Law, Landscape & Biodiversity

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The United States began as nation rich in biodiversity. Today, like much of the rest of the world, it faces a biodiversity crisis that is very real and worsening. Species and ecosystems face extinction amidst a political climate hostile to regulatory intervention and a patchwork system of laws that disperses responsibility among various federal agencies while allocating land use authority over nonfederal land do the individual states.

This paper looks at the cultural and legal framework from which biodiversity laws in the United States evolved. It next surveys the legislative and regulatory matrix from which protections must now emerge. It then discusses why the current system of laws cannot and will not provide lasting ecosystemic protection into the national federalist framework.

Generally speaking, biodiversity refers to the rich variety of life on earth, the genetic differences among the various life forms, their communities and ecosystems, and the ways in which they interact to create and support life on the planet.[1] The most pervasive threat to biodiversity in the United States is habitat destruction.[2] This destruction arises from the conversion of land to ostensibly "productive" uses, particularly agricultures, forestry, mineral and fossil fuel extraction and urban development.[3]

Few would contest that maximizing biodiversity benefits the nation and the planet. Yet, devising and implementing a regime to nurture biodiversity is fraught with legal, cultural

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1 *See* "Saving Biodiversity: A Status Report on State Laws, Policies and Programs". http://www.defenders.org/pb-bstes.html (last visited April 26, 2005).

2 Bruce A. Stein, Lynn S. Kutner, & Jonathen S. Adams, Precious Heritage: The Status of Biodiversity in the United States (2000) 242.

3 *See* Bradley C. Karkkainen, "Biodiversity and Land", 83 Cornell L. Rev. 1,7 (1997).

and normative challenges. Some of those challenges trace their origins to the nation's foundational myths, while others relate to spatial and temporal challenges inherent in environmental protection law. And still others are the product of American structure of government in which the federal executive branch must serve as both regulator and regulated entity and the land use power is a fiercely contested right between the federal and state governments.

I. THE FOUNDING MYTHS

The United States was founded by immigrants seeking a new world in which to reimagine themselves. The popular conception of the American frontiersmen carving a new Eden out of the wilderness was and remains a powerful part of the national identity.[4] With this self image came a sense of self-entitlement. If the arid western lands did not immediately resemble Eden, they would be remade. This vision of American destiny did not allow for competing ecological realities (or the territorial rights of indigenous people). The desert and its inhabitants were to be conquered and the new Garden revealed.[5] During the eighteenth and nineteenth centuries, the wilderness on the western perimeter of the United States inexorably gave way to settlement.

The ecological realities of this newly conquered wilderness led to an extraordinary campaign to refashion the landscape to comport with the mythic/edenic ideal. In the mid-nineteenth century, many believed that "rain would follow the plow". According to this premise, Americans needed only to move west and till the land. As a consequence of their actions, rain would fall in direct proportion to their needs. Allegiance to this idea lasted well into the 1880s and thousands of settlers moved west, lures by promises of a new yeoman paradise.[6]

There were many other lures as well. Politicians holding opposing views on the slavery question frantically sought to lure like-minded settlers to the region and thereby gain a majority for their point of view. One senator hoping to lure southern slaveholders to Kansas (a region averaging less than 20 inches of rainfall per year) described it as "rich like Egypt and tempting as Egypt would be if raises above the slimy flood, waved into gentle undulations and variegated with groves and meadows [and] sprinkled with streams.[7] Similarly,

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[4] Historian Frederick Jackson Turner, in his oft-cited work, THE FRONTIER IN AMERICAN HISTORY (1920), argues that the American Frontier was the single greatest influence on the character of American society.

[5] Henry Nash Smith calls this mindset of "Myth of the Garden". *See* VIRGIN LAND: THE AMERICAN WEST AS SYMBOL AND MYTH (1950).

[6] See David N. Cassuto, DRIPPING DRY: LITERATURE, POLITICS AND WATER IN THE DESERT SOUTHWEST (2001) 12-13.

[7] Thomas Hart Benton, "Discourse of Mr. Benton of Missouri before the Boston Mercantile Library Association on the Physical Geography of the Country between the States of Missouri and California," December 20, 1854; see also Cassuto, 12 (quoting same).

politicians from the northern abolitionist states hoping to lure their ideological brethren proclaimed that the Kansas landscape contained "many scenes that can scarcely be remembered without tears. The soul melts in the presence of the wonderful workmanship of God".[8] The railroads, who were the beneficiaries of enormous grants of federal land, also needed settlers in order to make western rail transport viable. Their literature featured claims that "mud in the usual sense... is almost wholly unknown in Nebraska."[9] Other stories and claims extolling the wonders and or/rigors of the region abound. Common recurring themes involved both grave risks and bounteous rewards.

Fashioning a land use strategy from these competing and conflicting geographic myths posed significant challenges. On the one hand, the Americans embraced the notion of carving a garden out of a harsh and unforgiving wilderness on the perimeter. On the other hand, many believed in the vision of an already extant paradise awaiting Americans as their destiny. Though disparate, both visions required a vast and unsettled western frontier. The disconnection between these myths as well as between these myths and the prevailing ecological and social realities led to conflicting notions of land use.

When the frontier closed, further cognitive dissonance resulted. Where limitlessness once reined, one now encountered closed borders and jealously guarded fiefdoms.[10] Ecological realities – chiefly the lack of available water – led to massive, state-sponsored dams and diversion projects aiming to refashion the land into the promised edenic landscape. Much of the contemporary geography of the American West, including cities and water intensive agriculture in the desert owes itself to this national ethos of ecological entitlement. That sense of entitlement, when combined with a ponderous and fractured regulatory regime, makes for a poor breeding ground for biodiversity protection. This is particularly true in light of the inherent spatial and temporal disconnect between the burdens and benefits of environmental protection laws.

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[8] Charles Boynton & T.B. Mason quoted in David M. Emmons, GARDEN IN THE GRASSLANDS: BOOMER LITERATURE OF THE CENTRAL GREAT PLAINS (1972) 14; see also Cassuto at 13 (quoting same).

[9] Quoted in Bradley H. Baltensperger, Nebraska: A Geography (1985); see also Cassuto at 14 (quoting same).

[10] Wallace Stegner, writer and historian of the American West, notes in "The Wilderness Idea" that "It seems... significant that the distinct downturn in our literature from hope to bitterness took place almost at the precise time when the frontier officially came to an end in 1890." Wilderness: America's Living Heritage 99-100 (David Brower, ed. 1961)

II. Legal Obstacles To Environmental Protection Laws

Because the environmental impact of a given action is difficult to quantify and often manifests over long periods of time, laws aimed at environmental protection face unique spatial and temporal obstacles. As Richard Lazarus observes, the scope of change is both too small and too big. Ecological impacts are often most severe at the molecular and subatomic levels where accurate measurement of forces is extremely difficult. Yet they also simultaneously occur over enormous areas and distances. This means an exponential increase in the number of potential contributing factors to that impact.

Lazarus offers the example of the diminishing ozone layer. While emissions from aerosol cans in the United States deleteriously affected the chemical makeup of atmospheric ozone, many others chemicals from different activities and different nations all over the world also contributed to the problem. In addition, atmospheric ozone covers the entire earth, making any assessment of the scope and nature of the problem very difficult to gauge. Taken together, these two characteristics make isolating cause and effects more a grail than a goal.[11]

The enormous temporal dimensions of ecological injury create similar problems. Ecological injury has no set duration. It sometimes takes generations before the full scope of any injury can be accurately gauged. Consequently, the potential for intervening causes (fire, flood, drought, human activity, etc.) is quite large and measuring cause and effect over time becomes highly problematic.[12]

For these reasons among others,[13] biodiversity protection does not easily conform to local land use priorities. This is especially true because the distribution of benefits and burdens from such protections often leaves local landholders bearing most of the burdens while enjoying little of benefits (which are often spread out over space and time). Acting to preserve biodiversity can therefore defy standard cost-benefit analysis. For example, Colin Clark, an applied mathematician, published a paper in the 1970s arguing that for the Japanese (who were the primary hunters of blue whales at the time), it made more economic sense to hunt the blue whale into extinction and invest the profits in growth industries then to let the species recover to where a sustainable yield became possible. Clark was not suggesting such a course of action; he was rather pointing out the problems inherent in relying on economic

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[11] *See* Richard Lazarus, The Making of the Environmental Law (2004) 20.

[12] *Id. See also* Robert B. Keiter, "Ecological Concepts, Legal Standards, and Public Law Land: An Analysis and Assessment", 44 Nat. Resources J. 943, 968 (2005) (describing the enormous spatial and temporal challenges inherent in biodiversity protection).

[13] Another very important reason is that land use law in the United States is traditionally the province of state and local governments. It was customarily governed by the common law doctrines of public and private nuisance and has more recently also been regulated by statutory guidelines and zoning ordinances. *See* Karkkainen at 70-71.

justifications for environmental protection.[14] Given this lack of economic incentive and that any non-economic rewards are typically spread widely over space and time, it makes little sense to expect local stakeholders to act unilaterally and against their self-interest. Logic would therefore seem to dictate the biodiversity protections take the form of federal initiatives.

The problem with this strategy is that both the text of the United States Constitution and the structure of the government make the enactment of federal biodiversity protection very challenging. The Tenth Amendment of the U.S. Constitution reserves to the states all but those powers specifically enumerated to the federal government.[15] Of the federal powers enumerated in the Constitution, the most relevant for purpose of biodiversity are: the Property Clause (Art. IV, § 3, cl. 2), which grants Congress the power to manage property it owns; the Spending Clause (Art. I, § 8, cl. 3), which gives Congress the power to regulate interstate commerce.

All of these powers are tempered by the Taking Clauses of the Fifth Amendment, which prohibits the federal government from taking private property for public use without compensation.[16] The scope of the Taking Clauses has been and remains the focus of the fierce debate with important implications for biodiversity law. If the clause is read as broadly as some property rights proponents advocate, the government would have to compensate private landowners for any federal action that diminishes the value of a private holding. Since biodiversity protections almost always involve limitations on land use and development, such a compensation scheme coupled with rigorous biodiversity protections would effectively drain the national treasury.

While the Constitution's Property Clause has important biodiversity implications for federal land, its reach does not extend to private property and is thus less than ideal for exercising federal authority over nonfederal land. The Spending Clause is usually read as more concerned with the power to spend rather than the power to legislate against harmful behavior. That leaves the Commerce Clause as the primary source of expansive federal authority through which to legislate for environmental protection. As a result, the vast majority of federal environmental legislation draws its authority from the Commercial Clause. This authority is based on a modern (post 1930s) reading of the nature of interstate commerce to encompass virtually anything that might fall within the federal regulatory ambit.[17]

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[14] David Ehrenfeld cites this study in "Hard Times for Diversity" in The Fatar Harvest Reader (Andrew Kimbrell, ed.) (2002) 81.

[15] *See* U.S. Const. Am. X; *see also Marbury v Madison,* 5 U.S. (1 Cranch) 137, 176 (1803) ("The powers of the legislature are defined and limited; and that those limits may not be mistaken or forgotten, the constitution is written.")

[16] U.S. Const. Am. V.

[17] *See, e.g., Wickard v. Filburn,* 317 U.S. 111 (1942) (holding that growing wheat on private land for personal consumption is nevertheless "commerce" and subject to federal regulation).

Things changed in 1995 when the Supreme Court embraced a much narrower reading of the Commerce Clause in a landmark case titled, *United States v. Lopez*.[18] *Lopez* struck down a federal statute prohibiting gun possession near schools because it found an inadequate nexus between the law's aim and interstate commerce. While *Lopez* acknowledges that ostensibly noncommercial activities can be regulated at the federal level if their effect on interstate commerce is "substantial", this standard could pose serious obstacles to biodiversity protections (among other environmental laws) in light of the spatial and temporal distances discussed above. Indeed, in the wake of *Lopez*, the constitutionality of much of the architecture of United States environmental laws has become the subject of ferocious debate.

To date, the Supreme Court has not struck down any environmental statutes. However, the potential incongruity between a limited federal commerce power and federal environmental protection is exacerbated by the fact that Congress did not anticipate a narrowing of the commerce power when it drafted many of the country's seminal environmental statutes. Consequently, those statutes do not make explicit the requisite substantial relationship with commerce and are vulnerable to such review.[19] This has led, for example, in 2001 to the Court's narrowly interpreting the Clean Water Act's use of the term "navigable waters" to exclude isolated wetlands within states from its purview.[20] If the federal government's arm does not extend to intrastate bodies of water under the Clean Air Act, then the same reasoning could render federal authority to regulate interstate locales for biodiversity protections suspect as well.

III. Seminal Federal Biodiversity Laws

With the questionable federal authority to enact biodiversity laws as a backdrop, we next examine two examples of federal statutes crucial to biodiversity protection and the regulatory apparatus that enforces them.

A. National Environmental Policy Act of 1969 ("NEPA")[21]

NEPA requires federal land managers to prepare Environmental Impact Statements ("EIS") to accompany all "proposals for legislations and other major [federal actions significantly affecting the quality of the human environment". Biodiversity clearly falls within

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[18] 514 U.S. 549 (1995)

[19] *See* Jonathan H. Adler, "Judicial Federalism and the Future of Environmental Regulation", 90 Iowa L. Rev. 377, 403-404 (2005) ("Many environmental laws regulate intrastate activities irrespective of their economic nature or impact on interstate commerce. Few environmental statutes contain jurisdictional elements or other provisions to keep their jurisdiction within constitutional limits.")

[20] *See Solid Waste Agency of Northern Cook County v. United States Army Corp of Engineers*, 531 U.S. 159 (2001).

[21] 42 U.S.C. § 4321.

NEPA'S ambit, as demonstrated in regulations promulgated by the President's Council on Environmental Quality ("CEQ") directing federal agencies to report potential impacts of their proposed actions on ecosystems, including "effects on natural resources and on the components, structures and functioning of affected ecosystems."[22]

NEPA is strictly a procedural statute. Federal managers must generate and disseminate information about their proposed action but need not change their intentions regardless of the potential environmental impact. This has lead many to criticize NEPA as a paper tiger lacking the means through which to stave off environmental destruction. However, this view ignores the considerable power of information to shape policy. Once the potential effects of an action are revealed they often lead to public outcry which can become difficult for managers to ignore.[23]

In addition, the EIS can serve as an important educational tool for managers. Once adverse environmental impacts are revealed, most agency managers will seek in good faith to mitigate them. Naturally, managerial decisions are subject to the vicissitudes of the political arena. Therefore, depending on the nature of the contemplated federal project, an adverse EIS can have little or no effect on the decisional process.[24]

B. Endangered Species Act ("ESA")[25]

The Endangered Species Act aims to protect biodiversity through preventing species extinction. Its reach is both procedural and substantive. The Act requires the Secretary of the Interior to list species determined to be "threatened" or "endangered", designate critical habitats for those species, and prepare and implement recovery plans for them.[26] Once a species is listed, federal agencies may not take any action that "is likely to jeopardize [the species] continued existence or result in the destruction or adverse modification of [its] habitat..."[27]

The ESA has a broad reach and its application has sometimes had far-reaching consequences. In 1978, the Supreme Court ruled that the ESA was properly invoked to stop the construction of the Tellico Dam in Tennessee to protect the endangered snail darter, a small fish of little or no economic value. The dam was halted despite its near completion and sunk costs of $80 millions dollars.[28] This decision, later circumvented through legislation,

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22 40 C.F.R. § 1508.6.
23 *See* Lazarus at 85.
24 *See id.*
25 16 U.S.C. § 1531.
26 *See* 16 U.S.C. § 1533.
27 16 U.S.C. § 1536(a) (2).
28 *See T.V.A. v. Hill*, 437 U.S. 153 (1978)

led Congress to amend the ESA to create a "God Squad", with the ability to grant exemptions to the "no jeopardy" provision if it finds that there is no reasonable alternative, the benefits outweigh the costs, and the agency is undertaking steps to mitigate any adverse consequences.[29]

In general, ESA requirements rarely cancel or delay federal projects.[30] Even in the wake of Lopez, however, the ESA has continued to have significant impact on projects on private land.[31] Nevertheless, the ESA offers fewer biodiversity protections than it otherwise might because it can only be invoked once a species reaches the brink of extinction. At that point, recovery of either species or the ecosystem is usually nearly impossible and/or extremely expensive. Another limitation of the ESA is that it traditionally is invoked to protect "charismatic mega fauna", i.e., those species that appeal to public sentiment and imagination. Thus, animals such as bald eagle, red wolf, and peregrine falcon receive a disproportionate share of agency resources and attention despite the imminent peril facing many less charismatic plant and animal species.

IV. Regulatory Structure - The Government as Both Regulator and Regulated Entity

Only one federal agency has an unambiguous role with respect to environmental protection laws. The United States Environmental Protection Agency ("EPA") was created in 1970 to administer the environmental protection laws enacted by Congress. Its mission is unitary and clearly defined. No other agency or department within the government enjoys such clarity in its relationship to environmental laws. Many other sectors of government, like the Departments of Interior, Agriculture and Commerce, enforce certain environmental restrictions and are subjects to others. The Department of Justice has a similarly bifurcated role; it prosecutes environmental enforcement actions while also defending the government against citizen suits under those same environmental statutes.

Tension among federal departments and agencies further exacerbates the schizophrenic federal relationship with environmental protection laws. The Departments of Defense and Energy, for example, find themselves primarily the subject of environmental regulations administered by their sister federal agency, the EPA. This can significantly complicate the regulatory process, with some divisions of the executive branch propounding a broad and supportive vision of environmental law and others bristling at the regulatory process while advocating a narrow, more skeptical view.[32]

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[29] *See* 16 U.S.C. § 1536(h)(I)

[30] *See* Karkkainen at. 22.

[31] *See e.g., National Ass'n of Home Builders v. Babbitt,* 130 F.3d 1041 (D.C. Cir. 1997) (upholding application of the ESA's "take" provision to the Delhi Sands flower-loving fly).

[32] *See* Lazarus at 33

The government's role is not limited to its role as a regulator and regulated. It is also by far the largest landowner in the nation. The federal government owns approximately 650 millions acres of land in the United States, roughly thirty percent of the total area of the country. Most of that acreage resides in eleven western states and Alaska. More than 623 million acres of federally owned land is managed by four federal agencies: The Bureau of Land Management ("BLM") is responsible for 267 million acres; the Forest Service 192 million; the Fish And Wildlife Service ("FWS") for 87 millions, and the National Park Service ("NPS") 77 million.[33] Each of these agencies has a different mandate and management strategy and jurisdiction over different tracts, some more biodiverse than others. As discussed below, this managerial fragmentation has exacerbated the fragmentation and destruction of habitat.

A. Bureau of Land Management

The 267 million acres that the BLM administers amounts to more than 11% of the land in the United States – more than any other agency, person or organization in the country. It manages the land under a Federal Land Policy and Management Act of 1976[34] multiple use mandate that includes "protect[ing] the quality of scientific, scenic, historical, ecological, environmental... atmospheric, water resources, and archeological values", while also "providing food and habitat for... domestic animals" and "recognizing the Nation's need for domestic sources of minerals, food, timber and fiber from the public lands."[35] Though the BLM's mandate directs it to balance competing land uses, among which could theoretically number biodiversity, it does not contain an explicit biodiversity conservation provision.

The BLM has historically prioritized grazing, mining and other uses that emphasize economic output rather than ecosystem management. Its well-documented sympathies for commodity production have often caused it to be branded a victim of "agency capture", wherein an agency's decision-making processes becomes co-opted by particular groups or special interests. [36]

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[33] *See* Karkkainen at 14-15. The government has apparently added some land since Karkkainen's article, as the FWS website notes that it administers 96 millions acres of land. *See* http://www.fws.gov/midwest/horicon/documents/wildplaceswildthings.pdf (last visited May 11, 2005).

[34] 43 U.S.C. §§ 1701-1784. The FLPMA covers all unreserved federal lands.

[35] 43 U.S.C. § 1701(a) (8-12).

[36] *See* George C. Coggins, "Some Directions for Reform of Public Natural Resources Law," 3 Envtl. L. 67, 72-73 (1988) (describing the BLM as "the very model of agency capture phenomenon").

B. The National Forest Service

A little under 50 millions acres of NFS land is managed primarily for conservation. This includes wilderness areas, Wild & Scenic Rivers, National Monuments, National Recreations Areas, and National Game Reserves. The rest of the Forest Service land is managed under a "multiple use-sustained yield" mandate, which traditionally has privileged timber production and other extractive uses, as well as recreation.[37] For most of the history of the NFS, biodiversity has not been a management priority despite the fact that the National Forest Management Act of 1976 ("NFMA")[38] contains an explicit biodiversity directive. It directs the Forest Service to "provide for diversity of plant and animal communities based on suitability and capability of the specific land area in order to meet multiple-use objectives."[39]In recent years, however, both of the NFS and the FWS (discussed below) have incorporated ecosystem management principles into their management strategies in order to protect and enhance biodiversity.

Regulations released in 2000, at the end of President Clinton's second term, required the NFS to prioritize ecological sustainability and to consider large and varied spatial and temporal scales as part of the forest planning process.[40] The regulation also directed the Forest Service to look beyond individual species and to instead consider overall ecosystem diversity by "identifying ecological conditions needed to maintain species viability over time."[41]

New regulations issued in 2005 by the Bush Administration represent a significant retreat from the large-scale spatial and temporal planning methodology adopted in 2000. The new regulations instead give the NFS broad authority to define the relevant "area of analysis" while restricting the plan area to the boundaries of the National Forest.[42] Thus, the "area of analyses" cannot exceed the size of the particular national forest under review nor can it overlap adjoining lands. Since species habitat does not respect human-made boundaries, any plan that self restricts its planning vision to such defined areas is bound to complicate the biodiversity management process.

As Keiter observes, "the Bush administration's 2005 planning regulations represent a determined attempt to minimize the Forest Service's legal obligations and hence the opportunity [for citizens] to challenge agency planning decisions."[43] This change in strategy is perhaps most glaring in that the new regulations explicitly exempt the forest planning process from NEPA

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37 *See* 16 U.S.C. §§ 528-31 (The Multiple Use-Sustained Yield Act of 1960), which directs that national forests be "utilized in the combination that will best meet the needs of the American people." in a way that includes "high-level annual or regular periodic output of the various renewable resources."

38 16 U.S.C. §§ 1601-1617.

39 *Id.* at. § 1603 (g)(3)(B).

40 *See* 36 C.F.R. § 219.20(a).

41 *Id* at § 219.20 (a)(2)(ii); *see also* Keiter at. 970.

42 *Id* at § 219.16 (2005)

43 Keiter at 951.

obligations. Under these regulations, forest managers do not have to prepare Environmental Impact Statements. They instead have to comply with vaguely defined self-audit procedures known as Environmental Management Systems.[44] Though these regulations are too new for their impact upon biodiversity to be measured, the overall de-emphasis of ecosystem management and biodiversity goals in favor of multiple-use offer little cause of optimism.

C. Fish and Wildlife Service

The FWS administers 511 national wildlife refuges on 92 million acres in all fifty states.[45] The National Wildlife Refuge System is the only government land whose principal management goal is biodiversity. Though the Refuge system has long had a biodiversity mandate, most wildlife refuges, especially those in the lower 48 states, have often functioned more to protect habitat for certain target species – often migratory birds and waterfowl.[46] This has sometimes led refuges managers to alter the existing ecosystem to benefit those target species.[47] As clarified by the National Wildlife Refuge System Improvement Act of 1997, the FWS must "ensure that biological integrity, diversity, and environmental health of the system are maintained for the benefit of present and future generations…"[48] Unlike the recent NFS policy changes, the FWS policy (which dates from 1996), directs managers to situate their refuges within *ecologically* defined boundaries rather than those set by humans.[49]

D. National Parks and Wilderness Areas

The National Park Service manages over 80 million acres of public lands. Though designation as a national park protects a region from extractive uses and development, it does not necessarily aid biodiversity. Typically, parks are managed for their historical, scenic, recreational, or cultural value. Furthermore, many national parks are heavily used, which causes resources to be diverted to recreational facilities rather than ecosystem protection. Enabling visitor access often involves road-building, concession and housing facilities, parking lots, and other amenities, all of which degrade habitat.[50]

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[44] 36 C.F.R. § 219.5 (2005).

[45] 76 million of the 92 million acres of refuges that FWS manages are in Alaska, however.

[46] *See* Dennis D. Murphy, "Invertebrate Conservation", in Balancing on the Brink of Extinction: the Endangered Species Act and Lessons for the Future 183 (Kathryn A. Kohm ed., 1991)

[47] *See* Karkkainen at 35.

[48] 16 U.S.C. § 668dd(a)(4)(B)

[49] *See* U.S. Fish and Wildlife Serv., U.S. Fish and and Wildlife Service Manual, 052 FW1 (1,2 C) *available at* http://www.fws.gov/policy/052fw1.html (last visited May 11,2005) (noting that an ecosystem approach requires the participation of all stakeholders – internal and external – and requires that management decisions be based on naturally defined ecological boundaries).

[50] *See* Victoria Edwards, Dealing in Diversity (1995) 99-100.

Heavy human use can also disturb delicate ecosystems. Mindful of the continuing degradation of habitat in national parks, the NPS management policy directive was revised in 2001 to direct that the NPS "try to maintain all the components and processes of naturally evolving park ecosystems, including... diversity, and genetic and ecological integrity of plant and animal species native to those ecosystems."[51] Though this directive articulates a strong commitment to biodiversity, balancing this goal with the need to accommodate increasing human traffic in and around the park poses a significant challenge for a cash-strapped agency.

E. Wilderness Areas

Wilderness areas, which may be designate from any federally owned land and are therefore under the management of diverse federal agencies, are managed so as to "leave them unimpaired for their future use and enjoyment as wilderness." This includes maintaining them in "their natural condition."[52] Though this directive contains no explicit biodiversity protection, the dictate to preserve "their natural condition" would seem to include preserving the areas' ecosystems and resident species. Even without an explicit biodiversity directive, wilderness areas seem well situated for such an endeavor.

The task is complicated, though, by the fact that wilderness areas, like national parks, are often selected more for their scenic and recreational qualities than for their biodiversity ecosystems. In addition, like all federal lands, wilderness area boundaries may not coincide with ecosystem boundaries. Last, like the majority of federal lands, wilderness areas are concentrated in the western United States.[53] Nevertheless, wilderness areas are an important reservoir of biodiversity in the U.S. They protect large swathes of habitat from invasive and burdensome uses and, as private and public lands continue to be developed, wilderness areas could serve an even more crucial role in the preservation of biodiversity in the future.

V. Biodiversity's Present and Future in the United States

The United States grew out of conflicting cultural myths that impelled Americans to simultaneously conquer and celebrate the wilderness. This engendered a schizophrenic relationship with the land and as embedded presumption that ecological realities could and would yield to American determination. In addition, the American system of government spreads authority among the various branches and agencies of the federal government as well as the states and also cedes considerable authority to private land owners.

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[51] Nat'l Park Serv., U.S. Dep't of the Interior, 2001 Management Policies § 4.1, *available at* http://www.nps.gov/policy/mp/chapter4.htm (last visited May 12, 2005).

[52] 16 U.S.C. § 1131(a).

[53] *See* Yrkkainen at 41.

The Bush administration favors less rather than more constraints on economic development of federal land even as national biodiversity reserves continue to dwindle. To further complicate matters, the administration has abandoned the ecosystem management approach in favor of using human-defined boundaries to set management parameters in National Forests. This decision seems to flout conventional scientific wisdom, which advocates precisely the opposite approach.

Currently, responsibility for managing federal lands is fragmented among diverse agencies, often with competing use-directives. No federal law mandates the sequestration of federal land specifically for biodiversity purposes (although significant federal lands include biodiversity among their management priorities). All this, combined with the spatial and temporal challenges inherent to environmental law and the looming constitutional challenges to many environmental statutes make the goal of increasing biodiversity protection daunting at best.

Nevertheless, the situation is not hopeless. The nation's founders intended for lawmaking to be a slow and deliberate process because they believed that important decisions require careful consideration and debate. In recent years, as biodiversity protection has emerged as an urgent worldwide concern, the machinery of government has begun to respond, albeit slowly. For example, both the Forest Service and the Fish and Wildlife Service have incorporated the language of ecosystem management principles into their biodiversity conservation policies.[54] Managers of many private sector companies have also begun to acknowledge both the hidden costs of anti-environmental policies and the risk of economic backlash from a public that genuinely value such matters. Even politicians who in the past have been openly hostile to environmental initiatives have softened their rhetoric in order to avoid offending the electorate.[55]

While environmental protection has in recent years become a politically divisive issue with Democrats tending to favor more stringent laws and Republicans more likely to oppose them, it was not always this way. Much of landmark environmental legislation in the nation's history was enacted over the signature of Republican presidents and with broad bipartisan support in both houses of Congress. Recent events indicate that the political fault lines currently dividing the parties on environmental matters have begun to erode. For example, many self-identified evangelicals who traditionally embrace conservative politics are now allying themselves with progressives in order to agitate for a shared goal of environmental protection. These unlikely allies could harbinger a new era of bipartisanship aimed at addressing increasingly urgent national and international woes, including biodiversity.

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[54] *See* Keiter at 968.

[55] *See* Lazarus at 248 (noting than an internal Republican polling document directed Republican elected officials and candidates to reassure their audience that they seek to preserve and protect the environment but that "it can be done more wisely and efficiently").

Though bipartisan comity will not solve the biodiversity problem, it will facilitate some steps that can at least mitigate the crisis. In light of the federal government's massive land holdings, a sensible first step would involve a unified biodiversity initiative that identifies biodiverse regions and reaches across agency lines to protect them. Since ecosystems do not adhere to boundaries between private and public land, sound biodiversity practice will inevitably involve the use of some private land as well as land owned by the individual states.

A program of this type may prove less inflammatory than one might otherwise expect in a political climate that is increasingly sympathetic to private property rights and suspicious of top-down federal initiatives. Sustainable land use is a priority at every level of government and for the private sector as well. When all affected parties communicate and cooperate, solutions sometimes and cooperate, solutions sometimes present themselves. Currently every state except Oklahoma has initiated some form of cooperative planning program designed to foster cooperation between the federal, state and local governments as well as private landholders in order to improve land management.[56] Not all of these programs aim at fostering biodiversity but in some cases it is a natural and desired outcome. For example, in Colorado, the Colorado Ecosystem Partnership ("CEP") is an agreement between federal and state agencies designed to bring ecosystem management methods to natural resource planning within the state.[57]

Another potential solution could involve bartering federal land that is resource rich but lacking in biodiversity for private lands which have been identified as potential biodiversity reserves. Since fair value would be offered for the private land, the Taking Clauses would not be implicated. There are many other possible solutions.[58] None is a panacea but, taken together, a comprehensive set of reforms designed to proactively biodiversity could lead to significant nation-wide protections.

As noted above, many of the nation's most powerful environmental laws were passed despite significant political, spatial and temporal obstacles. The reforms suggested above represent just a few ways to enhance biodiversity protections; there are by no means exhaustive nor are they enough. Biodiversity has emerged as one of the most pressing environmental concerns of the new millennium. Despite myriad cultural contradictions and a ponderous political system that often seems to impede the lawmaking process, the United States has historically risen to these types of environmental challenges and legislated and acted accordingly. In the coming crucial decades, it will need to do so again.

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[56] *See* "Saving Biodiversity: A Status Report on State Laws, Policies and Programs, Section Two: Finding and Analysis", http://www.defenders.org/pb-bst13.html (last visited April 26, 2005). This site offers an analysis of each states's biodiversity status and the steps they are respectively taking to protect it.

[57] *See id.*

[58] For a discussion of several approaches, *see* Julie B. Bloch, "Preserving Biological Diversity in the United States: The Case for Moving to an Ecosystem Approach to Protect the Nation's Biological Wealth", 10 Pace Envtl. L. Rev. 175 (1992).