to Imperiled Species in the United States*, 48 BIOSCIENCE 607, 608-15 (1998). This study concluded that habitat conversion and degradation were the "leading causes" of peril for species in the United States. *Id.* at 615.

30. *Id.* at 610.

31. *Id.* at 610-12.

be argued that diversity itself belies the very premise of centrally created solutions.

Wildlife more broadly confirms the importance of reflexivity over the long term. Often what has been a basic precept in the field is quickly overthrown by further research.[32] Take, for example, the protection or introduction of "desirable" species of plants or "game" animals. This of course continues today, yet many such species have become unchecked "invaders," purveyors of disease, or both because their populations lack meaningful checks and balances in their new communities.[33] In fact, the human elimination of predators (a policy the federal government pursued well into the

32. Aldo Leopold, for example, defined wildlife protection as "game management," and he defined game management as "the art of making land produce sustained annual crops of wild game for recreational use." REED F. NOSS & ALLEN Y. COOPERRIDER, SAVING NATURE'S LEGACY: PROTECTING AND RESTORING BIODIVERSITY 77 (1994) (quoting ALDO LEOPOLD, GAME MANAGEMENT (1933)). Still, wildlife management's pseudo-scientific origins go beyond ties to user groups and resultant biases. They also reflect the development of the science of conservation biology itself as adjunct to the protection of biodiversity. *See* Kai N. Lee, *Deliberately Seeking Sustainability in the Columbia River Basin*, *in* BARRIERS AND BRIDGES, *supra* note 1, at 214, 222-30 (describing the institutionalization of feedback loop learning and the incorporation of surprise).

In the process, all of conservation practice has been remade over the course of its modern existence. For example, "Traditionally, wildlife managers encouraged foresters to create checkerboard patterns on the landscape because such patterns maximize the amount of habitat interspersion and edge. Many wildlife areas today are intentionally managed for maximum habitat interspersion." NOSS & COOPERRIDER, *supra*, at 197 (citation omitted). This dates to Leopold's discussion of a tendency of edges to be richer in wildlife—"particularly species that require more than one habitat type to meet life history needs." *Id.* at 197-98. But recent research has demonstrated that edges are not benign. "The physical environment near edges differs from that in forest interiors, with a microclimate generally drier, brighter, and more windy." *Id.* at 198. The edge "zone" becomes a habitat suitable for some species but not for others. This is especially true for many species of songbirds. "Because some nest predators are more common around edges than in the forest interior, small or irregularly shaped forest fragments can be expected to have higher densities of predators than large, continuous ones." WILCOVE, *supra* note 8, at 41. The forests of rural New England bear witness to this basic habitat fact: species utilizing agricultural lands and edges thrived throughout the nineteenth century (when agriculture was at its peak in New England). "Vesper sparrows were so plentiful in open fields and upland pastures from Cape Cod to the Berkshires that E. H. Forbush in 1907 considered them to be the 'most abundant ground sparrow in Massachusetts' after the song sparrow." Debra Bernardos et al., *Wildlife Dynamics in the Changing New England Landscape*, *in* FORESTS IN TIME, *supra* note 15, at 142, 157. Nevertheless, while these grassland species once thrived in the agrarian landscape (and deep forest species like the passenger pigeon dwindled in numbers throughout New England), *see* WILCOVE, *supra* note 8, at 26-47, today Massachusetts lists the Vesper sparrow as "threatened" because the state has undergone massive reforestation throughout the twentieth century. *See* Bernardos et al., *supra*, at 159.

33. *See, e.g.*, John Terborgh et al., *The Role of Top Carnivores in Regulating Terrestrial Ecosystems*, *in* CONTINENTAL CONSERVATION: SCIENTIFIC FOUNDATIONS OF REGIONAL RESERVE NETWORKS 39, 58 (Michael E. Soulé & John Terborgh eds., 1999) [hereinafter CONTINENTAL CONSERVATION] ("Hyperabundance of [unchecked species] . . . results in trophic cascades that lead to multiple effects—including the direct elimination of plant populations from overbrowsing/grazing, reproductive failure of canopy tree species, and the loss of ground-nesting birds and probably other small vertebrates."). Further instances are documented:

> Fish provide a good example of the damaging effects of exotic species on native biodiversity. Of the 1033 species of freshwater fish in North America, 27 (or 3 percent) have become extinct within the past 100 years and another 265 (or 26 percent) are vulnerable to extinction. Displacement by introduced species has been implicated as a cause of decline in 68 percent of these species, topped only by physical habitat destruction at 73 percent . . . .

NOSS & COOPERRIDER, *supra* note 32, at 41 (citation omitted). But while fish are the best documented example in North America, they are hardly unique. *See* WILCOVE, *supra* note 8, at 219-22 (describing the release of the northern cardinal and the Japanese white-eye into the Hawaiian archipelago and their consequential displacement of native species).

twentieth century)[34] has totally remade many North American trophic webs.[35]

Much of the human behavior behind such problems, though, is so "non-centralized" that the federal government could never be large enough to control it. In fact, more striking still than the diversity of change agents in ecosystems today is the diversity of legal authorities under which the human choices driving them are governed. Our human-dominated ecosystems are regulated by multiple sovereigns and, even within a particular sovereign's physical space, multiple arms of the same sovereign.[36] Where the management of physical, jurisdictional space is concerned, this has been called the "[i]ntermixed [o]wnership [p]roblem,"[37] and it means that horizontal and vertical diversity of authorities is the norm.[38] "Our federalism,"[39] though,

34. Livestock and game animal herds have been protected from predator and "pest" species pursuant to both state and federal laws throughout much of American history. Yet, there is no logical explanation for the choices made as to which predators and pests to "control" instead of "protect." *See* S. Utah Wilderness Alliance v. Thompson, 811 F. Supp. 635, 636-38 (D. Utah 1993). Indeed, a bounty on wolves (today a protected species throughout much of the United States) was a regular occurrence in the colonies, offered by the town of New Haven as early as 1657. *See* CRONON, *supra* note 15, at 132-34; BARRY H. LOPEZ, OF WOLVES AND MEN 184 (1978) ("The history of economic expansion in the West was characterized by the change or destruction of much that lay in its way. Dead wolves were what Manifest Destiny cost.").

35. *See* WILCOVE, *supra* note 8, at 44-45; CRONON, *supra* note 15, at 159-70.

36. Craig Thomas, in an illuminating study of interagency cooperation for habitat protection, posits that "[a]s agency officials confront[] the legal consequences of having endangered species occur within their jurisdictions, they also learn[] about the collective-action problem of protecting species whose habitats sprawl across agency jurisdictions." CRAIG W. THOMAS, BUREAUCRATIC LANDSCAPES: INTERAGENCY COOPERATION AND THE PRESERVATION OF BIODIVERSITY 5 (2003). Thomas's objective was to describe the conditions under which agency officials most effectively "cooperate" with those from other agencies in order to succeed in protecting an endangered species. *See id.* at 3. Through a diverse series of case studies he concluded that "[b]ecause public agencies have discretion to emphasize one use of natural resources over others, and because most agencies were primarily oriented toward human uses, biodiversity protection received haphazard attention on public lands until court enforcement constrained agency decisions." *Id.* at 259. ESA was, of course, the most effective of such regulatory "hammers," but even the threat of injunction was by itself "insufficient to spur cooperation because line managers, field staff, and other stakeholders needed a reason to believe that collective action was an important component of species protection." *Id.* at 261. Other important factors Thomas identified were personnel systems (frequent rotations in and out of offices discouraged cooperation), the amount of discretion left to line managers by "[s]tandard [o]perating [p]rocedures" and chains of command (strictly regimented regulations discouraged cooperation), and the accessibility of interagency meetings (long travel times, etc., discouraged cooperation). *Id.* at 271-76. Still, the principal determinant in surmounting the barriers to effective collective action was what Thomas called the "consensual knowledge" of conservation biology. *Id.* at 261-79. The "consensual knowledge," a body of beliefs and understandings held in common (those of conservation biology in particular), formed a community where none had previously existed, providing an essential set of shared understandings and purposes to which the community's members directed their efforts. Thus, the community's members garnered "synergistic benefits" from the coordinated activities of those knowledgeable in the tenets of conservation biology (scientists, citizens, bureaucrats, and stakeholders alike). *Id.* at 261-79. This body of knowledge may have a very different potential at the local level than it has as an adjunct to large, bureaucratic organizations. *See* Colburn, *supra* note 3; *infra* notes 284-94 and accompanying text.

37. *See* Robert B. Keiter, *Biodiversity Conservation and the Intermixed Ownership Problem: From Nature Reserves to Collaborative Processes*, 38 IDAHO L. REV. 301, 301 (2002). It is usually referred to as a "problem" because of the institutional barriers it erects inhibiting collective, coordinated efforts to govern human society and protect wildlife habitats. *See infra* notes 274-76 and accompanying text.

38. *See* Daniel B. Rodriguez, *The Role of Legal Innovation in Ecosystem Management: Perspectives from American Local Government Law*, 24 ECOLOGY L.Q. 745, 747-50 (1997).

39. As the Rehnquist Court has remade the face of our Constitution's federalism, legal scholars have

does not even begin to describe the legal and jurisdictional diversity relevant here. We have seen a specialization within the agencies charged with protecting biodiversity in America that raises major institutional hurdles to the very notion of "interagency cooperation."

C. Conservation Biology's Biggest Question

Besides outright habitat conversion, conservation biologists study three other major phenomena: the over-exploitation of various "natural resources" like trees and game animals, the introduction or spread of alien species, and pollution broadly defined.[40] Another concern would be purely political and institutional: the supply and demand of budgetary and other human and capital resources for the protection of habitat. This last concern occupies a clearly indefinable social scientific community much more directly,[41] and yet it is what frames the biggest question conservation biologists routinely ask (and, increasingly, are being forced to answer). The question goes not to the appropriate scale of the system(s) being managed,[42] nor to the relative priority of different threats to biodiversity,[43] nor even to the ranking of vari-

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debated the importance of states and state-protecting dimensions of the Constitution across a broad spectrum of modern environmental legal issues. *See, e.g.*, Daniel C. Esty, *Toward Optimal Environmental Governance*, 74 N.Y.U. L. REV. 1495, 1543-46 (1999). The implications of "our localism" for wildlife habitat protection have received the least amount of study. *See generally* Colburn, *supra* note 3.

40. A rough prioritization of these four factors is offered in Wilcove et al., *supra* note 29, at 608-615. More localized accountings are also being done. *See, e.g.*, DEBORAH B. JENSEN ET AL., IN OUR OWN HANDS: A STRATEGY FOR CONSERVING CALIFORNIA'S BIODIVERSITY (1993); *see also* REED F. NOSS ET AL., ENDANGERED ECOSYSTEMS OF THE UNITED STATES: A PRELIMINARY ASSESSMENT OF LOSS AND DEGRADATION (1995).

41. Keiter summarizes the basic principles that conservation biologists have derived to inform social and political debates on human and capital resource commitments. They are as follows:

> First, species that are well distributed across their native range are less susceptible to extinction than species confined to small portions of their range. Second, large blocks of habitat that contain large populations of a target species are superior to small blocks of habitat containing small populations. Third, blocks of habitat close together are better than ones that are far apart. Fourth, habitat situated in contiguous blocks is better than fragmented habitat. Fifth, interconnected blocks of habitat are better than isolated blocks, so dispersing individuals can travel more easily through preferred habitat. Beyond these basic principles, most biologists also agree that, given the fragmented nature of modern landscapes, roadless blocks of habitat inaccessible to humans provide more secure habitat than accessible and roaded areas.

Keiter, *supra* note 37, at 304 (citing NOSS & COOPERRIDER, *supra* note 32, at 141) (footnote omitted). Such an inventory of principles might be seen as exerting a formative influence over several political-scientific accounts of "second generation" environmentalism, most notably the "civic environmentalism" Dewitt John has described. *See* Dewitt John, *Civic Environmentalism*, *in* ENVIRONMENTAL GOVERNANCE RECONSIDERED: CHALLENGES, CHOICES AND OPPORTUNITIES 219, 219 (Robert F. Durant et al. eds., 2004) [hereinafter ENVIRONMENTAL GOVERNANCE RECONSIDERED].

42. The question of "scale" points to an ambiguity within the term "ecosystem." If an ecosystem can be defined as "a community of mutually interdependent species and the physical environment with which they interact," then it "could mean anything from the microbes in a single drop of water to the entire solar system." Bradley C. Karkkainen, *Collaborative Ecosystem Governance: Scale, Complexity, and Dynamism*, 21 VA. ENVTL. L.J. 189, 207 (2002). Thus setting or defining the scale to be managed entails both normative (and institutional) choices and the balancing of several competing values in an environment of less than optimal information in order to at least approximate an optimality between focus and inclusiveness with respect to the chosen priority of values. I take this problem up elsewhere. *See generally* Colburn, *supra* note 3.

43. In a quantitative study of the causes of extinctions across the United States, Wilcove and others

ous utilitarian values served by the preservation of biodiversity.[44] Those are each important questions, to be sure.[45] Still, the central and perhaps more important question that conservation biology puts to itself is this: what should be saved?[46] Its practitioners are driven to ask this by grim yet undeniable scarcities and trends: scarcities in capital, knowledge, and time and trends of mass extinctions, dwindling habitat, and an exploding human population.

In order to (attempt to) seriously answer the question, it is necessary to suppose that there are achievable "ecological objectives"[47] to be pursued by human society. That supposition alone invites conservation biology to ren-

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concluded:

> With a growing list of species in need of attention and less money to spend per species, the [United States Fish and Wildlife Service] cannot hope to cover the necessary management costs for most of the plants and animals it aspires to protect. Nor can it count on the goodwill of landowners to contribute their own money or labor for actions they are not obligated to perform and that ultimately may result in restrictions on the use of their property.

Wilcove et al., *supra* note 29, at 614 (citations omitted). Habitat destruction and degradation as a general category was the "primary lethal agent," contributing to the endangerment of almost 85% of the sample. *Id.* at 607. The sample was roughly 75% of the then current Endangered Species Act list, including about 1900 endangered and threatened species. *Id.*

44. Various efforts have been made to "cost" the ecosystem services that human communities consume, allowing people to place price tags on the services. *See, e.g.*, Robert Costanza et al., *The Value of World's Ecosystem Services and Natural Capital*, 387 NATURE 253, 253-58 (1997); NATURE'S SERVICES: SOCIETAL DEPENDENCE ON NATURAL ECOSYSTEMS (Gretchen Daily ed., 1997). Most of these efforts are highly imperfect (even if politically necessary). *See* John F. Harte, *Land Use, Biodiversity, and Ecosystem Integrity: The Challenge of Preserving Earth's Life Support System*, 27 ECOLOGY L.Q. 929, 941-43 (2001).

45. Noss, Cooperrider, and Lee all identify each of these as central questions in any habitat conservation or restoration undertaking. *See* NOSS & COOPERRIDER, *supra* note 32, at 67-128; LEE, *supra* note 18, at 19-50; *see also* RICHARD T.T. FORMAN, LAND MOSAICS: THE ECOLOGY OF LANDSCAPES AND REGIONS 3-18, 54-65 (1995).

46. If the regulatory target is the preservation of what has been called a "minimum viable population"—a population of a species large enough to sustain its existence over the long term with a high degree of probability—and of as many species as possible, it must be assumed that a finite resource base is both exhaustible and likely to be exhausted. *See* Daniel Goodman, *The Demography of Chance Extinction*, *in* VIABLE POPULATIONS FOR CONSERVATION 11, 11 (Michael E. Soulé ed., 1987). One of the preeminent figures in the field, Michael Soulé, is famous for saying that "[t]here are no hopeless cases, only people without hope and *expensive* cases." Michael E. Soulé, *Where Do We Go From Here?*, *in* VIABLE POPULATIONS FOR CONSERVATION, *supra*, at 175, 181 (emphasis added). He is less famous for his fuller articulation of the situation as one of pronounced scarcity: "[*G*]*iven the resources*, even a handful of individuals can constitute the basis of a successful effort to salvage a population or species." *Id.* (emphasis added).

47. The problem of articulating ecological objectives is something that biodiversity protection shares in common with pollution control. The term "ecological objective" denotes a goal, an end to be achieved with human efforts and investments to limit anthropogenic degradations of the natural environment. It is a problem because most such decisions (*How clean is "clean"?* or *How many extinctions are "natural"?*) are notoriously controversial, both as matters of fact and as matters of political morality. Perhaps as a result (and not surprisingly), "The United States has no national strategy to conserve biodiversity." NOSS & COOPERRIDER, *supra* note 32, at 87. Those familiar with pollution control law know how amorphous answers to the question "How clean is clean" have often been. But the protection of as many minimum viable populations as possible is at least the working objective for most conservation advocates. *See infra* note 66. The trouble, of course, comes when deciding which species to prioritize, and it is that particular matter of fact and morality which must be resolved as a political and constitutional—as an institutional—question. This is the question to which this Article devotes its full attention. *See supra* note 4.

der these endpoints.[48] The rest is, as they say, in the execution. It is in this context—the sheer scale of human-induced extinctions and habitat destruction—that the question is forced to something even more pointed: what *can* be saved?[49] As Kant emphasized, "ought" implies "can,"[50] and so, perhaps, the first question to ask is not necessarily what *ought* to be saved but what *can* be saved. The policymaking spheres where habitat and species conservation policies are set are, at the national level, those in which aid to families with dependent children is funded; those in which the intelligence services are funded and managed; and those in which foreign aid is allocated to do such things as prevent the genocidal persecution of millions.[51] Just as frustrating, though, is that we simply cannot answer this question because too often we have no idea what can and cannot be saved.[52]

Extinction of "insularized"[53] populations is and will be a reality into the foreseeable future. Yet human resources available for (and actually devoted to) forestalling this process are tragically limited.[54] Still, the working hypothesis here is that much more of our wildlife habitat can be "saved" than traditionally has been thought, for reasons part institutional and cultural and part legal in nature. The analysis which follows is one aimed at our national politics and the laws it has produced, based on how those laws have performed over the last thirty years (the elapsed interval for which our legal culture has devoted itself to reversing the species loss pandemic).[55] In the end, this is a human pandemic because many kinds of wildlife have a deep and abiding significance for the people who also inhabit the regions of their

48. *See* Hugh P. Possingham et al., *Making Smart Conservation Decisions*, *in* RESEARCH PRIORITIES, *supra* note 21, at 225.

49. *See* Michael E. Soulé, *Introduction*, *in* VIABLE POPULATIONS FOR CONSERVATION, *supra* note 46, at 1.

50. *See generally* IMMANUEL KANT, CRITIQUE OF PRACTICAL REASON (Mary Gregor ed. & trans., Cambridge Univ. Press 1997) (1788).

51. *See* Somini Sengupta, *Crisis in Sudan: Thorny Issues Underlying Carnage in Darfur Complicate World's Response*, N.Y. TIMES, Aug. 16, 2004, at A8.

52. Theoretically, the only way to answer this question would be to devote unlimited resources to saving a particular species and to fail. That, needless to say, has never happened. More practically, the models used to predict whether a current population is "viable" are crude, even in the rare case that sufficient data exists. So while the population of brown bears on Kodiak Island is probably more likely to survive the coming century than the population of brown bears in the northern Cascades, the vast, excluded middle in such comparisons renders quantified analyses impossible. *See infra* notes 59-78 and accompanying text.

53. *See infra* notes 59-78 and accompanying text.

54. On the more general notion of tragic choices in setting public policy, see GUIDO CALABRESI & PHILIP BOBBITT, TRAGIC CHOICES: THE CONFLICTS SOCIETY CONFRONTS IN THE ALLOCATION OF TRAGICALLY SCARCE RESOURCES (1978).

55. The Endangered Species Act of 1973 was, of course, predated by several wildlife-protective laws, which are discussed below. As Michael Bean and Melanie Rowland observe, the Endangered Species Act of 1966, Pub. L. No. 89-669, 80 Stat. 926 (1966) (repealed 1973), was the first "federal effort to protect endangered species," BEAN & ROWLAND, *supra* note 4, at 194, but its contents and direction were quite "vague." *Id.* I mark the 1973 legislation as a turning point for the simple reason that its prohibitive structure was the first of its kind and scope in America. *See id.* at 195 ("While the 1966 Act marked a significant first step in the effort to protect endangered species, it had a number of serious limitations. The Act's most notable weakness was that it placed no restriction whatever on the taking of any species."); Dale Goble et al., *Local and National Protection of Endangered Species: An Assessment*, 2 ENVTL. SCI. & POL'Y 43 (1999).

extant populations.[56] The continued existence of wild salmon is critical for the human communities of the Pacific Northwest;[57] the existence of the moose for those of northern New England; the existence of the alligator for those of Florida, and so on.[58] Ironically, these wildlife species' continued existence is usually most *meaningful* for the very communities of humans imperiling them. They are co-inhabitants of a shrinking landscape.

Theory of Insular Communities, Distinct Populations, and Connectivity

Conservation biologists today are in the business of mapping and manipulating something they call "biogeography." It is a foreboding term, but its meaning for citizens is quite simple and important. The theory of biogeography originated as an explanation for the communities, or "assemblages" of species, that exist on "islands" as a function of two groups of variables: (1) the unique environments created by physical conditions and the natural selection processes therein, and (2) the island's proximity to the "mainland" from which colonizing species might periodically arrive.[59] Depending on the size of the island and the number of "colonizers" it received,

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56. *Cf.* EDWARD O. WILSON, BIOPHILIA 139 (1984) (arguing that "we are human in good part because of the particular way we affiliate with other organisms" and that "[t]hey are the matrix in which the human mind originated and is permanently rooted, and they offer the challenge and freedom innately sought"). For example, the peoples of the Pacific Northwest—native and non-native alike—have committed immense resources and psychological investments to the future of wild salmon populations. *See* NAT'L RES. COUNCIL, UPSTREAM: SALMON AND SOCIETY IN THE PACIFIC NORTHWEST 122-23 (1996) [hereinafter UPSTREAM] (arguing that, independent of market valuations and commercial fortunes tied to salmon survival, salmon have symbolic values that "affect families, larger communities, the region, and the nation").

57. The National Research Council exhaustively catalogued the various modes of valuing salmon and their related patterns of economic and community activity in a 1996 report authored to create an ecosystemic plan for salmon recovery. Its most general conclusion, though, was that

> [s]almon have provided social continuity and heritage for many Americans—the American Indian tribes and non-Indian fishing communities that depend on salmon fishing, the generations of sports anglers proud of their pursuits of steelhead and other salmon, the general public of the Northwest who have adopted salmon as a regional symbol, the airport shops that sell smoked salmon and salmon artifacts to tourists wanting souvenirs, and so on. Salmon are featured in art and song in the Pacific Northwest to an extent shared by few other fishes anywhere.

UPSTREAM, *supra* note 56, at 123.

58. Even notorious (and fabled) wildlife pests can be rehabilitated in a local public's mind. *See, e.g.*, CATHERINE REID, COYOTE: SEEKING THE HUNTER IN OUR MIDST (2004).

59. The theory of biogeography coalesced in the 1960s from work on actual islands by Robert Mac Arthur and Edward Wilson and was represented as an "area-diversity curve." *See* ROBERT H. MAC ARTHUR & EDWARD O. WILSON, THE THEORY OF ISLAND BIOGEOGRAPHY 6 (1967). This curve expressed an equilibrium of species with losses and gains balanced between immigration (colonization) and extinction. *Id.* Islands, "[b]y their very multiplicity, and variation in shape, size, degree of isolation, and ecology, . . . provide the necessary replications in natural 'experiments' by which evolutionary hypotheses can be tested." *Id.* at 3. Mac Arthur and Wilson's research led them to posit that area alone and proximity to the mainland together account for most of the variation in biodiversity, *id.* at 65, but subsequent research refined this conclusion. *See, e.g.*, NOSS & COOPERRIDER, *supra* note 32, at 33 ("Typically, a tenfold decrease in habitat area cuts the number of species by half."). Nonetheless, the equilibrium theory fell victim to subsequent controversy and today is regarded by many ecologists and conservation biologists as mistaken. *See id.* at 46 ("Modern ecological theory holds that equilibrium conditions are often fleeting and can be recognized at some spatial scales but not at others."); BOTKIN, *supra* note 15, at 51-71; THOMAS, *supra* note 36, at 54-61.

it would have more or less biodiversity as some species flourished, some went extinct, and some evolved and adapted to become so-called niche inhabitants on that island.[60]

While a real island has a "natural" insularity, the effects of human cultivation and development have produced a strikingly similar effect among the world's mainland habitats.[61] Habitat fragmentation and our understanding of its degenerative effects on evolution, speciation, and ultimately on biodiversity, have widened biogeographic theory since it first coalesced in the late 1960s.[62] Biogeographers argue that wildlife habitat, today, has been carved into insular fragments the world over as the human population has swelled, a process that now represents "one of the greatest threats to biodiversity worldwide."[63] As these habitat patches become functionally "insularized," so to speak, so do the extant populations therein and not always to the advantage of the communities occupying the island(s).[64]

The growth of human settlement and cultivation, in other words, can be understood as the process of "insularizing" wildlife habitat into patches,

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60. The species-area curve, it must be emphasized, was (and to the extent it is still debated, remains) a *notional* curve. Many attacks on biogeographic theory have failed to comprehend the meaning of its hypotheses and its notional curve as functional (not to say scientifically verifiable) theories. *See generally* BOTKIN, *supra* note 15.

61. Wilcove vividly detailed the story of bird habitat fragmentation in America's forests and grasslands. *See* WILCOVE, *supra* note 8, at 30-47, 100-03. But, while fragmentation bears a resemblance to island conditions, critically important differences do exist:

> [B]iogeographic theory was invoked to explain losses of species as the area of habitats declined and their isolation increased. Certainly, there are good analogies between real islands and caves, lakes, prairies in a forested landscape, or pieces of remnant forest in agricultural land. But there are differences, too. The water that surrounds real islands provides habitat for few terrestrial species. In contrast, the matrix surrounding habitat islands may be a rich source of colonists to the island, many of which are invasive weeds or predators on species inhabiting the island.

NOSS & COOPERRIDER, *supra* note 32, at 52.

62. A brief detour into modern evolutionary theory will set the necessary context for the use of biogeography. Stemming from the theory of evolution by natural selection, evolutionary biologists have posited a mechanics of "speciation," the process of species differentiation, resulting from genetic mutation or behavioral adaptation and a changed physiology (and, from that, a superior ability to survive). *See* NOSS & COOPERRIDER, *supra* note 32, at 30-33. In theory, it unfolds naturally as population cohorts diverge genetically over the course of many generations spent in their particular reproductive niche. *Id.* This "reproductive isolation," as it is called, can result from any variety of physical or topographic features which inhibit the movements of plants and animals (and thus immigration/emigration), creating what is called an "isolate." *Id.* The isolation of populations creates what are known as "endemics," species that have adapted quite particularly to a very specific, localized niche (and which are typically identifiable as such). *Id.* The corollary today, of course, is the "anthropogenic endemic," those "species whose highly restricted distributions are largely due to human intervention and habitat destruction." Alwyn H. Gentry, *Endemism in Tropical Versus Temperate Plant Communities*, *in* SCARCITY AND DIVERSITY, *supra* note 13, at 153, 162. While it is possible, at in least theory, that such insularization will produce a certain "anthropogenic biodiversity," the little data that exists suggest that most remnant populations are predisposed to relatively quick extinctions as a result of their low absolute numbers, absent real connections with other, larger populations. *Cf.* Thomas E. Lovejoy et al., *Edge and Other Effects of Isolation on Amazon Forest Fragments*, *in* SCARCITY AND DIVERSITY, *supra* note 13, at 257.

63. NOSS & COOPERRIDER, *supra* note 32, at 51.

64. The processes of speciation will sometimes depend on the availability of colonizers (and their genes) from other, neighboring isolates in order to maintain a "minimum viable population" of a species in a particular locale in the face of what is known as stochasticity. *See infra* notes 66-77 and accompanying text.

remnant isolates of a once immense and continuous landscape. The result of this process is that interbreeding, periodic colonization (or re-colonization), or both is rendered effectively impossible.[65] Humans routinely disturb the *physical* connections between wildlife populations through their alterations of the landscape.[66] But human activities also disturb the much less tangible connections linking the life phases of species as elements of a landscape.

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65. *See* Bruce A. Wilcox, *Insular Ecology and Conservation*, *in* CONSERVATION BIOLOGY: AN EVOLUTIONARY-ECOLOGICAL PERSPECTIVE 95, 95 (Michael E. Soulé & Bruce A. Wilcox eds., 1980) [hereinafter EVOLUTIONARY-ECOLOGICAL PERSPECTIVE] ("One of the most profound developments in the application of ecology to biological conservation has been the recognition that virtually all natural habitats or reserves are destined to resemble islands, in that they will eventually become small isolated fragments of formerly much larger continuous natural habitat.").

66. *See generally* FORMAN, *supra* note 45. The demography of a particular population and its environment is what creates the concept of a "minimum viable population." Goodman, *supra* note 46, at 11. Viability is finite because, in theory, every population eventually goes extinct. *See* Gary E. Belovsky, *Extinction Models and Mammalian Persistence*, *in* VIABLE POPULATIONS FOR CONSERVATION, *supra* note 46, at 35, 35-38. The threats to a population can be categorized into four major types of "stochastic perturbations," i.e., more or less random stresses to a population pushing it toward extinction. *See* Mark L. Shaffer, *Minimum Viable Populations: Coping with Uncertainty*, *in* VIABLE POPULATIONS FOR CONSERVATION, *supra* note 46, at 69, 71 [hereinafter Shaffer, *Minimum Viable Populations*]. These four types of stochasticity are: (1) demographic (chance variations in birth and death rates); (2) environmental (swelling competitor or predator species, reductions in habitat quantity or deterioration in habitat quality); (3) natural catastrophes (floods, fires, droughts, etc.); and (4) genetic (changes in genetic structure of population, rendering it less adaptive or more susceptible to calamity). *See id.* at 71; Mark L. Shaffer, Determining Minimum Viable Population Sizes: A Case Study of the Grizzly Bear 8-10 (1978) (unpublished Ph.D. dissertation, Duke University) (on file with Biological and Environmental Science Library, Duke University); *see also* Michael E. Gilpin & Michael E. Soulé, *Minimum Viable Populations: Processes of Species Extinctions*, *in* SCARCITY AND DIVERSITY, *supra* note 13, at 19, 28-34.

Most of the stochastic perturbations' interactions—their relative seriousness within different population structures—remain unknown. *Id.* But the working hypothesis has been that each may be represented as a statistical vortex (or negative feedback loop) wherein a population that is sufficiently "perturbed" may thereby be pushed into one of the downward spirals leading to extinction. *See* Gilpin & Soulé, *supra*, at 31. For example, a small population of bears (numbering, say, a few hundred) could dwindle as a result of an environmental disturbance or natural catastrophe (such as a pest epidemic that kills off the tree types that the bears rely on for a major part of their calories). *Cf. id.* Then suppose that this decrease in number pushes the population into what is known as a "genetic drift," a process whereby a gene pool's recessive, harmful alleles are expressed because of the rising homozygosity (homogeneity of genes as a result being forced toward inbreeding) of the population. *Id.* The expression of harmful alleles is the expression of "harm," a trait or characteristic making the individual more vulnerable to its environment. *Id.* Thus, the overall result is the genetic drift toward a gene pool increasingly expressive of harmful alleles and decreasingly capable of creating adaptive mutations. *Id.* at 32-34. While natural or environmental catastrophes are irremediable, "[g]enetic drift can be countered by allowing occasional migration" between subpopulations. Ian Robert Franklin, *Evolutionary Change in Small Populations*, *in* EVOLUTIONARY-ECOLOGICAL PERSPECTIVE, *supra* note 65, at 135, 146.

Much about these perturbations, such as the conditions causing genetic drift, seems random. Yet some of them can be linked to highly deterministic relationships:

> Annual variations in forage production caused by annual variations in rainfall are an example. Chance merely adds to the deterministically based variability of natural systems. Some of what we attribute to chance may really be the workings of deterministic processes that are currently not understood. By definition, a chance or random event is one that is unpredictable, so there is little practical difference between a purely random event and the results of processes that, because they are not understood, remain unpredictable.

Shaffer, *Minimum Viable Populations*, *supra*, at 71. In this sense, prior to the more complicated feedback loops of Gilpin and Soulé's vortices, a seemingly random perturbation might actually be quite predictable, at least in statistical terms. *Cf.* Michael E. Gilpin, *Spatial Structure and Population Vulnerability*, *in* VIABLE POPULATIONS FOR CONSERVATION, *supra* note 46, at 125, 129-37 (arguing that the flow of individuals between patches is a significant influence upon a metapopulation and overall vulnerability to stochastic perturbations).

Imagine a migratory flyway in which wetlands have been drained and paved to such an extent that only a tiny fraction of their original character remains recognizable to the migratory birds navigating them.[67] It is a different landscape.

Because most conservation biologists agree that adequate linkages between patches and adequate space within them are prerequisites to sustaining species diversity, one further conclusion is common: extinctions are becoming *more* probable while colonizations and the emergence of new endemic populations are becoming less so.[68] This results in a (global) downward turn in overall species diversity and community (or "assemblage") complexity.[69]

In answering the biggest question plaguing conservation biology, the focus naturally tends toward the *potential connectivity* between extant patches or islands of habitat. Without connectivity, the eradication of an island's species might become permanent as the inward flow of biota is inhibited.[70] Connectivity in this sense has two dimensions: structural and behavioral. Structural connectivity is the totality of features of the environment that permit or encourage emigration/immigration and the consequent exchange of individuals between distinct populations.[71] The behavioral dimension of connectivity refers to the responses of individuals and populations to the physical structure of a landscape and specifically what dispersal behaviors it elicits or rewards.[72] Thus, these two dimensions jointly define

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67. The importance of stopovers in migratory bird flyways has been known to U.S. wildlife law for almost a century. *See* BEAN & ROWLAND, *supra* note 4, at 63-92. But the same kind of habitat destruction can result from the eradication of native vegetation, resulting from agriculture and other forms of cultivation. *See* ANDREW F. BENNETT, LINKAGES IN THE LANDSCAPE 49-65 (1999); WILCOVE, *supra* note 8, at 229-41.

68. *See* FORMAN, *supra* note 45, at 375-83; NOSS & COOPERRIDER, *supra* note 32, at 50-54. Some ecologists argued that proximity and island size were not necessarily the chief determinants of Edward Wilson and Robert Mac Arthur's theorized equilibrium. *See, e.g.*, Daniel S. Simberloff & Lawrence G. Abele, *Island Biogeography Theory and Conservation Practice*, 191 SCIENCE 285, 285-90 (1976) (arguing that the qualitative dimensions of the island as habitat might be the most important variables). For obvious reasons, I will omit the dispute over relative priority of these factors here, although a good and popularly accessible account is DAVID QUAMMEN, THE SONG OF THE DODO: ISLAND BIOGEOGRAPHY IN AN AGE OF EXTINCTIONS (1996).

69. *See* NOSS & COOPERRIDER, *supra* note 32, at 30-65; MAC ARTHUR & WILSON, *supra* note 59; QUAMMEN, *supra* note 68.

70. *See generally* FORMAN, *supra* note 45, at 370-84 (examining landscapes from a spatial perspective).

71. A recent report of the World Conservation Union (IUCN) stressed to policymakers the importance of bifurcating the analysis of potential connectivity into these two distinct components. *See* BENNETT, *supra* note 67, at 8-12. Structural connectivity "is determined by the spatial arrangement of different types of habitats in the landscape." *Id.* at 9. It "is influenced by factors such as the continuity of suitable habitat, the extent and length of gaps, the distance to be traversed, and the presence of alternative pathways or network properties." *Id.* Behavioral connectivity relates to the responses of wildlife to disturbed environments, or "the scale at which a species perceives and moves within the environment, its habitat requirements . . . [and] the life stage and timing of dispersal movements." *Id.* Because of the behavioral component, "even though living in the same landscape, species with contrasting behavioral responses (to habitat disturbance for example) will experience differing levels of connectivity." *Id.*

72. Thus, without a full understanding of this behavioral dimension, connectivity is still imperfectly understood. *See* FORMAN, *supra* note 45, at 372-83. The IUCN report noted the shift in the scientific debate represented by the bifurcation of structural and behavioral components of connectivity, as op-

how *potentially* "connected" the habitat patches are, and that, in turn, frames the real-world picture of habitat conservation, restoration, and preservation.[73]

To grasp how these two dimensions define biodiversity, it may be helpful to think of them on two complimentary scales, each operating to regulate the assemblage of species in a particular place. The smaller, more immediate scale is nested within the larger one, where the larger one encompasses at least some elements of the smaller scale.[74] The two scales are spatial (the landscape at issue) and temporal (the survival time or period in which a population persists) in character. That is, persistence of a population in place and as part of a larger, inclusive population should be measured both in its duration and in its relative geographic distribution. Thus, we may designate a population p as a mere fraction of its "metapopulation," a collection of n populations $\{p + n\}$, and denote its persistence in *its* locale, against the larger distribution, as finite in two senses.[75] With these distinct scales in mind and the premise of stochastic perturbations, it becomes clear how the actual connectivity between populations like p creating the metapopulation (n) is pivotal and yet virtually unknowable.[76] Indeed, discerning connec-

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posed to the more tangible concept of "corridors" per se. *See* BENNETT, *supra* note 67, at 8-12. Where the latter had a narrow focus on the actual physical routes of dispersal, it was vulnerable to the objection that, for many species, actual modes of dispersal are poorly understood—putting a rather technical and narrow scientific dispute in the middle of the setting of conservation policy. *Id.* The newer formulation shifts the inquiry to a broader, continuously evolving discourse that allows the unfolding studies on the flows of biota to enrich a basic (if less specific) scientific consensus. Populations, communities, and natural ecological processes are more likely to be maintained in landscapes that comprise an interconnected system of habitats than in landscapes where natural habitats occur as dispersed, ecologically-isolated fragments. *Id.* at 8-9. Thus,

> [a] landscape or local area with high connectivity is one in which individuals of a particular species can move freely between suitable habitats, such as favored types of vegetation for foraging, or different habitats required for foraging and shelter. Alternatively, a landscape with low connectivity is one in which individuals are severely constrained from moving between selected habitats. A particular landscape or region may, at the same time, provide high connectivity for some organisms, such as mobile wide-ranging birds, and low connectivity for others such as snails or small sedentary reptiles.

Id. at 8. With characteristic clarity, Federico Cheever has linked this dimension of connectivity to species' "habitat particularity" more generally:

> One species may require one density of pine trees while another species requires another. One species may require a meadow at one time of year and a hilltop in another. The endless combinations of light, moisture, vegetation, and animal populations that may constitute habitat go on forever. [The] point here is only that it is hard to generalize about wildlife habitat.

Federico Cheever, *Property Rights and the Maintenance of Wildlife Habitat: The Case for Conservation Land Transactions*, 38 IDAHO L. REV. 431, 433 (2002) (footnotes omitted).

73. *See* NOSS & COOPERRIDER, *supra* note 32, at 67-98.

74. Conservation biologists typically work within a fuller hierarchy of scales, but, for present purposes, it is sufficient to consider these two. *See* FORMAN, *supra* note 45, at 11-30.

75. *See* Shaffer, *Minimum Viable Populations*, *supra* note 66, at 81 (arguing that discussions of "preservation" without a definite time frame and definite probability of survival in mind are pointless).

76. The four types of stochasticity all work to imperil a population such as p. Yet, almost without exception, threats are diminished the larger $p + n$ grows. That is, the more prodigious the metapopulation becomes, the less likely its elements—assuming adequate connectivity between them—will go extinct. *See* Michael E. Gilpin, *Spatial Structure and Population Vulnerability*, *in* VIABLE POPULATIONS FOR CONSERVATION, *supra* note 46, at 125, 126-38. Many species are not, or at least are not overtly, distributed as metapopulations. The dynamics of occasional dispersals aside, even the extirpation of a perfectly localized population never reestablished may be the eradication of an "endemic" of some kind, itself a

tivity as to any particular species or assemblage of species comprises a major part of the practice of conservation biology today.[77]

Equally fragmented is the legal authority over these pieces of habitat. The patchwork of legal boundaries, statutes and regulations, agencies, and jurisdictional turf protecting wildlife habitat in the United States alone is justly described as chaotic.[78] Fragmentation of jurisdiction, however, is not nearly as damaging as fragmentation of habitat. The critique of federal wildlife habitat law that follows is not aimed at its fragmentary nature per se, but rather at its designs on broad scale coordination and rationality, notwithstanding that fragmentation. Something many observers and activists in the field refuse to see is that the legal history of our federalized wildlife habitat protections is a history of the ecological shortcomings of this hybrid design. It is to this rather paradoxical modern situation that Parts II, III and IV turn.

II. BIODIVERSITY'S LEGAL BARRICADE: THE ENDANGERED SPECIES ACT

Today, the federal government "owns" the fee to about 700 million of the roughly 2.3 billion acres of land in the country.[79] Some of this land is dedicated expressly to the preservation of "wilderness" or wildlife for their own sake.[80] For example, on some 95 million acres of what are called

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threat to biodiversity and community structure. *See, e.g.*, Fiorenza Micheli et al., *Human Alteration of Food Webs*, *in* RESEARCH PRIORITIES, *supra* note 21, at 31, 31-50. For the balance of the Article, I discuss "potential connectivity" between populations and metapopulations given how the conditions for *actual* connectivity are for many species uncertain, unknown, or both. *See* FORMAN, *supra* note 45. As some have argued, even a focus on potential connectivity can result in definite, prescriptive moves against fragmentation of various kinds. *See* BENNETT, *supra* note 67, at 8-11.

77. Minor, but important, premises entail the study of competitor species and phenomena such as "lockout," wherein a "species may be permanently excluded from an area with suitable habitat by established populations of competitors." Jared M. Diamond, *Patchy Distributions of Tropical Birds*, *in* EVOLUTIONARY-ECOLOGICAL PERSPECTIVE, *supra* note 65, at 57, 70. Understanding the role and probability of catastrophes in a population's "survival time" is another related endeavor, although one for which even less data exist (and for which the mathematical models are still quite rudimentary). *See* Warren J. Ewens et al., *Minimum Viable Population Size in the Presence of Catastrophes*, *in* VIABLE POPULATIONS FOR CONSERVATION, *supra* note 46, at 59, 62-67.

78. *See* Karkkainen, *supra* note 42, at 212-17.

79. Tellingly, it took almost two centuries for the federal government, in *Kleppe v. New Mexico*, 426 U.S. 529, 539-40 (1976), to be definitively proclaimed completely "sovereign" over the lands it holds as proprietor pursuant to the Property Clause, U.S. CONST. art. IV, § 3. Previously, questions lingered over whether limitations upon federal powers confirmed in the Tenth Amendment applied with equal force to render the federal government somehow subordinate to the host state. After *Kleppe*, the federal government's ownership meant that it exercises not the "limited and enumerated" powers of Article I hemmed tightly by "our federalism," but rather, within the confines of the federal realty, the federal government wields the "police power," unencumbered by contrary prescriptions of the state within which the land falls. *See Kleppe*, 426 U.S. at 543-47. This is important for present purposes; until 1976 doubts persisted over the breadth of federal government power to regulate the taking of wildlife within a national forest. *See* BEAN & ROWLAND, *supra* note 4, at 19-22. It should be noted, that the Supreme Court has allowed *some* local laws, not inconsistent with federal law or the objectives set by federal programs, to remain applicable even on federal lands. *See* Cal. Coastal Comm'n v. Granite Rock Co., 480 U.S. 572, 588-89 (1987) (discussing how a state law requiring permits for mining operations may be applied to holder of federal mining claim in national forest).

80. The amount of designated "wilderness" pursuant to the Wilderness Act is subject to dispute, although the most reliable estimates place the number at just over 106 million acres. *See* Wilderness.net, The National Wilderness Preservation System (Aug. 2004), http://www.wilderness.net/index.cfm?

"wildlife refuges" the protection and propagation of wildlife is at least *prioritized* by law.[81] For some 83 million acres designated as "National Parks," wilderness conservation, wildlife conservation, or both are also prioritized by law.[82] Beyond these relatively exceptional preserves, the only federal legal mandate devoted to protecting wildlife habitat for its own sake is the Endangered Species Act. It therefore comprises the biggest facet of wildlife habitat protection by the federal government.

A. The Listing and Mapping of Imperiled Populations

Biodiversity advocates have long viewed the system of public lands and ESA as the twin pillars of wildlife habitat protection and restoration in America.[83] But even as vast as some of these places are, and even as famously rigid as ESA is, most conservation biologists have come to the conclusion that they both are woefully inadequate in the tasks of the era of mass extinctions. Parts II, III and IV explain why.

Protecting Endangered Species: Urgency, Scarcity, and Ignorance

The Endangered Species Act is world-famous for its rigidity and scope. The law's basic prohibitions are stunningly general and concrete. Indeed, they are so powerful and so broadly applicable as not to be believed.[84] For

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fuse=NWPS. The other totals are conveniently collected in GEORGE CAMERON COGGINS ET AL., FEDERAL PUBLIC LAND AND RESOURCES LAW 1 (5th ed. 2001).

81. *See* ROBERT L. FISCHMAN, THE NATIONAL WILDLIFE REFUGES: COORDINATING A CONSERVATION SYSTEM THROUGH LAW 1 (2003). These wildlife refuges share few common features as a whole and are, with rare exceptions, isolated tracts unconnected to other refuges or federal holdings. Indeed, not until 1966 were they united even in name to form a "system" at all. *See* BEAN & ROWLAND, *supra* note 4, at 289.

82. The creation of Yellowstone in 1872 began an era of "withdrawing" federal lands from exploitation in the hopes of preserving the natural beauty therein. *See* JAMES RASBAND ET AL., NATURAL RESOURCES LAW AND POLICY 575 (2004) ("By 1916, the Interior Department was responsible for 14 national parks but had neither an organization nor policy guidance from Congress for managing those parks."). Like the wildlife refuges, each national park has its origin in some piece of "organic" legislation creating it and dedicating it to a single or several complementary purposes. However, the beginning of that era was not about the protection of wildlife or wildlife habitat. *Cf.* RODERICK NASH, WILDERNESS AND THE AMERICAN MIND 108 (rev. ed. 1973) ("Yellowstone's initial advocates were not concerned with wilderness; they acted to prevent private acquisition and exploitation of geysers, hot springs, waterfalls, and similar curiosities."). Under the National Park Service (NPS), "conservation" has since evolved to become the single most widely cited purpose of the parks. *See* Robert B. Keiter, *Preserving Nature in the National Parks: Law, Policy, and Science in a Dynamic Environment*, 74 DENV. U. L. REV. 649 (1997); *cf.* FISCHMAN, *supra* note 81, at 202-04 (describing the missions and bureaucratic cultures of NPS and the Fish and Wildlife Service as administrators of the National Wildlife Refuge System as "closely aligned").

83. It is routine to identify ESA and the system of public lands in the United States with the law of "biodiversity" and "ecosystem management." *See, e.g.*, NAGLE & RUHL, *supra* note 12, at v-viii.

84. The (in)famous snail darter cases were ultimately resolved by the Supreme Court and included a dissent by Justices Powell and Blackmun, written from disbelief that Congress could have intended this Act to produce the "absurd result" reached by the majority. Tenn. Valley Auth. v. Hill, 437 U.S. 153, 205 (1978). The case involved a federally-funded dam on the Little Tennessee River that was nearly complete when the minnow-like fish was "discovered" in the spillway and was believed to be a "narrow endemic" to that very stream such that operating the dam would mean its complete extirpation. *Id.* at

all of its infamy, at its core it consistently garners widespread public support. That "core" is as follows: any "species"[85] determined to be "endangered" or "threatened"[86] with extinction must be "listed" as such by the federal government.[87] Once on this federal list, the species is protected by federal law from being "taken" or "harmed" in any way by human actions, anywhere or by anyone, within the legal jurisdiction of the United States.[88]

Public consensus breaks down over the many ancillaries, like the definitions of harm ("direct" or "indirect"?) and species (are discrete populations "species"?), even while the essential prohibitions retain firm support. For example, the listing agency—usually the Fish and Wildlife Service[89]—is also responsible for designating "critical habitat" for the species it lists.[90] Once designated, the destruction of such habitat is tantamount to a "taking."

153-70. It has occasioned probably all forms of legal discussion—including two years of congressional debate resulting in both a specific exemption for that particular dam, *see* Sequoyah v. Tenn. Valley Auth., 480 F. Supp. 608, 611 (E.D. Tenn. 1979), as well as a substantial amendment to ESA—the creation of what is known as the "Endangered Species Committee" or "God Squad," charged with making special exceptions to the Act's prohibitions. *See* 16 U.S.C. § 1536(e) (2000). The legal philosopher Ronald Dworkin even used the case as his keystone example of how *not* to interpret statutes. *See* DWORKIN, *supra* note 4, at 20-23, 328-47.

85. There is routine controversy over whether or not a discrete population constitutes a "species" within the meaning of ESA. The statute defines the term to include "any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature," 16 U.S.C. § 1532(16) (2000), but this simply shifts the debate to what constitutes a truly "distinct" population. *See generally* Kevin D. Hill, *The Endangered Species Act: What Do We Mean by Species?*, 20 B.C. ENVTL. AFF. L. REV. 239 (1993). Not infrequently, listings become mired in biological/morphological controversies for this reason. *See, e.g.*, Kirk Johnson, *Debate Swirls Around the Status of a Protected Mouse*, N.Y. TIMES, June 27, 2004, § 1, at 16 (reporting scientific and political disputes over genetic distinctions between types of mice pivotal to the conclusion that one particular type is endangered).

86. A "threatened species" is one "which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." *Id.* § 1532(20). An "endangered" species is one "which is in danger of extinction throughout all or a significant portion of its range," except those insects the federal government determines "constitute a pest whose protection under the provisions of this Act would present an overwhelming and overriding risk to man." *Id.* § 1532(6).

87. *See* BRIAN CZECH & PAUL R. KRAUSMAN, THE ENDANGERED SPECIES ACT: HISTORY, CONSERVATION BIOLOGY, AND PUBLIC POLICY 15-43 (2001) (tracing the statutory and political evolution of this core).

88. The statute prohibits the "taking" of a listed species, defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any" of those acts, § 1532(19), and the joint regulations define "harm" to include "significant habitat modification or degradation where it actually kills or injures wildlife." 50 C.F.R. § 17.3 (2004). This definition of "harm" was upheld by a divided Court in *Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 697-99 (1995). The regulations define "harass" to include any "intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns." 50 C.F.R. § 17.3.

89. The Department of Interior is the delegated agency for most "terrestrial" species and some species of inland fish, while the Department of Commerce is the delegated agency for all species of marine wildlife and some species of anadromous fish (e.g., salmon). *See* §§ 1533, 1532(15). These two have in turn delegated their authorities to the Fish and Wildlife Service (FWS or "the Service") and the National Marine Fisheries Services (NMFS), respectively. *See* §§ 1533, 1532(15). For present purposes, it will suffice to discuss FWS, even though the two agencies often collaborate on policies and regulations. *See, e.g.*, 50 C.F.R. § 424.01 (2004). It should be mentioned that listing can occur on two procedural tracks: first by the Service's own initiative, *see* § 1533(a)(1), and second on the basis of a "petition of an interested person." *Id.* § 1533(b)(3)(A).

90. *See* § 1533(a)(3)(A) (The Secretary of the Interior shall "concurrently with [listing] . . . designate any habitat of such species which is then considered to be critical habitat.").

ESA defines critical habitat as the "specific *areas* within the geographical area occupied by the species, *at the time it is listed* . . . on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection."[91] Thus, recognizing that species cannot survive without intact habitat, the statute specifically incorporates habitat-protective subprograms meant to draw legal lines around spaces on a map.

What constitutes such habitat "areas" for any particular "species," is something of a double-edged sword for FWS. The problem is not just that degradation of habitat is tantamount to an "indirect" "taking" of the species—against which FWS must be a diligent sentry—or that human actions causing the degradations are not often easily "mapped" in any physical way. The problem is that, it can be deeply unclear to the biologists just what "physical or biological features" *are* essential to the species' "conservation"[92]—whatever the absolute amount of physical space in question. And it must be said that the restrictions which attend a designation as critical habitat are at least an indirect pressure to limit the amount of physical space so designated.[93]

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91. § 1532(5)(A)(i) (emphasis added). Critical habitat can also be designated in "specific areas outside the geographical area occupied by the species at the time it is listed . . . upon a determination by the Secretary that such areas are essential for the conservation of the species." *Id.* § 1532(5)(A)(ii). The expectation here was clearly that habitats are discrete physical spaces—an assumption that conservation biology has since seriously undermined. *See* CZECH & KRAUSMAN, *supra* note 87, at 51-55. The clause limiting critical habitat to those areas occupied *at the time of listing* was added in the 1978 amendments at the behest of an avowed opponent of the entire Act, Senator James McClure of Idaho. *See* Michael J. Bean, *The Agony of Critical Habitat*, 21 ENVTL. F. 19, 20 (2004). That political parameter has been an impediment to actual species recovery. *See infra* notes 111-16 and accompanying text.

92. *See* § 1532(5)(A)(i). Three decades after the concept was added to the statute, it remains unclear, as underscored by any contest over a particular critical habitat designation (or non-designation). *See* Home Builders Ass'n of N. Cal. v. U.S. Fish & Wildlife Serv., 268 F. Supp. 2d 1197, 1229-30 (N.D. Cal. 2003) (involving a situation where FWS agreed that economic impacts must be analyzed in critical habitat designation for Alameda whipsnake); *infra* note 124 and accompanying text. The statute allows the Service, in determining whether to designate critical habitat, to decide either that it is not "prudent" to do so (in the sense that the species might be put at greater risk if its location was disclosed), *see* § 1533(a)(3), or to take "into consideration the economic impact, and any other relevant impact, of specifying any particular area as critical habitat," *id.* § 1533(b)(2), or both. Congress provided no guidance on how to strike such a delicate balance between the apples and oranges of "economic" impacts and the broader values of biodiversity conservation—leaving it instead to the agencies. *See* Thomas F. Darin, *Designating Critical Habitat Under the Endangered Species Act: Habitat Protection Versus Agency Discretion*, 24 HARV. ENVTL. L. REV. 209, 217-19 (2000). The regulations structuring critical habitat designations are codified at 50 C.F.R. part 424. The Service has had a rough time claiming critical habitat designations are not prudent. *See, e.g.*, Natural Res. Def. Council v. U.S. Dept. of the Interior, 113 F.3d 1121, 1127 (9th Cir. 1997) (reversing decision not to designate critical habitat for California gnatcatcher as arbitrary and capricious). But it has "severely limited" the budget line item devoted to the project for many years, *see* Darin, *supra*, at 231-33, a choice that results in annual "shut-downs" of critical habitat designations mid-way through a fiscal year (in observance of agency budget law) and has kept these designations from being completed for about 85% of listed species. *See* RASBAND ET AL., *supra* note 82, at 353-56.

93. More directly, in *New Mexico Cattle Growers Ass'n v. U.S. Fish & Wildlife Service*, 248 F.3d 1277, 1284-86 (10th Cir. 2001), the court invalidated the agency's analytical methods for designating critical habitat on the grounds that the agency paid insufficient attention to the "economic impact" such designations impose upon local economies. *See infra* note 120 and accompanying text.

This particular problem puts FWS in an untenable position: the very authority the agency wields is premised on a set of determinations that must be kept permanently open to major revision.[94] The statute sets the agency up to look incompetent, by requiring it to make formal factual findings and conclusions of law having an artificial definiteness (which are of national importance) but which are, quite necessarily, provisional.[95] The more FWS learns about one of its listed species, the more it confronts its own fallibility—doing so very much in public view.[96]

Furthermore, designating critical habitat guarantees the creation of more work for a constantly resource-starved organization.[97] Supposing a species' habitat needs are defined and codified into federal law as such, the complexities of FWS's administrative duties only mushroom. Habitat protections are not, when effective, mere lines on a map. They are injunctions against real human wants and actions, injunctions that must be enforced (and widely observed) to result in fewer overall stresses to the species.[98]

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94. Notably, the "ultimate" end of the snail darter incident was FWS's conclusion that the fish was not nearly as rare as had been thought when the Little Tennessee River dam project was interrupted. *See* NATHANIEL P. REED & DENNIS DRABELLE, THE UNITED STATES FISH AND WILDLIFE SERVICE 91-92 (1984); ROBERT L. FISCHMAN & MARK S. SQUILLACE, ENVIRONMENTAL DECISIONMAKING 216 (3d ed. 2000).

95. As many have emphasized, this is the real punch that adaptive management packs for policymakers: beware relying on a "decision" made on the basis of imperfect information which is later proven wrong. LEE, *supra* note 18, at 53.

96. The direct linkage between the scientific process and the setting of public policy initiates this same dilemma for government agencies across a broad spectrum of fields. *See generally* SHEILA JASANOFF, THE FIFTH BRANCH: SCIENCE ADVISERS AS POLICYMAKERS (1990).

> Since scientific knowledge is in perpetual flux and demands constant renegotiation, interactions involving [scientists] have to be structured in accordance with norms more flexible than those of formal and informal administrative rulemaking. Repeated rounds of analysis and review may be required before an agency reaches a conclusion that is acceptable at once to science and to the lay interests concerned with regulation.

Id. at 250. Any bureaucracy forced into such a position will find itself deeply conflicted. The premises of bureaucratic authority are grounded in the permanence of the bureau's expert opinions—an authority independent of specific circumstance or motive. *See* JAMES Q. WILSON, BUREAUCRACY: WHAT GOVERNMENT AGENCIES DO AND WHY THEY DO IT (2d ed. 1996); LEE, *supra* note 18, at 52-53.

97. The more cynical accounts of bureaucracies would make this into an asset for FWS, allowing it to designate critical habitat as a way of waging the war for turf and limited budget allocations. *See, e.g.*, WILLIAM A. NISKANEN, JR., BUREAUCRACY AND REPRESENTATIVE GOVERNMENT (1971); ANTHONY DOWNS, INSIDE BUREAUCRACY (1967). In practice, FWS and Forest Service officials seem to dread the designation, probably because it has not, on balance, meant augmented budgetary or personnel resources—but rather just more "unfunded mandates." *Cf.* Darin, *supra* note 92, at 233-35.

98. Many biodiversity advocates (political and legal) are familiar with the "SLOSS" debate that animated the field's scientists beginning in the early 1970s. SLOSS is an acronym signifying the question about habitat preserve design and the social-political strategy that must be observed: "single large or several small." NOSS & COOPERRIDER, *supra* note 32, at 140, 138-43 (discussing SLOSS). The debate focused on which strategy of habitat preserve construction was better from a conservation standpoint. It became quite acrimonious after a while. *See* QUAMMEN, *supra* note 68, at 446-541. Few are as familiar, though, with the actual mechanics and the field work entailed in *identifying* "those physical or biological features . . . essential to the conservation of the species," § 1532(5)(A)(i), where conservation means "the use of all methods and procedures which are necessary to bring [the subject species] to the point at which the measures provided pursuant to [ESA] are no longer necessary." *Id.* § 1532(3). The data which must be gathered just to begin work on such a catalogue of mandates is dauntingly costly and difficult to collect. *See, e.g.*, Lovejoy et al., *supra* note 62, at 257 (explaining the detail required to make accurate judgments). This is a reality that is only sharpened by the statutory and legally enforceable duty to employ the "best scientific and commercial data available" in making critical habitat determinations. §

Yet, as even the Supreme Court understood when it confronted the problem, the "chain of causation" linking parts of human society to habitat-degrading, population-stressing activities, easily implicates a vast array of societal decisions, actors, and institutions.[99] The government of "limited and enumerated powers," though, is without authority over much of that conduct.[100]

Finally, the very potency of ESA might, in a perverse twist, actually further imperil habitat by motivating those facing its burdens to eradicate the habitat from their property *before* the Act's famously rigid enforcement regime fully materializes.[101]

1533(b)(2); *see infra* notes 117-25 and accompanying text.

99. In *Babbitt v. Sweet Home Chapter of Cmtys. for a Great Oregon*, 515 U.S. 687 (1995), the question was whether the Service's regulatory definition of a prohibited "take" could legally include "harm" to that species in the form of habitat degradation. *Id.* at 698-702. Such a definition would be, the dissent argued, a "ruthless dilation" of the term encompassing a potentially limitless spectrum of human conduct and, by law, extending federal government control over it. *Id.* at 720. The majority found the definition permissible, *id.* at 708, but in her concurrence, Justice O'Connor attempted to insinuate common law concepts of "proximate causation" into the statute to somehow contain the "take definition" to what she perceived to be a more "reasonable" domain. *Id.* at 708-14 (O'Connor, J., concurring).

100. In *Loggerhead Turtle v. City Council of Volusia County*, 896 F. Supp. 1170 (M.D. Fla. 1995), for example, a county's authorization of vehicular beach traffic during the turtle's mating season was ruled to be a prohibited "take." *Id.* at 1182. Extensive evidence of causation was taken in the district court, much of it coming from FWS documents. Ultimately, Volusia County's ESA liability must be regarded as vicarious in nature, for it was the county's regulatory authority—not its own behavior on the beach—linking it to the harm of turtles. *Id.* at 1181. *See also* Strahan v. Coxe, 127 F.3d 155, 163-64 (1st Cir. 1997) (dealing with state's violation of ESA section 9 by permitting use of certain fishing gear proven to ensnare listed whale species); Palila v. Haw. Dept. of Land & Nat. Res., 639 F.2d 495, 497-98 (9th Cir. 1981) (finding the state's creation of a herd of feral sheep and goats violated ESA section 9 because it degraded a habitat of listed bird species). The Volusia County suit was eventually dismissed once the County obtained an incidental take permit. *See* Loggerhead Turtle v. Co. Council, 148 F.3d 1231, 1259-60 (11th Cir. 1998). Private attorneys general bringing suits against complicit state and local governments may be less problematic, though, than the federal government's use of section 9 enforcement actions to control states' regulatory policies, something the Supreme Court has recently frowned on. *See* New York v. United States, 505 U.S. 144, 162 (1992) ("While Congress has substantial powers to govern the Nation directly, including in areas of intimate concern to the States, the Constitution has never been understood to confer upon Congress the ability to require the States to govern according to Congress' instructions."). Yet, this actually happened in *United States v. Town of Plymouth*, 6 F. Supp. 2d 81 (D. Mass. 1998), where the town's licensing of vehicular traffic on the beach was apparently resulting in the actual killing of listed bird species' chicks on the beach. *Id.* at 89-91. The town's licensing was enjoined as a violation of ESA section 9, but the case was never appealed because the town settled the case shortly after the district court's decision. *Id.* at 91-92; *see* NAGLE & RUHL, *supra* note 12, at 262. Some have argued such cases present Tenth Amendment problems. *See, e.g.*, Shannon Petersen, *Endangered Species in the Urban Jungle: How the ESA Will Reshape American Cities*, 19 STAN. ENVTL. L.J. 423, 439 (2000). But even independent of a "commandeering" issue, the federal government lacks the wherewithal—and possibly the constitutional authority—to directly regulate all of the variegated threats state and local governments present to listed species and their habitat needs. *Cf.* Nat'l Ass'n of Homebuilders v. Babbitt, 130 F.3d 1041, 1043 (D.C. Cir. 1997) (involving a Commerce Clause challenge to ESA regulation of small, insular population), *cert. denied*, 524 U.S. 937 (1998); *see supra* notes 24-39 and accompanying text.

101. Good data on the frequency or severity of such a backlash is hard to find, although this has not stopped some from mounting efforts to quantify the phenomenon in whatever way possible. *See, e.g.*, Dean Lueck & Jeffrey Michael, *Preemptive Habitat Destruction Under the Endangered Species Act*, 46 J.L. & ECON. 27 (2000). ESA itself acknowledges the possibility of this kind of backlash and empowers the listing agency to exercise its discretion in coping with the possibility. *See* § 1533(b)(2).

B. Consultations and Recovery: Planning for Change

Besides the prohibition on the taking of the species, the statute also includes certain specialized duties for "any department, agency, or instrumentality of the United States"[102] in any "action authorized, funded, or carried out by such agency."[103] That arm of the government must "insure" that the action is "not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species" which has been designated as "critical habitat."[104] This is the infamous "consultation" requirement and it has become the worst nightmare of anyone seeking some form of federal government permission where their plans have some bearing on an endangered species or its designated "critical habitat."[105]

1. Consultation in Perpetuity

The infamy of ESA section 7 is not that FWS is always finding that "proposed actions" *will* jeopardize listed species.[106] The infamy is that mak-

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102. *Id.* § 1532(7).

103. *Id.* § 1536(a)(2).

104. *Id.* § 1536(a)(2). Another affirmative duty of federal government agencies is to "utilize their authorities in furtherance of the purposes of [ESA] by carrying out programs for the conservation of [listed species]." *Id.* § 1536(a)(1). No FWS regulations were ever written to implement this duty, and little has been done to specify its enforceable requirements. *See* Sierra Club v. Glickman, 156 F.3d 606, 616 (5th Cir. 1998) (noting that section 7(a)(1) imposes an "affirmative duty on each federal agency to conserve each of the species listed," but failing to state what those obligations are); *cf.* J.B. Ruhl, *Section 7(a)(1) of the "New" Endangered Species Act: Rediscovering and Redefining the Untapped Power of Federal Agencies' Duty to Conserve Species*, 25 ENVTL. L. 1107, 1107-1113 (1995) (arguing that ESA section 7(a)(1) possesses judicially enforceable content).

105. The joint regulations written by FWS and NMFS implementing their consultation duties apply to "all actions in which there is discretionary Federal involvement or control," 50 C.F.R. § 402.03 (2004). The regulations also structure a process that "is designed to assist the Federal agency and any applicant [for a federal license or other form of permission] in identifying and resolving potential conflicts at an early stage in the planning process." *Id.* § 402.10.

106. Conventional wisdom about actual consultations is (and has been for many years) that they almost never result in a conclusion that the proposed agency action cannot go forward. *See, e.g.*, Oliver A. Houck, *The Endangered Species Act and Its Implementation by the U.S. Departments of Interior and Commerce*, 64 U. COLO. L. REV. 277, 317-29 (1993); Daniel J. Rohlf, *Jeopardy Under the Endangered Species Act: Playing A Game Protected Species Can't Win*, 41 WASHBURN L.J. 114 (2001). The Service must be formally consulted whenever a listed species or some part of its "habitat" exists within the "action area" and whenever the proposed action may "adversely affect" the species or any of its designated critical habitat. § 1536(b)(1)-(2) (2000); *id.* § 2903. Establishing the actual boundaries of an "action area" is one avenue into a legal scrape for FWS. *See* Defenders of Wildlife v. Babbitt, 130 F. Supp. 2d 121, 126-27 (D.D.C. 2001) (invalidating the Service's attempt to limit delineated action area to federally owned lands). Neglecting to consider the "cumulative impacts" and "foreseeable consequences" of a proposed action is another. *See id.*; Greenpeace v. Nat'l Marine Fisheries Serv., 80 F. Supp. 2d 1137, 1147-50 (W.D. Wash. 2000); Pac. Coast Fed'n of Fishermen's Ass'n v. Nat'l Marine Fisheries Serv., 265 F.3d 1028, 1037-38 (9th Cir. 2001).

The conclusion of this formalized process of inter-agency discussion is a "Biological Opinion" (BiOp), a detailed technical document setting out the Service's findings of fact and conclusions of law regarding the proposed agency action. *See* 50 C.F.R. § 402.14(a)-(l); 16 U.S.C. § 1536(b)(3)-(4). The BiOp can either conclude that no "jeopardy" is likely to result from the proposed action or that certain "reasonable and prudent alternatives" are available which will not so jeopardize the species or adversely affect its designated critical habitat. 50 C.F.R. § 402.14(h)(3). In rare instances, the Service may elect to

ing *any* definitive findings and conclusions in the face of pervasive scientific uncertainty—at least those that will survive judicial scrutiny in the inevitable court challenge—usually demands a stunning commitment of resources and patience.[107] Throughout that conflict, the "action area" in question lies in legal limbo because the concerned federal agencies must, before they act, "insure" that the proposed action "is not likely to . . . result in the destruction or adverse modification of habitat" for a listed species.[108] Many consultations leave participants under threat of federal prohibition for years.[109] Litigation to enforce some aspect of the consultation duty is quite common.[110]

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authorize the action even though some "take" of the species may result, as long as the "take" involved is found to be "incidental." *See* Ariz. Cattle Growers' Ass'n v. U.S. Fish & Wildlife Serv., 273 F.3d 1229, 1241 (9th Cir. 2001). These "Incidental Take Statement[s]," are frowned upon by the courts unless the Service documents the "causal link" between the action and its effects on the population(s) in question as well and such effects will result only in an "incidental" take as opposed to a prohibited one. *See id.* (invalidating an "Incidental Take Statement" for a lack of factual support from the record of the consultation proceeding).

107. Legally, the interagency consultation must be *reinitiated* whenever, among other circumstances, "new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered," 50 C.F.R. § 402.16(b), or where the identified action "is subsequently modified in a manner that causes an effect . . . that was not considered in the [BiOp]." *Id.* § 402.16(c).

108. § 1536(a)(2).

109. It is not only the "direct effects" of actions that count, but also the "reasonably foreseeable consequences" thereof. *See, e.g.*, Nat'l Wildlife Fed'n v. Coleman, 529 F.2d 359, 373-74 (5th Cir. 1976); Riverside Irrigation Dist. v. Andrews, 758 F.2d 508, 512-13 (10th Cir. 1985). This, of course, requires sensitive analysis where the federal action under consideration is programmatic in nature. *See* N. Slope Borough v. Andrus, 642 F.2d 589, 600-02 (D.C. Cir. 1980); Conservation Law Found. of New Eng., Inc. v. Andrus, 623 F.2d 712, 716-18 (1st Cir. 1979). But the decision whether to produce a BiOp is importantly distinct from the decision of how to scope the BiOp that ultimately results from initiated "formal consultations;" the hardest questions of causation are generally treated in the latter.

The law has been reasonably well settled that once a formal consultation is initiated (at least as to most licenses, permits, and other discrete federal actions), FWS should reach a conclusion as to jeopardy within the ninety-day timeframe mentioned in the statute. *See* § 1536(b)(1); John W. Steiger, *The Consultation Provision of Section 7(a)(2) of the Endangered Species Act and Its Application to Delegable Federal Programs*, 21 ECOLOGY L.Q. 243, 303 (1994). But BiOps, like all other decisions under ESA, must be based on the "best scientific and commercial data available." 50 C.F.R. § 402.14(d). Consultations, therefore, tend to be rather information-demanding affairs, subject to re-initiation when and if new information arises. *See id.*; Pac. Coast Fed. of Fisherman's Ass'n v. Nat'l Marine Fisheries Serv., 253 F.3d 1137, 1143 (9th Cir. 2001) (finding BiOp not based on "best available scientific information" because Service failed to consider cumulative impacts of action), *amended and superceded by* 265 F.3d 1028 (9th Cir. 2001). Multiple remands to the agencies involved for re-initiation of consultations are not unheard of. *See, e.g.*, Idaho Dept. of Fish & Game v. Nat'l Marine Fisheries Serv., 850 F. Supp. 886, 888-91 (D. Or. 1994), *remanded by* 56 F.3d 1071 (1995). The so-called "incremental step" approach is a popular option for those decisions where the ramifications of a course of actions are unknown. *See* 50 C.F.R. § 402.14(k); Conner v. Burford, 848 F.2d 1441, 1452 (9th Cir. 1988). Finally, courts have held that the duty to "insure" the no jeopardy finding requires action agencies to take into consideration the actions of other federal agencies and their cumulative effects upon the species, *see* Defenders of Wildlife v. Babbitt, 130 F. Supp. 2d 121, 126-27 (D.D.C. 2001), although it is far from clear that such finding can ever be made by one action agency relative to the policies or actions of another.

Certain "action agencies" are "repeat players" in the consultation arena and have adapted their internal bureaucratic routines and structures around FWS consultation regulations. For example, the Bureau of Reclamation, in operating the federal dams in the nineteen western states, eventually fine-tuned its approach to formal consultations after several clashes under ESA section 7, although it is unclear that any of its innovation has been aimed at resolving the underlying conflicts among water uses. *See* Holly Doremus & A. Dan Tarlock, *Fish, Farms, and the Clash of Cultures in the Klamath Basin*, 30

2. Recovery Plans

The ESA's processes for actual species *recovery* and eventual removal from the list are even less definite than those of listing, critical habitat designation or consultation. Because so few species have ever "recovered" to an extent that they actually are "de-listed," our collective experience with this form of ESA success is almost nil.[111] At least four premises have been established in the doctrine shaping this form of ESA planning, and they paint the clearest picture of a federal program in disarray.

First, in order to be de-listed, a species must ordinarily progress to a point where the goals and objectives set in the "recovery plan" have been—or are soon to be—met.[112] Second, and somewhat paradoxically, the obligation even to write a recovery plan while a species sits on the list is wholly discretionary with FWS.[113] Third, FWS has the discretion to define the geo-

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ECOLOGY L.Q. 279, 305-36 (2003).

110. *See, e.g.*, Pac. Rivers Council v. Thomas, 30 F.3d 1050 (9th Cir. 1994); Lane Co. Audubon Soc'y v. Jamison, 958 F.2d 290 (9th Cir. 1992); Sierra Club v. Yeutter, 926 F.2d 429 (5th Cir. 1991); Bob Marshall Alliance v. Hodel, 852 F.2d 1223 (9th Cir. 1988); Conner v. Burford, 848 F.2d 1441 (9th Cir. 1988); Sierra Club v. Marsh, 816 F.2d 1376 (9th Cir. 1987); Roosevelt Campobello Int'l Park Comm'n v. EPA, 684 F.2d 1041 (1st Cir. 1982); Am. Rivers v. U.S. Army Corps of Eng'rs, 271 F. Supp. 2d 230 (D.D.C. 2003); Sierra Club v. United States, 255 F. Supp. 2d 1177 (D. Colo. 2002); Natural Res. Def. Council v. Evans, 232 F. Supp. 2d 1003 (N.D. Cal. 2002); Ctr. for Biological Diversity v. Rumsfeld, 198 F. Supp. 2d 1139 (D. Ariz. 2002); Sierra Club v. U.S. Fish & Wildlife Serv., 189 F. Supp. 2d 684 (W.D. Mich. 2002); Pac. Coast Fed'n of Fishermen's Ass'n v. U.S. Bureau of Reclamation, 138 F. Supp. 2d 1228 (N.D. Cal. 2001); Defenders of Wildlife v. Babbitt, 130 F. Supp. 2d 121 (D.D.C. 2001); Greenpeace v. Nat'l Marine Fisheries Serv., 80 F. Supp. 2d 1137 (W.D. Wash. 2000); Defenders of Wildlife v. Ballard, 73 F. Supp. 2d 1094 (D. Ariz. 1999); Bensman v. U.S. Forest Serv., 984 F. Supp. 1242 (W.D. Mo. 1997); Ctr. for Marine Conservation v. Brown, 917 F. Supp. 1128 (S.D. Tex. 1996); Silver v. Babbitt, 924 F. Supp. 976 (D. Ariz. 1995); Idaho Dep't of Fish & Game v. Nat'l Marine Fisheries Serv., 850 F. Supp. 886 (D. Or. 1994); Fla. Key Deer v. Stickney, 864 F. Supp. 1222 (S.D. Fla. 1994); Lone Rock Timber Co. v. U.S. Dep't of Interior, 842 F. Supp. 433 (D. Or. 1994); Pac. Rivers Council v. Robertson, 854 F. Supp. 713 (D. Or. 1993), *rev'd in part*, 30 F.3d 1050 (9th Cir. 1994); Vill. of False Pass v. Watt, 565 F. Supp. 1123 (D. Alaska 1983).

111. Professor Harte reported in 2001 that about 1% of the list has gone extinct, about one-third continued to decline, about one-third remained stable, about one-tenth was improving or had "recovered" (or at least has been delisted), and about one-quarter had no reliable trend-related information. *See* Harte, *supra* note 44, at 944.

112. The "recovery plan" concept comes from ESA section 4(f), which requires that a plan be drawn up for each species listed, unless the Service specifically finds that it "will not promote the conservation of the species." 16 U.S.C. § 1533(f)(1). Plans are supposed to be written with reference to "site-specific management actions as may be necessary to achieve . . . conservation and survival of the species," *id.* § 1533(f)(1)(B)(i), "objective, measurable criteria which, when met, would result in a determination . . . that the species be removed from the list," *id.* § 1533(f)(1)(B)(ii), and "estimates of the time required and the cost to carry out those measures needed." *Id.* § 1533(f)(1)(B)(iii). In other words, recovery plans (when written) often entail the attainment of specific regulatory objectives that are, all things considered, astounding. *See* Holly Doremus, *Delisting Endangered Species: An Aspirational Goal, Not a Realistic Expectation*, 30 ENVTL. L. REP. 10434 (2000); Cheever, *supra* note 7, at 73-75.

113. Many species languish on the federal list as threats to their survival mount. Most efforts to force the creation of a recovery plan through litigation have failed. *See, e.g.*, Strickland v. Morton, 519 F.2d 467 (9th Cir. 1975); Strahan v. Linnon, 967 F. Supp. 581 (D. Mass. 1997); Or. Natural Res. Council v. Turner, 863 F. Supp. 1277 (D. Or. 1994).

Some conservation activists have scored victories in court by attacking the rationality of the recovery plans FWS *has* created. *Cf.* Defenders of Wildlife v. Babbitt, 130 F. Supp. 2d 121, 133 (D.D.C. 2001) (invalidating the recovery plan for the Sonoran pronghorn for having failed to identify objective and measurable criteria and for failing to address threats to the species survival). By and large, the courts

graphic range within which recovery and restoration are to be gauged (and ultimately found).[114] Finally, for all the time a recovery plan is in effect, it is—at least outside the confines of the Departments of Interior and Commerce—virtually unenforceable.[115] Indeed, and perhaps most discouragingly, it seems that the dynamics of recovery planning have become a function of presidential politics, i.e., sending the right messages to the national electorate regarding the "success" stories of ESA, rather than real wildlife/habitat conservation strategizing.[116]

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have been exceptionally deferential to FWS on the subject of recovery planning.

114. The statute adverts to this set of discretionary judgments by framing the concept of extinction in terms of extirpation from "all or a significant portion of its range," § 1532(6), and this has meant that FWS must first establish the baseline area to which it will direct its efforts in recovering the species. *See id.* As evidenced by the discussion in Part I, the question whether any particular population is genetically linked to a wider metapopulation will turn on a technical judgment about inter-breeding; evolutionary past, present, and future; and other, related factors. Thus, the government's concept of "subspecies" has engendered a great deal of public and scientific controversy, *see* COMM'N ON SCIENTIFIC ISSUES IN THE ENDANGERED SPECIES ACT, NAT'L RESEARCH COUNCIL, SCIENCE AND THE ENDANGERED SPECIES ACT 83 (1995); Holly Doremus, *Listing Decisions Under the Endangered Species Act: Why Better Science Isn't Always Better Policy*, 75 WASH. U. L.Q. 1029, 1087-1128 (1997), while its methodology has wavered (perhaps as a reflection of its change in political leadership but also perhaps as a reflection of its changing scientific precepts). *See* Sw. Ctr. for Biological Diversity v. Babbitt, 926 F. Supp. 920, 923-28 (D. Ariz. 1996). Some courts have intervened to call particular decisions as to particular populations arbitrary and capricious. *See, e.g.*, Alsea Valley Alliance v. Evans, 161 F. Supp. 2d 1154 (D. Or. 2001); Defenders of Wildlife v. Norton, 258 F.3d 1136 (9th Cir. 2001); *Sw. Ctr. for Biological Diversity*, 926 F. Supp. at 927-28. But, as most recently evidenced in FWS's proposal to de-list the "Eastern Distinct Population Segment" of the gray wolf, *see* Endangered and Threatened Wildlife and Plants, 69 Fed. Reg. 43,664 (proposed July 21, 2004) (to be codified at 50 C.F.R. pt. 17) (de-listing as "recovered" gray wolves in Minnesota, Michigan, Wisconsin, and the northeast), the government remains convinced that it holds the discretion to treat distinct populations individually and to define their baseline "range" for purposes of recovery, irrespective of the "historical range." *Id.* at 43,690; *see also* Endangered and Threatened Wildlife and Plants, 68 Fed. Reg. 15,804, 15,806-19 (Apr. 1, 2003) (to be codified at 50 C.F.R. pt. 17) (de-listing gray wolves across their range in the 48 conterminous states and Mexico and describing the discrete regulatory schemes for the "[d]istinct [p]opulation [s]egments" therein).

115. Fund for Animals, Inc. v. Rice, 85 F.3d 535, 547 (11th Cir. 1996) (involving a suit to halt construction of a landfill in a wetlands area, contrary to the recovery plan for the Florida panther, where the court held that the plan was "for guidance purposes only."). The plans are a kind of administrative rule usually regarded as lacking the force of law. *See* Nat'l Wildlife Fed'n v. Nat'l Park Serv., 669 F. Supp. 384, 390 (D. Wyo. 1987). The one domain in which they possess something like the force of law is within the agency promulgating them. *See, e.g.*, Biodiversity Legal Found. v. Babbitt, 285 F. Supp. 2d 1, 13-16 (D.D.C. 2003). This, of course, leads to the "anomalous result" that FWS "shall develop and implement" a recovery plan, § 1533(f)(1), but that the content of such plans is discretionary with FWS. *See* BEAN & ROWLAND, *supra* note 4, at 211.

Even the decisionmakers who are bound by the recovery plan tend to be flexible. The Gray Wolf situation represents the latest installment of the political dimension of recovery planning. To deem the Gray Wolf adequately recovered within the meaning of the Act, the Service completely wrote off the northeastern United States as Gray Wolf habitat. *See* Endangered and Threatened Wildlife and Plants, 69 Fed. Reg. 43,664, 43,672 (July 21, 2004) (to be codified at 50 C.F.R. pt. 17). The Service explicitly noted:

> While the northeastern United States may contain a large area of historical range not currently occupied by breeding wolves, recovery of the [Eastern Distinct Population Segment of the Gray Wolf] is not contingent on a secure population of wolves being established in this area. It is appropriate to delist . . . even if a substantial amount of the historical range remains unoccupied if the population in its current range is recovered.

Id. Nationally, it seems to be a symbolic political gesture calculated according to presidential-electoral politics. *Cf.* Cheever, *supra* note 7, at 48-53.

116. *See* Cheever, *supra* note 7; Bean, *supra* note 91, at 26 ("In theory, the Fish and Wildlife Service could regularly revise its [critical habitat] designations to take into account new information. In practice,

3. The Structural Flaws in the Barricade

Much of what binds ESA into its "juridified" patterns of gridlock is its commitments to rationality per se and the bureaucratized structure of our federal agencies.[117] The fact that FWS actions must take the national stage and come only in the form of fully rational, finalized "findings," "rulemakings," and the like transforms FWS's ESA work into a series of proceedings the *dignity* of which impedes real improvisation and learning-by-doing.[118] Each proceeding has its own "parties," procedural rules and rights, burdens of proof, a "record," and appeals.[119]

This makes a certain amount of sense. Something as important to a listed species and as potentially harmful to a local commodity economy as, for example, the designation of "critical habitat,"[120] ought to be decided on

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however, it never has and likely never will.").

117. For a general synthesis of several critiques across multiple dimensions of the post-New Deal federal government describing these congenital defects see Michael C. Dorf & Charles F. Sabel, *A Constitution of Democratic Experimentalism*, 98 COLUM. L. REV. 267 (1998). More narrowly focused critiques arriving at this conclusion include Bradley C. Karkkainen, *Information as Environmental Regulation: TRI and Performance Benchmarking, Precursor to a New Paradigm?*, 89 GEO. L.J. 257 (2001); Debra Livingston, *Police Discretion and the Quality of Life in Public Places: Courts, Communities, and the New Policing*, 97 COLUM. L. REV. 551 (1997); Susan Sturm, *Second Generation Employment Discrimination: A Structural Approach*, 101 COLUM. L. REV. 458 (2001); DEWITT JOHN, CIVIC ENVIRONMENTALISM: ALTERNATIVES TO REGULATION IN STATES AND COMMUNITIES (1994); *see also* WILLIAM H. SIMON, LAW, BUSINESS, AND THE NEW SOCIAL POLICY: THE COMMUNITY ECONOMIC DEVELOPMENT MOVEMENT (2001). As I have argued elsewhere, the shift toward bureaucratized public agencies has been a small piece of a larger, longer trend toward a general rational specialization of regulation—a trend with very deep roots in modern history. *See* Jamison E. Colburn, *"Democratic Experimentalism": A Separation of Powers for Our Time?*, 36 SUFFOLK U. L. REV. 287, 294-328 (2004). By bureaucracy, I mean only to describe those attributes of a governmental institution assigned by organizational sociology and modern political thought, not the term's denigrating connotation in popular culture. *See generally* DAVID BEETHAM, BUREAUCRACY (2d ed. 1996); HERBERT A. SIMON, ADMINISTRATIVE BEHAVIOR: A STUDY OF DECISION-MAKING PROCESSES IN ADMINISTRATIVE ORGANIZATION 23-28 (4th ed. 1997); DAVID HELD, MODELS OF DEMOCRACY 161-68 (2d ed. 1996). This definitional approach is traceable to Weber and its elements consist most commonly in (1) impersonality, (2) rationality, (3) hierarchy of offices, and (4) rule-orientedness. *See* MAX WEBER, 1 ECONOMY AND SOCIETY: AN OUTLINE OF INTERPRETIVE SOCIOLOGY 31-56, 217-88 (Guenther Roth & Claus Wittich eds., 1978). But to clarify the claim being made here, a distinction must be drawn between bureaucracy and government bureaucracy unfit for the pursuit of a particular societal end. As Mark Imperial argued, governmental objectives like "ecosystem management," immense in their scope and informational needs, dynamic in their setting of mid-level objectives, and widely dispersed in their implementation, can be a better or worse fit to the bureaucratic model. *See* Imperial, *supra* note 1, at 458-61. Thus, for example, FWS and EPA, two bureaucracies incapable of delivering the kind of technical analysis expected by the public from governance structures, declared defeat recently in their joint consultation regulations governing the registration and re-registration of pesticides. *See infra* note 134 and accompanying text.

118. *See* Dorf & Sabel, *supra* note 117, at 371-73 (describing the successes of a regulatory program that divided its component tasks into manageable pieces and reassembled them over time as, out of the public view, the teams learned in the field).

119. In this connection, biodiversity conservation is coming to resemble pollution control in the administrative state. *See* SIDNEY A. SHAPIRO & ROBERT L. GLICKSMAN, RISK REGULATION AT RISK: RESTORING A PRAGMATIC APPROACH (2003).

120. Both sides accuse the other of rigging their analyses in disputes over the economic effects of critical habitat designations. In *New Mexico Cattle Growers Ass'n v. U.S. Fish and Wildlife Service*, 248 F.3d 1277, 1283-84 (10th Cir. 2001), the court invalidated FWS's methodology for conducting the economic analysis in critical habitat designations pursuant to ESA section 4(b)(2); § 1533(b)(2), on the grounds that the assumptions within the FWS model were over-simplifying the matter. *See also* Sierra

the "best scientific and commercial data available."[121] The decision ought to be made under genuine standards of proof.[122] Yet the applicable principles

Club v. U.S. Fish & Wildlife Serv., 245 F.3d 434, 441-43 (5th Cir. 2001). Even with respect to critical habitat designations (where the statute requires a certain cost-benefit analysis), it is far from clear that there really is a kind of comprehensively rational approach (at least one that FWS could routinely carry out) to something as value-laden, unquantifiable, and self-referential as the human designation of a listed species' "necessary" habitat. *See* Amy Sinden, *The Economics of Endangered Species: Why Less is More in the Economic Analysis of Critical Habitat Designations*, 28 HARV. ENTL. L. REV. 129, 197-210 (2004).

121. § 1533(b)(2). In actual ESA practice, even this standard has become contentious and the occasional subject of litigant manipulation. Critics of FWS routinely go to court challenging decisions for not having been based on the best information available. In the famous Spotted Owl litigation, FWS was petitioned to list the Northern Spotted Owl given the continued logging of old growth forests in the Pacific Northwest. FWS had initiated a "status review" for an assessment. *See* N. Spotted Owl v. Hodel, 716 F. Supp. 479, 481 (W.D. Wash. 1988). The biologist in charge of the status review, Dr. Mark Shaffer, concluded that "the most reasonable interpretation of current data and knowledge indicate . . . extinction of the subspecies in the foreseeable future." *Id.* at 481. FWS took the further, somewhat extraordinary step of inviting peer review of Shaffer's population viability analyses. *Id.* Each reviewer supported Shaffer's ultimate prognosis, yet the agency refused to list the species. *Id.* The FWS notice denying the petition stated that "the need for population trend information and other biological data, priority given by [FWS] to this species for further research and monitoring will continue to be high," but that listing in the absence of further, more complete information was not "warranted." Endangered and Threatened Wildlife and Plants, 52 Fed. Reg. 48,552, 48,554 (Dec. 23, 1987) (codified at 50 C.F.R. pt. 17). In the absence of the listing, the logging imperiling the species' habitat would presumably continue unabated. The owl was eventually listed as "threatened" in 1990, becoming the subject of ESA section 7(g) Committee Exemption proceedings in 1991, *see* Portland Audubon Soc'y v. Endangered Species Comm'n, 984 F.2d 1534, 1536 (9th Cir. 1993), becoming an object of national notoriety in the presidential election of 1992, and ultimately provoking an ecosystem-wide plan for managing the Pacific Northwest forests as a series of patches of "old-growth" forest. *See* BEAN & ROWLAND, *supra* note 4, at 356-65.

At least one ESA scholar has argued that better scientific data will not resolve most of these controversies because the margins of scientific uncertainty are persistent, rendering any policymaking choice, like the designation of critical habitat, a question of values more than of data. *See* Doremus, *supra* note 114, at 1036. Doremus argues:

> If they are genuinely interested in improving conservation policy, rather than disingenuously trying to undermine it, critics of the ESA's scientific underpinnings should focus on the process by which decisions are made and communicated to the public. The strictly science directive has encouraged the agencies to apply the closed, technocratic decisionmaking process typical in the scientific community. That process is inappropriate in the endangered species context because the relevant scientific questions are both intractable and closely intertwined with controversial value choices.

Id.; *See infra* notes 131-45 and accompanying text.

122. In a major study of ESA section 4's "'strictly science' mandate," Professor Doremus reached sobering conclusions about the Act's effectiveness in dealing with conservation biology's "biggest question." *See* Doremus, *supra* note 114, at 1051; *see also supra* notes 40-58 and accompanying text. She broke the question into two main parts, the "taxonomy problem" and the "viability problem." Doremus, *supra* note 114, at 1087-95. The science of taxonomy "is the discipline of identifying and classifying kinds of organisms," *id.* at 1088, and it "offers opponents of Federal public works projects a virtually limitless arsenal of weapons with which to do battle." *Id.* According to Doremus, the statute's concept of "species" is "singularly uninformative" because "[m]ost scientific species classification schemes . . . rely on morphological and reproductive distinctions," *id.* at 1089-90, and on "reproductive isolation." *Id.* (citing EDWARD O. WILSON, THE DIVERSITY OF LIFE (1992)). Notwithstanding the ESA's inclusion of the concept of "distinct population segment" in the definition, *id.* at 1101, and also its mention of "subspecies" (a classification "entirely unconstrained by empirical data"), *id.*, the real constraints on the term must be taken from "the purposes for which those definitions are developed," *id.*, that is, the ultimate ends served by preserving distinct populations. *Id.* at 1134 ("The identification of groups eligible for protection is simply not a scientific exercise. No universal basis exists for evaluating the extent to which any group of organisms embodies the full range of values the ESA protects."). The viability problem is equally a question of value priorities, *see id.* at 1112-27, as discussed above. *See supra* notes 55-58 and accompanying text.

of administrative law distort these simple obligations, allowing run-of-the-mill technical disputes to reverberate into a deafening din of controversy, sometimes over the smallest increments of legal change.[123] Like so many other federal environmental laws,[124] the ESA's decision points have become the subject of interminable substantive and procedural conflict in the administrative process as stakeholders strive to create and then utilize any leverage possible.[125] Fatigue is often palpable in the judicial opinions.

Indeed, fatigue may constitute the central human reality of ESA practice. The high stakes of virtually *all* ESA decisions drive participants to consistently extreme, strategic positions. No disputant has a real incentive to trust and cooperate with their opponent or experiment with alternative courses of action as they are innovated. The stakes—the risks of error or betrayal—are simply too high.[126] Sadly, given the enormity of the extinction

123. *See generally* THOMAS O. MCGARITY ET AL., SOPHISTICATED SABOTAGE: THE INTELLECTUAL GAMES USED TO SUBVERT RESPONSIBLE REGULATION (2004). On the specific critique of ESA practice as a victim of, among other things, various doctrines of modern administrative law, see THOMAS, *supra* note 36; J.B. Ruhl, *Prescribing the Right Dose of Peer Review for the Endangered Species Act*, 83 NEB. L. REV. 398 (2004); Doremus, *supra* note 114; Michael J. Brennan et al., *Square Pegs and Round Holes: Application of the "Best Scientific Data Available" Standard in the Endangered Species Act*, 16 TUL. ENVTL. L.J. 387 (2003); CZECH & KRAUSMAN, *supra* note 87, at 117-27; J.B. Ruhl & James Salzman, *Mozart and the Red Queen: The Problem of Regulatory Accretion in the Administrative State*, 91 GEO. L.J. 757 (2003).

124. *See* Sinden, *supra* note 120, at 197-210. EPA and its various programs featured prominently in a widely-read organizational critique a generation ago. *See* EUGENE BARDACH & ROBERT A. KAGAN, GOING BY THE BOOK: THE PROBLEM OF REGULATORY UNREASONABLENESS (1982). More recently, the "[p]aralysis by [a]nalysis" critique of pollution control has been levied upon Clean Air Act section 112 (on air toxics), *see* John P. Dwyer, *The Pathology of Symbolic Legislation*, 17 ECOLOGY L.Q. 233, 258 (1990), the subtitle C hazardous waste program under the Resource Conservation and Recovery Act, *see* Jeffrey M. Gaba, *The Mixture and Derived-from Rules Under RCRA: Once a Hazardous Waste Always a Hazardous Waste?*, 21 ENVTL. L. REP. 10,033, 10,042 (1991), the Clean Water Act section 301(b) (national effluent limitations), *see* Robert W. Adler, *Integrated Approaches to Water Pollution: Lessons from the Clean Air Act*, 23 HARV. ENVTL. L. REV. 203, 291-93 (1999), and more generally, the pollution risk regulation system as a whole. *See* SHAPIRO & GLICKSMAN, *supra* note 119, 92-146; J. CLARENCE DAVIES & JAN MAZUREK, POLLUTION CONTROL IN THE UNITED STATES: EVALUATING THE SYSTEM 15-24, 231-63 (1998). *See generally* Jamison E. Colburn, *The Future of Air Pollution Control in the Corporatist State*, 34 ENVTL. L. REP. 10,577 (2004).

125. APA allows challenge of "final agency action," 5 U.S.C. § 704 (2000), which zones out certain FWS and ESA decisions. Still, most of the time, in addition to the "substantive" criteria within ESA itself, FWS is subject to challenge under the objection that its decisions are "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." *Id.* § 706(2)(A). The arbitrary and capricious inquiry, typically regarded among administrative lawyers as particularly attuned to the interpretations of law within an administrative action, asks whether the agency

> relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.

Motor Vehicle Mfr. Ass'n of the United States, Inc. v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 43 (1983). The degree of "litigation risk" this further judicial inquiry adds to any particular administrative agency action or course of actions is the subject of vast bodies of commentary explicating its effects within agency culture. *See, e.g.*, MCGARITY ET AL., *supra* note 123; JERRY MASHAW & DAVID HARFST, THE STRUGGLE FOR AUTO SAFETY (1990); BRUCE A. ACKERMAN & WILLIAM T. HASSLER, CLEAN COAL/DIRTY AIR (1983).

126. Professor Doremus has written about this general tendency to focus on "special places and things" and their risks. *See* Holly Doremus, *Biodiversity and the Challenge of Saving the Ordinary*, 38 IDAHO L. REV. 325, 325-26 (2002). For a focused treatment of the role stakes play in decisions to reveal or hide "private information" throughout processes of debate and dispute resolution see James D.

pandemic, we are probably a short step from moving from this condition of stakeholder gridlock to a more general erosion of public confidence in the Act.[127]

Chronic under-funding has kept FWS in a perpetual state of triage. It cannot list species fast enough and it cannot adequately manage the species it has listed. That has prevented it from doing the landscape-scale research work that might lead to real advances to thereby justify a centralized institutional response.[128] The agency necessarily has little left over to make systemic progress in its mission, such as creating breakthroughs in the larger public or scientific dialogues,[129] because it is too busy minding all the emergencies.[130]

All of this stems from the core mandate of the statute which is, paradoxically, the very thing that so consistently garners national public support, it pertains solely to species already facing oblivion and habitat that is, by definition, essential to survival.

C. Bureaucratic Adaptivity

Like any bureaucratic institution, FWS has adapted to cope with its situation.[131] Three of these adaptations are especially relevant here. First,

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Fearon, *Deliberation as Discussion*, *in* DELIBERATIVE DEMOCRACY (Jon Elster ed., 1998); *see also* TIMUR KURAN, PRIVATE TRUTHS, PUBLIC LIES: THE SOCIAL CONSEQUENCES OF PREFERENCE FALSIFICATION (1995). A more general treatment of its role in democratic governance can be found in the work of Jane Mansbridge. *See* JANE J. MANSBRIDGE, BEYOND ADVERSARY DEMOCRACY (2d ed. 1983).

127. Lee diagnosed *perpetual* conflict as endemic to the use and governance of ecosystems, but he went further to warn that "[c]onflicts in ecosystems can easily bog down. There are typically many parties, not the two opposing sides for which courts, our normal means of processing conflict, are designed." LEE, *supra* note 18, at 87. Conflict can be used productively—when truly deliberative processes are convened—as the preeminent mode of social learning. Social learning is the principal means of resolving conflict by "provid[ing] ways to recognize errors, complementing and reinforcing the self-conscious learning of adaptive management." *Id.* But all of this holds only if truly deliberative modes of conflict resolution are institutionalized. *Id.* at 88-114. It is my conclusion that nothing of the sort has been instituted by FWS.

128. BEAN & ROWLAND, *supra* note 4, at 276; CZECH & KRAUSMAN, *supra* note 87; Houck, *supra* note 106, at 301-15; Sinden, *supra* note 120, at 157-59. The agency even runs out of resources for smaller functions as well. For example, FWS now routinely ends the critical habitat designation process mid-way through a fiscal year out of lack of funds. *See, e.g.*, Jennifer 8. Lee, *Money Gone, U.S. Suspends Designations of Habitats*, N.Y. TIMES, May 29, 2003, at A18.

129. On the work FWS might be doing in basic research to better understand landscape-scale habitat degradation, see Gordon Orians & Michael E. Soulé, *Introduction*, *in* RESEARCH PRIORITIES, *supra* note 21, at 1-3.

130. CZECH & KRAUSMAN, *supra* note 87, at 47-57; Robert F. Durant et al., *Conclusion*, *in* ENVIRONMENTAL GOVERNANCE RECONSIDERED, *supra* note 41, at 484, 502-06; THOMAS, *supra* note 36, at 5.

131. The "bounded rationality" of a bureaucracy easily results in suboptimal pursuit of stated ends in light of available means. *See* SIMON, *supra* note 117, at 92-117 (describing the "bounded rationality" of organizations that must solve too many problems at once); *see generally* CHARLES PERROW, COMPLEX ORGANIZATIONS: A CRITICAL ESSAY (3d ed. 1986) (critiquing bureaucratic organizational forms as insufficiently adaptive and overly concerned with institutional rather than public imperatives). But even granting this now commonplace observation, it is possible to diagnose, with much greater particularity, the various dimensions in which an organization (public or private) imprisons itself through its own routines, hierarchies, and preset expectations. *See generally* BERNARD S. SILBERMAN, CAGES OF

FWS has created so-called priority ranking guidelines in order to stage the listing decisions that have piled up.[132] Second, it now avoids "formal consultations" wherever it can by preferring "informal" consultations[133] or by issuing "counterpart regulations" exempting whole categories of federal agency decisions.[134] At each turn in the road, though, such adaptations have

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REASON: THE RISE OF THE RATIONAL STATE IN FRANCE, JAPAN, THE UNITED STATES, AND GREAT BRITAIN (1993); RICHARD R. NELSON & SIDNEY G. WINTER, AN EVOLUTIONARY THEORY OF ECONOMIC CHANGE (1982); *see infra* notes 261-76, 308-12 and accompanying text.

132. The FWS guidelines and the ranking system they create were authorized by Congress in 1979, *see* An Act of 1979 to authorize appropriations to carry out the Endangered Species Act of 1973 during fiscal years 1980, 1981, and 1982, and for other purposes, Pub. L. No. 96-159, 93 Stat. 1225 (codified as amended in scattered sections of 16 U.S.C.), but they have been the subject of numerous court cases as to their underlying legitimacy. *See, e.g.*, Biodiversity Legal Found. v. Babbitt, 146 F.3d 1249 (10th Cir. 1998); Biodiversity Legal Found. v. Babbitt, 63 F. Supp. 2d 31 (D.D.C. 1999); Friends of the Wild Swan, Inc. v. U.S. Fish & Wildlife Serv., 945 F. Supp. 1388 (D. Or. 1996). Critics have maintained that the "warranted but precluded" status the guidelines assign to species waiting to be listed has "transferred what was intended to be a small waiting room for . . . candidates into a limbo encompassing more species than all those listed" in the first quarter century of ESA practice. Houck, *supra* note 106, at 296. The 2003 Candidate Notice of Review (CNOR), 69 Fed. Reg. 24,876 (May 4, 2004) (codified at 50 C.F.R. pt. 17), included 279 species that FWS and its partner agencies "regard as candidates for addition to the Lists of Endangered and Threatened Wildlife and Plants," as well as twenty-four others for which FWS has already published proposed rules to list as threatened or endangered. *Id.* at 24,876.

133. FWS encourages action agencies to engage in "informal" consultations whenever possible under the controlling standard of ESA section 7. Under the consultation regulations, "[i]nformal consultation is an optional process that includes all discussions, correspondence, etc., between the Service and the Federal agency or the designated non-Federal representative, designed to assist the Federal agency in determining whether formal consultation or a conference is required." 50 C.F.R. § 402.13(a) (2004). The Services have worked according to an internal manual guiding the processes of ESA section 7 consultations. *See* U.S. FISH AND WILDLIFE SERV. & NAT'L MARINE FISHERIES SERV., CONSULTATION HANDBOOK: PROCEDURES FOR CONDUCTING CONSULTATION AND CONFERENCE ACTIVITIES UNDER SECTION 7 OF THE ENDANGERED SPECIES ACT (1998) [hereinafter CONSULTATION HANDBOOK], *available at* http://endangered.fws.gov/consultations/s7hndbk/s7hndbk.htm. According to the CONSULTATION HANDBOOK, "[m]ost consultations are conducted informally." *Id.* at 3-1. This means that "[d]ialogue can continue as long as both parties are willing to participate and are actively working to complete the informal consultation." *Id.* The CONSULTATION HANDBOOK encourages staff to maintain "[d]ocumentation of the steps in the informal consultation process" in the form of an "administrative file." *Id.* at 3-2. This process is far less structured than the one set out in 50 C.F.R. part 402 and ESA section 7 and for that reason is much less susceptible to litigation after the fact.

134. Most recently—and most indicative of how incapable FWS seems to be of delivering the sort of broad-scale rationality Congress expected of it in legislating the consultation duty—FWS and NMFS issued joint "counterpart regulations" pertaining to the registration of pesticide products by EPA pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 7 U.S.C. § 136a(a) (2000). *See* 69 Fed. Reg. 47,732 (Aug. 5, 2004) (codified at 50 C.F.R. pt. 402). "The consultation procedures set forth in [Part 402] may be superseded for a particular Federal agency by joint counterpart regulations among that agency . . . [and the services]." § 402.04. Under FIFRA, EPA must license or "register" every pesticide used in the United States and, in so doing, must find that the pesticide will not cause "unreasonable adverse effects on the environment." § 136a(a). This EPA responsibility under FIFRA—a statute that requires the registrant to supply the necessary data—has produced what the Services called an expertise "in the field of ecological risk assessment relative to pesticides." *See* Joint Counterpart Endangered Species Act section 7 Consultation Regulations, 69 Fed. Reg. 47,732, 47,735 (Aug. 5, 2004) (codified at 50 C.F.R. pt. 402) ("EPA makes decisions to allow new or continued use of a pesticide only after carefully examining extensive data on the potential risks . . . [of the pesticide]."). This led the Services to exempt FIFRA registrations from consultation under ESA section 7, having "determined that the approach used by EPA will produce effects determinations that reliably assess the effects of pesticides on listed species and critical habitat pursuant to section 7." *Id.* Interestingly, the Services argued that the wholesale exemption of FIFRA registrations was justified because of the "broad scope of [the] intended use" of many pesticides—which "contrasts with the narrower geographical scope of most actions by Federal agencies that undergo section 7 consultation"—and the fact that "[t]he number of requests by EPA to initiate consultation on pesticide actions is expected to increase substantially in

been used to cope with litigation, budget politics, and public polarization—not scientific uncertainty or the setting of moral and political priorities.[135] This is all most obvious in the third, and the only major institutional, adaptation within ESA practice in the last decade. The Habitat Conservation Plan (HCP) has garnered much academic attention from habitat conservationists and property rights advocates alike.[136] HCPs are created in exchange for permits to engage in otherwise prohibited activities (potentially reducing the species' survival prospects), leading many to reject and others to applaud them on principle.[137]

An HCP is granted from FWS in exchange for specific concessions from the permittee which are negotiated on a case-by-case basis.[138] Some of

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future years." *Id.* at 47,736. In other words, the complexity and volume of the decisions were simply too great for FWS and EPA to manage jointly pursuant to the more specific, statutory standard of ESA section 7.

135. The newest iteration of this pattern is the debate over mandating that FWS's ESA decisions, or at least the scientific components thereof, be subject to peer review prior to finalization. *See* Ruhl, *supra* note 123. Critics have long maintained that conservation biology and, to whatever extent FWS (or NMFS) agents employ it, the government relies on "unsound science" in listing species under the Act according to risk-averse calculations. *See* Lars Noah, *"Scientific Republicanism": Expert Peer Review and the Quest for Regulatory Deliberation*, 49 EMORY L.J. 1033 (2000). True or not, though, it is far from clear that there is much to be improved in governmental decisionmaking by mandating peer review. *See id.* at 1046 ("[P]olicymakers often seem to conflate peer review with science itself, which in turn may lead them to exaggerate the possible utility of independent expert scrutiny of decisions based on science."). Ruhl concludes that it would be easy to oversell the potentially corrective effects of peer review given how inconclusive most scientific work is and how limited in scope most peer review procedures tend to be. Ruhl, *supra* note 123, at 420-28.

136. Added to the statute in the 1982 amendments, ESA section 10(a) allows FWS to grant an "incidental take" permit in exchange for the HCP, as long as the prohibited "taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity," 16 U.S.C. § 1539(a)(1)(B) (2000), and as long as HCP specifies the impacts of the subject activities, the "steps the applicant will take to minimize and mitigate," *id.* § 1539(a)(2)(A)(ii), such impacts, the alternatives considered and why they are "not being utilized," *id.* § 1539(a)(2)(A)(iii), and other "measures" FWS finds "necessary or appropriate for purposes of the plan." *Id.* § 1539(a)(2)(A)(iv). HCPs took off during the Clinton Administration, although they have remained relatively routine to the present. Several critiques of HCPs both on democratic-participatory and scientific grounds have been mounted. *See* Bradley C. Karkkainen, *Toward Ecologically Sustainable Democracy?*, *in* DEEPENING DEMOCRACY 208, 213 (Archon Fung & Erik Olin Wright eds., 2003); *see, e.g.*, Craig W. Thomas, *Habitat Conservation Planning*, *in* DEEPENING DEMOCRACY, *supra*, at 144, 161-67; STEVEN L. YAFEE ET AL., BALANCING PUBLIC TRUST AND PRIVATE INTEREST: PUBLIC PARTICIPATION IN HABITAT CONSERVATION PLANNING (1998).

It might be helpful to distinguish between two types of HCPs: those that are geographically broad in applicability and cover multiple species versus those that are single-species focused, narrow in geographic scope, or both. *See* Albert C. Lin, *Participants' Experiences with Habitat Conservation Plans and Suggestions for Streamlining the Process*, 23 ECOLOGY L.Q. 369, 389-92 (1996). Conservation advocates will generally favor the former over the latter given their greater scope vis-à-vis the necessary areas and ecological relationships and the greater access provided in their negotiation. *See* Karkkainen, *supra*, at 213. Moreover, the latter may be criticized as a "model of bilateral backroom dealing between landowners and FWS field agents," *id.* at 215, while the former are, in theory, "more visible, transparent (at least in the localities in which they are negotiated), open to participation by non-landowner parties, and less tilted in favor of landowner interests." *Id.*

137. *See, e.g.*, J.B. Ruhl, *How to Kill Endangered Species, Legally: The Nuts and Bolts of Endangered Species Act "HCP" Permits for Real Estate Development*, 5 ENVTL. LAW. 345, 345 (1999).

138. Karkkainen, *supra* note 136, at 208-12; Lin, *supra* note 136, at 411-15. Yet it is far from clear that even the larger, multi-species HCPs involving public processes have been the result of real public deliberation or that they are actually preserving wildlife habitat. *See* Thomas, *supra* note 136, at 161-69. One of the large-area, multi-species HCPs—the Balcones-Canyonlands Conservation Plan (BCCP) comprising a system of some 30,000+ acres in and around Travis County, Texas (the Austin Metro

these negotiations, if the permitted action is large enough, involve the public to varying degrees.[139] Still, detailed, technical subjects where information is controlled either by private parties or by a bureaucracy tend to discourage real transparency and public debate.[140] In fact, the negotiations over HCPs have been "public," deliberative processes only insofar as the actual involvement of local people takes place early enough, often enough, and with respect to questions for which their deliberations might have meaningful impact.[141] That has been true of very few negotiations.[142] HCPs mostly

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area)—had been billed a provisional success at one point, mostly for its comprehensive size, and ambitious goals of public land acquisition. *See* TIMOTHY BEATLEY, HABITAT CONSERVATION PLANNING: ENDANGERED SPECIES AND URBAN GROWTH 185-93 (1994). Even its champions conceded several deep flaws. *See* NOSS ET AL., *supra* note 25, at 59, 71-72 (noting that the plan lacked criteria for monitoring the viability of target species and other ecological phenomena, while providing no flexibility to cope with environmental stochasticity or catastrophe); Thomas, *supra* note 136, at 159-60 (arguing that because BCCP did not incorporate public participation early enough, trust among the stakeholders was diminished to a point where individual land owners sought their own, small, single-species HCPs and local politics surrounding BCCP became balkanized).

139. In the BCCP case, late involvement of the public—essentially to ratify the completed plan as a whole—generated a substantial backlash within the community which ultimately took many years to diffuse. *Compare* Lin, *supra* note 136, at 401 (describing the unorthodox coalition of opponents which emerged in the greater San Antonio community notwithstanding consensus decisionmaking procedures within the steering committee that wrote the plan), *with* Thomas, *supra* note 136, at 159 (observing that BCCP shows more generally how "[r]elying on notice-and-comment periods merely allows a relatively narrow range of participants to promulgate their decisions to the larger public").

140. Archon Fung and Erik Wright diagram the breakdowns of public deliberation in settings like the creation of a multi-species, wide-area HCP both in terms of power imbalances (as between the public and better organized, concentrated stakeholders) and in terms of information asymmetries. *See* Archon Fung & Erik Olin Wright, *Thinking About Empowered Participatory Governance*, *in* DEEPENING DEMOCRACY, *supra* note 136, at 3, 15-40. Even the conventional literature links such breakdowns in public deliberation to suboptimal responses to environmental degradation. *See* ROBERT J. BRULLE, AGENCY, DEMOCRACY, AND NATURE: THE U.S. ENVIRONMENTAL MOVEMENT FROM A CRITICAL THEORY PERSPECTIVE 269-82 (2000).

141. "[P]roductive deliberation requires mixing problems that begin with conflicts in opinion and interest with other problems that begin with open questions whose resolution is likely to produce consensus, mutual respect and a productive history." Jane Mansbridge, *Practice—Thought—Practice*, *in* DEEPENING DEMOCRACY, *supra* note 136, at 175, 191; BRULLE, *supra* note 140, at 273 ("Scientific discourse attempts to avoid political discussion in its descriptions of processes of ecological degradation. . . . If scientific language is taken to be the lingua franca of ecological issues, then those citizens who do not have credentials in the appropriate sciences are not legitimate participants in the dialogue."); Westley, *supra* note 1, at 409 (citations omitted) ("[O]nce a problem needing collaboration moves into the public arena, stakeholders tend to become frozen in polarized positions, and any real negotiation becomes difficult."). It remains open to reasonable disagreement whether any such participatory transparency has been achieved or is even achievable in practice.

> Citizens from various stakeholder groups have no formal role in the HCP process except through the public comment period and, for some plans, through the [NEPA] or requirements of state or local law. Often, by the time public meetings occur or official drafts are released for comment, however, both the regulated interests and [FWS] have invested so much money and time in plan development that they are unlikely to change course . . . .

RASBAND ET AL., *supra* note 82, at 409 (ellipsis in original) (quoting DEFENDERS OF WILDLIFE, FRAYED SAFETY NETS 43-44 (1998)).

142. Karkkainen, a consistent proponent of HCPs, conceded that "precious little information is presently available . . . about HCP processes or outcomes." Karkkainen, *supra* note 136, at 218. "The federal government does virtually no central monitoring, oversight, or coordination of the HCP program, and provides no central repository of HCP information." *Id.* This constitutes a "deep limitation in the program's capacity to develop beyond its current stage," *id.* at 219, because without such a communicative infrastructure, there is virtually no likelihood FWS will "monitor, evaluate, learn, and diffuse the lessons derived from the successes and failures of disparate HCP experiments. *Id.*

share a basic similarity with the other types of ESA decisionmaking detailed above. The predominant mode of public involvement is on the sidelines, watching the stakeholders struggle until it is time for the agency to announce-and-defend.[143] While they are the continuing subject of much high profile litigation,[144] truly gauging their effectiveness and democratic virtue is probably impossible absent much more comprehensive record-keeping and monitoring—a task for which FWS has shown little-to-no interest.[145]

If ESA has created maps and lists—of species, critical habitats, consultation "action areas," and HCPs—then public lands law has perfected the elevation of a national aesthetic over local autonomy, while all but ignoring the flaws of preserve-based habitat strategies generally. Part III explains.

III. "WILD" HABITAT ENCLAVES: MORE THAN GREEN LINES ON A MAP?

John Muir and George Marsh were part of an era that transitioned our preservationist impulses from an earlier transcendentalism (Emerson and Thoreau) to the present age's rationalism and scientific method (Darwin, Alfred Wallace, and their successors).[146] Still, it was undoubtedly reverence

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Moreover, the so-called No Surprises Policy (named for the guarantee FWS made to HCP holders that, no matter what practice the HCP revealed, no further dedications of land or greater restrictions on their uses would be required of the permittees) substantially inhibits FWS from incrementally improving HCPs in practice—no matter what was learned after the original negotiations. Indeed (and ironically), there is a colorable claim to be made that HCPs became as popular as they did only after the August 1994 introduction of the No Surprises Policy. *See* Lin, *supra* note 136, at 384-86.

143. The process actually used to grant "incidental take" permits in exchange for HCPs loosely tracks the "notice and comment" model of APA which require a set proposal, a period of "public comment," a formalized record of agency deliberation, and a finalization of the rule or order in the Federal Register. *Cf.* 16 U.S.C. § 1539(a)(2)(B) (2000); 50 C.F.R. § 17.22(e) (2004). Administrative law scholars began to see this as a process of "decide-announce-and-defend" long ago. *Cf.* Eileen Gay Jones, *Risky Assessments: Uncertainties in Science and the Human Dimensions of Environmental Decisionmaking*, 22 WM. & MARY ENVTL. L & POL'Y REV. 1, 14-28 (1997) (discussing closed processes of "public comment" in which agencies reach predetermined conclusions and take comments merely as a way to prepare their defenses).

144. In *National Wildlife Federation v. Norton*, 306 F. Supp. 2d 920 (E.D. Cal. 2004), a nationally noted HCP was challenged as insufficiently protective of the species concerned. The Sacramento Airport expansion at issue was permitted by FWS in exchange for several "mitigation measures," the most important of which was the requirement that "for every acre of land developed, half an acre of habitat be permanently protected and managed to maximize its conservation value." *Id.* at 922. All of this land was to be acquired off-site, and its criteria for acquisition were a sticking point in the negotiations, at least partly because of the disparate needs of the dozen or so species involved. *Id.* at 921-23. While that court paid great deference to FWS's ultimate issuance of the permit, finding that the plan provided for the maximum possible "mitigation" of the takes involved within the meaning of ESA section 10, *id.* at 927-29, it chose to ignore the evidence brought forward suggesting significant misgivings held by several FWS biologists working on the plan. *Id.* at 928 n.15. Other courts have invalidated or remanded HCPs notwithstanding the deference doctrines. *See, e.g.*, Sierra Club v. Babbitt, 15 F. Supp. 2d 1274, 1279-81 (S.D. Ala. 1998); Nat'l Wildlife Fed'n v. Babbitt, 128 F. Supp. 2d 1274, 1291-94 (E.D. Cal. 2000).

145. *See* Thomas, *supra* note 136, at 144, 153-56; *cf.* Westley, *supra* note 1, at 396 (describing how organizations are resistant to incorporate information that does not readily track the "mental maps" or models of reality based on past experience, assumptions, and planning held by decisionmakers within the organization). In his critique of HCPs, Professor Thomas concluded that FWS's approach to "public participation," the typical behind-the-scenes derivation of a final disposition and its presentment to the public, is the best that can be done, a process that "allows a relatively narrow range of participants to promulgate their decisions to the larger public." *Id.* at 159.

146. The place of naturalists like John Muir and George Perkins Marsh in the struggle to "preserve"

of "wild" nature that motivated the creation of the first giant North American preserves—places like Yellowstone and Yosemite National Parks and New York's Adirondack Park—in that era, the last third of the nineteenth century.[147] And while there was more to that nineteenth century political upheaval than the reification of nature,[148] its method was simply to draw a legal line around a huge physical space and proclaim it off-limits to (further) human cultivation or development.[149] As a method it should be quite recognizable to us because it is still, by-and-large, the federal government's method today. However, conservation biology can no longer tolerate this method and this Part explains why.

ESA might be faulted for creating a super storm in which decisions are of vital national importance, while at the same time representing "make or break" situations for the private stakeholders involved.[150] And, importantly, the several wildlife habitat preserve-creating federal laws analyzed below are not limited to species facing oblivion or habitat that is absolutely essential. Nonetheless, each of them suffers from real design defects all their own; defects which have become clear to conservation biologists within the last decade.[151] In this section, the Wilderness Act and the National Wildlife Refuge System serve as exemplars because their shortcomings are representative. In the end, these two federal programs might still be the best in its class, though, depending on several trends currently unfolding at the federal level.[152]

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the wilderness of Yosemite, Yellowstone, and elsewhere is analyzed in NASH, *supra* note 82.

147. Louise Halper traced the intersection of what she called "conservation versus preservation" in that generation of Americans. Louise A. Halper, *The Adirondack Park and the Northern Forest: An Essay on Preservation and Conservation*, 19 VT. L. REV. 335, 336 (1995). In an assiduous account of the political and constitutional process that led to the "blue line" (as it is still known) creation of the Adirondack Park in northern New York State, Halper demonstrates the divergent schools of thought underlying the era, one rooted in an aesthetic, even spiritual drive to preserve the wild, another driven by a technocratic analysis of sustainable, market-profitable forestry practices. *See* Louise A. Halper, *A Rich Man's Paradise: Constitutional Preservation of New York State's Adirondack Forest, a Centenary Consideration*, 19 ECOLOGY L.Q. 193, 193-208 (1992). She has also argued that it is a fissure in American thought, even today. *See* Halper, *The Adirondack Park and the Northern Forest*, *supra*, at 335-38.

148. Halper is not the only scholar to trace the interactions between conservationism and a purer form of preservation tied directly to non-use values (and the philosophy and theology thereof) like those Muir publicized. Nor was that debate confined just to the writing of legislation. Buried deep within the episode known as the Ballinger-Pinchot Affair (resulting in the firing of Forest Service Chief Gifford Pinchot)—most famous for its role in the march toward bureaucratization within the federal government—lay a philosophical dispute between Pinchot and others within the Taft Administration (principally, Ballinger) over how best to value the public lands. *See* DANIEL P. CARPENTER, THE FORGING OF BUREAUCRATIC AUTONOMY: REPUTATIONS, NETWORKS, AND POLICY INNOVATION IN EXECUTIVE AGENCIES, 1862-1928, at 284-89 (2001).

149. Controlling for the differing *degrees* of human disturbance (it is perhaps impossible in the contiguous forty-eight states to find something quite as pristine as Yosemite Valley was in the 1870s), the "method" underwrote most of the 1960s legislation regulating public lands and creating the land management agencies. *See infra* notes 153-227 and accompanying text.

150. *See supra* notes 83-145 and accompanying text.

151. For simplicity's sake I confine my critique in this section to two basic premises of conservation biology—potential connectivity and adaptive management—putting aside the more stringent premises of population viability and reflexivity. *See supra* notes 69-78 and accompanying text.

152. Recent changes both to the way the National Forest System (where a majority of Wilderness Act areas are located) and to the way the National Wildlife Refuge System are governed make these two

A. The Wilderness Act

The Wilderness Act of 1964 created a unique kind of "green-lined" preserve, one that was unquestionably intended to place upon a pedestal the designated enclaves as "wild" and "natural" remnants of a time past.[153] Its outgrowth, the National Wilderness Preservation System, is comprised of scores of pedestalized "wilderness areas" each governed by this statute and a loose collection of other statutes and regulations. The designation, which only an act of Congress may confer, enjoins the agency administering the land from permitting the construction of permanent roads or other "improvements" within the proclaimed space and severely curtails most other uses typical of federal lands.[154] Still, these wilderness areas are simply legal constructs, separated from the landscapes enveloping them in "legal space" only[155] and managed by the same agencies regardless.[156]

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regulatory systems state of the art in federal wildlife habitat protection (whatever the state of that art comes to). *See infra* Part IV.C.

153. *See* Michael McCloskey, *The Wilderness Act of 1964: Its Background and Meaning*, 45 OR. L. REV. 288, 288-95 (1966). The 1964 statute was part of an outburst of legislative activity regarding the "over-exploitation" of public lands. That same year Congress created the Public Land Law Review Commission, Pub. L. No. 88-606, 78 Stat. 982 (1964), a blue ribbon panel charged with studying the public lands as a whole and issuing recommendations for their rational management. Congress also established the Land and Water Conservation Fund, Pub. L. No. 88-578, 78 Stat. 897 (1964), a fictional "fund" (today sourced in theory by a motorboat fuels tax and payments from offshore oil and gas leases) dedicated to acquiring public lands in fee. *See* FISCHMAN, *supra* note 81, at 37. The "fund" exists only on paper; actual acquisitions require real-time appropriations and the outlays have never matched the intake receipts. COGGINS ET AL., *supra* note 80, at 936. And, indeed, in its progressive de-funding by administrations from Reagan to the second Bush, the fund has represented one of the few points of bipartisan agreement. Douglas P. Wheeler, *Ecosystem Management: An Organizing Principle for Land Use*, *in* LAND USE IN AMERICA 155, at 166 (Henry L. Diamond & Patrick F. Noonan eds., 1994). The 1964 congressional flurry was "the antithesis of some conceptions of multiple use management and in a sense . . . expressed a lack of faith in the ability of the Forest Service to implement the multiple use requirement." James L. Huffman, *A History of Forest Policy in the United States*, 8 ENVTL. L. 239, 277 (1978). But it also represented a vote for centralization in the face of what had been, to that point, a relatively localist administrative approach to federal forest management. *See infra* note 224 and accompanying text.

154. The Wilderness Act has been said to create a kind of "overlay zoning" in that areas delineated as wilderness have other, primary designations (for example, national forests and national wildlife refuges). Richard J. Fink, *The National Wildlife Refuges: Theory, Practice, and Prospect*, 18 HARV. ENVTL. L. REV. 1, 71-79 (1994); Bradley C. Karkkainen, *Biodiversity and Land*, 83 CORNELL L. REV. 1, 40-57 (1997).

155. The statute originally designated several areas as wilderness but also created a study process leading to further designations within ten years of passage of the Act. *See* § 1132(b). Importantly, this study process was intended to culminate with legislative imprimatur: "[T]he President shall advise the United States Senate and House of Representatives of his recommendations with respect to the designation as 'wilderness' or other reclassification of each area on which review has been completed . . . ." *Id.* And while "[a]ll areas within the national forests" administratively classified as "primitive" or "wild" before the Act were given the legislative stamp of approval, that power was seemingly removed from the Forest Service after 1964. *Id.* § 1132(a). For, with some grandfathering exceptions, the Act leveled what looked to be an inter-branch injunction: "[I]f it is proposed to increase the size of any such area by more than five thousand acres . . . the increase in size shall not become effective until acted upon by Congress." *Id.* § 1132(b); *see infra* notes 261-64 and accompanying text.

156. Tellingly, the Act defines a "wilderness" in the negative. It is placed "in contrast with those areas where man and his own works dominate the landscape," § 1131(c), or "an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain." *Id.* More specifically, the statute limits "wilderness areas" to that portion of "underdeveloped Federal land

The agencies managing the designated area—an area that is usually a portion of a larger tract managed by the agency in that locale—must maintain the very strictest use controls within the enclave.[157] This is what makes the Wilderness Act's "overlay zoning" approach exemplary, both as to the logic and the limits of the green-lining strategy still dominant today within the federal land systems. First, the "external threats" to wilderness areas are a constant reminder of how connected landscapes remain in the face of legal constructs.[158] Second, the very nature of the gerrymandered list of prohibited uses within proclaimed areas prevents managers from forming coherent management goals or strategies.[159] Though, this is a conceptual failure at its root.

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retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions," usually of at least 5,000 acres in size. *Id.* Forest Service regulations governing the wilderness areas within national forests presently state:

> [T]here shall be . . . no commercial enterprises; no temporary or permanent roads; no aircraft landing strips; no heliports or helispots, no use of motor vehicles, motorized equipment, motorboats, or other forms of mechanical transport; no landing of aircraft; no dropping of materials, supplies, or persons from aircraft; no structures or installations; and no cutting of trees for nonwilderness purposes.

36 C.F.R. § 293.6 (2004).

157. Bizarrely,

> [t]he grazing of livestock, where such use was established before the date of legislation which includes an area in the National Wilderness Preservation System, shall be permitted to continue under the general regulations covering grazing of livestock on the National Forests and in accordance with special provisions covering grazing use in units of National Forest Wilderness which the Chief of the Forest Service may prescribe for general application in such units or may arrange to have prescribed for individual units.

§ 293.7(a).

158. For example, pest infestations threatening the predominant tree species in a particular national forest can easily threaten the habitat value of any designated wilderness areas therein. But hard questions about management priorities are not addressed in the Wilderness Act. *See* John Shurts, *Wilderness Management and the Southern Pine Beetle*, 17 ENVTL. L. 671 (1987) (discussing two cases, Sierra Club v. Lyng, 662 F. Supp. 40 (D.D.C. 1987); Sierra Club v. Lyng, 663 F. Supp. 556 (D.D.C. 1987)), involving a Wilderness Act challenge against a Forest Service plan to control infestations of the Southern Pine Beetle in national forests and wilderness areas across Arkansas, Louisiana, and Mississippi); *see also* Robert Keiter, *On Protecting the National Parks from the External Threats Dilemma*, 20 LAND & WATER L. REV. 355 (1985). Moreover, various logging practices can result in erosion, stream siltation, and other habitat-degrading impacts beyond the effects of the logging itself. *See also* Sierra Club v. Dept. of Interior, 376 F. Supp. 90, 95 (N.D. Cal. 1974) (finding that logging in and around Redwood National Park was a degradation sufficient to trigger "a legal duty" of protection "whenever reasonably necessary for the protection of the park"); Sierra Club v. Dept. of Interior, 398 F. Supp. 284 (N.D. Cal. 1975) (holding that the Department of Interior did not fulfill its legal duty to protect the park from adverse consequences of logging outside the park).

Nonetheless, National Park Service reticence toward exercising authority outside park boundaries has been pronounced and long-standing, *see* Sax, *supra* note 4, and it is indicative of the problem of the multiagency state in public lands administration.

159. The 1964 Act provided that only a federal statute could create a new, or alter the boundaries of an existing, wilderness area. § 1132(b), (c). As a result, scores of statutes designating discrete wilderness areas now exist—many contain specific management mandates and jurisdictional details distinguishing the individual area from the wider "system." *See, e.g.*, THE WILDERNESS SOCIETY, FOR ALL WHO LOVE WILD PLACES, HERE IS A REASON TO CELEBRATE, http://www.wilderness.org/OurIssues/ Wilderness/success.cfm (describing the additions to the system in the 108th Congress) (last visited Nov. 12, 2005). Due to a few legislative adjustments, the current criteria for establishing wilderness areas on federal lands focus on the *appearance* of the area as having "been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable," and they require that the space be "of

The Empty Concept of the "Wild"

Human domination of earth's ecosystems probably empties most of the meaning out of the concept of "wild" today.[160] Perhaps the best overall explanation of these persistent confusions in federal wildlife habitat law proceeds from the concepts within the Wilderness Act itself. That statute's reverence of "wildness" per se is grounded in an *aesthetic*—not some objectively verifiable state of affairs. This aesthetic is realized through the condition of a landscape as it is perceived by the human senses, not the composition of biota inhabiting it.[161] And while it might be an exaggeration to say that it is an exclusively *national* aesthetic (state congressional delegations have been instrumental in most wilderness-designations), it is accurate to note that the designations are generally independent of any *local* aesthetic sensibility.[162] Whatever the local sensibilities about a place may be, this has

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sufficient size as to make practicable its preservation and use in an unimpaired condition." § 1131(c). *See generally* 2 GEORGE CAMERON COGGINS & ROBERT L. GLICKSMAN, PUBLIC NATURAL RESOURCES LAW § 14B:8-15 (2005).

Following the initial designations in the 1960s, deadlines were established for future additions and candidate areas were set aside for administrative and legislative consideration. In deference to Congress, pending actual designation, the responsible federal agencies were put under an obligation to preserve the status quo in candidate areas—known as "Wilderness Study Areas"—so as to allow meaningful legislative considerations of the designation decision. *See* Parker v. United States, 448 F.2d 793 (10th Cir. 1971), *cert. denied*, 405 U.S. 989 (1972). Wildlife and conservation advocates often cite the *Parker* rule as an affirmative source of equitably enforceable protections for candidate areas. *See, e.g.*, BEAN & ROWLAND, *supra* note 4, at 317-22. Yet, even within statutorily designated wilderness areas, commercial- and motorized-recreational activity continues, depending upon which of the Wilderness Act's management regimes applies. Thus, while commercial logging is a per se "prohibited activity" in any wilderness areas within the National Forest System, *see* Lyng v. Nw. Indian Cemetery Protective Ass'n, 485 U.S. 439, 443 (1988), grazing allotments—and thus, herds of cattle—still dot the landscapes that are green-lined as wilderness areas, whether in the National Forest System or the BLM portfolio. *See, e.g.*, U.S. DEP'T AGRIC. FOREST SERV., STANISLAUS NATIONAL FOREST: RECREATION ACTIVITIES; EMIGRANT WILDERNESS, http://www.fs.fed.us/r5/stanislaus/visitor/emigrant.shtml (last visited Oct. 23, 2005) (mentioning that calves graze in wilderness areas). This stems from a specific savings clause in the Act itself. *See* § 1133(d)(4); *see also* GEORGE CAMERON COGGINS ET AL., FEDERAL PUBLIC LAND AND RESOURCES LAW 1116-17 (5th ed. 2002). Furthermore, mineral, oil, and gas leases generally remain valid. *See* Utah v. Andrus, 486 F. Supp. 995, 1003-09 (D. Utah. 1979). Snowmobile use is allowed and generally upheld. *See* Voyageurs Region Nat'l Park Ass'n v. Lujan, 966 F.2d 424 (8th Cir. 1992). And, most recently, the Supreme Court held in *Southern Utah Wilderness Alliance v. Norton*, 542 U.S. 55, 55 (2004), that if BLM fails to prohibit off-road vehicle use within a designated Wilderness Study Area (potentially degrading the character of the area), there may be no legal remedy in some circumstances.

160. *See* DANIEL B. BOTKIN, NO MAN'S GARDEN: THOREAU AND A NEW VISION FOR CIVILIZATION AND NATURE (2001).

161. Of course, some species' existence—especially those in the plant kingdom—will be critical to experiencing the aspects of a landscape that make it feel "wild." *Cf.* FORMAN, *supra* note 45, at 300-06. But assuming such a "feeling" exists, it is not necessarily only of value to those who personally experience it and nothing here is meant to imply otherwise. *Cf.* Minn. Pub. Interest Res. Group v. Butz, 498 F.2d 1314, 1322 n.27 (8th Cir. 1974) ("Existence value refers to that feeling some people have just knowing that somewhere there remains a true wilderness untouched by human hands, such as the feeling of loss people might feel upon the extinction of the whooping crane even though they had never seen one.").

162. *See* JOHN FEDKIW, MANAGING MULTIPLE USES ON NATIONAL FORESTS 1905-1995, at 62-64 (1998); Robert Glicksman & George Cameron Coggins, *Wilderness in Context*, 76 DENV. U. L. REV. 383 (1999).

always been a decision made by a national assembly of legislators, subject to the committees, calendars, and voting blocs therein.[163]

Ever since the very first administrative inventory was completed, attempting to identify the truly "wild" in the system of federal public lands, affected states and localities have protested the pedestalization of their communities as trophy preserves meant to be seen but not touched.[164] The "extraordinary" character of a wilderness area designation—and the extraordinary duty of the responsible agency to keep it in stasis—often catalyze opposition. The decision itself by a federal government far from the locality (most are in the West) impels people who *might* use the space in some to-be-prohibited fashion—and those who *empathize* with them—to oppose its canonization.[165]

Ferocious political and legal battles over wilderness designations have always been the norm, and for good reason. What constitutes a truly "wild" area in this sense is a purely subjective determination, lacking anything like a determinate metric of assessment.[166] Citizen-users who neighbor (and

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163. The local versus national frame of reference is particularly relevant to pedestalizations of public land like that contemplated by the Wilderness Act. Even where sustained national support for a designation of a place secures its addition to the system, local opposition has often resulted in a polarized public. Throughout the 1970s, the famed "sagebrush rebellion" of the western states continued in large part because these states desired to act "fully sovereign" by taking back millions of acres of federal land holdings. *See, e.g.*, John D. Leshy, *Unraveling the Sagebrush Rebellion: Law, Politics and Federal Lands*, 14 U.C. DAVIS L. REV. 317, 317-24 (1980).

164. The opposite has also been true. In 1978, in its second turn with a Roadless Area Review and Evaluation (RARE) inventory pursuant to the Multiple-Use, Sustained Yield Act (MUSYA) and NFMA, the Forest Service was sued by California for *not* including particular areas in the National Wilderness Preservation System. *See* California v. Block, 690 F.2d 753 (9th Cir. 1982).

165. *See* William Cronon, *The Trouble with Wilderness*, *in* UNCOMMON GROUND: TOWARD REINVENTING NATURE 84 (William Cronon ed., 1995) ("However much one may be attracted to [the vision of the Wilderness Act], it entails problematic consequences. For one, it makes wilderness the locus for an epic struggle between malign civilization and benign nature, compared with which all other social, political, and moral concerns seem trivial."). "Use" of the land is the key conceptual disagreement, not least because the "preservation" of a physical space as "wilderness" is, in a sense, a human use—albeit one defined negatively by the access regime under which the land is governed and the puzzling concept of "wild." *See* James R. Rasband, *Utah's Grand Staircase: The Right Path to Wilderness Preservation?*, 70 U. COLO. L. REV. 483, 486 (1999). Still, a significant part of the conflict stems from public hostility to what is perceived as an influence (or dictate) from outside the community defining the terms by which the community values its land. *See* Louise Liston, *Effects on Communities and the Land, Sustaining Traditional Community Values*, 21 J. LAND, RESOURCES & ENVTL. L. 585 (2001) (describing how people who supported a restrictive regime governing the Grand Staircase-Escalante National Monument eventually became radicalized against the controls because of the closed federal process by which it was dictated).

166. Similar, in this regard, is the Wild and Scenic Rivers Act, 16 U.S.C. §§ 1271-1287 (2000) (WSRA). WSRA is an amalgam of preserve-creation and cooperative federalism. WSRA provides that certain designated rivers which possess "outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that [the rivers] and their immediate environments shall be protected for the benefit and enjoyment of present and future generations." § 1271. Congress adds designations (which often consist of river "segments" as opposed to whole rivers) to the list periodically, and WSRA also allows states to designate rivers. *See* § 1273(a). Again, through such designations the law is meant to pedestalize the subject areas, elevating their status as scenery to one of protectedness and exceptionality. The legal consequences of this designation vary, but the common denominator appears to severely encumber the uses of rivers and watersheds.

Under WSRA, rivers may be designated as either, "wild, scenic or recreational," and different,

sometimes live in and among[167]) these federal lands attach deep significance to them, and their various uses of these lands are often quite important to them.[168] The excess conflict that stems from local communities being antagonized is tragic. Indeed, dictating the aesthetic for a space to its local human communities might seem like a discriminatory act, depending on what those communities believe about that land and who is responsible for the decision.[169] And, perhaps most tellingly, the Wilderness Act mentions "wildlife" but once, and then only to save the states' pre-existing "jurisdic-

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articulated criteria must be met for the different designations to apply under the Act. § 1273(a). "Wild" is the most restrictive of the designations and requires that the river be "free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted." § 1273(b)(1). Still, the application of such criteria breaks down into a question of infinite degrees given how "polluted" or degraded the country's surface waters are in a scientific sense and how "generally accessible" most are in light of the nation's infrastructure. *See generally* Robert W. Adler, *The Two Lost Books in the Water Quality Trilogy: The Elusive Objects of Physical and Biological Integrity*, 33 ENVTL. L. 29, 64 (2003) (arguing that little has been done to improve the biological or physical integrity of the "waters of the United States" and that little is currently being done by the federal government to encourage the states to do so).

Once a river is designated as "wild," strict controls on the river's corridor and, in some cases, much of its watershed, may be triggered. *See, e.g.*, Or. Natural Desert Ass'n v. Singleton, 75 F. Supp. 1139 (D. Or. 1999) (upholding injunction of grazing to protect river corridor). This provokes sharp opposition to the designation; opposition that needlessly polarizes the local community, making even the first protective step contentious and potentially expensive. In *City of Klamath Falls v. Babbitt*, 947 F. Supp. 1 (D.D.C. 1996), the City sued the Department of the Interior for designating an eleven-mile segment of the Klamath River "wild" because the designation would essentially preclude the completion of an on-going hydroelectric project initiated by the City. *Id.* at 1-2. What is most fascinating about the episode is that Interior acted to add the segment to the National Wild and Scenic Rivers System at the behest of Oregon Governor Barbara Roberts. *Id.* at 2-4. Roberts requested the designation for the express purpose of stopping the Klamath Falls' project, which had been undertaken, "under the jurisdiction of the Federal Energy Regulatory Commission." *Id.* at 4. Babbitt obliged and was immediately sued. *Id.*

167. As the Wilderness Act provides, designated areas often include private and state-owned property holdings within the areas' terminal boundaries. *See* 16 U.S.C. § 1134 (2000). This is true of many national forests and rangelands, which often have fragmented ownership within the perimeter of the designated space. *See supra* note 159 and accompanying text.

168. RARE II focused on "pristine," untrammeled areas the same way Muir did in his fight for Yosemite. NASH, *supra* note 82, at 122-40. Virtually no part of the RARE II process was keyed to wildlife habitat needs—something true of most "wilderness" preserving actions done by land management agencies. *See, e.g.*, Shurts, *supra* note 158.

169. *See* Timothy P. Duane, *Community Participation in Ecosystem Management*, 24 ECOLOGY L.Q. 771, 784-97 (1997). Even when the Wilderness Act has been followed to the letter, pitched battles have been the norm. *See, e.g.*, Utah v. Andrus, 486 F. Supp. 995 (D. Utah 1979). When procedures have been avoided or circumvented, things have often become positively acrimonious. For example, there were ultimately nine different lawsuits in six different judicial districts challenging the "roadless rule," which was finalized on January 12, 2001—nine days before the end of the Clinton Administration. *See* 69 Fed. Reg. 42,636, 42,638 (proposed July 16, 2004) (codified at 36 C.F.R. pt. 294); *infra* Part IV.D. I say "discriminatory" in the sense of governmental action without substantial justification. *Cf.* Ry. Express Agency v. New York, 336 U.S. 106, 112 (1949) (Jackson, J., concurring). Justice Jackson noted:

> I regard it as a salutary doctrine that cities, states and the Federal Government must exercise their powers so as not to discriminate between their inhabitants except upon some reasonable differentiation fairly related to the object of regulation. This equality is not merely abstract justice. The framers of the Constitution knew, and we should not forget today, that there is no more effective practical guaranty against arbitrary and unreasonable government than to require that the principles of law which officials would impose upon a minority must be imposed generally.

Id.; *see also* Vill. of Willowbrook v. Olech, 528 U.S. 562, 564-65 (2000) (holding that the Equal Protection Clause of the Fourteenth Amendment prohibits "intentional and arbitrary discrimination," even in the absence of suspect classifications and fundamental rights).

tion or responsibilities . . . with respect to wildlife and fish in the national forests."[170]

Finally, managing the "uses" of land is a critical element of protecting wildlife habitat and, therefore, biodiversity. But it is not the entire job.[171] In fact, restricting the uses of land for scenery's sake is often completely unrelated to habitat protection and restoration.[172] It is impossible to say what habitat value the "National Wilderness Preservation System" represents as a whole.[173] It is quite possible, though, to say that it is a "system" in name only and that it is not (and probably cannot be) managed to achieve landscape scale connectivity among habitat islands.[174]

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170. § 1133(d)(7). Without wildlife, wilderness very well may be just "scenery," BEAN & ROWLAND, *supra* note 4, at 314, but the Wilderness Act seems somewhat oblivious to the point. Places where "the imprint of man's work [is] *substantially unnoticeable*," § 1131(c) (emphasis added)—the so-called "primitive areas" all equally eligible for inclusion in the System—are diverse, but not as diverse as the assemblages of plant and wildlife species they support (or fail to). Moreover, inconsistent management by the responsible federal agencies has been the norm. Alaska's Kenai Peninsula Wilderness Area was going to be home to the "commercial enterprise" of a massive salmon hatchery (labeled an "Enhancement Project") until an en banc panel of the Ninth Circuit enjoined its construction. *See* Wilderness Soc'y v. U.S. Fish & Wildlife Serv. (*FWS I*), 316 F.3d 913, 916 (9th Cir. 2003), *rev'd*, Wilderness Soc'y v. U.S. Fish & Wildlife Serv. (*FWS II*), 353 F.3d 1051 (9th Cir. 2003) (en banc), *amended by* Wilderness Soc'y v. U.S. Fish & Wildlife Serv. (*FWS III*), 360 F.3d 1374 (2004). But the majority of the three-judge panel that first heard the case observed:

> [I]t is not obvious how an agency must protect and manage an area "so as to preserve its natural conditions."
>
> . . .
>
> Indeed the [Wilderness Act's] use of the phrase "protected and managed" highlights [an] ambiguity. "Management" suggests affirmative steps taken to maintain wilderness character, while "protection" suggests a more hands-off approach. . . . If "natural conditions" may be preserved only through a program of strict nonintervention, what is the purpose of the word "managed" in the definition? If strict nonintervention was Congress' intent, the word "protect" would have sufficed."

FWS I, 316 F.3d at 923-24 (citations omitted). The Colorado Wilderness Act of 1980 actually set guidelines for grazing on the designated lands, emphasizing behind the scenes that "[t]here shall be no curtailments of grazing in wilderness areas simply because an area is, or has been designated as wilderness, nor should wilderness designations be used as an excuse by administrators to slowly 'phase out' grazing." H.R. REP. No. 96-617, at 11 (1979). *See also* Mitchel P. McClaren, *Livestock in Wilderness: A Review and Forecast*, 20 ENVTL. L. 857, 870-71 (1990).

171. *See supra* notes 40-41 and accompanying text.

172. Thus, conservation biologists puzzle at the provision in the Wilderness Act barring any separate appropriations for the management of designated wilderness areas. *See* § 1131(b).

> No appropriation shall be available for the payment of expenses or salaries for the administration of the National Wilderness Preservation System as a separate unit nor shall any appropriations be available for additional personnel stated as being required solely for the purpose of managing or administering areas solely because they are included within the National Wilderness Preservation System.

Id. Removal of invasive species or active canopy restructuring, for example, will apparently never be a part of the Wilderness Act's legal mandate. *Cf. id.*

173. A global diagnosis of the system would turn on a panoptic knowledge of all extant wildlife populations and their habitat needs throughout the United States—obviously far beyond the kind of knowledge we actually have. No such data exists. Still, bold initiatives to link the disparate patches together into a system of "continentally connected" habitat do exist, but even the best are simply aspirational. *See, e.g.*, DAVE FOREMAN, REWILDING NORTH AMERICA: A VISION FOR CONSERVATION IN THE 21ST CENTURY 179-222 (2004) (sketching a plan to link wilderness and other public lands together into a continuous corridor from Panama to the Yukon Delta).

174. Given the substantial barriers to further federal land acquisitions (and to the further integration and coordination of the bureaucracies in charge of the "system"), NWPS is best described as a highly decentralized and passively managed organization. With a few exceptions, connectivity between the

B. The National Wildlife Refuge System

Unlike wilderness law, the rules and customs surrounding the nation's wildlife refuges are specifically devoted to conserving habitat and prioritizing its protection above other uses. Yet, as a unified system, this one is inherently compromised. While this "system" has been growing for over a century, its instrumental value to wildlife conservation generally has been rather limited. Today, the individual refuges, as green-lined preserves immunized in varying degrees from the development pressures around them, can be of significant value to the achievement of landscape-scale connectivity within their region.[175] The system as whole, though, hardly benefits at all from being a nationally "managed" totality.

Two sections of the Endangered Species Preservation Act of 1966 (the forerunner to the modern ESA) provided the first-ever umbrella applicable to the hodgepodge of "wildlife refuges," "waterfowl production areas," "game ranges," "wildlife ranges," and "wildlife management areas" across the country.[176] Almost forty years later, the National Wildlife Refuge System (NWRS) is administered as a whole by FWS. This is one of its myriad statutory duties, and its administration is still carried out under the scores of individual statutes setting use priorities one refuge at a time, one micro-agency (FWS field office) at a time—disregarding the achievement of landscape-scale connectivity.[177]

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designated areas and coordinate management of habitat are nil. A fair example would be Colorado as most of the designated wilderness areas are concentrated in the eleven western states and Alaska. *See* Wilderness.net, The National Wilderness Preservation System (Aug. 2004), http://www.wilderness.net/index.cfm?fuse=nwps&sec. Colorado is the eighth largest but is only the twenty-fourth most populous state. STATE RANKINGS 2005, at 228, 426 (Kathleen O'Leary Morgan & Scott Morgan eds., 2005). Of its forty-one designated wilderness areas (3.3 million of the state's 66.3 million acres), all but one (the Black Ridge Canyon) lie along the spine of the Rockies. *See* Wilderness.net, *supra*, at http://www.wilderness.net/index.cfm?fuse=NWPS&sec=stateView&state=co. *None* exists in the eastern third of the state, a unique ecosystem separate and apart from the mountainous western region. *Id.* Statistically, the mean acreage of the designated areas (adjusted to count fragments managed by different agencies which are, in fact, contiguous as one "area") is 82,681 acres. *Id.* Removing the largest (Weminuche, 488,210) and the smallest (Platte River, 743), drops the mean to 74,384 acres. *Id.* The total sample median is the Sarvis Creek (47,140 acres). There are a dozen areas of 100,000 acres or more, but there are also a dozen of less than 20,000 acres. *Id.*

175. *See supra* notes 59-77 and accompanying text.

176. Endangered Species Preservation Act of 1966, Pub. L. No. 89-669, 80 Stat. 926, 927 (1966) (repealed 1973). The unity provided came in the form of a management mandate requiring that any permitted "use of any area within the System," such as hunting or fishing, be "compatible with the major purpose for which such areas were established." § 668dd(d)(1)(A). Prior to that, the units that dotted the country were governed by various unique statutes, executive orders, and proclamations—a pattern that apparently began with President Benjamin Harrison's order protecting Afognak Island, Alaska, as a "forest and fish culture reservation" in 1892. FISCHMAN, *supra* note 81, at 34. The 1966 legislation would later be consolidated (and renamed) with the passage of the 1997 "Improvement Act" into a body of law susceptible to broadly applicable analysis. *See id.* at 79-159. Importantly, though, neither the Improvement Act nor any other generally applicable part of refuge law changes the basic reality that individual refuges, having been established by individuated federal statutes, on their own terms and for their own purposes, are still managed according to individual legal regimes with disparate priorities (only some of which include habitat as their primary priority). *See infra* note 178 and accompanying text.

177. *See* FISCHMAN, *supra* note 81, at 15-31. Fischman ascribes a "crazy-quilt" character to this

1. A History of Centralized Neglect

For most of their history,[178] the laws governing these places were mostly,[179] although not entirely devoid of specifics on habitat protection.[180] A sweeping National Wildlife Refuge System Improvement Act was passed in 1997, and its reforms are still being worked out.[181] Its principal "improvement" was the imposition of a long-range planning obligation much like the one the Forest Service and BLM have faced for thirty years.[182] Nevertheless, no matter what this planning aims to achieve, it will do little to ameliorate the structural defects in this "system." As this section argues, it

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statute-by-statute, refuge-by-refuge history and structure. *Id.* at 23 ("The [NWRS] is a tangle of land units with widely varying sizes, purposes, origins, ecosystems, climates, levels of development and use, and degrees of federal ownership and [FWS] control."). Because for most of its history, FWS managed each refuge as an individual unit, the agency did not even make the "attempt to manage the refuges in an integrated manner until the 1960s." Fink, *supra* note 154, at 61; *see also* Lynn Greenwalt, *The National Wildlife Refuge System, in* WILDLIFE AND AMERICA 399-411 (Howard P. Brokaw ed., 1978).

178. Richard Fink noted:

> Not until 1966 did Congress enact a single statute addressing overall management of the nation's growing number of refuges. Sometimes referred to as the "organic act" of FWS, the National Wildlife Refuge System Administration Act of 1966 officially denominated the refuges a public land 'system' for the first time, and attempted to provide some guidance to the Secretary of the Interior on the system's overall management.

Fink, *supra* note 154, at 25 (footnotes omitted). The 1966 legislation unified the various disparate elements of this "system" through what has come to be known as the "compatibility requirement."§ 668dd(d)(1). This part of the legislation required that FWS "permit the use of any area within the System for any purpose . . . whenever [it] determines that such uses are compatible with the major purposes for which such areas were established." *Id.* § 668dd(d)(1)(A). Throughout the life of this compatibility requirement as administered by FWS, it has entailed controversial decisions, requiring the balancing of multiple, sometimes competing objectives. *See* FISCHMAN, *supra* note 81, at 163-82. It has been a kind of judgment to which courts have routinely shown great deference. *See also* Cam Tredennick, *The National Wildlife System Improvement Act of 1997: Defining the National Wildlife Refuge System for the Twenty-First Century*, 12 FORDHAM ENVTL. L.J. 41, 66-69 (2000). Yet, FWS compatibility determinations have only been subject to the requirement that the agency "monitor the status and trends of fish, wildlife, and plants in each refuge" since the 1997 legislative overhaul. § 668dd(a)(4)(N). Of course, "[o]ne of the problems leading to incompatible uses and environmental degradation on refuges is ignorance about the distribution and needs of nongame species." FISCHMAN, *supra* note 81, at 140. Depending on how this monitoring requirement is actually executed on the ground, it may represent a real improvement in the management of refuges—although much of that turns on FWS's interpretation of this statutory duty. *Id.* at 142.

179. Fink assessed the NWR System in painstaking detail in 1994, three years before the National Wildlife Refuge System Improvement Act of 1997, Pub. L. No. 105-57, 111 Stat. 1252 (codified at 16 U.S.C. §§ 668dd, 668ee (2000)), discussed below. *See generally* Fink, *supra* note 154. His conclusions were (1) that the 1966 legislation's "compatibility" requirement was routinely trumped by the legislation establishing individual refuges, placing any systemic refuge "reform" by FWS out of its legal control, and (2) that pressures or threats to refuges by and from adjacent lands often undermined the habitat values of refuges. *Id.* at 110-16. The latter is what managers often refer to as the "external threat," which is the inability of preserve managers to protect against effects within a refuge that stem from outside causes. *See* Daniel H. Janzen, *The Eternal External Threat, in* SCARCITY AND DIVERSITY, *supra* note 13, at 286.

180. *See, e.g.*, Defenders of Wildlife v. Andrus, 455 F. Supp. 446, 449 (D.D.C. 1978) (setting aside Service regulations governing Ruby Lake National Wildlife Refuge as inconsistent with the "primary purpose" of the refuge which was the supply of breeding habitat for migratory birds and other wildlife).

181. *See* FISCHMAN, *supra* note 81, at 79-210; Kevin Gergely et al., *A New Direction for the U.S. National Wildlife Refuges: The National Wildlife Refuge Improvement Act of 1997*, 20 NAT. AREAS J. 107 (2000).

182. I describe the planning obligations below. *See infra* Part IV.

will do little to bring any sort of programmatic unity to wildlife habitat conservation on the realty portfolio as a whole.

First, as individuated enclaves the refuges suffer the same handicap that most of the wilderness and critical habitat areas do, with vast majority being too small, haphazardly located, or unrelated to conservation biology's prescriptions for reserve design and management.[183] Of course, the refuges have been constructed exactly as they should have been by a federal government of limited authority which also encourages private land ownership: through a gradual process of accretion, where acquisition (or withdrawal from privatization) is done in collaboration with state governments and funded on an as-available basis.[184] Nevertheless, such "opportunistic growth"[185] unfortunately has meant erratic and sometimes even pretextual refuge creation.[186]

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183. *See* John Terborgh & Michael E. Soulé, *Why We Need Mega-Reserves: Large Scale Reserve Networks and How to Design Them, in* CONTINENTAL CONSERVATION: SCIENTIFIC FOUNDATIONS OF REGIONAL RESERVE NETWORKS 199, 202-08 (Michael E. Soulé & John Terborgh eds., 1999); Fink, *supra* note 154, at 124-30; *id.* at 106 ("[A] conservation biologist would describe most refuges as small and isolated fragments of habitat."); *see also supra* notes 59-72 and accompanying text. *Actual* connectivity for metapopulational purposes is something wholly unknown to most refuges, either as designed or as managed. *See* Terborgh & Soulé, *supra*, at 203-08. Many refuges are put at severe risk by forces outside of their borders. The prime example is FWS's failure to secure the water rights necessary to combat the water shortage in the West; the water is needed for the maintenance of necessary habitat parameters. *See, e.g.*, Cappaert v. United States, 426 U.S. 128 (1976) (holding that the federal government has water rights to unappropriated areas at Devil's Hole National Monument); CHARLES F. WILKINSON, CROSSING THE NEXT MERIDIAN: LAND, WATER, AND THE FUTURE OF THE WEST 219-92 (1992). Yet, state laws operating within and around the refuge threaten the refuge. *See, e.g.*, Wyoming v. United States, 279 F.3d 1214, 1218 (10th Cir. 2002) ("Unfortunately, the [Improvement Act] does not . . . directly address the problem of . . . [elk-to-cattle communicable disease and the immunization of free-range elk within the refuge] . . . or establish clear priority between wildlife and domestic livestock when [the] interests involving the two conflict."). Some refuges are even in the unenviable position of having to press their water rights in less-than-welcoming state court systems. *See, e.g.*, United States v. Idaho, 23 P.3d 117 (Idaho 2001).

More generally, Fink's critique of the "system" as a whole is still apposite, notwithstanding the 1997 Improvement Act. Fink states:

> [C]onservation biology clearly implies that the present refuge land base is inadequate for the long term preservation of wildlife. While the total number of acres in the NWRS may appear to be significant from one perspective, a conservation biologist would describe most refuges as small and isolated fragments of habitat.

Fink, *supra* note 154, at 106. Even after the 1997 legislation, wildlife habitat conservation remains but one of a hierarchy of "designated uses" on most of the refuges, FISCHMAN, *supra* note 81, at 90-99, one which often receives short shrift in the typical "multiple use" discounting mentality toward the "passive" functions of land (like supplying habitat). *Cf.* Joseph L. Sax, *Property Rights and the Economy of Nature: Understanding* Lucas v. South Carolina Coastal Council, 45 STAN. L. REV. 1433, 1442 (1993) (describing a dualistic attitude toward the land as being either productively "used" for human development and cultivation or sitting idle and "unused").

184. While it is easy to denounce the lack of federal funding for the acquisition or maintenance of "wilderness" or wildlife habitat, this type of public funding must compete against other priorities of equal or greater importance. *See supra* note 54 and accompanying text.

185. In his exemplary study of the refuge system, Professor Fischman characterizes its rise as one of "opportunistic" growth, which has resulted in "a tangle of land units with widely varying sizes, purposes, origins, ecosystems, climates, levels of development and use, and degrees of federal ownership and [FWS] control." FISCHMAN, *supra* note 81, at 23. In his conclusion, Fischman focuses on the Improvement Act's use of a complicated hierarchy of priorities among designated uses of the individual refuge. "No other U.S. organic [public land] act establishes such an elaborate system of preferences. As implemented by the Service, a refuge manager cannot evaluate a use until first categorizing it to determine where it falls within the hierarchy." *Id.* at 207. This categorical approach, common to pollution control

Second, by itself, the system is profoundly limited in utility because the habitat islands it comprises are low in overall potential connectivity.[187] Thus, rather paradoxically, in and of themselves the individual refuges are (usually) grossly deficient as habitat islands for the kind of wildlife diversity Americans value, and yet, as a system, the islands are dispersed thoroughly enough to present little in the way of conservation biology's ultimate goal of landscape-scale connectivity.[188]

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law because of its propensity to encourage litigation, was to Fischman a "troubling sign" likely to "divert attention from core conservation needs" in this litigation. *Id.* at 207-08.

186. The most striking fact of the wildlife refuge system is that, while Alaska has but 15 of the 540 "refuge units," those 15 constitute some 85 percent of its total acreage. FISCHMAN, *supra* note 81, at 29. Furthermore, from a scientific perspective, the gigantic refuges in Alaska (the conterminous Arctic and Yukon refuges combine to over 47 million acres) are probably the only units within the system that even approximate "genuine biodiversity reserves—large enough to provide broad ecosystem-level protection and managed principally to provide prophylactic protection of their diverse biological resources." Karkkainen, *supra* note 154, at 36. It is probably too strong to conclude that these trophy preserves, likened as they are to America's Serengeti, exhaust the national political appetite for "conservation," somehow dissipating homeward pressures to curb careless land use practices in our own neighborhoods. *See, e.g.*, Sam H. Verhovek, *Refuge Inside Arctic Circle is Also in the Middle of U.S. Energy Debate*, N.Y. TIMES, Oct. 8, 2000, at A14. But Alaska's relatively recent statehood—the reserves come from land that was kept by the United States as a condition of statehood—and uniquely situated aboriginal peoples at least merit mentioning as exceptional, especially when compared to refuges in the forty-eight contiguous states such as the diminutive, six-tenths acre Mille Lacs National Wildlife Refuge in Minnesota. FISCHMAN, *supra* note 81, at 29.

To say that refuge creation has been at times pretextual is not to argue that positive ultimate ends have not been served. Much of our democracy at the national level today is carried on by conversants who are sometimes less than forthright with each other. *See* MICHAEL J. SANDEL, DEMOCRACY'S DISCONTENT (1996); *cf.* MANSBRIDGE, *supra* note 126, at 18 ("Adversary democracy is the democracy of a cynical society. It replaces common interest with self-interest, the dignity of equal status with the baser motives of self-protection, and the communal moments of a face-to-face council with the isolation of a voting machine."). But when refuges are established under the guise of biodiversity protection and yet very clearly present little to no probability of serving as valuable wildlife habitat, there is a certain deceptiveness in that legislative (or executive) act. *See* Fink, *supra* note 154, at 66 ("[T]he drilling of dozens of gas wells on approximately 500 acres of the D'Arbonne National Wildlife Refuge in Louisiana [17,420 acres, established in 1975] required the removal of vegetation from one full acre of land for each well and caused extensive salt water contamination of the surrounding soil and water.").

187. In advancing the prospect of NWRS achieving landscape-scale connectivity, Fink himself admitted that the goal "may be criticized as being politically unrealistic." Fink, *supra* note 154, at 104 n.769. The political realities at the federal level are precisely what render NWRS so bleak a prospect for establishing connectivity on a continental scale. Thus, even after the 1997 Improvement Act, the FWS must continue to proceed refuge by refuge in pursuing the objective of "biological integrity, diversity, and environmental health" set in the 1997 legislation. *See* FISCHMAN, *supra* note 81, at 125 (quoting The National Wildlife Refuge System Improvement Act of 1997, Pub. L. No. 105-57, 111 Stat. 1252, 1255, § 5(a)(4)(B) (codified at 16 U.S.C. § 668dd (2000))).

188. On this point, the National Park System is analogous to the National Wildlife Refuge System. Yellowstone National Park has been rendered infamously diminutive by the land managers who have demanded that it support so many populations of listed species like wolves, grizzlies, and bighorn sheep. On the other hand, Yellowstone's "2.2 million acres" are but a fraction of the "Greater Yellowstone Ecosystem" (GYE) which, at between 13 and 19 million acres (depending on who does the line-drawing), shares a common topography, climate, and species composition. NOSS & COOPERRIDER, *supra* note 32, at 134-38. *Compare* WILKINSON, *supra* note 183 at 153-56 (thirteen million acres), *with* NOSS & COOPERRIDER, *supra* note 32, at 134-38 ("14 to 19 million acres"). With seven national forests girdling it, the ecosystem is comprised of three national wildlife refuges, a scattering of BLM lands, and Grand Teton National Park, making this GYE fractured by its management diversity. *Id.* at 135. Even all of that combined is insufficient in size to guarantee a future, viable population of grizzly bears given the stochasticities this population faces. *Id.* at 134; U.S. Fish and Wildlife Serv., Envtl. Impact Statement for Grizzly Bear Recovery, 66 Fed. Reg. 33,623, 33,623-24 (June 22, 2001) (Notice of Intent).

2. The Haphazard Life of the National Wildlife Refuge

Somewhat perversely, given the coordinate rise of the twin pillars of federal wildlife habitat law, only about 260 of the more than 1,100 listed endangered species actually occur within our wildlife refuges.[189] It was not until the 1990s that the NWRS even began experimenting with the creation of refuges for the purpose of achieving landscape-scale connectivity.[190] Conservation biologists consistently rate the "eternal external threat" of forces from outside a created reserve high when it comes to protecting stressed species within.[191] Still, FWS is hardly in a position to do much about such threats to the NWRS.[192]

Even ignoring the costs and risks of pedestalization and fragmentation, though, substantial organizational barriers inhibit federal land managers like the Forest Service and the Bureau of Land Management (BLM) from adequately tending to the "working landscapes" of the public's portfolio. As mentioned above, the NWRS was recently "improved" by putting FWS under a "planning" mandate very similar to the mandates placed on so-called "multiple-use" public lands. It is to these planning obligations that we now turn.

IV. THE "WORKING LANDSCAPE": PLANNING AND LITIGATING

Aside from the green-lined refuges, parks, and wilderness areas, there lay the millions of acres of land in our national forests, grasslands, and rangelands that have not been pedestalized. These are our so-called "working landscapes."[193] Many of these are places where agricultural or extractive

189. FISCHMAN, *supra* note 81, at 45.

190. The Silvio O. Conte National Fish and Wildlife Refuge is such an experiment. The Conte Refuge was created in 1991, *see* Pub. L. No. 102-212 (codified at 16 U.S.C. §668dd (2000)), and by design was to be put together through acquisitions on an as-necessary, as-available basis throughout the 400 mile Connecticut River watershed (all 7.2 million acres of it). The law directed FWS to study the entire watershed and create a fish and wildlife refuge from the ground up. *Id.* § 105. Through careful study of the species assemblages of the watershed, donations and acquisitions of various interests in real property, and active invasive species management, the Conte Refuge has actually begun to practice a form of conservation biology that seeks to achieve potential connectivity. *See* U.S. FISH & WILDLIFE SERV., LAND PROTECTION PLAN, www.fws.gov/r5soc/landprot.htm (last visited Nov. 15, 2005) (describing land protection plan for Conte National Fish and Wildlife Refuge). "The Refuge is envisioned as a patchwork or checkerboard pattern comprised of land parcels acquired from 48 focus areas and many small scattered sites. . . . The actual boundaries of the Refuge will ultimately conform to specific land tracts at the individual project sites as they are purchased." *Id.* The plan calls for the acquisition of an interest in and the protection of up to 26,250 acres within the watershed. *Id.* Unfortunately, this example has not been widely emulated so far.

191. *See* Janzen, *supra* note 179, at 287-303. Daniel Janzen suggested that preparing to cope with certain external threats like fire or pests can be effectively impossible because many threats turn out to be "managerially contradictory." *Id.* at 287. But he also emphasized that often protecting a preserve can mean the manipulation (or conversion) of neighboring habitats to prevent the spread of the threat into the preserve. *Id.* at 290-91. Without the power to impose such a buffering function, the utility of the reserves is often deeply compromised.

192. Fink, *supra* note 154, at 20-24, 86-103.

193. *Cf.* Cronin v. Dep't of Agric., 919 F.2d 439, 448 (7th Cir. 1990) ("The national forests, unlike the national parks, are not wholly dedicated to recreational and environmental values."); Sierra Club v.

industry is still practiced.[194] They are not, in other words, off limits except on foot. Overall, the national forests, grasslands, and rangelands are governed by a regime that *expects* land to be commodified and used for private gain, at least to some degree. They also have habitat conservation obligations. Yet none of the institutional realities of Forest Service or BLM "management units" are very promising if the objective is either the conservation of wildlife habitat or the protection of minimum viable populations. Part IV explains why.

The Forest and Rangeland Renewable Resources Planning Act (FRRRPA)[195] as amended by the National Forest Management Act (NFMA),[196] and the Federal Land Policy and Management Act (FLPMA)[197] as amended by the Public Rangelands Improvement Act (PRIA)[198] set the framework within which the Forest Service and BLM create their Land and Resource Management Plans (LRMPs). Essentially, these agencies must balance the competing goals of the "multiple-use" paradigm (extractive, recreational, scientific, and aesthetic) throughout their vast systems of public lands, one patch of federally owned realty at a time.[199] While the problems of pedestalization and endangered species are somewhat blunted here, the litigious nature of these planning processes have transformed them into crucibles of over-heated conflict all the same. And because the norm is ignorance when understanding how any particular species assemblage came to be within the confines of the NWRS, the National Forest System, or BLM, actual achievement of habitat connectivity remains dubious.

The planning statutes set a basic framework within which the Forest Service, National Park Service, BLM, and other federal land-managing agencies operate.[200] From there, more detailed agency regulations structure

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Espy, 38 F.3d 792, 800 (5th Cir. 1994) ("Maintenance of a pristine environment where no species' numbers are threatened runs counter to the notion that NFMA contemplates both even- and uneven-aged timber management. . . . That [form of] protection means something less than preservation of the status quo but something more than eradication of species . . . ."). Currently, the Forest Service administers "155 national forests and 20 [national] grasslands," along with several national monuments and other odds and ends, totaling some 192 million acres in "44 states, Puerto Rico, and the Virgin Islands." Forest Serv., U. S. Dep't of Agric., About Us—Meet the Forest Service, www.fs.fed.us/aboutus/meetfs.shtml (last visited Nov. 15, 2005). BLM plans and manages some 262 million acres of "surface rights" and is responsible for fire suppression and management on 388 million acres. *See* Bureau of Land Mgmt., BLM Mission, www.blm.gov/nhp/facts/index.htm (last visited Nov. 15, 2005).

194. Admittedly, there is usually some designated smaller enclave of the total unit that is zoned for the express purpose of supplying comparatively undisturbed wildlife habitat on behalf of the larger unit. *See infra* notes 227-41 and accompanying text. Of course, this pedestalization itself has important drawbacks in managing for connectivity's sake. *See supra* notes 144-90 and accompanying text.

195. Pub. L. No. 93-378, 88 Stat. 476 (codified in various parts of 16 U.S.C.).

196. Pub. L. No. 94-588, 90 Stat. 2949 (codified at 16 U.S.C. §§ 1600-1614 (2000)).

197. Pub. L. No. 94-579, 90 Stat. 2744 (codified as amended at 43 U.S.C. §§ 1701-1785 (2000)).

198. Pub. L. No. 95-514, 92 Stat. 1803 (codified as amended at 43 U. S.C. §§ 1901-1908 (2000)).

199. The Forest Service manages its national forests by dividing them into "management units," for which one LRMP is created. *Cf.* RASBAND ET AL., *supra* note 82, at 926. The management units sometimes include several distinct forests. *Id.* BLM administers roughly 261 million acres by consolidating them under a *projected* 144 LRMPs. *Id.* However, BLM has been notoriously slow in actually writing these plans. *See id.* ("As of 1993, the BLM had completed just over half of its intended 144 RMPs and was projecting a final completion date of 2013, thirty seven years after FLPMA's passage.").

200. KEITER, *supra* note 24, at 128-70.

the planning process as executed by the individual units and districts.[201] These planning regulations have become quite prescriptive.[202] As conservation biologists argue with growing fervor and clarity, though, the management of "biodiversity patches" is virtually impossible.[203]

A. Planning for Biodiversity

The core habitat obligation of the land management agencies—predominantly BLM and the Forest Service—is to engage in the kind of long-range planning that will produce "sustainable" ecosystems *as well as* sustained societal uses of them.[204] Nevertheless, this sustainable multiple-

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201. The rules and regulations, guidance, circulars, and manuals each agency has adopted to structure their specific planning processes are more specific by far, something that has been true of the management of federal lands for generations. In 1960, Herbert Kaufman's *The Forest Ranger* described the intricate network of such directives and internal communications structuring the local decisionmaking of Forest Service officials. HERBERT KAUFMAN, THE FOREST RANGER: A STUDY IN ADMINISTRATIVE BEHAVIOR 92-125 (1960). Kaufman's study was conducted during the 1950s, long before the planning mandates were legislated. It stressed how this network of internal controls functioned to enforce the agency's hierarchy of priorities. *See id.* at v-xii, 3-24. What began as a loose collection of "technical handbooks and manuals" evolved into "an outpouring of materials," *id.* at 211, issued with binding intent such that it became a form of "indoctrination," standardizing "universes of discourse, attitudes, skills, and interpretations." *Id.* at 215.

202. In this critique, I focus on the Forest Service to the exclusion of BLM because of the record of Forest Service experience with "diversity planning." The core statutory conservation mandate for the Forest Service appears in Section 6(g), requiring the Secretary of Agriculture (through the Forest Service) to do the following:

> [P]rovide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives, and within the multiple-use objectives of a land management plan adopted pursuant to this section, provide, where appropriate, to the degree practicable, for steps to be taken to preserve the diversity of tree species similar to that existing in the region controlled by the plan.

16 U.S.C. § 1604(g)(3)(B). This "diversity of plant and animal communities" requirement in NFMA is at the heart of virtually all modern controversies over management practices in the national forests. For a basic description and critique of the requirement—especially as it relates to the Forest Service's other "multiple-use" mandates and responsibilities under ESA—see Oliver A. Houck, *On the Law of Biodiversity and Ecosystem Management*, 81 MINN. L. REV. 869, 883-929 (1997). NFMA was a package of amendments to the patchwork of legislation governing the national forests which had, by the 1970s, become a detailed code governing Forest Service decisionmaking. Likewise, the 1976 enactment of FLPMA broadened and systematized the planning and conservation obligations of BLM. Not until the 1970s did either agency take planning to pertain to anything other than commonalities. *Cf.* 16 U.S.C. § 475 ("No . . . [national forest] shall be established, except to improve and protect the forest within [the boundaries] . . . [and] it is not the purpose or intent of these provisions . . . to authorize the inclusion therein of lands more valuable for the mineral therein, or for agricultural purposes, than for forest purposes.") (first brackets in original). In 1976, Congress enacted NFMA and FLPMA to reform perceived mismanagement of national forests and rangelands. *See* Sierra Club v. Peterson, 185 F.3d 349, 353-54 (5th Cir. 1999). The court noted:

> Because of widespread public distress and scientific concern over the Forest Service's post-World War II shift to massive, heavily-subsidized timber production in the National Forests, Congress for the first time required the Forest Service to implement a "land and resource management plan" ("LRMP") for each national forest or group of national forests.

Id. (citing § 1604(a)) (footnote omitted). It can fairly be said, though, that these agencies' "multiple use paradigm" still engenders a wide and deep river of administrative and judicial conflict. *See* Michael J. Mortimer, *The Delegation of Law-Making Authority to the United States Forest Service: Implications in the Struggle for National Forest Management*, 54 ADMIN. L. REV. 907 (2002).

203. *See* TERBORGH, *supra* note 14; *see also supra* notes 72-78 and accompanying text.

204. Grasslands, desert scrub, and all the other types of realty that land managers refer to as "range-

use goal is more difficult to achieve than it sounds. At the same time the commodity values of these lands are expropriated, the agencies must also manage the lands so as to achieve (or maintain) a "diversity" of plant and animal species.[205] What has been called a "rich history of litigation"[206] has

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lands" constitute some 70% of the earth's land area and 50% of the surface land area of the United States. JERRY L. HOLECHEK ET AL., RANGE MANAGEMENT: PRINCIPLES AND PRACTICES 14 (5th ed. 2004). In the United States, BLM manages approximately 170 million acres of rangelands (an area roughly the size of Texas), while the Forest Service manages some 100 million acres (roughly the size of California). *See id.* at 10. Similar to NFMA in this respect are FLPMA and the Public Rangelands Improvement Act of 1978 (PRIA), Pub. L. No. 95-514, 92 Stat. 1808. These acts impose specific planning requirements on BLM for grasslands and desert scrublands as "rangelands"—over and above the Multiple-Use, Sustained Yield Act of 1960, which generally required the "harmonious and coordinated management of the various resources." § 531(a).

BLM's modern comprehensive planning obligations were something of a shock to its institutional culture. Prior to 1974, BLM had a history of servicing the cattle industry—initiated in the Taylor Grazing Act of 1934 (if not before). George Cameron Coggins & Margaret Lindberg-Johnson, *The Law of Public Rangeland Management II: The Commons and the Taylor Act*, 13 ENVTL. L. 1 (1982). FLPMA's basic requirement was that BLM write and then implement "land use plans which provide by tracts or areas for the use of the public lands." 43 U.S.C. § 1712(a) (2000). FLPMA in essence extended the "multiple use and sustained yield" paradigm to rangelands, *id.* § 1732(a), defining "multiple use" as "the management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people . . . including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values." *Id.* § 1702(c). FLPMA was widely regarded as a mandate to BLM to take the environmental degradation associated with grazing more seriously. *Cf. id.* § 1701(a)(11) (requiring that "regulations and plans for the protection of public land areas of critical environmental concern be promptly developed"); BEAN & ROWLAND, *supra* note 4, at 377-78. Indeed, Congress reiterated the concern in its enactment of PRIA in 1978, just two years later. With PRIA it declared that "the goal" of rangeland management planning was to "improve the range conditions of the public rangelands so that they become as productive as feasible in accordance with the rangeland management objectives established through the land use planning process," consistent with the listed statutory objectives. 43 U.S.C. § 1903(b). The BLM plans themselves were to be modeled on and coordinated with the plans the Forest Service created for the national forests, *id.* § 1712(b), and were to "use a systematic interdisciplinary approach to achieve integrated consideration of physical, biological, economic, and other sciences." *Id.* § 1712(c)(2).

Even lacking firm commitments to wildlife habitat protection, this model of long-range planning has been a revolution for BLM, focusing on "areas of critical environmental concern," *id.* §§ 1711(a), 1712(c)(3), and driving the planning process. *See* COGGINS ET AL., *supra* note 80, at 800-03; *infra* note 293 and accompanying text.

205. The NWRS Improvement Act mandated that FWS manage refuges to "ensure that the [maintenance of] biological integrity, diversity, and environmental health of the System are maintained." 16 U.S.C. § 668dd(a)(4)(B). To that end, FWS amended its principal manual to direct local managers to achieve and maintain the maximum "diversity" of species in the refuge unit being managed. FISCHMAN, *supra* note 81, at 111-31 (analyzing the integrity, diversity and health mandates and concluding that FWS's implementation has closely tracked the Forest Service's approach).

Similarly, the core wildlife habitat conservation mandate for national forests under NFMA, requires the Secretary of Agriculture (through the Forest Service) to

> provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives, and within the multiple-use objectives of a land management plan adopted pursuant to this section, provide, where appropriate, *to the degree practicable*, for steps to be taken to preserve the diversity of tree species similar to that existing in the region controlled by the plan.

16 U.S.C. § 1604(g)(3)(B) (emphasis added). A basic description and critique of the "diversity mandate" and the Forest Service's other "multiple-use" priorities is available in Houck, *supra* note 202, at 883-929. In 1976, this amendment to the Multiple-Use, Sustained Yield Act of 1960 (MUSYA), came just two years after the Forest and Rangeland Renewable Resources Planning Act (FRRRPA). *See* Pub. L. No. 93-378, 88 Stat. 476 (codified in scattered sections of 16 U.S.C.). The 1976 enactment of NFMA and FLPMA deepened the planning and conservation obligations of the Forest Service and BLM. While the original 1960 MUSYA statute had listed five different "uses" of the land (in alphabetical order so as

filled in the details of this diversity planning as much as any centralized expert thinking.[207] The usual challenges of scale, complexity, and constant change frame these planning processes and their execution to make the preservation of extant biodiversity a tall (if not impossible) order for the planners.[208]

Each "planning unit" established by agency rules must create and then operate the subject parcels according to an LRMP for their districts.[209] The original Forest Service regulations implementing NFMA state that "[f]ish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area."[210] That required the ranger team managing the particular forest to

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not to imply a priority of uses) the Forest Service had, until the 1970s legislation, been managing its lands "for the purpose of securing favorable conditions of water flows, and to furnish a continuous supply of timber for the use and necessities of citizens of the United States." 16 U.S.C. § 475. The terrific growth in the demand for timber following World War II brought the Forest Service under heavy criticism as some perceived logging appeared to be an exhausting use of public lands. CHARLES F. WILKINSON & H. MICHAEL ANDERSON, LAND AND RESOURCE PLANNING IN THE NATIONAL FORESTS 28-29 (1987).

206. NAGLE & RUHL, *supra* note 12, at 407.

207. In 1985, Wilkinson and Anderson called wildlife diversity planning "one of the most dynamic and unsettled areas of modern Forest Service responsibility." WILKINSON & ANDERSON, *supra* note 205, at 273. Apparently, no one ever expected the Forest Service to preserve all wildlife species found within the National Forests. The much more administrable goal of a "diverse" community through "featured species management" came about from pragmatic compromises and trade-offs in the legislative process leading to NFMA. *See id.* at 285-306. But its precise meaning as a mandate was left unclear to an agency not known for its stewardship of wildlife populations. *Id.* at 273, 296-99.

208. Balancing these three sets of variables in the process of writing an LRMP forces the setting of national forest wildlife policy one "planning unit" at a time. Certainly, this is a type of localism (or at least a "regionalism"). *See* WILKINSON & ANDERSON, *supra* note 205, at 76-81. The planning regulations were originally designed to ensure a "continuous flow of information and management direction among the three Forest Service administrative levels: national, regional, and designated forest planning area." *See* National Forest System Land and Resource Planning Notice of Final Rule, 44 Fed. Reg. 53,928, 53,978 (Sept. 17, 1979). "Management direction [was to] be based principally upon locally derived information," with policy prescriptions "becom[ing] increasingly specific as planning progresses from the national to regional level, and from the regional to designated forest planning area." *Id.* Thus, whatever discretion is preserved to individual forests, the local planning processes have always been structured by the detailed rules of Part 219—a set of regulations that has only grown more detailed and structured. *See* Zwight, *supra* note 28, at 30-32.

209. The system is organized hierarchically from the "central office" in Washington, D.C., Parks, Forests, and Public Property, 36 C.F.R. § 200.1 (2005) (Chief and Deputy Chiefs), to ten national "regions," *id.* § 200.2(a), to the different forests and their "Forest Supervisors," *id.* § 200.2(a) (1), and, finally, to individual "ranger districts" supervised by a single "District Ranger" who is immediately responsible to the Forest Supervisor. *Id.* § 200.2(a)(2). "Two or more proclaimed or designated National Forests, or all of the Forests in a State, may be combined into one Forest Service Administrative Unit headed by one Forest Supervisor." *Id.* § 200.2(a)(1). For example, the Chequamegon and Nicolet National Forests in northern Wisconsin, a collection of four dispersed tracts of land totaling about 1.5 million acres, are combined under one Forest Supervisor. *See* FOREST SERV., U.S. DEP'T OF AGRIC., CHEQUAMEGON-NICOLET NATIONAL FOREST, RECORD OF DECISION: FINAL ENVIRONMENTAL IMPACT STATEMENT (2004) [hereinafter CNNF ROD], *available at* http://www.fs.fed.us/r9/cnnf/natres/final_forest_plan/rod/index.html. In finalizing its most recent Forest Plan and Final Environmental Impact Statement in May 2004, the two units created a first ever common policy on ATV usage, *see* CNNF ROD, *supra*, at 10-12, several elements of which were directed at reducing steep slope degradation by ATV users to be implemented "in collaboration with township governments" neighboring the forests. *Id.* at 11.

210. It is hard to pinpoint where this requirement originated. The quoted text, Parks, Forests, and Public Property, 36 C.F.R. § 219.19 (1999), emerged in amendments made by the Reagan Administra-

study the area in question,[211] inventory the species that are found there, arrive at some (at least rudimentary) understanding of the habitat needs of those species, and finally "manage" the human activities (such as logging, mining, or off-roading) in that area according to a written "plan" so as not to extirpate the species from the area.[212] Once in place, the plans are binding on all Forest Service officials, and no "project-level" decisions can be made which are inconsistent with applicable plan provisions.[213] In short, the prac-

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tion in 1982, ostensibly "simplifying" the very first version of the regulations which was finalized in 1979. These first iterations implementing section 6(g) of NFMA, 16 U.S.C. § 1604(g) (1999), with their focus on population viability, first came under fire as overly ambitious and prescriptive during the Clinton Administration. Notably, though, the 1979 finalization was the product of a blue-ribbon panel (a "Committee of Scientists"), convened for the purpose of fulfilling NFMA's promise to halt biodiversity loss in the national forests. WILKINSON & ANDERSON, *supra* note 205, at 43-44.

The 1982 rules were in place long enough to guide the writing of LRMPs for every national forest and grassland. *See* Forest Service, National Forest System Land and Resource Management Planning, 67 Fed. Reg. 72,770 (Dec. 6, 2002) (to be codified at 36 C.F.R. pt. 219). The Clinton Administration empanelled another Committee of Scientists in the late 1990s and recommended a major overhaul. But, that overhaul was not completed until 2000—on the eve of the presidential succession. *See* Forest Service, Final Rule, National Forest Land and Resource Management Planning, 65 Fed. Reg. 67,568 (Nov. 9, 2000) (codified at 36 C.F.R. pts. 217, 219). The animosity between the Bush and Clinton White Houses, combined with several points of Forest Service frustration with the 2000 rules, led the Bush Administration to shelve both the 2000 rules, *see* Forest Service, Notice of Proposed Rulemaking, 67 Fed. Reg. 35,431 (May 20, 2002) (to be codified at 36 C.F.R. pt. 219), and a re-proposal intended to "simplify" the planning process. *See* National Forest Land and Resource Management Planning, Proposed Rule, 67 Fed. Reg. 72,770 (2002). Two of the concerns cited in the 2002 re-proposal were (1) unit-level flexibility and discretion and (2) a perceived over-emphasis on "ecological, social, and economic sustainability" standards for forest plans. *Id.* at 72,772. The 2002 re-proposal, however, quickly went into limbo, and each national forest planning unit received the discretion to choose either the 1982 or the 2000 planning rules. National Forest Land and Resource Management Planning, Extension of Compliance Deadline, 67 Fed. Reg. at 35,432.

211. Strictly speaking, planning "units" can be more than one national forest per se and, where forests are proximate to one another, usually encompass two or more proclamation units. The specific form of complexity in the 2000 rules to which some elements within the Service objected in the 2000 version involved the monitoring of plan execution and evaluation of causes and effects of management within the planning area. *See* National Forest Land and Resource Management Planning, Proposed Rule, 67 Fed. Reg. 72,781, 72,781-82. Where the 2000 rules set a very rigorous standard for monitoring and evaluation by regional and district foresters—tied to the principles and known practice tenets of adaptive management—the 2002 proposal blanched at writing such requirements as rules of law, opting instead to control "how monitoring should be done, what monitoring should be done, and how monitoring information should be evaluated . . . through the agency's Directive System rather than specified in a rule." *Id.* at 72,782. The Service's "Directive System" is a set of internal communications and delegation routines whose outputs are collected into the celebrated "Forest Service Manual" but which are not legally enforceable outside the agency.

212. This is known as the duty to engage in "diversity planning." Since the planning regulations have been in place, some form of "[m]anagement [i]ndicator [s]pecies" (MIS) approach has been required of each management unit, largely because it is an administrable substitute for an otherwise impossible task. *See* WILKINSON & ANDERSON, *supra* note 205, at 299-300 ("[M]erely obtaining an inventory of existing vertebrates could take decades, and be out of date when finished. Without some method of simplifying the planning task, no forest plan could realistically be expected to comply with" the diversity requirements.).

213. The 1982 rule required that managers "insure" the continued existence of extant vertebrate species in each national forest. *See* Parks, Forests and Public Property, 36 C.F.R. § 219.19 (1999). This troubled many planners. "Species such as the grizzly bear, cougar, and wolverine . . . have relatively low population densities . . . [and] often have a range encompassing more than one national forest." WILKINSON & ANDERSON, *supra* note 205, at 303. In other words, extant populations of these predators as fragments of larger metapopulations may dissipate in ways that prevent a planner from ensuring their continued existence, at least within the domain of the lands under his or her authority. *See* TERBORGH, *supra* note 14.

tice of resource extractions like "timber management" is coordinated to the practice of wildlife habitat conservation, something many once thought impossible.[214]

The law and biogeography of the Forest Service's planning units, though, are both decidedly imperfect if the objective is to protect biodiversity. Each of the units suffers from several well-rehearsed critiques. First, most of the designated forests are patches far too small to fulfill very many habitat functions by themselves.[215] Additionally, many if not most are "random" in location and boundary in the sense that they bear stronger relation to the history of logging in the United States than to the habitat needs of their extant populations or meta-populations.[216] Finally, the landscapes

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The 2000 and 2002 rules required that planners "achieve ecological sustainability," *see* Parks, Forests and Public Property, 36 C.F.R. § 219.20 (2002), and stated that "[e]cosystem diversity and species diversity are components of ecological sustainability." *Id.* § 219.20(a). Both rules allowed planners the discretion to identify specific "[c]haracteristics of ecosystem and species diversity," so long as the characteristics identified are "consistent at various scales of analyses." *Id.* § 219.20(a)(1). The rules specifically required that planners identify "focal species" and "[s]pecies-at-risk," *see infra* note 257, but both of these were still intended to serve as proxies for overall community diversity and viability. *See id.* § 219.20(a)(1)(ii). And while "[t]he 2002 proposed rule would have required that Forest Service decisions be consistent with the best available science," the 2005 finalized version of the rules only "requires that the Responsible Official take into account the best available science." National Forest Land and Resource Management Planning, 70 Fed. Reg. 1023, 1027 (Jan. 5, 2005) (to be codified at 36 C.F.R. pt. 219).

214. An earlier generation of advocates attempted to use the Forest Service's "sustained yield" philosophy to limit logging, but clear cuts every forty years constitute, in a sense, a 'sustained' yield. That emptiness within the sustained yield philosophy eventually led to a view of timber management as completely distinct from habitat protection, posing the two as incommensurable values to be "balanced" against one another. *See* R.W. Behan, *Political Popularity and Conceptual Nonsense: The Strange Case of Sustained Yield Forestry*, 8 ENVT'L L. 309 (1978). But processes of habitat fragmentation insularize wildlife populations through a variety of means. There need not necessarily be some physically impenetrable barrier separating a population from larger populations in order to effectively isolate that population: the barrier need only impede migrations and interchange to a degree that colonizations become statistically improbable. Genetics, environmental stresses, and chance then take over to render extinction much more likely. *See* Shaffer, *Minimum Viable Populations*, *supra* note 66. Some conservation biologists have argued that the so-called "even-aged management" of timber (clear cutting) on a sufficient scale can sufficiently isolate a population from its metapopulation so as to effectively preclude migration. *See* NOSS & COOPERRIDER, *supra* note 32, at 192-205. Thus, under the NFMA, Forest Service officials must practice both timber management and habitat protection.

215. The Chequamegon and Nicolet national forests (CNNF) in northern Wisconsin, south of Lake Superior, represent the size, inter-mixture of ownership, and ecological context of many national forests. Much of CNNF "is adjacent to or near private land parcels," being subdivided and sold to "people who desire to find their place in the woods where they can escape from the everyday stresses of city life." U.S. FOREST SERV., THE YEAR IN REVIEW: CHEQUAMEGON-NICOLET NATIONAL FOREST 2003, at 4 (2004) (copy on file with author). This sort of fragmentation presents significant difficulties for the supervisors of CNNF, although logging continues. *See* U.S. Forest Service, Notice of Intent to Prepare an Environmental Impact Statement, 69 Fed. Reg. 76,904 (2004) ("To address the need for restoration of northern hardwood forest, approximately, 7,897 acres of predominantly even-aged northern hardwood stands would be selectively harvested.").

216. The court noted:

> Until the mid-1800s, both the Nicolet and Chequamegon were old-growth forests consisting primarily of northern hardwoods. Pine logging around 1900, hardwood logging in the 1920s, and forest fires (caused by clear cutting) significantly affected the landscape. Government replanting and forest-fire control efforts beginning in the 1930s have reclaimed much of the land as forest. The forests now contain a mixture of trees that markedly differs from the forests' pre-1800 "natural" conditions but is also more diverse in terms of tree type and age.

comprising the national forests are often *severely* under-managed, both in terms of their biophysical characteristics (e.g., invasive species, vegetative structure, etc.)[217] and in terms of the performance of ecosystemic monitoring and organizational learning and adaptation.[218]

Sierra Club v. Marita, 46 F.3d 606, 609 n.1 (7th Cir. 1995). *Cf.* WILLIAM G. ROBBINS, LUMBERJACKS AND LEGISLATORS: POLITICAL ECONOMY OF THE U.S. LUMBER INDUSTRY, 1890-1941, at 16-34 (1982) (tracing the history of over-harvesting in regions like the Great Lakes and its role in the rise of the Forest Service's influence over timber policy and public lands management in the twentieth century).

217. The so-called 1982 rule remained in effect until the end of the Clinton Administration and required that MIS be selected

> because their population changes are believed to indicate the effects of management activities. In the selection of [MIS], the following categories shall be represented where appropriate: Endangered and threatened plant and animal species identified on State and Federal lists for the planning area; species with special habitat needs that may be influenced significantly by planned management programs; species commonly hunted, fished, or trapped; non-game species of special interest; and additional plant or animal species selected because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities.

36 C.F.R. § 219.19(a)(1) (1982). The 2000 revision from the second Committee of Scientists provided instead that "[e]cosystem diversity and species diversity [were] components of ecological sustainability," 36 C.F.R. § 219.20(a) (2001), "the overall goal of management of the National Forest System." *Id.* § 219.19 (2005). One of the "characteristics" of ecosystem and species diversity specifically listed was "the number, distribution, and geographic ranges of plant and animal species, including focal species and species-at-risk that serve as surrogate measures of species diversity." *Id.* § 219.20(a)(1)(ii). Each plan was required to designate two types of species to manage. First "[s]pecies-at-risk," defined as any "[f]ederally listed endangered, threatened, candidate, and proposed species and other species for which loss of viability, including reduction in distribution or abundance, is a concern within the plan area," were to be automatically evaluated as part of plan revisions *Id.* §§ 219.36, 219.20(a)(ii). Second, "focal species" were intended to "provide insights to the larger ecological systems with which they are associated," *id.* § 219.20(a)(i)(E), and these could be selected by planners as "an indicator of ecological sustainability," or as "surrogate" measures that "serve an umbrella function in terms of encompassing habitats needed for many other species, [or] play a key role in maintaining community structure or processes, are sensitive to the changes likely to occur in the area." *Id.* § 219.36.

According to the literature on adaptive management, the 2000 rule was a major improvement over the 1982 rule, thanks in large part to the second Committee of Scientists. Nonetheless, the rule was immediately stayed by the Bush Administration during a comprehensive review of many rulemakings by the Clinton Administration. *See* Zwight, *supra* note 28, at 30. The Bush Administration's 2002 proposal was actually shelved in favor of another version. *See* Felicity Barringer, *Administration Overhauls Rules for U.S. Forests*, N.Y. TIMES, Dec. 23, 2004, at A1. Throughout the interregnum between rules, individual forests were given the authority to choose between the different versions when undergoing forest plan amendment processes. *See* Zwight, *supra* note 28, at 30. For present purposes, though, I shall discuss the 1982 rule and the body of case law which developed interpreting it because significant legal questions (and several challenges) still surround the 2005 Bush administration replacement. *See infra* note 257 and accompanying text.

218. Conservation biology's reliance on adaptive management places significant weight on *monitoring* the ecosystem on several different spatial and temporal scales simultaneously. Critically, that is something the federal government's wildlife habitat managing agencies have been especially derelict in accomplishing. *See* NOSS & COOPERRIDER, *supra* note 32, at 298-324; LEE, *supra* note 18, at 51-86; Karkkainen, *supra* note 136, at 210-23; C.S. Holling et al., *Science, Sustainability, and Resource Management, in* LINKING SOCIAL AND ECOLOGICAL SYSTEMS: MANAGEMENT PRACTICES AND SOCIAL MECHANISMS FOR BUILDING RESILIENCE 342, 346-53 (Fikret Berkes & Carl Folke eds., 1998). The impediments to effective monitoring for adaptive management stem from various sources—including those who have strong economic incentives not to cooperate or an ideological opposition to sharing information, *see* WALTERS, *supra* note 21, at 112-13, and the fact that the bureaucratic reward system within agencies is unconnected to how well monitoring is performed. NOSS & COOPERRIDER, *supra* note 32, at 299 ("[T]he reward (or punishment [within agencies like BLM]) is related to whether the news is good or bad, not to whether the job was done in an efficient, systematic, thorough, honest, or scientific manner."). Without sophisticated monitoring and data collection from the front, even the most well-informed efforts to protect habitat are doomed to fail when conditions change and managers remain

B. Picking Diversity's Indicators

Because the agencies lack resources to manage all the extant species within even the smallest management units, the planning regulations have required at most the use of "management indicator species" (MIS). The designation and use of these proxies is meant to capture a representative sample of the ecosystem.[219] Scientific opinion varies as to this method's overall reliability.[220] While "[t]his duty to ensure viable, or self-sustaining, populations, applies with special force to 'sensitive' species,"[221] the legal principles on point create, first and foremost, a highly technical, highly poli-

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ignorant. *Id.* ("We should design monitoring programs just as carefully as we conduct any scientific study, using principles of sampling theory and experimental design."). This sort of organizational dynamism is possible. *See* Westley, *supra* note 1, at 401 ("[I]t is possible to design 'changeful' organizations . . . . Studies of highly adaptive systems suggest that the design need only provide mechanisms that facilitate the learning processes inherent in all human activity and that ensure the dissemination of that learning throughout the organization."). It is just not so clear that its possibile conditions are consistent with the legal and institutional realities of federal administrative agencies and current administrative law. *See* Colburn, *supra* note 117; *infra* notes 304-12 and accompanying text.

219. The 1983 version of Section 219.19 provided:

> In order to estimate the effects of each alternative [considered in the draft and final versions of the management plans for each forest] on fish and wildlife populations, certain vertebrate and/or invertebrate species present in the area shall be identified and selected as *management indicator species* and the reasons for their selection will be stated. These species shall be selected because their population changes are believed to indicate the effects of management activities.

§ 219.19(a)(1) (1983) (emphasis added). Furthermore, the 1982 Planning Regulations stated: "All management prescriptions shall . . . [p]rovide for adequate fish and wildlife habitat to maintain viable populations . . . and provide that habitat for species chosen under § 219.19 is maintained and improved to the degree consistent with multiple-use objectives established in the [forest] plan." *Id.* § 219.27(a)(6).

Of course, the selection of these so-called "management indicator species" is pivotal. It is at this decision point that habitat protection and restoration objectives—and therefore the qualitative ecosystemic characteristics (including potential connectivity) that the managers will seek to foster—are set. *See Marita*, 46 F.3d at 606. Later, after this matrix of species is set, the Forest Service must predict the minimum necessary number, or "viable populations," of the species and the needs thereof (which is another set of controversial determinations). *Cf.* Or. Natural Res. Council v. Lowe, 109 F.3d 521, 527-28 (9th Cir. 1997) (rejecting the challenge brought against the forest plan as relying on outdated science of minimum viable populations).

220. The species that forests choose as their MIS

> should represent endangered or threatened plants and animals; species with special habitat requirements which may be affected significantly by planned activities; commonly hunted, trapped, or fished species; special interest species; and plant or animal species selected because their population changes are believed to indicate the effects of management activities on other species.

Utah Envtl. Cong. v. Bosworth, 372 F.3d 1219, 1224 (10th Cir. 2004).

Because of their role as representatives, MIS have been variously described as "a bellwether—a class representative," *id.* (quoting Inland Empire Pub. Lands Council v. U.S. Forest Serv., 88 F.3d 754, 762 n.11 (9th Cir. 1996)), "a management short-cut," *id.* (quoting Forest Guardians v. U.S. Forest Serv., 180 F. Supp. 2d 1273, 1281 (D.N.M. 2001)), and "a proxy for determining the effects of management activities on other species," *id.* (quoting Colo. Envtl. Coal. v. Dombeck, 185 F.3d 1162, 1170 (10th Cir. 1999)). But of course the MIS bellwethers are always selected knowing full well that they are part of an assemblage of species composed as a result of past forest management practices—and for the purpose of producing a desirable (not necessarily a "natural") forest. *Cf.* Krichbaum v. Kelley, 844 F. Supp. 1107, 1115 (W.D. Va. 1994), *aff'd*, 61 F.3d 900 (4th Cir. 1995) (arguing that "[e]cosystem management is the means to an end. It is not the end itself. The Forest Service does not manage ecosystems just for the sake of managing them or for some notion of intrinsic ecosystem values").

221. *Inland Empire Pub. Lands Council*, 88 F.3d at 759.

ticized Forest Service *judgment* when it comes to picking these indicators. It is a type of agency judgment that often garners significant deference from generalist judges.[222] But it is has also been a high-stakes, pivotal point litigated often enough to create the perfect regulatory bottleneck and the resultant paralysis-by-analysis.[223]

Furthermore, the Forest Service as a local, regional, and national bureaucracy, with all of the attendant organizational issues of its size and diversity, has an internally conflicted view of what its policy on "sustainability" is seeking to sustain.[224] Which wildlife species to manage—and which, in effect, to ignore—is, of course, the *biggest* decision confronting the modern forester.[225] Lacking the resources to manage them all, "representative" species must be selected.[226] And both the Forest Service and BLM have received great deference from reviewing courts on their choices of what species to manage, even while stakeholders routinely object, knowing full well how determinative of land use policies these choices are.[227]

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222. *Compare* Houck, *supra* note 202, at 885-920 (describing a series of cases where Forest Service planning was attacked as invalid under NFMA and the Part 219 regulations and upheld in the face of scant scientific evidence), *with* FEDKIW, *supra* note 162, at 192-203 (describing the low incidences of plans being overturned on appeal). This is an increasingly qualified deference. *See, e.g.*, Idaho Sporting Cong. Inc. v. Rittenhouse, 305 F.3d 957 (9th Cir. 2002).

223. Mortimer, *supra* note 202, at 937-55; FEDKIW, *supra* note 162, at 257-69.

224. *Cf.* Charles S. Wilkinson, *A Case Study in the Intersection of Law and Science: The 1999 Report of the Committee of Scientists*, 42 ARIZ. L. REV. 307, 313 (2000) ("A cornerstone of any sustainability analysis is the question, 'What are we trying to sustain?'"); *id.* at 313-18 (acknowledging legal and organizational conflicts within Forest Service planning ranks). Quite famously, the Forest Service of the 1950s was lauded by a noted public administration scholar for being exceptionally well organized and managed, relatively effective, and largely perceived as expert and professional. *See* KAUFMAN, *supra* note 201. Kaufman argued that the local forest rangers succeeded because they shared a common professional vision from locality to locality and were managed from headquarters by people who once were, by and large, field officers. *Id.* In both subtle and overt ways, NFMA irreversibly shifted the balance of power within the Forest Service to the agency's "center." *Cf.* WILKINSON & ANDERSON, *supra* note 205, at 76-90 (describing the politics leading to NFMA and the Forest Service's "top-down" approach to management under the diversity mandate); Dorf & Sabel, *supra* note 117, at 364-70.

225. *See supra* notes 40-57 and accompanying text. Cognate to many discussions of "management indicator species" is the notion that some species may be selected for attention because they represent a kind of heuristic for the habitat needs of many species at once. *See* NOSS & COOPERRIDER, *supra* note 32, at 8 ("To illustrate the umbrella concept, consider a carnivore . . . that requires millions of acres of land to maintain a viable population. If we secure enough wild habitat for these large predators, many other less-demanding species will be carried under the umbrella of protection."). Conservation biologists are divided over the notion of "umbrella species"—organisms or populations that serve as a proxy for an entire species or community—because it is easy for regulators to expect too much from such heuristics.

226. Of course, conflict abounds when the selection of "representatives" is necessary. Without structuring agency discretion through legally enforceable obligations, the allegation is easily made that the Forest Service or BLM will select MISs with pliant or at least less-than-extraordinary habitat needs. As Professor Houck argued over a decade ago, "[t]he MIS approach is as excellent or as abysmal as the species selected. . . . The diversity regulations fail when they allow the selection of common species or species of convenience, obviously selected to continue a high level of locally popular 'outputs.'" Houck, *supra* note 202, at 923.

227. LRMPs required of the Forest Service under NFMA must be revised "when [the Forest Service] finds conditions in a unit have significantly changed, but at least every fifteen years." 16 U.S.C. § 1604(f)(5) (2000). Each unit plan thus comes up periodically for review and revision, and that revision must proceed according to the dictates of the part 219 planning regulations. *See supra* notes 199-213 and accompanying text. But even prior to the Supreme Court's holding in *Ohio Forestry Ass'n v. Sierra Club*, 523 U.S. 726 (1998) (holding that the plans, in and of themselves, do not necessarily present justiciable issues), the level of judicial scrutiny given the Forest Service's efforts to comply with the

But these agency decisions are subject to an even broader critique; one that is, depending on one's viewpoint, of potentially devastating proportions. It is a critique equally valid of virtually all efforts to achieve or conserve "diversity." For our purposes it may be reduced to the question: "diverse compared to what"? Diversity is an inherently relative concept, and its articulation depends on setting a baseline or context of comparison.[228] NFMA ignores this facet of the concept in a disturbed landscape and thus confounds land managers attempting to investigate the unique species compositions they have inherited.[229] These landscapes have been profoundly affected by past disturbances, and managers must decide whether and how they ought to be kept intact. Still, such debate about first principles is hardly even acknowledged as the planners are drawn into conflict with stakeholders seeking particular outcomes from isolated "planning units."[230]

"diversity" mandate was notoriously low. In *Sierra Club v. Marita*, 46 F.3d 606 (7th Cir. 1995), the court stated that, in selecting management indicator species and setting goals for the forest "units" being planned, the "Service is entitled to use its own methodology, unless it is irrational." *Id.* at 621. To Sierra Club protests that the Forest Service was required to set aside large, unfragmented habitats in to protect "old-growth forest communities" within the two forests at issue, the court responded that "the Service did consider the maintenance of some old-growth forest," and even if its "choice did not promote 'natural diversity' above all else, the Service acted well within its regulatory discretion." *Id.*

The schedule of timber sales under consideration in the *Marita* plan was keyed to the "expected consumption level" for virtually all alternatives considered because, as the planning rules require, foresters are required to maximize their forest's net value of "priced outputs," primarily timber and fee-based use permits. *See* Sierra Club v. Marita, 843 F. Supp. 1526, 1552-54 (E.D. Wis. 1994), *aff'd*, 46 F.3d 606 (7th Cir. 1995). That was considerably below what Forest Service regulations calculated would be the forests' projected timber supply, *id.* at 1552, but little data was available linking the timber requirements to particular habitats within the forests. *Id.* at 1535-44.

228. *Cf.* Sheila Foster, *Difference and Equality: A Critical Assessment of the Concept of Diversity*, 1993 WIS. L. REV. 105, 130-47 (critiquing the concept of diversity as "empty" unless some antecedent "baseline" is established against which the subject in question shall be measured). Of course, in the affirmative action context, the baseline for purposes of measurement in pursuing, for example, a "diverse student body," can easily be established through statistics of the national, regional, or local talent pool from which applicants are drawn. *See* DEREK BOK, BEYOND THE IVORY TOWER: SOCIAL RESPONSIBILITIES OF THE MODERN UNIVERSITY 91-115 (1982). Critics of affirmative action attack it both on grounds of the relativity of the concept and on the selection of the particular baseline. *Cf.* PETER H. SCHUCK, DIVERSITY IN AMERICA: KEEPING GOVERNMENT AT A SAFE DISTANCE 163 (2003) ("Diversity, like equality, is an idea that is at once complex and empty until it is given descriptive and normative content and context." (quoting Peter Westen, *The Empty Idea of Equality*, 95 HARV. L. REV. 537 (1982))). Yet, for purposes of estimating a "diverse" species assemblage within particularized geographic confines, a national forest management unit governed by NFMA lacks a similarly intuitive baseline. *See supra* notes 34-47 and accompanying text (past disturbance and human-domination).

229. We may say "unique" species assemblages because of the inherently distinctive ecological history of any particular "management unit" within the system of national forests, wildlife refuges, parks, and range. *See* FISCHMAN, *supra* note 81, at 163-82; WILKINSON & ANDERSON, *supra* note 205, at 296-306; *see generally* BOTKIN, *supra* note 15.

230. On the volume of litigation over national forest management planning, see Mortimer, *supra* note 202, at 932-48. Bureaucratic coping tactics have often been substituted for truly adaptive management. For example, in the recent litigation over the "Monroe Mountain Ecosystem Restoration Project" within the Fishlake National Forest in central Utah (involving a massive effort to return the area to a stable species assemblage and structure), an environmental group sued the Forest Service over its failure to provide for the proper monitoring of the local populations of selected MIS and other selected "high interest" species. Utah Envtl. Cong. v. Bosworth, 372 F.3d 1219, 1221-23 (10th Cir. 2004). The Tenth Circuit held that the Forest Service's failure to collect data on actual populations was, under its then-applicable diversity planning regulations, reversible error. *Id.* at 1231. But while it held that "in order to effectuate its MIS monitoring duties under the language of its regulations, the Forest Service must gather quantitative data on actual MIS populations that allows it to estimate the effects of any forest manage-

For example, in planning the timber harvest or the allowable extent of off-road vehicle (ORV) use over the life of a plan, typically 10-15 years, the responsible foresters must balance often inconsistent uses and objectives against one another. (ORV users generally prefer to ride through forests, not clear-cuts; but they usually need wide trails.[231]) Indeed, habitat functions are sometimes far down a long list of objectives, and the balances are all too often struck on the basis of extremely imperfect information and confined within a set of legal boundaries wholly unrelated to the natural realities of the area. The recently completed LRMP for the Chequamegon and Nicolet National Forests (CNNF) in northern Wisconsin was chosen from among nine possible alternative plans.[232] Rather than selecting a provisional course from among these alternatives with the possibility of post-adoption corrections, the "plan" represents the "decision" recorded by the "management unit," which is sent off to be announced and defended by Forest Service headquarters.[233]

A subtitle of CNNF's "Record of Decision" (a collection of all the relevant data, comments, and other material underlying the finalized plan) was "*A Century of Restoration*"[234]—a reference to the history of destructive logging throughout the Great Lakes region.[235] The depth of human "disturbance" that managers face in CNNF is palpable. Typical of the system as a whole, the fragments of federal ownership comprising CNNF are very much diverse from one another in canopy structure, topography, and species di-

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ment activities on the animal population trends," *id.* at 1227 (footnotes omitted), the court also emphasized that forest-wide data was not required where it was costly to acquire and where "trend" estimates were therefore preferred. *Id.* at 1228-29. The only adaptation the Forest Service has found fit to adopt in light of such conflicts has been the wholesale exemption of several kinds of forest projects from the entirety of the appeals process, *see* Procedures for National Forest System Projects and Activities, 68 Fed. Reg. 33,582 (2003), and the complete elimination of the population monitoring requirement from the 2005 planning rule amendments. *See infra* note 257 and accompanying text.

231. DAVID G. HAVLICK, NO PLACE DISTANT: ROADS AND MOTORIZED RECREATION ON AMERICA'S PUBLIC LANDS 84-128 (2002).

232. Each forest plan must be the best alternative, all things considered, from among a list of possible plans pursuant to NEPA. *See infra* notes 279-83 and accompanying text. The Chequamegon and Nicolet National Forests (CNNF) are managed as one "unit" and thus have been aggregated into a single plan. *See* CHEQUAMEGON-NICOLET NATIONAL FORESTS, FINAL ENVIRONMENTAL IMPACT STATEMENT SUMMARY 1-2 (2004) [hereinafter CNNF FEIS]. The Record of Decision for the 2004 Plan and Environmental Impact Statement comprises the exclusive record for all the alternatives and data considered throughout the administrative and judicial appeals. *See* CNNF ROD, *supra* note 209.

233. *See* Jack Tuholske & Beth Brennan, *The National Forest Management Act: Judicial Interpretation of a Substantive Environmental Statute*, 15 PUB. LAND L. REV. 53, 102-26 (1994). Indeed, it would seem to mock NEPA's commitment to participatory transparency and collaboration if LRMPs did not have some sort of rigidity or legal weight in themselves. Otherwise, what would be the point of stakeholder involvement in such a long and costly process? *Cf.* Jody Freeman, *Collaborative Governance in the Administrative State*, 45 UCLA L. REV. 1, 21-23 (1997) (describing traditional administrative law's unease with the various forms of "provisionalism").

234. CNNF ROD, *supra* note 209.

235. The logging of the Great Lakes forests in the last third of the nineteenth century was characterized by massive over-harvesting (glutting timber markets and creating price depressions), erosion, and water quality degradation. *See* WILLIAM G. ROBBINS, AMERICAN FORESTRY: A HISTORY OF NATIONAL, STATE, AND PRIVATE COOPERATION 37 (1985); MICHAEL WILLIAMS, AMERICANS AND THEIR FORESTS: A HISTORICAL GEOGRAPHY 211-44 (1989).

versity,[236] rendering the CNNF "management unit" a cross-hatched mélange of various habitat types no one of which is necessarily well-known enough to yield a coherent long-term plan.[237] And when forecasts are made that ORV use is emerging as the major threat to wildlife throughout the region into the foreseeable future,[238] it becomes clear that far too little is known at this point to actually "plan" CNNF's next two decades.[239]

This generation's experience with planning in the "National Forest System" to meet the NFMA diversity mandate leads to at least two conclusions. First, the assemblages of species being managed in the highly manipulated environments of our national forests are a function of the particular planning unit's wildlife populations as they have adapted to past human distur-

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236. ROD summarizes it in the following terms:

> Some [of the] areas of the Forests are early successional forests—young, simply structured systems where aspen are the most common tree species and where ruffed grouse, white-tailed deer, and chestnut-sided warblers thrive. In contrast, largely contiguous mid- to late-successional northern hardwood forests characterize other sections of the Forests, where older and larger sugar maple, hemlock, yellow birch, basswood, and white ash predominate. These are the forests where least flycatchers, northern goshawks, and black-throated blue warblers make their home. There are a wide variety of non-forested and aquatic ecosystems that mix throughout the Forest. The relative sizes of these forest systems, their relative positions on the landscape, and their interconnectedness all contribute to a landscape pattern that defines the Forests' contribution to ecosystem sustainability at various scales.

CNNF ROD, *supra* note 209, at 2.

237. The responsible official concluded in the CNNF plan that "[o]ver the long-term, [the selected enclaves within the forests] . . . will combine to provide landscape-scale patches of interior northern hardwoods at least 20,000 acres in size." *Id.* at 8. This was contingent, of course, on a road-building moratorium, ORV use restrictions, and tightly controlled logging. *See id.* at 7-14. Much of the practical reality CNNF planners face in the achievement of the diversity objective, though, is driven by the dispersal of the "forest" and the pervasive presence of non-Forest Service created human disturbances. *Id.*

> If my decision [to protect the enclaves] is implemented over several decades it will shift the forest landscape away from the fragmented blocks left to us early in the 20th century to a balanced landscape of large blocks of interior forest . . . . provid[ing] a greater degree of habitat security in the future for the sum-total of all the plant and animal species native to these forests.

Id. This has generally been true across the spectrum of federal land holdings. *See generally* John F. Lambert, Jr., *Private Landholdings in the National Parks: Examples from Yosemite National Park and Indian Dunes National Lakeshore*, 6 HARV. ENVTL. L. REV. 35 (1982).

238. *Cf.* NOSS & COOPERRIDER, *supra* note 32, at 248, 336; HAVLICK, *supra* note 231, at 98-105 (describing the pervasiveness of ORV use in various kinds of public lands and its effects on wildlife). "A Freedom of Information Act request submitted to all national forests in 1998 determined that 71 percent of the responding forests recorded resource damage or motor vehicle violations including improper use of forest trails, illegal use of vehicles off-road, or violating standards for noise, smoke, safety, or state laws." *Id.* at 103.

239. One of the chief mistakes Walters diagnosed of those seeking the single "best" option in natural resource management is where the planner

> suppose[s] that better management options will emerge from dispassionate and relaxed discussion about the managed system. There is an excellent warning about this mistake in the old adage "necessity is the mother of invention," and plenty of empirical evidence about how major innovations in technologies and social systems have come mainly in times of crisis.

WALTERS, *supra* note 21, at 337. This is not to deny that experience is important, for "[r]ather than plucking something entirely fresh out of the air, we usually gain new ideas by seeing analogies or similarities," *id.* at 338, but it is to say that the historical record can become a prison for an uncreative mind. *Cf.* G. Motzkin et al., *Forest Landscape Patterns, Structure, and Composition*, *in* FORESTS IN TIME, *supra* note 15, at 171, 186-88 (explaining how intricate the webs of causation can become with only a few perturbations in a forest system and how difficult it can be for managers to achieve a real understanding of its ecological history).

bances—wholly independent of some "historic" or "natural" baseline.[240] Thus, for example, as recreational activities replace extractive industry as the most disruptive of human activities on public lands,[241] the obligation to plan out a "working" landscape ten, fifteen, or twenty years into the future becomes unhinged from most of the data the planners possess. Especially amid landscape-scale disruptions—most of which stem from land uses that are either meaningful or profitable (or both) for the local communities surrounding the unit—the planning mandate has become a monumental barrier for one simple reason: what we know about the past in these places is becoming irrelevant as the future diverges from that past.[242]

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240. This basic reality often provokes the most litigation, as, for example, when regional or local foresters select management indicator species that are not necessarily representative of a "natural forest" baseline prior to logging or other human disturbances. *See* Houck, *supra* note 202.

A recent case involving a major expansion of the Vail ski area in the White River National Forest illustrates the problem. There, the notion of a viable population was used to reason that, because no *known* population of Lynx was present within that national forest, *no* attention would be paid to that species in the decision to permit expansion of the ski area. *See* Colo. Envtl. Coal. v. Dombeck, 185 F.3d 1162, 1169-70 (10th Cir. 1999). Because the Forest Service had not formally designated the Lynx as a "[m]anagement [i]ndicator [s]pecies" and because it had no obligation to "gather population data where no [ascertainable] population exists," the court reasoned, it did not have an obligation to take the Lynx habitat needs into consideration in approving the ski area expansion. *Id.* at 1170; *see also* Glisson v. U.S. Forest Serv., 138 F.3d 1181 (7th Cir. 1998) (upholding the Forest Service's "ecological restoration" project, which involved the logging of about 10,000 acres of pine trees planted in the 1930s and 1940s to be replaced with hardwoods because the hardwood forest would be, according to the Service, of superior ecological value to desired species like game animals); Sierra Club v. U.S. Forest Serv., 878 F. Supp. 1295 (D.S.D. 1993), *aff'd*, 46 F.3d 835 (8th Cir. 1995); Sierra Club v. Robertson, 784 F. Supp. 593 (W.D. Ark. 1991) (upholding a plan providing for clearcuts in order to supply better habitat to white-tailed deer).

In fact, rejection of a "natural forest baseline" seems more consonant with the Service's diversity planning under the 1982 planning regulations. *See* Houck, *supra* note 202, at 922-28. And there is no reason to suppose that this analytical trap will not reproduce itself within the National Wildlife Refuge System's planning process as it is currently structured. The NWRS planning obligations from the 1997 Improvement Act were, in fact, modeled on the LRMP model of the national forests and rangelands. *Id.* And, perhaps even more importantly, the Improvement Act itself hardly even speaks of FWS responsibility to manage "populations" of wildlife, opting instead to mandate the achievement some unarticulated end of "biological integrity." *Cf.* FISCHMAN, *supra* note 81, at 128-33 (describing FWS Wildlife Refuge Manual and FWS implementation of the Improvement Act).

241. By now well understood as a cultural and economic transformation, the shift in usage patterns on the rangelands—a shift quite similar to what has happened in the national forests—represents a massive reorientation of federal land law on the horizon. In the three decades since FLPMA, the goods and services delivered by the still-functioning grassland and desert scrub ecosystems administered by BLM—services like watershed management; scenery and landscape for biking, camping, climbing; and habitat for scientific research—have become *far* more economically valuable than their extractive use values (such as grazing and logging). *See* THOMAS MICHAEL POWER, LOST LANDSCAPES AND FAILED ECONOMIES: THE SEARCH FOR A VALUE OF PLACE 186 (1996) ("If state economic growth since 1980 is taken as the reference point, the loss of all federal grazing would cause income growth in the eleven western states to pause for six days. To make up for lost jobs, economic growth would pause for a week and a half."); RASBAND ET AL., *supra* note 82, at 883 ("In contrast to the relatively small economic returns from public lands grazing, public lands recreation has been growing dramatically. Total visitor days on BLM lands more than doubled from 31.1 million in 1972 to 65.6 million in 1999 . . . ."). Furthermore, persuasive arguments have been made that this trend will continue into the foreseeable future on both national forests and rangelands. *See* Jan G. Laitos & Thomas A. Carr, *The Transformation on Public Lands*, 26 ECOLOGY L.Q. 140 (1999); *cf.* NASH, *supra* note 82, at 263 ("The growth of appreciation for the wilderness in the American mind inevitably resulted in an increasing demand for actual contact with wild country.").

242. *Cf.* KEITER, *supra* note 24, at 276-78 (describing the Quincy Library Group's effort to broker a collaborative forest management plan in Plumas County, California, and finding that "[i]f one factor

Second, the likelihood of lawsuits should plans or plan amendments tilt unfavorably against powerful or wealthy stakeholders renders the Forest Service's bureaucratic "predicament" palpable.[243] It is not unlike the dynamics shaping ESA practice today, whereby the federal government's expert bureau cannot gather enough information to take even a legally "rational" first step in managing its lands and habitats because the first step is always too large and costly, too politicized, and too geographically finite to justify all of the resources needed to take it.[244]

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united the group members early on, it was their distrust of the Forest Service"). As any planner can attest, the only way to forecast the future is with the past. *See* WILKINSON & ANDERSON, *supra* note 205; FEDKIW, *supra* note 162. Yet the past of most of our "working landscapes" (lands subject to NFMA, FLPMA, and PRIA) has been one of human disturbances stemming from extractive, silvicultural, and agricultural industries, i.e., not mass recreation. In the management units where the practice of forestry has been reflexive enough to recognize this, it is the gathering of data that impedes progress. Reconciling that "data gap" with the legal obligations discussed here is a major dimension of the organizational dilemmas faced by agencies like FWS, BLM, and the Forest Service. *See infra* note 243 and accompanying text.

243. KEITER, *supra* note 24, at 198-215, 274-310. In June 2002, the Forest Service issued a report that was prefaced with a rather gloomy encapsulation of the Forest Service's planning obligations as they function in the larger legal context. *See* FOREST, SERV., U.S. DEP'T OF AGRIC., THE PROCESS PREDICAMENT: HOW STATUTORY, REGULATORY, AND ADMINISTRATIVE FACTORS AFFECT NATIONAL FOREST MANAGEMENT (2002) [hereinafter PROCESS PREDICAMENT], *available at* www.fs.fed.us/ projects/documents/Process-Predicament.pdf. The preface states:

> As many Forest Service employees see it, they are caught in a bind, where the very procedures they need to follow to get them to their goal are keeping them from getting there.
>
> Too often, the Forest Service is so busy meeting procedural requirements, such as preparing voluminous plans, studies, and associated documentation, that it has trouble fulfilling its historic mission: to sustain the health, diversity, and productivity of the nation's forests . . . . Too frequently, the paralysis results in catastrophe.

Id. at 7. It went on to detail five different threats which it felt were creating a "land health crisis of tremendous proportions" but which were effectively irresolvable because of the litigious environment in which national forest management takes place. *Id.* The five threats are severe fires, insect infestations, road and bridge maintenance backlogs, invasive weeds, and riparian zone degradation. *Id.* at 7-9.

The "predicament" (essentially, paralysis by analysis) reflects, at least in part, an agency that once enjoyed slavish deference from the federal courts now being chastened by the federal courts for acting out of step with its governing legislation (e.g., NFMA, NEPA, and ESA). *Compare id.* at 32 ("Requirements for multitiered planning and analysis have produced confusion about decisions made and documentation required at the various scales, especially between the programmatic (forest plan and large-scale assessment) and project levels."), *with* WILKINSON & ANDERSON, *supra* note 205, at 75.

> [I]f the NFMA stands for anything it is that the mystique is gone from federal timber law. The courts have been called in to measure agency performance against new statutory provisions of considerable specificity—and that basic fact of principled judicial oversight and enforcement has had, and will continue to have, a pronounced influence on the nature of Forest Service decisionmaking.

Id.

But some of the PROCESS PREDICAMENT report is quite precise and perceptive in its diagnosis of the current federal paradigm's incompatibility with principles of adaptive management—the only method of planning and execution in natural resources management proven to make sense over the long term. *See id.* at 16-24. Noting:

> The Forest Service takes the approach that complying with NEPA and ESA requires making decisions, completing projects, and determining effects within a clearly identifiable timeframe. Forest Service rules for public participation and administrative appeals are linear and inflexible. Without more flexible mechanisms, adaptive management will remain at best difficult to incorporate into national forest planning and decision-making.

Id.

244. *See* Gordon L. Baskerville, *The Forestry Problem: Adaptive Lurches of Renewal*, *in* BARRIERS AND BRIDGES, *supra* note 1, at 37, 37-39 (describing the trap foresters face in these problems of scale

Consequently, the planners face a Hobson's choice. Indeed, the history of public lands litigation has intertwined NFMA with ESA and critical habitat questions,[245] directives from NEPA, and a host of other minor legal mandates[246] so perfectly that "planning" has become synonymous with litigating.[247] The details of NFMA's diversity planning goals are absolutely pivotal and yet irreducibly *local*.[248] By its own admission, the individual forest plans are viewed by Forest Service headquarters as "never 'completed,' or 'final,'" but rather as documents which "require ongoing adjustment of standards and guidelines regulating land uses rather than one-time

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and uncertainty when trying to integrate forest-wide plans with specific management options on more localized scales).

245. A perennial question courts must confront in NFMA planning litigation entails balancing the doctrinal principle of deference to the expert federal agency against the more general obligation to uphold what they find the law requires. While it has long been true that "planners must choose [management indicator species] that adequately reflect the impact of management on wildlife," WILKINSON & ANDERSON, *supra* note 205, at 302 (citing 36 C.F.R. § 219.19(a)(1) (1984)), often this is just not practicable at the individual forest level, and the courts know it. For example, several large mammalian species currently have a range that is a discouragingly small fraction of what it once was, even while the species is extant in many different kinds of property within a region. *See* FOREST SERV., U.S. DEP'T OF AGRIC., FOREST PLAN AMENDMENTS FOR GRIZZLY BEAR CONSERVATION FOR THE GREATER YELLOWSTONE AREA NATIONAL FORESTS: DRAFT ENVIRONMENTAL IMPACT STATEMENT (2004) [hereinafter DEIS FOR GRIZZLY CONSERVATION STRATEGY], *available at* http://www.fs.fed.us/r1/ wildlife/igbc/Subcommittee/yes/YEamend/gb_internet.htm. In short, absent broad and deep "regionalization" of the planning function, as happened with the spotted owl and the Northwest Forest Plan, *see* Victor M. Sher, *Travels with Strix: The Spotted Owl's Journey Through the Federal Courts*, 14 PUB. LAND L. REV. 41 (1993), insularized populations are kept from being managed as parts of one metapopulation.

246. The Wild and Free Roaming Horses and Burros Act of 1971, Pub. L. No. 92-195, 85 Stat. 649, is a federal statute directing BLM and Forest Service to "protect and manage wild free-roaming horses and burros as components of the public lands." *See* 16 U.S.C. §§ 1331-1340 (2000). Still, the feral horses and burros it protects are "exotics" to the ecosystems in which they exist today (exotics that can overrun an ecosystem lacking natural predators), and the statute has been criticized as "a prime example of the potential problems of managing charismatic wildlife through public opinion polling." DALE D. GOBLE & ERIC T. FREYFOGLE, FEDERAL WILDLIFE STATUTES: TEXTS AND CONTEXTS 23 (2002). It is, nonetheless, a mandatory part of national forest and rangeland planning wherever the animals are found. *See* 36 C.F.R. §§ 222.20-222.36 (2005).

247. Whatever support the Bush Administration could claim for its 2002 rule, i.e., Forest Service line managers and staff level support, stemmed from opposition to the increased complexity of planning under the 2000 rule. *See* National Forest System Land and Resource Management Planning, 67 Fed. Reg. 72,770, 72,772 (proposed Dec. 6, 2002) (to be codified at 36 C.F.R. pt. 219). Noting:

> The 2000 rule tends to be highly prescriptive regarding a variety of aspects of planning. This proposed rule tends to focus more on results, rather than on techniques for achieving results. The Responsible Official is guided by a very large body of law, regulation, and policy that helps ensure responsible management on the ground.

Id. While the Forest Service has done little to determine how this pattern of litigation has influenced its effectiveness in protecting habitat, it did make clear that timber sales were being held up and plans were not being implemented as written. *See* FEDKIW, *supra* note 162, at 211 ("In 1989, it became evident that national forest plan and timber sales appeals and litigation were impairing the National Forest System's ability to meet congressionally programmed targets and budgets.").

248. As Wilkinson and Anderson argued in 1985, the Forest Service has been transformed by the statutory changes of the twentieth century from an agency that "considered wildlife a usable resource," to "be increased, its kind regulated, and its most desirable utilization secured," WILKINSON & ANDERSON, *supra* note 205, at 282, to an agency that struggles to define and maintain "viable populations" on reserves (national forests or parts thereof) with legal authorities that are never quite optimal for such a task. *Id.* at 306-11. On the corrosive role national politics play in local decisionmaking and how mixing local decisions into a matrix of national processes tends to stifle innovation, see Rodriguez, *supra* note 38.

for a long time" fixtures.[249] In light of our federal administrative legal system as it actually *is*, though, this has a rather tragicomic ring.

C. Procedural Roll Backs and "Reforms"?

After the Supreme Court's 1998 decision in *Ohio Forestry Ass'n v. Sierra Club*,[250] LRMPs themselves are subject to challenge in federal court only under very limited circumstances.[251] Overall "juridification"[252] in the national forests, thus, might be described as slackening. Nevertheless, "project level" decisions are still subject to NEPA processes and challenges in many cases.[253] Moreover, while the Bush Administration's "Healthy Forests

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249. U.S. FOREST SERV. OFFICE OF GEN. COUNSEL, REPORT: OVERVIEW OF FOREST PLANNING AND PROJECT LEVEL DECISIONMAKING 1 (2002) [hereinafter USFS OVERVIEW].

250. 523 U.S. 726 (1998). *Ohio Forestry* decided only the "ripeness" of LRMP itself and reserved judgment on whether LRMPs could ever be ripe for review according to the standard in *Abbott Labs. v. Gardner*, 387 U.S. 136 (1967), *abrogated in part by* Califano v. Sanders, 430 U.S. 99 (1977). NEPA claims may still be reviewable in the planning stages, *see* Wilderness Soc'y v. Thomas, 188 F.3d 1130, 1133 (9th Cir. 1999), and it remains unclear whether ESA section 7 claims may then arise. *Cf.* Coal. for Sustainable Res. v. U.S. Forest Serv., 259 F.3d 1244, 1251 (10th Cir. 2001) (hypothesizing that some instances of agency planning activities could present final agency action subject to review under ESA and the Administrative Procedure Act, *Ohio Forestry* notwithstanding).

251. Under *Ohio Forestry*, the plans are "ripe" for purposes of judicial challenge only where they actually set a definite course of action, such as scheduling specific timber sales or plotting the building of particular roads. 523 U.S. 726, 732-33. The requirement of ripeness is a restriction on federal court involvement meant to protect the principal of separation of powers. *See id.* Finding:

> As this Court has previously pointed out, the ripeness requirement is designed "to prevent the courts, through avoidance of premature adjudication, from entangling themselves in abstract disagreements over administrative policies, and also to protect the agencies from judicial interference until an administrative decision has been formalized and its effects felt in a concrete way by the challenging parties."

Id. (quoting Abbott Labs. v. Gardner, 387 U.S. 136, 148-49 (1967)). The *Ohio Forestry* Court expressly refused to consider an untimely claim by the Sierra Club that the LRMP at issue would have a definite effect on the forest's wilderness qualities because it did not expressly prohibit motorized recreation. 523 U.S. at 738. Notably, the 2000 rules would have clarified the EIS requirement for LRMPs by regulation, 36 C.F.R. § 219.9(d) (2000), but the 2002 rule amended that provision and placed EIS preparation within the planners' discretion. *See* 36 C.F.R. § 219.9(a) (2005). The 2005 changes seek to eliminate NEPA from the planning process requirements entirely through the use of a categorical exclusion. *See* National Forest System Land Management Planning, 70 Fed. Reg. 1023, 1032 (Jan. 5, 2005) (to be codified at 36 C.F.R. Pt. 219) (notice of final rule).

> During plan development, amendment, or revision, the agency generally is not at the stage in National Forest planning of proposing actions to accomplish the goals in land management plan[ning]. CEQ regulations define "proposals" that can trigger the requirement for an EIS as "that stage in development of an action when an agency subject to the Act has a goal and is actively preparing to make a decision on one or more alternative means of accomplishing that goal . . . ."

Id.; *supra* notes 249-53 and accompanying text.

252. *See* Orts, *supra* note 18, at 1239-41.

253. *See* USFS OVERVIEW, *supra* note 249. In January of 2005, the Forest Service proposed a categorical exclusion for all of its LRMP planning activities. *See* Categorical Exclusion, 70 Fed. Reg. 1062, 1062 (Jan. 5, 2005) ("The Forest Service has concluded that land management plans, plan revisions, or plan amendments . . . do not individually or cumulatively result in significant effects on the human environment."). I do not imply that NEPA reviews are necessarily a bad thing at the "project level" within national forest and rangelands system decisionmaking. But it is clearly a pressure point for stakeholders opposing agency action(s) at the project level, whatever the overall justification for those actions. *Cf.* Elise S. Jones & Cameron P. Taylor, *Litigating Agency Change: The Impact of the Courts and Administrative Appeals Process in the Forest Service*, 23 POL'Y STUD. J. 310, 319-24 (1995) (arguing

Initiative" and other regulatory changes have curtailed the analytical burdens for some types of timber sales,[254] those exemptions are relatively narrow in scope and not particularly relevant to the systemic protection of wildlife habitat.[255] One could argue the Court has been quietly reinforcing this effort to deregulate forest planning,[256] but then that process is piecemeal at best.[257]

More importantly, though, managing the forest located within the lines as wildlife habitat without having any authority over what lies just outside the line is necessarily—no matter the particular analytical requirement—

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that a significant proportion of litigation over NEPA duties is initiated as a mode of opposing the underlying action itself); Jonathan M. Cosco, *NEPA For the Gander: NEPA's Application to Critical Habitat Designations and Other "Benevolent" Federal Action*, 8 DUKE ENVTL. L. & POL'Y F. 345 (1998).

254. The Healthy Forests Restoration Act of 2003, Pub. L. No. 108-148, 117 Stat. 1887, among other things, limited the Forest Service's NEPA responsibilities in the "wildland-urban interface" where "hazardous fuels reduction activities" are under consideration. *See* Categorical Exclusions, 68 Fed. Reg. 33,814, 33,814 (June 5, 2003) (notice describing rules implementing Act). There are good reasons to doubt the effectiveness of these measures as "reforms" of NEPA. *See, e.g.*, Sharon Buccino, *NEPA Under Assault: Congressional and Administrative Proposals Would Weaken Environmental Review and Public Participation*, 12 N.Y.U. ENVTL. L.J. 50 (2003) (detailing recently considered amendments to NEPA's analytical requirements).

Much of the impetus behind the 2002 replacement of the 2000 planning rule came from a partisan difference in priorities (extractive use values over habitat and preservation values). *See* Richard J. Lazarus, *A Different Kind of "Republican Moment" in Environmental Law*, *in* THE JURISDYNAMICS OF ENVIRONMENTAL PROTECTION: CHANGE AND THE PRAGMATIC VOICE IN ENVIRONMENTAL LAW 369 (Jim Chen ed., 2003). But it would be wrong to assume that the 2000 version of the planning rules was without serious drawbacks. *Cf.* Zwight, *supra* note 28, at 30 (given the option to use either the 2000 or 2002 rule, no district planner has chosen to abide by the 2000 rules); Land and Resource Management Planning, 67 Fed. Reg. 72,770, 72,774 (Dec. 6, 2002) (to be codified at 36 C.F.R. pt. 219) ("The trend in planning over the past 20 years has been towards more complexity with the result that limited funds and personnel available to the agency are being disproportionately spent on planning and analysis.").

255. *See, e.g.*, Bradley C. Karkkainen, *Wither NEPA?*, 12 N.Y.U. ENVTL. L.J. 333, 361-63 (2004) (arguing that HFI does little to improve NEPA which still remains, "a somewhat awkward and inefficient vehicle" for the coming information age of environmental governance).

256. *See, e.g.*, Norton v. S. Utah Wilderness Alliance, 542 U.S. 55, 70 (2004) (stating that a BLM plan "is not a final implementation decision on actions which require further specific plans, process steps, or decisions under specific provisions of law and regulations" and that they "are normally not used to make site-specific implementation decisions," triggering the agency "action" predicate of APA) (quoting 43 C.F.R. §1601.0-5(k) (2003)).

257. It was, in fact, only after the 2004 presidential election that the Forest Service finalized its overhaul of the Planning Rules. *See*, 70 Fed. Reg. 1022 (Jan. 25, 2005); U.S. Forest Service, Notice of Final Rule, 70 Fed. Reg. 1023 (Jan. 25, 2005) [hereinafter 2005 Rules]. In the 2005 finalization, the Forest Service resolved to take an approach to its diversity mandate that it characterized as an "ecosystem approach." By an ecosystem approach, the Service meant that LRMPs were to "provide a framework for maintaining and restoring ecosystem conditions necessary to conserve most species." *Id.* at 1028. Wherever this approach fails to provide "conditions to support specific federally listed threatened or endangered species, species-of-concern, and species-of-interest, then the plan must include additional provisions for these species." *Id.* Importantly, though, the finalized rule allows managers to "concentrate their efforts on contributing to the persistence of species where Forest Service management activities may affect species rather than on species management where the cause of species decline is outside the limits of agency authority or the capability of the plan area." *Id.* The 2005 Rules propose replacing the concept of sustainability in the planning mandate with the concept of "productivity," a concept encompassing "all of the multiple uses, such as outdoor recreation, range, timber, watershed, and wildlife and fish." *Id.* at 1042 ("Use of this term is broader than just commercial uses."). Lastly, the 2005 Rules replaced the monitoring and management indicator species viability analyses requirements with the requirement that each management unit "develop and implement an EMS based on the international consensus standard published by the International Organization for Standardization." *Id.* at 1030.

done with extremely low confidence of probable success.[258] And yet these planning processes, because they involve such high stakes, will certainly remain roiled with the social conflicts of local versus national priorities, continually energized by two power sources: (1) the scientific conflicts within the practice of conservation biology itself,[259] and (2) the arbitrariness of essentially *aesthetic* judgments.[260] Section D discusses the definitive aesthetic conflict between local and national regulations—the Forest Service's 2000 Roadless Area Conservation Rule.

D. The Roadless Area Conservation Controversy

There has been no shortage of legal ingenuity on the part of the agencies seeking to circumvent the onerous procedures attending the management of wildlife habitat. Among the almost 200 million acres of national forests in America are an inventoried[261] 58.5 million acres which the Forest

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258. Professor Keiter has been the most persistent critic of the management agencies on this point. *See* Robert B. Keiter, *Beyond the Boundary Line: Constructing a Law of Ecosystem Management*, 65 U. COLO. L. REV. 293 (1994); Robert B. Keiter, *Taking Account of the Ecosystem on the Public Domain: Law and Ecology in the Greater Yellowstone Region*, 60 U. COLO. L. REV. 923 (1989); Robert B. Keiter, *On Protecting the National Parks From the External Threats Dilemma*, 20 LAND & WATER L. REV. 355 (1985). As Professor Keiter's work on the "Greater Yellowstone Ecosystem" has illustrated, even when resources are pooled for the protection of very charismatic species like grizzlies and massive amounts of physical space are put under the control of the federal government, the fractures among different bureaus administering that space and the conflicts of the activities of different user groups encumber planning decisions. *See* THE GREATER YELLOWSTONE ECOSYSTEM: REDEFINING AMERICA'S WILDERNESS HERITAGE (Robert B. Keiter & Mark S. Boyce eds., 1991) (providing an in-depth discussion among scientists, legal experts, and economists of the greater Yellowstone ecosystem); *see also* THE KEYSTONE CTR., FINAL CONSENSUS REPORT OF THE KEYSTONE POLICY DIALOGUE ON BIOLOGICAL DIVERSITY ON FEDERAL LANDS (1991) (reporting that national policy should focus on protecting and, if necessary, restoring biological diversity to federal lands).

259. *See supra* notes 23-37 and accompanying text.

260. *See* KEITER, *supra* note 24, at 147 (describing the cross-cutting questions of ecological restoration more broadly and arguing that "[f]ew ecological management issues have proven as contentious as defining restoration goals by reference to historic ecological conditions"); *see also id.* at 144-70; *supra* notes 10-15 and accompanying text. A trilogy of NFMA cases throughout the late-1990s underscored the Forest Service's freedom from substantive scrutiny by the federal courts on questions of normative judgments about the type of forest to be achieved in a particular management unit. What emerged was a solid endorsement of (1) Forest Service discretion to ignore potential connectivity with respect to parts of a metapopulation—what, in effect, amounted to the isolation of local populations, *see* Or. Nat. Resources Council v. Lowe, 109 F.3d 521 (9th Cir. 1997); (2) Forest Service discretion to ignore impacts on populations outside of a designated management unit when not caused by its own management actions, *see* Inland Empire Pub. Council v. U.S. Forest Serv., 88 F.3d 754 (9th Cir. 1996); and (3) Forest Service discretion to ignore the "stochastic perturbations" discussed above, *see supra* notes 65-75 and accompanying text, in protecting the viability of populations within a particular management unit.

261. The first nationwide inventory of such lands by the Forest Service was known as the Roadless Area Review Evaluation (RARE I), which was commenced in 1967 and finished by 1972, only to be abandoned without further action because of NEPA problems. *See* Wy. Outdoor Coordinating Council v. Butz, 484 F.2d 1244, 1250-51 (10th Cir. 1973); H. Michael Anderson & Aliki Moncrief, *America's Unprotected Wilderness*, 76 DENV. U. L. REV. 413, 419-20 (1999). A second review was initiated in 1977, for which a draft NEPA Environmental Impact Statement was released to the public on June 15, 1978. *Id.* Soon enough, it became the subject of its own federal lawsuit and was also enjoined in 1980. *See* California v. Bergland, 483 F. Supp. 465, 486 (E.D. Cal. 1980), *aff'd sub. nom.*, California v. Block, 690 F.2d 753 (9th Cir. 1982) (RARE II). At the completion of RARE II, the Forest Service concluded that some 62 million acres were essentially "roadless." FEDKIW, *supra* note 162, at 117.

Service in 2001 concluded were essentially "roadless."[262] In theory, these areas are candidates for Wilderness Act designations by Congress.[263] As the Forest Service's "Roadless Area Conservation Rule" demonstrated, though, while the nation as a whole may wish to limit the construction of new roads in national forests, particular locales are often bitterly antagonized by such edicts.[264]

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262. "[In] October . . . [of] 1999, President Clinton directed [his Chief of] the Forest Service to initiate administrative proceedings to protect inventoried roadless areas and to determine whether roadless protection was warranted for any uninventoried roadless areas." Wyoming v. U.S. Dept. of Agric., 277 F. Supp. 2d 1197, 1206 (D. Wyo. 2003), *vacated*, 414 F.3d 1207 (10th Cir. 2005). This effort would become the "Roadless Area Conservation Rule," an amendment to the NFMA forest planning regulations intended to apply nationally and to prohibit road construction, reconstruction, and timber harvesting in inventoried areas unless one of only a handful of narrow exceptions applied. *See* 36 C.F.R. §§ 294.10-294.14 (2005). The rule made exceptions for road construction or reconstruction to protect public health and safety ("imminent threat" of flood, fire, etc.); to respond to hazardous sites or spills of various types; to protect reserved rights under treaty or statute; to act when "[r]oad realignment is needed to prevent irreparable resource damage that arises from the design, location, use, or deterioration of a classified road," *id.* § 294.12(4)(b); to prevent further accidents on that road, and to act where "[a] road is needed in conjunction with the continuation, extension, or renewal of a mineral lease on lands that are under lease by the Secretary of the Interior as of January 12, 2001." *Id.* § 294.12 (b)(7).

263. *See supra* notes 153-57 and accompanying text.

264. At finalization on January 12, 2001, the Forest Service promulgated what it called the Roadless Area Conservation Rule, pursuant the authority granted it in the Organic Act of 1897, NFMA, and MUSYA. *See* Roadless Area Conservation, 66 Fed. Reg. 3,244, 3,252 (Jan. 12, 2001) (to be codified at 36 C.F.R. pt. 294). The objective was to "prohibit[] road construction, reconstruction, and timber harvest in inventoried roadless areas because they have the greatest likelihood of altering and fragmenting landscapes, resulting in immediate, long-term loss of roadless area values and characteristics." *Id.* at 3244. The "values or features" that were said to "often characterize inventoried roadless areas" were (1) "[h]igh quality or undisturbed soil, water, and air;" (2) "[s]ources of public drinking water;" (3) "[d]iversity of plant and animal communities;" (4) "[h]abitat for threatened, endangered, proposed, candidate, and sensitive species and for those species dependent on large, undisturbed areas of land;" (5) "[p]rimitive . . . classes of dispersed recreation;" (6) the provision of "[r]eference landscapes" independent of human alteration; (7) "[t]raditional cultural properties and sacred sites;" and (8) various "locally [defined] unique characteristics [such as] geological formations." *Id.* at 3245. Throughout the rulemaking, these eight categories were referred to as "roadless area values." The inventory was ultimately comprised of 58.5 million acres (almost 2% of the nation's land), although a common attack on the finalized rule highlighted the fact that no definitive maps of these areas were created specifying their boundaries. *See, e.g.*, Kootenai Tribe of Idaho v. Veneman, 142 F. Supp. 2d 1231, 1244-46 (D. Idaho 2001). The Service estimated that, of the 58.5 million acres, only about 24 million were located within "prescriptions" (plans, regulations, statutory controls, etc.) already prohibiting road construction. *See* U.S. FOREST SERV., BACKGROUND PAPER ON PROPOSED RULE TO REPLACE THE ROADLESS AREA CONSERVATION RULE WITH A STATE PETITIONING PROCESS FOR INVENTORIED ROADLESS AREA MANAGEMENT (2004), *available at* http://roadless.fs.fed.us/documents/id_07/7_9_2004%20Roadless%20rule%20Background%20Paper.html.

During the fifteen months of rulemaking, the Forest Service conducted some "430 public meetings," ("[e]very national forest and grassland hosted at least two"), "dr[awing] over 23,000 [participants] nationwide. . . . By the close of the comment period, the agency received over 1 million [posted comments and some] 90,000 electronic mail messages; and several thousand telefaxes." Roadless Area Conservation, 66 Fed. Reg. at 3248. Interestingly, the Forest Service summarized this vast universe of comment in the following way:

> These comments can be divided into two basic and very different perspectives. One perspective is that decisions concerning management of inventoried roadless areas should be left to the local responsible official, without national intervention. The other perspective is that national prohibitions on road construction, reconstruction, and timber harvest in inventoried roadless areas, along with a stop to other activities, must occur from a national level, as local decisionmaking does not always reflect the national significance of the issues involved. The agency considered and attempted to balance both perspectives throughout this rulemaking.

Id. at 3248 (citation omitted).

It is easy to imagine local land use decisions like the roading of remote areas impinging upon national interests.[265] But the converse holds as well: the signature imposition of the national electorate's values upon localities' in the West has taken the form of designations of pristine wilderness—or "roadless"—areas wholly off-limits to human development or cultivation.[266] Purporting to rely on its own authority to manage national forest lands as "multiple use" landscapes—and *not* on the Wilderness Act per se—the Forest Service sought to unify its nationally inventoried "roadless" areas through a series of nationwide prohibitions on road building and rebuilding

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265. *See* KEITER, *supra* note 24, at 293-99. For example, the Forest Service counted fiscal considerations as a justification for the roadless area rulemaking. Roadless Area Conservation, 66 Fed. Reg. at 3245-46.

> The agency receives less than 20% of the funds needed annually to maintain the existing road infrastructure. As funding needs remain unmet, the cost of fixing deteriorating roads increases exponentially every year. Failure to maintain existing roads can also lead to erosion and water quality degradation and other environmental problems and potential threats to human safety. It makes little fiscal or environmental sense to build additional roads in inventoried roadless areas that have irretrievable values at risk when the agency is struggling to maintain its existing extensive road system.

Id. The Service's Forest Transportation System is funded nationally, and the Service was quick to cite a "backlog of about $8.4 billion in deferred maintenance and reconstruction on the more than 386,000 miles of roads." *Id.* at 3245. Moreover, many national forests serve as the principal surface area of the watershed from which major populations draw their drinking water (populations that are sometimes long distances from the forest itself). *Id.* Thus, "[r]oadless areas . . . contain all or portions of 354 municipal watersheds contributing drinking water to millions of citizens," and maintaining the natural filtration capacities as opposed to artificial cleaning infrastructure "saves downstream communities millions of dollars in water filtration costs." *Id.* Lastly, "[r]oadless areas are more likely than roaded areas to support . . . native biodiversity by . . . function[ing] as biological strongholds and refuges for many species." *Id.*; *see also* RICHARD T.T. FORMAN ET AL., ROAD ECOLOGY: SCIENCE AND SOLUTIONS (2003).

266. *See* WILKINSON, *supra* note 183, at 55-56, 115-74. The diversity of opinion even among the citizens and officials of the (western) states having the majority of roadless areas defied simple characterizations in the Forest Service rulemaking. One summary bears mentioning:

> Public officials from areas with larger urban populations generally supported the proposed rule because of their expressed desire for recreation opportunities, protection of water quality, and undisturbed landscapes
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> . . . In the State of Washington [for example], some of the officials and agencies writing in support of the proposed rule included the Governor, King and Spokane Counties, and the Seattle City Council, while Stevens County, the City of Forks, and the City of Port Angeles were opposed.

Roadless Area Conservation, 66 Fed. Reg. at 3249. The most poignant example of the rulemaking regarding the local-versus-national divide must be the special dispensation added to the rulemaking regarding the Tongass National Forest in southeastern Alaska. A special exemption was included in the final rule for road construction, reconstruction, and timber sales within the Tongass initiated prior to January 12, 2001. *See* 36 C.F.R. § 294.14(d) (2005). Citing "[s]ocial and economic considerations" such as the lost jobs attributable to the prohibition of logging, Roadlesss Area Conservation, 66 Fed. Reg. at 3254-55, the Forest Service concluded that "unique social economic conditions" and "a disproportionate share of the impacts" throughout the entire Southeast Alaska region and concentrated most heavily in a few communities," *id.* at 3255, justified the exemption. Yet, the Tongass and southeastern Alaska must certainly be just as unique for their ecosystemic richness and extraordinarily pristine conditions as they are socio-economically. *Cf.* Houck, *supra* note 202, at 899-909 (describing the Tongass as unique for its biological value). From the perspective of wildlife habitat, in fact, the Tongass is probably unequaled.

> The Tongass, for its sheer size, climate, topography, and biota, is unique to the world. Five hundred miles long and 120 miles wide, the forest is an archipelago of mountainous islands, rivers, marshes, lagoons, and bays. . . . It harbors 800-year-old Sitka spruce with diameters of ten feet and more, hemlock 200 feet in the air, spawning streams for 90% of southeast Alaska's salmon, and the highest concentrations of grizzly bears and bald eagles on earth.

Id. at 900 (footnotes omitted).

in inventoried areas.[267] The move was intended to create a new category of forest space within the "National Forest System," enclaves having roadless area values and characteristics.[268] These values were supposedly of national significance and yet they were not Wilderness Act values.[269] The rulemaking's articulated "values and characteristics," though, were suspiciously similar to those mentioned in the Wilderness Act.[270]

Many in the West argued that the Forest Service's rulemaking was precisely tailored to sidestep the Wilderness Act's procedural requirement that pedestalizations be done only by act of Congress.[271] Whatever authority Congress reserved for itself in the Wilderness Act (and that is a question bracketed here), the sharper point to be taken from the roadless rule controversy is its continuity with previous collisions of brute political force in the

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267. The rulemaking included road building and logging prohibitions for the listed areas. Roadless Area Conservation, 66 Fed. Reg. at 3244. The justifications articulated in the rulemaking were general. For example, the rule calls for "watershed protection" and "wildlife habitat [conservation]" without specifying more and without mentioning a particular location *Cf.* Roadless Area Conservation, 66 Fed. Reg. at 3252. Noting:

> At the national level, Forest Service officials have the responsibility to consider the 'whole picture' regarding the management of the National Forest System, including inventoried roadless areas. Local land management planning efforts may not always recognize the national significance of inventoried roadless areas and the values they represent in an increasingly developed landscape."

Id.

The blanket prohibitions did have several exceptions, *see supra* note 260, but the rule's objective was to remove the discretion of "unit level" planners in writing and implementing the NFMA forest plans of Part 219. *See* Roadless Areas Conservation, 66 Fed. Reg. at 3258-60 (describing the rule's allocation of discretion as between local officials and Forest Service headquarters). Perhaps the single best "general" justification for the national rules proposed in 2000 are the costs associated with maintaining the "[National] Forest Transportation System," costs the Forest Service argued have been increasingly left uncovered by the federal budget. *See* 66 Fed Reg. at 3245-46; *see also* FORMAN ET AL., *supra* note 265, at 337-38; HAVLICK, *supra* note 231.

268. 66 Fed. Reg. at 3244.

269. Noticeably absent from the Forest Service catalogue of reasons for a nationwide prohibition on more roads in forests, though, were the (quite substantial) competitive advantages that invasive species typically derive from roads. *Cf.* FORMAN ET AL., *supra* note 265, at 338-39 (footnotes omitted) ("The establishment of non-native plants, insect pests, and pathogens in forestry landscapes can be facilitated by roads. Roadsides penetrating forest lands provide favorable habitat for weedy species, especially on bare soil and in sunny areas. Vehicles and passengers may serve as dispersal vectors for the spread of seeds.").

270. "[T]he Wilderness Act removed the Secretary of Agriculture's and the Forest Service's discretion to establish de facto administrative wilderness areas, a practice the executive branch had engaged in for over forty years." Wyoming v. U.S. Dep't of Agric., 277 F. Supp. 2d 1197, 1233 (D. Wyo. 2003), *vacated by* 414 F.3d 1207 (10th Cir. 2005) (finding that the Forest Service's adoption of the new rule mooted the district court's decision) (footnote omitted).

271. The court in *Wyoming* ultimately enjoined the rule for this very reason, finding that "roads, which necessarily facilitate human disturbance and activities, 'are the coarse filter in identifying and defining wilderness.'" *Wyoming*, 277 F. Supp. 2d at 1234 (quoting Mortimer, *supra* note 202, at 959). Thus, because "Congress unambiguously established in the Wilderness Act that it had the sole authority to designate areas within the National Forest System as 'wilderness,'" *id.* at 1236, and because the roadless rule created what the court called a "de facto administrative wilderness," *id.*, the court "set the Roadless Rule aside because it was promulgated in excess of Forest Service's statutory jurisdiction and authority." *Id.* at 1237 (citing 5 U.S.C. § 706(2)(C) (2000)). Many inventoried roadless areas within the National Forest System were originally "inventoried" in the first place as candidates for inclusion in the National Wilderness Preservation System. *See* FEDKIW, *supra* note 162, at 63-64, 112-19; Advanced Notice of Proposed Rulemaking, 66 Fed. Reg. 35,918, 35,919 (July 10, 2001).

conflict over national versus local decisionmaking for federal lands.[272] Whether labeled "roadless" or "wilderness," these places—insularized *inside* the so-called working landscapes—largely just replay the fury surrounding the very first episodes of green-lining in the nineteenth century.[273]

Lastly, and this can be said for virtually all federal wildlife habitat protection, it is simply too hard to *add* land to the national portfolio today as additions become necessary and available to programs confronting the challenges of bounded spaces.[274] Even ESA section 5, the strongest authority empowering the government to acquire lands for the protection of endangered and threatened species,[275] does nothing like confer "fast track" authority for acquisitions or even appropriate money into a real revolving fund. Not surprisingly, in practice these authorities have been used infrequently and haphazardly.[276]

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272. In July of 2004, citing widespread resentment and polarization stemming from the final rule in 2001, the Forest Service proposed revisions to the rule. *See* State Petitions for Roadless Area Management, 69 Fed. Reg. 42,637, 42,638 (July 16, 2004) ("The roadless rule has been the subject of nine lawsuits in Federal district courts in Idaho, Utah, North Dakota, Wyoming, Alaska, and the District of Columbia."). The proposal would allow individual states' governors the right to petition the Service for the *removal* of the inventoried lands within their borders from the Roadless Area Conservation lands:

> The State petitions under this proposed rule would have to include specific information and recommendations for the management requirements for individual inventoried roadless areas within a particular State. . . . Petitions would be evaluated, and if accepted the Secretary would initiate subsequent rulemaking for inventoried roadless areas within that State.

Id. The Forest Service delayed finalizing the rule until the after the 2004 presidential election, but has since instituted an interim directive requiring forest supervisors to, at minimum, consult with headquarters about any management actions in "inventoried roadless areas." *See* State Petitions for Roadless Area Management, 69 Fed. Reg. 42,648 (July 16, 2004) (interim directive).

273. *See supra* notes 144-46 and accompanying text. But, the analogy is less informative if Alaska is included. Independent of what happens to the Forest Service's "Roadless Areas Conservation" inventory, two thirds of NWPS is in Alaska. BEAN & ROWLAND, *supra* note 4, at 315. It bears emphasizing that the process leading to designation under the Wilderness Act is multifarious.

> Unlike other federal land systems, there is no single agency responsible for the administration of the Wilderness System. Rather, the Forest Service, the [BLM], the Fish and Wildlife Service, and the National Park Service retain jurisdiction over those areas of land that were under their jurisdiction at the time the Act was passed and that Congress has [since] added to the Wilderness System.

Id. Most of what constitutes designated wilderness in Alaska is the result of a single federal statute, the "Alaska National Interest Lands Conservation Act of 1980" (ANILCA), Pub. L. No. 96-487, 94 Stat. 2374 (codified at 16 U.S.C. 3101-3233 (2000)), which pertained mostly to lands that had been "reserved" even prior to statehood but which were opened to "subsistence" uses and claims of certain kinds by ANILCA. *Cf. id.* § 3111(2) ("[T]he situation in Alaska is unique in that, in most cases, no practical alternative means are available to replace the food supplies and other items gathered from fish and wildlife which supply rural residents dependent on subsistence uses . . . ."); FISCHMAN, *supra* note 81, at 183-92.

274. *Cf.* Hal Salwasser et al., *The Role of Interagency Cooperation in Managing for Viable Populations*, *in* VIABLE POPULATIONS FOR CONSERVATION, *supra* note 46, at 159, 160. Observing:

> Large tracts of land are generally not available for increasing the size of protected areas. . . . Rarely will a single agency or landowner possess a large enough tract of the right kinds of habitats to support a self-sustaining population of animals such as large cats . . . wolves . . . bears . . . large cervids . . . anadromous fish . . . or eagles.

Id.

275. § 1534.

276. *See* DALE D. GOBLE & ERIC T. FREYFOGLE, WILDLIFE LAW: CASES AND MATERIALS 982-1011 (2002). For example, in Fiscal Year 2002 (the most recent for which data exist), FWS acquired fee or some less-than-fee interest in about 234,000 acre of land for the National Wildlife Refuge System. *See* DIV. OF REALTY, U.S. FISH & WILDLIFE SERV., SIGNIFICANT LAND ACQUISITION ACCOMPLISHMENTS IN

V. NEPA AND THE DIMINISHING RETURNS OF RATIONAL PLANNING

The only cross-cutting analytical duty wholly independent of ESA species or prized federal preserves comes from NEPA section 102. It levies a duty on all federal agencies to assess the environmental impacts of their "major" actions (and, in some circumstances, decisions *not* to act) as best they can.[277] This duty intertwines with all of the planning and management laws discussed thus far. For example, it sets the tempo for much of the forest planning process.[278] Still, if greenlining preserves and rationally planning appropriate uses of our federally-owned landscapes have proven their shortcomings, the action-analytical burdens of NEPA have too. It may be too much to say that NEPA expects the impossible—a panoptic knowledge of human actions and their ramifications within the natural environment. But it comes pretty close.

A. NEPA's Juridification

NEPA has become firmly embedded in the planning processes of the Forest Service, BLM, and National Park Service.[279] Without at least attempting to meet NEPA's judicially expanded expectations,[280] planners are sure to be tied up—and possibly even reversed—in court.[281] Thus, at the same time these agencies write LRMPs, issue grazing allotments, plan to

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FY 2002, http://realty.fws.gov/Accomplishments2002.html (last visited Nov. 16, 2005). While this is a significant amount of realty by most standards, when averaged over the entire system it amounts, in essence, to roughly 430 acres per management unit—and, again, that must be adjusted for the several mammoth reserves in Alaska. The cooperative-federalist dimensions of the many statutory grants of acquisition authority to the agencies result in the usual state-federal controversies. *See, e.g.*, North Dakota v. United States, 460 U.S. 300, 314 (1983) (holding that a provision in a federal statute authorizing acquisition upon consent by a state did not force the Secretary of Interior to structure easement purchases around the requirements of a North Dakota law barring the transfer of permanent easements).

277. An overview of the duty to prepare an "environmental impact statement," "environmental assessment," or both, can be found in Dinah Bear, *NEPA at 19: A Primer on an "Old" Law with Solutions to New Problems*, 19 ENVTL. L. REP. 10,060, 10,061-65 (1989). Not every federal agency action is covered by NEPA. Section 102 mentions only those "major" actions "*significantly* affecting the quality of the human environment," 42 U.S.C. § 4332 (2000) (emphasis added), although this kind of "significance" has been described as "chameleon-like." *See* Hanly v. Kliendienst, 471 F.2d 823, 837 (2d Cir. 1972) (Friendly, J., dissenting).

278. *See supra* notes 244-51 and accompanying text.

279. Sierra Club v. Espy, 38 F.3d 792, 796 (5th Cir. 1994) ("The process prescribed by NFMA is intertwined with NEPA."); Natural Res. Def. Council v. Hodel, 624 F. Supp. 1045 (D. Nev. 1985).

280. NEPA's notable virtue throughout its 35 year history has been its generality and simplicity compared to behemoths like the Clean Air and Clean Water Acts. *See* JAY E. AUSTIN ET AL., ENVTL. LAW INST., JUDGING NEPA: A "HARD LOOK" AT JUDICIAL DECISION MAKING UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT 4 (2004) ("Unlike many environmental statutes, NEPA is largely enforced by the courts, rather than by any single administering executive branch agency."). But it tended to be especially sensitive to shifts within the judiciary and, in particular, the composition of courts hearing NEPA cases. *See id.* at 8-11; *see also id.* at 13 ("Judicial polarization over NEPA is acute, and may be growing. The fact that party affiliations of judges appear to influence NEPA cases is cause for concern about the objectivity of adjudications under the Act.").

281. 42 U.S.C. § 4332(c)(C) (2000). NEPA section 102(2)(C)'s duties have been structured by implementing guidelines set by the Council on Environmental Quality (CEQ). *See* 40 C.F.R. pt. 1500 *et seq.* (2005).

build or extend roads or cell phone infrastructure across their realty, or begin the (arduous) process of a timber sale or mineral lease, they must generate their "detailed statement" predicting the environmental impacts of the choices and actions.[282] As the regulations structure this "NEPA process," the analytical duties boil down to a requirement that habitat-managing agencies imagine a set of "alternatives" and then weigh and compare the projected benefits and costs of each.[283]

This "environmental impact statement" (EIS) has swelled to a dauntingly technocratic exercise.[284] Indeed, that happened during the same period in which administrative law began forcing agency processes like this open to stakeholders and their "participation."[285] Richly textured, complex technical or scientific affairs like the average EIS can only be "participatory" to the extent that those elite few with sufficient time and capital resources to play real roles are actually representative of the wider public.[286] Otherwise, NEPA's bow to transparency and participation is a sham.[287]

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282. For example, in dealing with the Roadless Area Conservation Rule, the Forest Service was sued nine times on grounds that NEPA's requirements were left unmet somehow by its 700-plus page Final Environmental Impact Statement (FEIS). *See, e.g.*, Kootenai Tribe of Idaho v. Veneman, 142 F. Supp. 2d 1231 (D. Idaho 2001), *rev'd*, 313 F.3d 1094 (9th Cir. 2002); Wyoming v. U.S. Dep't. of Agric., 277 F. Supp. 2d 1197 (D. Wyo. 2003). In *Wyoming*, the state "argue[d] that the Forest Service failed to consider a reasonable range of alternatives to its proposed action." *Id.* at 1222. According to the court, "the Forest Service only considered two action alternatives: (1) prohibiting road construction and timber harvest altogether . . . or (2) prohibiting road construction and timber harvest except for stewardship purposes," *id.* at 1224, a path the court held "was the result of the agency narrowly defining the scope of its project to satisfy a predetermined directive by Chief Dombeck, which eliminated competing alternatives out of consideration and existence." *Id.* at 1226. Still, the most ironic comment on NEPA's inflexibility are CEQ's NEPA "Guidelines," adopted informally in 1978 but essentially unchanged ever since. Though the government often argues that the guidelines are not "binding" per se, *see* WILLIAM H. RODGERS, JR., ENVIRONMENTAL LAW § 9.2, at 820 (2d ed. 1994), "[a]gency regulations implementing the guidelines hew closely to the CEQ lead," *id.*, as do virtually all judicial decisions on NEPA.

283. *See* 42 U.S.C. § 4322(2)(C)(i)-(iii); 40 C.F.R. § 1502.14 ("This section [on Alternatives including the proposed action] is the heart of the environmental impact statement."); Scientists' Inst. for Pub. Info., Inc. v. Atomic Energy Comm'n, 481 F.2d 1079 (D.C. Cir. 1973) (recognizing as an implicit requirement of NEPA the responsibility to predict the environmental effect of proposed actions before they are fully known). "When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in [EIS] and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking." 40 C.F.R. § 1502.22 (2003). Where information *necessary* to an adequate comparison of proposed alternatives is not currently in hand, the agency must make a specific decision regarding its acquisition and put that decision on the record. *Cf. id.* at 1502.22(a) ("If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement.").

284. The action-analytic burdens of NEPA upon agencies are legendary. *See, e.g.*, AUSTIN ET AL., *supra* note 280, at 5 ("Whether motivated by political concerns or attempts to streamline, recent cases demonstrate that agencies continue to seek ways to skirt NEPA."). But of specific importance to conservation biology are those challenges that it poses when the ramifications of decisions for important environmental values such as habitat are not known. *See* Carla Mattix & Kathleen Becker, *Scientific Uncertainty Under the National Environmental Policy Act*, 54 ADMIN. L. REV. 1125, 1142-56 (2002).

285. On the gradual shift toward judicial support for pluralist interest group representation in modern administrative law (and processes such as NEPA's), see Richard B. Stewart, *The Reformation of American Administrative Law*, 88 HARV. L. REV. 1667 (1975); THEODORE J. LOWI, THE END OF LIBERALISM (2d ed. 1979).

286. *See* Roger C. Cramton, *The Why, Where, and How of Broadened Public Participation in the Administrative Process*, 60 GEO. L.J. 525 (1972). Despite judicial attitudes, there is good reason to believe that modern administrative law has failed to assure any such thing. *See* Colburn, *supra* note 117,

More strikingly, though, conservation biology's real problem with EIS is similar to its problem with ESA and our collective national fascination with the "wild." First, the ramifications of *any* human action are, at best, only partly understood at the point where choices must be made and resources committed.[288] Even under the best of circumstances, NEPA documents are going to be wrong in their projections about populations and habitats most, or least a significant percentage, of the time. This substantially compromises the direct relevance of such analyses (and perhaps enhances their relevance from a meta-analytical perspective).[289] Second, and probably more importantly, this basic reality sews a deep legal vulnerability into every NEPA process, making it susceptible to manipulation throughout its

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at 382-91.

287. Undoubtedly the most erudite study of how the pluralist interest group model of administrative process can become an oligarchic tug-of-war between the most powerful lobbies is MASHAW & HARFST, *supra* note 125. A critique of NEPA after having survived through almost three decades of this interest group process is Matthew J. Lindstrom, *Procedures Without Purpose: The Withering Away of the National Environmental Policy Act's Substantive Law*, 20 J. LAND, RESOURCES & ENVTL. L. 245 (2001); *see also* MATTHEW J. LINDSTROM & ZACHARY A. SMITH, THE NATIONAL ENVIRONMENTAL POLICY ACT: JUDICIAL MISCONSTRUCTION, LEGISLATIVE INDIFFERENCE, EXECUTIVE NEGLECT (2001).

288. CEQ's guidelines categorize the ramifications of a subject action variously as "direct effects," "indirect effects," "impacts," "cumulative impacts," and "consequences." *See* 40 C.F.R. §§ 1502.16, 1508.8 (2005). While the regulations often use these terms interchangeably, there is a qualitative difference that separates "cumulative effects," ramifications that may cascade from the subject action or from a course of actions similar to the subject action, from other kinds of "impacts," in the completion of an EIS. Cumulative effects are easily the most complex dimension of the "NEPA process." *See* 40 C.F.R. § 1508.7 (2005) (defining "[*c*]*umulative impact* [as] the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions."); COUNCIL ON ENVIRONMENTAL QUALITY, CONSIDERING CUMULATIVE EFFECTS UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT v (1997), *available at* http://ceq.eh.doe.gov/nepa/ccenepa/exec.pdf ("Analyzing cumulative effects is more challenging, primarily because of this difficulty of defining the geographic (spatial) and time (temporal) boundaries."). It is also the most neglected. *Id.* at 1 ("Evidence is increasing that the most devastating environmental effects may result not from the direct effects of a particular action, but from the combination of individually minor effects of multiple actions over time."); Save the Yaak Comm. v. Block, 840 F.2d 714, 721 (9th Cir. 1988) (invalidating Environmental Assessment for failure to consider adequately the reasonably foreseeable cumulative impacts of the decision).

Cumulative effects are, for that reason, easily the most appropriate subject of centralized bureaucratic analysis of biodiversity planning. Yet CEQ's 1997 report found that cumulative effects analysis is something "agencies have struggled with . . . since CEQ issued its regulations in 1978," and that "[m]any times there is a mismatch between the scale at which environmental effects occur and the level at which decisions are made." COUNCIL ON ENVIRONMENTAL QUALITY, *supra*, at 4. The reason effects can be thought of as accumulating is that they create conditions (degradations) which "result from spatial (geographic) and temporal (time) crowding of environmental perturbations." *Id.* at 7. The additive and interactive effects distinguish the cumulative net from the sum of its parts. But it is notoriously difficult to set boundaries to such analyses (and avoid turning the trivial into the monumental), exactly what NEPA litigation is often designed to attack. *Cf.* RODGERS, *supra* note 281, § 9.8, 941-57 (collecting cases involving challenges to sufficiency of EIS's "scope").

289. The "meta-analysis" of NEPA documents depends on their being aggregated and then subdivided into categories from which similarities and patterns may be drawn. The conclusions from such analyses that the NEPA performance of an agency (or agency unit) meets or fails to meet some particular standard, such as accuracy, publicity, or participation, would be the output from such meta-analysis. Little work has been done by the Forest Service, BLM, FWS, or any of the other agencies considered here on this kind of meta-analytical assessment of their own performances (or, if it has been done, it has not been made publicly available), but it is precisely this sort of analysis that is often most useful in accurate assessments of wildlife populations and management measures. *See* NAT'L RES. COUNCIL, IMPROVING FISH STOCK ASSESSMENTS 34-35 (1998).

execution by stakeholders opposed to the "optimal" alternative, whatever it may be, and the agencies that must fund these processes.[290]

Fashioning an LRMP, ESA section 4(f) recovery plan, or wildlife refuge plan ought to be a continuous process of hypothesis formulation and testing. It ought to be linked directly to the management of the area by a commitment to monitoring the ecosystem, surveying and understanding its inhabitants and users, and recording the changes that result from human interventions.[291] No other process could even *aspire* to adjust means and ends according to what is learned by doing.[292] All of that would be an onerous responsibility even if the laws governing the managers cooperated. But much of what makes federal land planning so unlike this ideal is NEPA itself.

Over its thirty-five-year history, the statute has single-handedly sensitized federal bureaucracies that once disdained wildlife to the biological and ecological consequences of their actions.[293] Yet, paradoxically, NEPA has

290. The NEPA process was characterized early on as a "procedure required by law" subject to review under the Administrative Procedure Act section 10(2)(B) (codified at 5 U.S.C. § 706(2)(b) (2000)). *See* Lathan v. Brinegar, 506 F.2d 677, 693 (9th Cir. 1974). But NEPA has its undeniably "substantive" aspects, too. For example, in *Neighbors of Cuddy Mountain v. U.S. Forest Service*, 137 F.3d 1372 (9th Cir. 1998), the court invalidated the predicate agency action for the NEPA error of an insufficiently detailed consideration of the cumulative effects associated with the proposed timber sales. *Id.* at 1380-81. Nevertheless, in the uncertain contexts of sustaining wildlife populations against the stochasticities of an unpredictable world, *see supra* notes 60-67 and accompanying text, NEPA is necessarily limited to a bounded analytical requirement pertaining to the proposal as envisioned by an action agency. *See* Citizens Against Burlington, Inc. v. Busey, 938 F.2d 190 (D.C. Cir. 1991); N. Buckhead Civic Ass'n v. Skinner, 903 F.2d 1533 (11th Cir. 1990); Roosevelt Campobello Int'l Park Comm'n v. EPA, 684 F.2d 1041 (1st Cir. 1982). While the agency proposing the project's objectives presumably must act in "good faith" in so structuring the options available under NEPA, *see* Friends of the River v. Fed. Energy Regulatory Comm'n, 720 F.2d 93, 120 n.95 (D.C. Cir. 1983) (Bazelon, J., dissenting), keen observers have long noted how this dimension of NEPA may put the fox in charge of the henhouse. *See, e.g.*, William L. Andreen, *In Pursuit of NEPA's Promise: The Role of Executive Oversight in the Implementation of Environmental Policy*, 64 IND. L.J. 205 (1989).

291. The Committee of Scientists impaneled to recommend what would eventually become the 2000 planning rules for the Forest Service emphasized adaptive management. "The 'active' adaptive management [recommended] by the Committee treats a management decision as an experiment: as knowledge is accumulated, the original decision may be altered as new information becomes available." Wilkinson, *supra* note 224, at 316. This kind of management depends on the organization's capacity to fully fund a sub-program that is vitally important to the strategy, but whose results are too often inconclusive, too far in the future, too expensive, and too risky to merit close monitoring NOSS & COOPERRIDER, *supra* note 32, at 304; *see supra* notes 129-43 and accompanying text.

292. *See supra* notes 10-22 and accompanying text. This might be precisely the dimension of adaptive management philosophies preventing widespread adoption by agencies at the federal level. The last task force to consider how to make NEPA less a "predict-mitigate-implement" model and more a "predict-mitigate-implement-monitor-adapt" model, THE NEPA TASK FORCE: REPORT TO THE COUNCIL ON ENVIRONMENTAL QUALITY: MODERNIZING NEPA 45 (2003) [hereinafter MODERNIZING NEPA], reported from a stakeholder survey substantial "concern that Federal agencies might use adaptive management to avoid careful consideration of the potential impacts of the proposed action." *Id.* at 48.

293. I do not wish to oversell the critique of NEPA vis-à-vis land management planning, *see* WILKINSON & ANDERSON, *supra* note 205, at 33-34 (observing that NEPA has had a substantial salutary effect on Forest Service planning), nor suggest that court involvement is necessarily problematic, *see* Andrea L. Hungerford, *Changing the Management of Public Land Forests: The Role of the Spotted Owl Injunction*, 24 ENVTL. L. 1395 (1994). Important shifts in agency philosophy (however dwarfed in the aggregate by specific agency actions they may be) are certainly traceable to court ordered NEPA processes. *See, e.g.*, Natural Res. Def. Council, Inc. v. Morton, 388 F. Supp. 829 (D.D.C. 1974), *aff'd*, 527 F.2d 1386 (D.C. Cir. 1976) (requiring detailed project-level EISs for BLM grazing allotments instead of

by now—in its utility to stakeholders opposing agency action threatening their own interests—brought about a certain *desensitization* within those same agencies. This reversal has come about largely because of NEPA's own internal conceptual flaws.[294]

B. Cages of Reason:[295] *The Environmental Impact Assessment Game*

Because the EIS production process has become so onerous, many agencies now strive to avoid it entirely.[296] Perhaps even more important, is

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the more general program-wide EIS).

But, "[i]n general, rewards in a bureaucracy are greater for finding better ways to do what we already do than they are for finding different (better) things to do." Baskerville, *supra* note 244, at 100. And as long as the land management agencies are tasked to pursue multiple objectives on the public lands, "[t]he pathology continues and deepens when the reaction to conflict is to demand more data or more precision in data . . . and more certainty and more control of information and individuals." C.S. Holling, *What Barriers? What Bridges?*, *in* BARRIERS AND BRIDGES, *supra* note 1, at 3, 9.

294. *See also* Bradley C. Karkkainen, *Toward a Smarter NEPA: Monitoring and Managing Governments Environmental Performance*, 102 COLUM. L. REV. 903, 906 (2002) ("[L]ike many erstwhile revolutionaries, NEPA has now settled into a quiescent and underproductive middle age. Agencies have come to terms with the formal demands of the NEPA Environmental Impact Statement requirement by routinizing and compartmentalizing their response, effectively marginalizing its operative effect and thereby circumventing NEPA's core purpose.").

295. This is the title of Bernard S. Silberman's excellent book CAGES OF REASON, *supra* note 131. Silberman diagnoses the systemic causes of the modern "rational state." His broadest conclusion was that commitments to such analytical requirements arose out of "essentially a political process that redefined the nature of the modern state," animated not by some public intent to achieve the most efficient form of governance but rather "through a process of ad hoc rational strategic responses of political and organizational leaders." *Id.* at 425. This is easily the best explanation of our present "NEPA equilibrium," cemented in place by layers of strategic bargaining within and among those having a stake in the national practice of environmental impact mitigation. *Cf.* Colburn, *supra* note 124, at 10,603 ("Concentrated stakes . . . . so thoroughly intertwine public officials with various 'private' concerns that the lines separating the two seem almost meaningless. This is even truer where public officials must bargain for the information that will enable them to regulate rationally.") (footnote omitted).

296. Increasingly, NEPA litigation centers on a set of issues quite familiar to NEPA veterans and yet quite beside the point for real world objectives, like wildlife habitat protection in forest planning. First, the vast majority of potentially eligible governmental actions—what the statute calls "major Federal actions significantly affecting the quality of the human environment," 42 U.S.C. § 4332(2)(c) (2000), never become the subject of a full-dress EIS because of how the agencies break up the decision up or characterize it. They are instead given only an "environmental assessment," a "rough-cut, low-budget . . . [audit] designed to show whether a full-fledged environmental impact statement—which is very costly and time-consuming to prepare and has been the kiss of death to many a federal project—is necessary." Cronin v. U.S. Dep't of Agric., 919 F.2d 439, 443 (7th Cir. 1990). The threshold here is what constitutes a "significant" environmental impact, just the kind of technical and normative judgment to which the Supreme Court has most often said the judiciary ought to defer. *See* Marsh v. Or. Natural Res. Co., 490 U.S. 360, 375-77 (1989). If the agency decides in its preliminary environmental assessment (EA) that the effects do not rise to this threshold, it may issue what is called a "Finding of no significant impact" (FONSI), ending the NEPA process. *See* 40 C.F.R. § 1508.13 (2000). "Mitigated FONSIs" alter the proposal slightly or even promise mitigation measures designed to check the effects predicted, although (unlike the rest of NEPA) such promises are completely unenforceable in court. *See* Ogunquit Vill. Corp. v. Davis, 533 F.2d 243 (1st Cir. 1977); City of Blue Ash v. McLucas, 596 F.2d 709 (6th Cir. 1979); Cabinet Mountains Wilderness/Scotchman's Peak Grizzly Bears v. Peterson, 685 F.2 678 (D.C. Cir. 1982).

Often the agency relies on the authority granted it by the CEQ Guidelines to create "categorical exclusions," *see* 40 C.F.R § 1508.4 (2004), exempting specific agency actions from EIS requirements entirely. *See* Bicycle Trails Council of Marin v. Babbitt, 82 F.3d 1445 (9th Cir. 1996); HAVLICK, *supra* note 231, at 109-10 (describing how Forest Service avoids NEPA entirely in developing trails for motorized recreation through the use of categorical exclusions). Thus, for example, even the building and

the EIS's utter indifference to the central reality in conservation biology, namely that every long-term plan for something as complex as an "ecosystem," no matter its objectives, is necessarily *provisional.*[297] The very structure of NEPA section 102 assumes a sequential process of planning and doing, exactly what so many natural resource managers have discovered fails in the field.[298] Adaptive management and the pragmatist's "feedback loop learning"[299] are as alien to NEPA today, unfortunately, as they were a quarter century ago.[300]

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improving of roads can occur without triggering the NEPA process under certain Department of Transportation "categorical exclusions." *See, e.g.*, No East-West Highway Comm. v. Chandler, 767 F.2d 21 (1st Cir. 1985); City of Alexandria v. Fed. Highway Admin., 756 F.2d 1014 (4th Cir. 1985). *But see* West v. Sec'y of Dept. of Transp. 206 F.3d 920 (9th Cir. 2000) (reversing agency determination that categorical exclusion applied to road project).

The courts have struggled mightily to reconcile the provisionality of all predictions about wildlife populations with NEPA's requirements that agencies accurately forecast the consequences of their actions. For example, in *National Parks & Conservation Ass'n v. Babitt*, 241 F.3d 722 (9th Cir. 2001), humpback and other whale population declines in Glacier Bay National Park were the predicate of vessel management decisions by the National Park Service (NPS). *Id.* at 722-24. NPS arrived at a "preferred alternative" from among a list of six possible traffic management regimes and conducted an "environmental assessment" in order to decide whether a full EIS would be required. *Id.* at 726-27. NPS also requested a BiOp from the National Marine Fisheries Service (the humpback is listed as endangered) for a finding that the alternative would not jeopardize the whale's continued existence. *Id.* at 727. A "no-jeopardy finding" by the Fisheries Service led NPS to go the route of FONSI, with some "mitigation" measures in tow: vessel traffic be monitored, oil-spill containment measures be developed, underwater noise reduction strategies be developed, and specific areas of the Bay be closed to traffic. *Id.* at 730. But shortly after FONSI was released, NPS was sued by a non-profit seeking organization a full EIS under the premise that various uncertainties surrounding the traffic management regime necessitated a complete investigation. *Id.* The court held that the full EIS was required because of the "high degree of uncertainty and the substantial controversy regarding the effects on the quality of the environment," something a fuller NEPA process was presumably supposed to remedy. *Id.* at 731.

Another panel of the Ninth Circuit, though, evidenced much less concern for the uncertainties of prediction. In *Forest Conservation Council v. U.S. Forest Service*, 2004 WL 2180022 (9th Cir. 2004) (Sept. 15, 2004), a divided panel upheld the Forest Service decision to exempt logging of some 36,000 acres of a "fire-salvage area" under certain categorical exclusions, in part because the Forest Service had completed an EA on certain *other* salvage areas (a process that concluded with a FONSI) and had supposedly thereby mooted the issue as to the tracts in question in the litigation.

297. LEE, *supra* note 18, at 56-63; WALTERS, *supra* note 21, at 333-38; NOSS ET AL., *supra* note 25, at 73-110, 186-207; BOTKIN, *supra* note 15, at 153-67; Karkkainen, *supra* note 42, at 200-06.

298. *Cf.* Mattix & Becker, *supra* note 284, at 1155 (describing the wavering approach taken by courts and concluding that, from NEPA case law, "agencies have little, and varied, guidance from the courts when dealing with scientific uncertainty."). As the Forest Service has argued about the NEPA requirements of an LRMP, predicting what will result from the first in a series of actions is hard enough; doing so for the entire train of decisions is tantamount to clairvoyance. *Cf.* PROCESS PREDICAMENT, *supra* note 243, at 16 n.40 (noting that a judicially invalidated environmental assessment was reworked to meet the court's expectations at a cost of $28,350 for a tract of 1,134 acres or about $25 per acre); Zwight, *supra* note 28, at 32-38. The 2002 Planning Rule proposed to allow individual forests the authority to have plans categorically excluded from NEPA's EIS requirements. *See* National Forest System Land and Resource Management Planning, 67 Fed. Reg. 72,770, 72,779 (Dec. 6, 2002) (proposed rule). This does not, however, entail agreement with the Forest Service on all its proposed NEPA "reforms."

299. *See supra* note 32 and accompanying text.

300. The CEQ guidelines, it should be said, do provide that where the costs of gathering information "essential to a reasoned choice among alternatives" are "exorbitant" (or the means for obtaining the information are unknown), the agency may make detailed findings to that effect, *see* 40 C.F.R. § 1502.22(a)-(b)(1) (2005), and thereby insulate itself from the charge that EIS is procedurally incomplete. *See* Mattix & Becker, *supra* note 284, at 1156. That, however, does nothing to insulate the agency from the charge that its predicate action is substantively irrational or "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706(2)(A) (2000).

If NEPA were not oblivious to the realities conservation biologists face, it would flatten out its analytical burdens to a more even coverage of the implementation process as a continuum.[301] Instead of lumping its analytical duties at artificially discrete decisional points or within bureaucratic boundaries, NEPA ought to distribute them more broadly.[302] Yet even when such improvements are proposed for NEPA to make it friendlier toward adaptive management and conservation biology, they fizzle as one coalition of stakeholders refuses to cooperate with the other.[303]

C. Adaptive Management as Ecological Assessment?

A final defect is that NEPA itself contemplates no continuity of monitoring or *re*-analysis of an action after it has become part of other "actions" or "courses of action," whether as a stream of causes in our disturbed environments or as a pivot of some kind.[304] How might the past outcomes of

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301. In doing so, the analyses would more readily discover management surprises in order to incorporate them back into the plan or action itself. *See* Karkkainen, *supra* note 294, at 945-46; COUNCIL ON ENVTL. QUALITY, THE NATIONAL ENVIRONMENTAL POLICY ACT: A STUDY OF ITS EFFECTIVENESS AFTER TWENTY-FIVE YEARS 32 (1997) [hereinafter NEPA AT TWENTY-FIVE].

> A major difficulty with the traditional environmental impact analysis process is that it is a one-time event; i.e., results from intensive research, modeling, and other computations or expert opinions are analyzed, the analysis of potential environmental impacts is prepared, mitigation measures are identified, and a document is released for public review. Unfortunately, most often the process ends there.

Id.; *see also* LEE, *supra* note 18, at 65 ("Adaptive management in large ecosystems is alert to surprise. Because adaptive management treats the system experimentally, the possibility of surprising outcomes is recognized from the outset. Thinking in terms of experiments has an important sociological consequence: surprising results are legitimate, rather than signs of failure, in an experimental framework.").

302. NOSS & COOPERRIDER, *supra* note 32, at 299-315 (describing the action-analytic process of information collection and the feedback necessary for truly adaptive management in biodiversity preservation); *Cf.* Westley, *supra* note 1, at 397.

> Studies of highly successful firms that create intensive focus and unified cultures indicate they do so at the expense of responsiveness. . . . The result is that the highly focused organization over time ceases to pick up stimuli signaling fundamental changes in the environment and gradually reduces internal diversity until it is insufficient to respond to new demands from the environment.

Id.; *see also* NELSON & WINTER, *supra* note 131, at 96-136.

303. Richard J. Lazarus, *The Tragedy of Distrust in the Implementation of Federal Environmental Law*, 54 J.L. & CONTEMP. PROBS. 311 (1991). The most recent "NEPA Task Force" to issue detailed recommendations regarding adaptive management improvements presented its report to CEQ in September of 2003. *Cf.* MODERNIZING NEPA, *supra* note 292, at 44-56.

304. "Scoping" issues have remained one of the most intractable dilemmas of the NEPA process—notwithstanding CEQ guidance and court intervention. The CEQ guidelines provide that "actions" ought to be "connected" for NEPA purposes (and therefore considered in the analytical work) if they are "closely related," meaning they "[a]utomatically trigger other actions which may require environmental impact statements," where the other actions "[c]annot or will not proceed unless other actions are taken previously or simultaneously," or where they are "interdependent parts of a larger action and depend on the larger action for their justification." 40 C.F.R. § 1508.25(a)(1)(i)-(iii) (2005). Related or "cumulative" effects (or "impacts") that should be included as such are those that are "indirect," "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable" such as "growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems." *Id.* § 1508.8(b) (2005). Recall that an EIS is required only where the action "significantly affects the human environment." But "[s]ignificance exists if it is reasonable to anticipate a cumulatively significant impact on the environment." *Id.* § 1508.27(b)(7). Thus, a perennial question is whether the

NEPA processes be compared to actual wildlife population trends? Though obviously critical to agency learning and internal adaptive improvements, NEPA is indifferent here. "Completing" the public-participation and analytical processes associated with an EIS is like a victory in itself for the agency.[305]

Indeed, CEQ's NEPA guidelines only require "supplementation" of a "final" EIS where "[t]here are *significant* new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts."[306] As long as agencies take their proverbial "hard look" at new information pertaining to their projects, there is no judicially enforceable obligation that they ever reconsider the conclusions or foundational assumptions within the overarching EIS.[307] There surely is no judicially enforceable duty that they change course as a result of learnings, findings, or both that come about after the final decision on the action is made and "validated" by judicial review.[308]

"action" in question is part of a larger course of actions (timber sales or roading activities within a particular forest) or is distinct from them for NEPA purposes. *See* Thomas v. Peterson, 753 F.2d 754, 754-55 (9th Cir. 1985). And, while courts have taken a very flexible approach to policing agencies seeking to circumvent NEPA by segmenting large projects into insignificant ones, *see* City of Tenakee Springs v. Clough, 915 F.2d 1308, 1312 (9th Cir. 1990) ("[W]here several foreseeable similar projects in a geographical region have a cumulative impact, they should be evaluated in a single EIS."), agency authority to do so is usually clear. *See* Taxpayers Watchdog, Inc. v. Stanley, 819 F.2d 294 (D.C. Cir. 1987); Sylvester v. U.S. Army Corps of Eng'rs, 871 F.2d 817 (9th Cir. 1989).

305. Importantly, commissioned studies by both the Bush and Clinton White Houses concluded that this was NEPA's major failure in an era of adaptive management. For a better understanding of this conclusion, compare NEPA AT TWENTY-FIVE, *supra* note 301, at 31, which states:

> [O]ur improved understanding of the functioning of ecosystems makes it clear that we often cannot predict with precision how components of an ecosystem will react to disturbance and stress over time. What little monitoring information exists seems to bear this out. Most Study participants believed that agencies should conduct monitoring to confirm their predictions of impact, to ensure that mitigation measures are effective, and to adapt projects to account for unintended consequences.

; with MODERNIZING NEPA, *supra* note 292, at 40, which states:

> Most Federal agencies do not have a formal process or clearly defined time frames for the periodic reevaluation of programmatic documents [like those that accompany LRMPs]. Currently, agencies that do evaluate the longevity of programmatic documents do so on as long as a 5- to a 15-year cycle. The task force found that agencies that have the greatest level of specificity in programmatic documents have the greatest difficulty in maintaining the viability and durability of these documents.

306. § 1502.9(c)(1)(ii) (emphasis added). An emphasis on "significant" is easily discernible in the cases. *See, e.g.*, Wisconsin v. Weinberger, 745 F.2d 412, 418 (7th Cir. 1984); Massachusetts v. Watt, 716 F.2d 946, 950 (1st Cir. 1983); Friends of the Bow v. Thompson, 124 F.3d 1210, 1219 (10th Cir. 1997). Agencies, of course, are free to initiate their own follow ups, but few bureaucratic rewards encourage follow ups.

307. *See* Marsh v. Or. Nat'l Res. Council, 490 U.S. 360, 375, 378-85 (1989).

308. Famously, the standard courts employ to determine the substantive validity of an agency's "NEPA process" (EIS or FONSI) is whether the decisionmaker has had put before him or her the "full disclosure" of potential environmental impacts and a "reasonable" consideration of possible alternatives. *See, e.g.*, Calvert Cliffs' Coordinating Comm. v. Atomic Energy Comm'n, 449 F.2d 1109 (D.C. Cir. 1971); Natural Res. Def. Council v. Morton, 458 F.2d 827 (D.C. Cir. 1972); Envtl. Def. Fund, Inc. v. U.S. Army Corps of Eng'rs, 325 F. Supp. 749 (E.D. Ark. 1971); Iowa Citizens for Envtl. Quality, Inc. v. Volpe, 487 F.2d 849 (8th Cir. 1973); Envtl. Def. Fund, Inc. v. U.S. Army Corps of Eng'rs, 492 F.2d 1123 (5th Cir. 1974); Conservation Law Found., Inc. v. Gen. Servs. Admin., 707 F.2d 626 (1st Cir. 1983). One NEPA scholar has called this a total failure on the part of the statute, given the way government agencies actually operate:

Today, NEPA's principal utility consists in its strategic value to stakeholders, e.g., the environmental non-profit community and corporate lobbies, as a tactic for delaying or opposing covered agency actions.[309] Nonetheless, where an agency has its mind made up, the analytical requirements of NEPA force only the pushing of (a lot of) paper.[310]

This, then, brings us back to the "indignity" of the federal wildlife habitat protection apparatus as a whole, a paradox caused at least in part by the autonomy of agency-articulated ends and agency-set value priorities. Agency "[autonomy] arises when bureaucrates successfully practice a politics of legitimacy. It occurs when agency leaders build reputations for efficacy, for uniqueness of service, for moral protection, and for expertise. It occurs, further, when they ground this reputation in a diverse coalition

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> NEPA's one-time-only comprehensive prediction requirement in effect says to agency managers, "Go ahead and make your decision today based on your best informed current prediction; if it turns out that you are wrong, neither you nor anyone else need know, or care." No self respecting corporate CEO would countenance such a management philosophy.

Karkkainen, *supra* note 294, at 929; *see also* NEPA AT TWENTY-FIVE, *supra* note 301, at 32; MODERNIZING NEPA, *supra* note 292, at 44. Once the obstacles of inter-agency and inter-governmental implementation (routine realities in habitat protection) are factored in, *see generally* JEFFREY L. PRESSMAN & AARON WILDAVSKY, IMPLEMENTATION (3d ed. 1984) (describing the organizational dynamics of competing constituencies within public agencies and the organizational breakdowns in implementing complex national policies across diverse contexts), this shortcoming in NEPA becomes manifest.

309. *Cf.* Daniel Ackman, *Highway to Nowhere: NEPA, Environmental Review and the Westway Case*, 21 COLUM. J.L. & SOC. PROBS. 325 (1988) (attributing the collapse of a major highway project in Manhattan to the delays stemming from NEPA compliance and conjecturing that NEPA plaintiffs had this objective in mind from the outset); William Funk, *NEPA at Energy: An Exercise in Legal Narrative*, 20 ENVTL. L. 759, 765-70 (1990). The exceptional case today is where NEPA actually does result in some wider or deeper reconsideration of issues at the agency level. *See, e.g.*, Greenpeace v. Nat'l Marine Fisheries Serv., 55 F. Supp. 2d 1248 (W.D. Wash. 1999). There is even reason to believe that the partisan affiliation of the judge(s) hearing a NEPA challenge is the most important predictor of success in NEPA litigation. *See* Paul G. Kent & John A. Pendergrass, *Has NEPA Become a Dead Issue?*, 5 TEMPLE ENVTL L. & TECH. J. 11 (1986); AUSTIN ET AL., *supra* note 280.

> This is not to deny that there are other advantages to the production of the EIS. While the CEQ regulations are famous for the pithy statement that NEPA seeks 'better decisions, not better documents,' 40 C.F.R. § 1502.15 ("Agencies shall avoid useless bulk in [EISs] and shall concentrate effort and attention on important issues."), it must be acknowledged that one of NEPA's (substantial) benefits is the production of publicly available analyses and syntheses on a scale—and at a cost—not otherwise widely undertaken. *See* MODERNIZING NEPA, *supra* note 292, at 19 ("Many agencies indicated that stakeholder groups are increasingly interested in NEPA-process information and that information technologies have played a positive role in making information more readily available."). Unfortunately for this constituency, as the "NEPA process" became more onerous, the propensity of agencies to avoid having to produce the documents rose. *Cf.* COUNCIL ON ENVTL. QUALITY, ENVIRONMENTAL QUALITY: 25TH ANNIVERSARY REPORT 51 (1996) (finding that the overall number of final, draft, and supplemental EISs completed annually had declined from 2,000 in 1973 to an average of under 500 per year from 1990-94 and that the number of Environmental Assessments had risen to almost 50,000 in 1993).

310. While it may, in fact, be impossible to ensure federal agencies like BLM or the Forest Service are fully informed of the ramifications of their decisions before making them, this has not stopped many lower courts from expecting as much. *See* RODGERS, *supra* note 282, § 9.3, at 850-56. The cases create a clear incentive structure for land managers making long-range plans: "err on the side of providing *too much* information, so as to produce a 'litigation proof' or 'bullet proof' document capable of withstanding any conceivable legal challenge." Karkkainen, *supra* note 294, at 918. "The upshot is that agencies have an incentive to overstuff the EIS with information from every available source, regardless of its quality, so as to achieve a protective layer of redundancy or 'overkill' while at the same time inoculating themselves against the charge that they overlooked relevant information." *Id.* at 922.

wrought from the multiple networks in which they are engaged."[311] Thus has the juridified, routinized practice of wildlife habitat governance under the federal laws like NEPA resulted in a perversity for which no single constituency, no single statute or regulation, and no single decision-maker bear sole responsibility. This perversity—the paradoxical *indignity* of a system too weighed down by its own mass—stems directly from the framework assumptions of centralized, bureaucratic implementation within our federal constitutional system itself.[312]

VI. THE ROAD AHEAD

Studying the conflicts and institutional boundaries of federal wildlife habitat law leads us to few (if any) inexorable conclusions. But it does reveal a distinctive pattern of "juridification,"[313] of national aesthetics in tension with local ones, and of agency adaptation toward the achievement of bureaucratic—not public—imperatives. With a mix of agencies pursuing a mix of statutory and institutional objectives, even the simplest coordination among the federal agents of wildlife habitat protection is often too tall an order. Moreover, absent extraordinary investments of capital (human and otherwise), these agencies are routinely frustrated in their efforts to implement conservation plans in a "rational" fashion, very often being put in the position of simply picking wildlife species to care for (or to ignore) or imposing an aesthetic priority of some kind upon a host community against its wishes. This lack of fit between the institutions of the federal government and the public objective of wildlife habitat protection is substantial and growing.

From within such a pattern, a view emerges of federal wildlife habitat law as *systematically undermining* the practice of conservation biology because it is neither reflexive nor pragmatic. Federal wildlife habitat law is neither reflexive nor pragmatic in the ways that it must be if the practice of habitat protection is to succeed over the long term. It fails to achieve the sort of rationality it expects of itself while it preempts localist alternatives and while it constantly antagonizes cohesive communities through the experts' imposition of an aesthetic or other value-priority. The system as a whole is too slow to learn, too rooted in the nineteenth-century practice of drawing lines on a map and putting designated places on pedestals, and too often

311. CARPENTER, *supra* note 148, at 353.

312. *Cf.* PRESSMAN & WILDAVSKY, *supra* note 308, at 93 (describing the "[c]omplexity of [j]oint [a]ction" in interagency implementation); SILBERMAN, *supra* note 131, at 420-25 (arguing that equilibriums achieved in national politics as a result of strategically made choices tend toward bureaucratic implementation of public objectives); THOMAS, *supra* note 36, at 265-79 (arguing that the fragmentation of agencies and programs governing public lands, combined with the risks of litigation and the budgetary politics of all agencies involved, produced significant deterrents to inter-agency cooperation); Dorf & Sabel, *supra* note 117, at 295-96 ("[T]he true price to the organization of gains through specialization . . . is a kind of institutional self-oblivion. To pursue its ends effectively, the organization must stop inquiring why its ends are its ends or why it pursues them as it does.") (footnote omitted).

313. *See* Orts, *supra* note 18, at 1241.

contingent on a bureaucracy's (dubious) capacity to monitor ecosystems and revise regulatory judgments on a rolling basis.

This whole body of law, it is a shame to say, has hardly ever been adapted in light of what actual implementation by real people reacting to fast changing circumstances have *learned* in their experiences. As national "action-in-concert,"[314] the laws detailed here have become too intransigent to serve as effective means to their own ends. A more reflexive and pragmatic model is needed if we are to preserve much of the habitat our wildlife require.

"One of the oldest dreams of mankind is to find a dignity that might include all living things. And one of the greatest of human longings must be to bring such dignity to one's own dreams, for each to find his or her own life exemplary in some way."[315] In place of so much conflict carried out by national experts and corporatized stakeholders, might there be a different future involving more of the citizenry and more of the spaces in America?[316] A localist alternative seems just out of reach,[317] but one thing is certain: before a truly pragmatic, reflexive practice of habitat conservation emerges, the law must first recognize the institutional problems inherent in the public's pursuit of so complex, dynamic, and multi-faceted an objective.

314. WALDRON, *supra* note 5, at 157.

315. BARRY LOPEZ, ARCTIC DREAMS: IMAGINATION AND DESIRE IN A NORTHERN LANDSCAPE 405 (First Vintage Books ed. 2001) (1986).

316. *Cf.* Doremus, *supra* note 126, at 343 ("Although we are aware that our current nature protection efforts are not well geared to the protection of biodiversity, for the most part we continue to cast around for a better way of identifying what is special, rather than questioning the fundamental assumptions of that strategy.").

317. Rodriguez, *supra* note 38.